TRUWATER™

TWI SERIES COOLING TOWER

300, 400, 500 & 600 CLASS

Heavy Duty Crossflow Splash Filled Type

• DIRTY WATER • HIGH TEMPERATURE • DURABILITY

Member

TWI SERIES FEATURES

TWI Series Industrial Cooling Towers are specifically designed for heavy duty industrial and process applications.

TRUWATER cooling towers are manufactured under very rigid quality control. We monitor very closely all components and workmanship during each step of fabrication and assembly. Proven techniques and highest quality components are used throughout the manufacturing process to ensure optimum thermal performance and maximum service life.

Advantages

- **High performance**

Provides more wetted surface for uniform water distribution and high heat transfer rate.

- **Dependability**

Very durable tropical hardwood or FRP Pultruded tower body and heavy duty fan machinery ensure NO equipment downtime and production delays.

- **Operation economy**

Fan machinery and heat exchange media are optimised to deliver maximum horsepower for lower operation cost.

TRUWATER™

:: Felda Lahat Datu, Biomass Cogeneration Plant.

:: Nestle Food Selangor, Food Processing Plant.

:: Megasteel Selangor, Furnace Cooling.

:: Southern Steel Penang, Direct Cooling.

:: Universal Cable Johore, High Temperature Service.

:: Cargill Selangor, Heat Exchanger Cooling.

:: Perwaja Steel Gurun Kedah, Steel Making Plant.

:: Felda Sabah, Physical Refinery Cooling Tower.

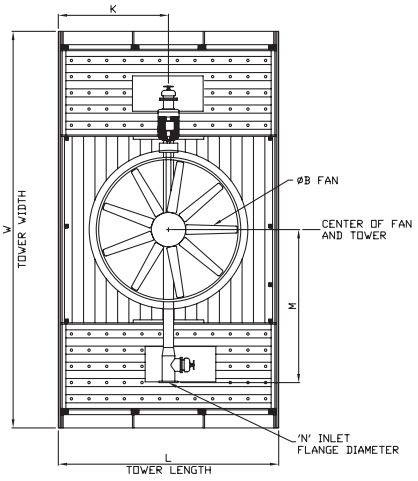
:: FPG Oleochemicals Kuantan, Process Cooling Tower.

:: Samsung Indonesia, Waste Water Treatment Plant.

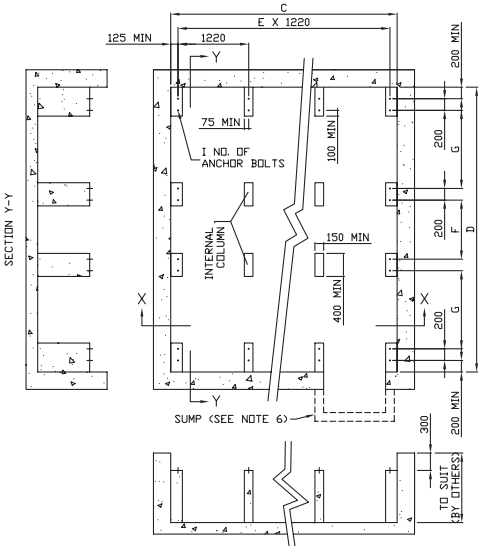
:: ADM Cocoa Singapore, Contaminated Water.

:: MNI Pahang, Pulp & Paper Mill Water Treatment Plant.

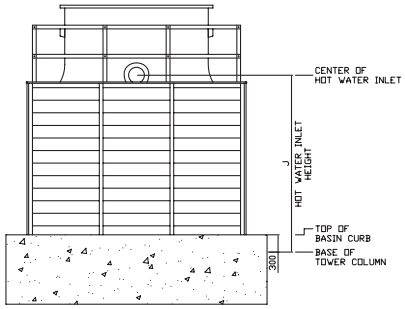
ENGINEERING DATA 300 CLASS



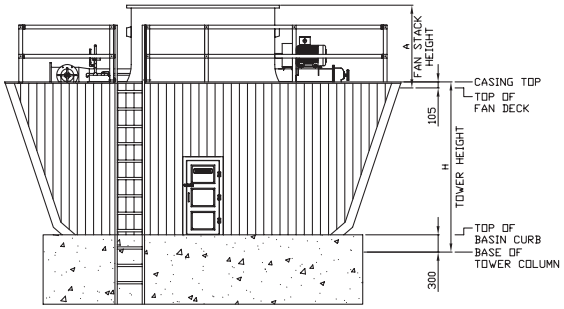
PLAN



SECTION X-X
RC FOUNDATION (BY OTHER)



LOUVER SIDE



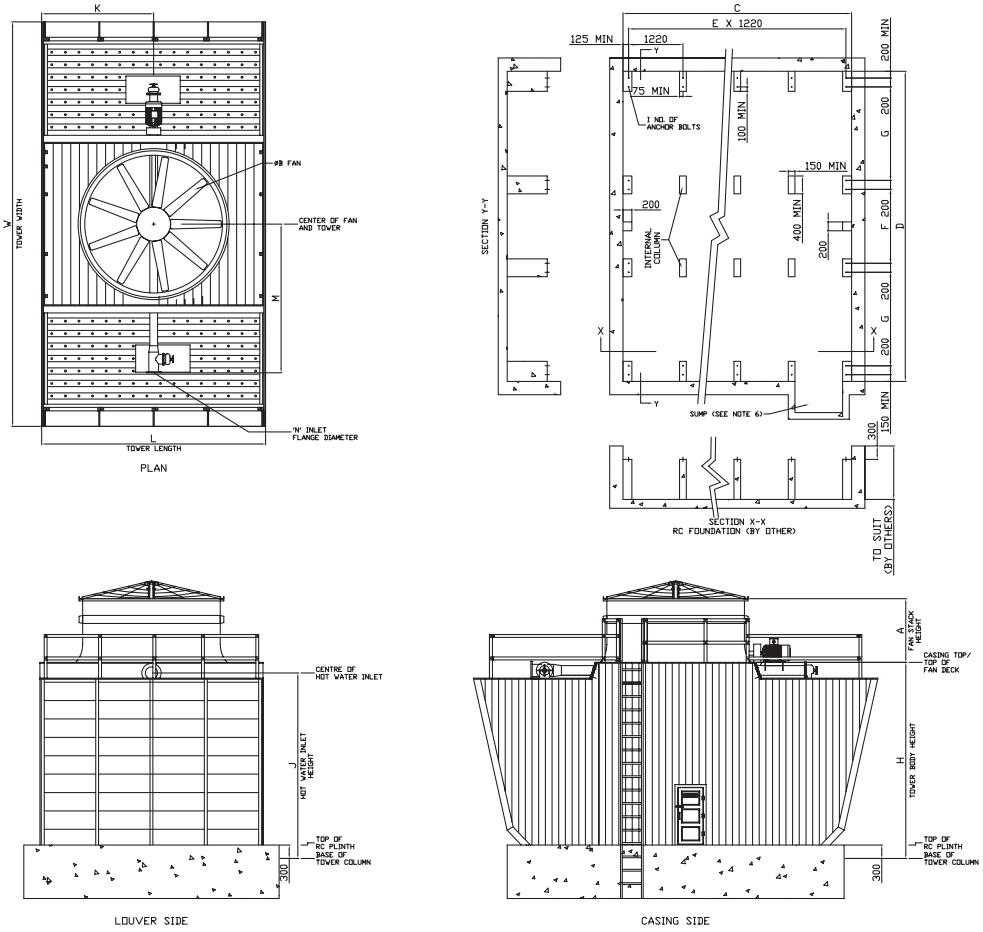
CASING SIDE

Cooling Tower Model	Flowrate m³/hr @ 37/32/27°c	Maximum Motor HP (Kw/fan)	Overall Dimension					Anchor Bolts Data						Piping Data				Operating Weight (kg)
			L	W	H	A	B	C	D	E	F	G	I	J	K	M	N	
TWI 361-101	140	7.5	2590	6250	2335	1000	1830	2690	4720	2	820	1350	20	2455	1295	2325	200	5380
TWI 362-101	151	7.5	2590	6860	2335	1000	1830	2690	5330	2	820	1655	20	2455	1295	2480	200	6200
TWI 363-101	162	11	2590	6250	2940	1000	1830	2690	4315	2	415	1350	20	3060	1295	2325	200	6520
TWI 364-101	176	11	2590	6860	2940	1000	1830	2690	4925	2	415	1655	20	3060	1295	2480	200	7410
TWI 365-101	187	11	2590	7470	2940	1000	1830	2690	5535	2	415	1960	20	3060	1295	2630	200	8330
TWI 366-101	218	15	3810	6850	2335	1430	2440	3910	5330	3	1430	1350	24	2455	1905	2630	250	7810
TWI 367-101	253	15	3810	7460	2335	1430	2440	3910	5940	3	1430	1655	24	2455	1905	2785	250	9020
TWI 368-101	270	18.5	3810	6850	2940	1430	2440	3910	4920	3	1020	1350	24	3060	1905	2630	250	9460
TWI 369-101	300	18.5	3810	7460	2940	1430	2440	3910	5530	3	1020	1655	24	3060	1905	2785	250	10750
TWI 370-101	318	18.5	3810	8070	2940	1430	2440	3910	6140	3	1020	1960	24	3060	1905	2940	250	12080
TWI 371-101	303	18.5	5030	6850	2940	1430	2440	5130	4920	4	1020	1350	28	3060	2515	2630	250	11950
TWI 372-101	330	18.5	5030	7460	2940	1430	2440	5130	5530	4	1020	1655	28	3060	2515	2785	250	13640
TWI 373-101	350	18.5	5030	8070	2940	1430	2440	5130	6140	4	1020	1960	28	3060	2515	2940	250	15400
TWI 374-101	416	30	6250	7460	2940	1430	3050	6350	5530	5	1630	1350	32	3060	3125	2895	250	15090
TWI 375-101	450	30	6250	8070	2940	1430	3050	6350	6140	5	1630	1655	32	3060	3125	2940	250	17160
TWI 376-101	477	30	6250	8680	2940	1430	3050	6350	6750	5	1630	1960	32	3060	3125	3090	250	19320

Notes:

1. *Use this bulletin for preliminary layouts only. Do not use for construction. Request the latest revision of applicable drawings from your Truwater sales engineer.*
2. *Tower weight is total wet operating weight of tower only excluding water in concrete basin.*
3. *Last number of model indicates number of cells. Change as appropriate for your selection. Primary engineering data is per cell.*
4. *All anchor bolts complete with nut and washer will be furnished by others. Bolts are to be 1/2" diameter with 1-1/2" all thread projection.*
5. *Maintain no less than 2' of clear space at cased faces casing for construction purposes. Louvered faces must have unobstructed air supply. If obstructions exist nearby, consult your Truwater field sales engineer.*
6. *Other contractors or purchaser must design, construct and furnish sump and overflow to suit requirements. For suggested design information, request from your Truwater sales engineer.*
7. *We reserved the right to modify specifications without notice.*

ENGINEERING DATA 400 CLASS



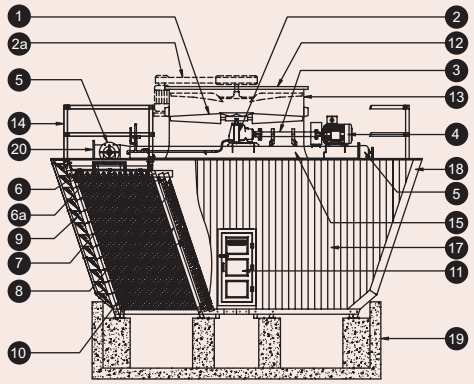
Cooling Tower Model	Flowrate m³/hr @ 37/32/27°c	Maximum Motor HP (Kw/fan)	Overall Dimension					Anchor Bolts Data						Piping Data				Operating Weight (kg)
			L	W	H	A	B	C	D	E	F	G	I	J	K	M	N	
TWI 451-201	440	30	3810	7865	4390	1430	3050	3910	5840	3	1660	1490	24	4240	1905	3060	250	19500
TWI 452-201	635	45	5030	8475	4390	1430	3660	5130	6450	4	2270	1490	28	4240	2515	3365	250	25400
TWI 453-201	823	45	6250	9085	4390	1430	4270	6370	7060	5	2880	1490	32	4215	3125	3670	300	32300
TWI 454-201	900	45	7470	9085	4390	1430	4270	7570	7060	6	2880	1490	36	4215	3735	3670	300	37600
TWI 456-201	488	30	3810	9085	4390	1430	3050	3910	7060	3	1660	2100	24	4240	1905	3365	250	23700
TWI 457-201	700	45	5030	9695	4390	1430	3660	5130	7670	4	2270	2100	28	4240	2515	3670	250	31000
TWI 458-201	878	45	6250	10305	4390	1430	4270	6350	8280	5	2880	2100	32	4215	3125	3975	300	39200
TWI 459-201	956	45	7470	10305	4390	1430	4270	7570	8280	6	2880	2100	36	4215	3735	3975	300	45600
TWI 472-201	788	45	5030	9850	5315	1430	3660	5130	7440	4	2040	2100	28	5140	2515	3765	300	35500
TWI 473-201	998	45	6250	10460	5315	1430	4270	6350	8050	5	2650	2100	32	5140	3125	4070	300	44600
TWI 474-201	1086	45	7470	10460	5315	1430	4270	7570	8050	6	2650	2100	36	5140	3735	4070	300	52400
TWI 475-201	1217	55	7470	11070	5315	1430	4880	7570	8660	6	3260	2100	36	5140	3735	4375	300	54800
TWI 485-201	1273	55	6250	12260	6450	1430	4880	6350	8838	5	2548	2545	32	6250	3125	4510	350	53500
TWI 486-201	1592	55	7470	12960	6450	1430	5490	7570	9538	6	3248	2545	36	6250	3735	4860	350	64200
TWI 487-201	1720	55	8690	12960	6450	1430	5490	8790	9538	7	3248	2545	40	6250	4345	4860	350	74900
TWI 488-201	1930	75	9910	13520	6450	1430	6100	10010	10100	8	3810	2545	44	6250	4955	5150	350	85600

Contact Truwater's Engineer for 500 & 600 Class Data.

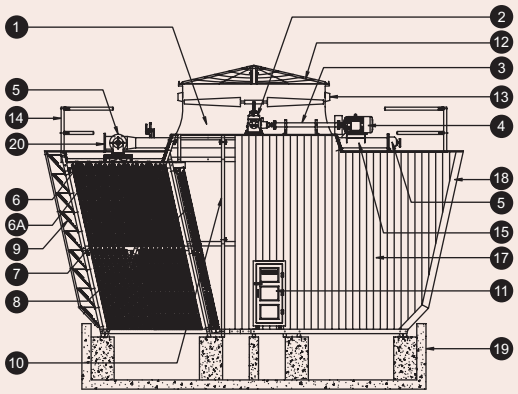
Notes:

1. *Use this bulletin for preliminary layouts only. Do not use for construction. Request the latest revision of applicable drawings from your Truwater sales engineer.*
2. *Tower weight is total wet operating weight of tower only excluding water in concrete basin.*
3. *Last number of model indicates number of cells. Change as appropriate for your selection. Primary engineering data is per cell.*
4. *All anchor bolts complete with nut and washer will be furnished by others. Bolts are to be 5/8" diameter with 1-1/2" all thread projection.*
5. *Maintain no less than 2' of clear space at cased faces casing for construction purposes. Louvered faces must have unobstructed air supply. If obstructions exist nearby, consult your Truwater field sales engineer.*
6. *Other contractors or purchaser must design, construct and furnish sump and overflow to suit requirements. For suggested design information, request from your Truwater sales engineer.*
7. *We reserved the right to modify specifications without notice.*

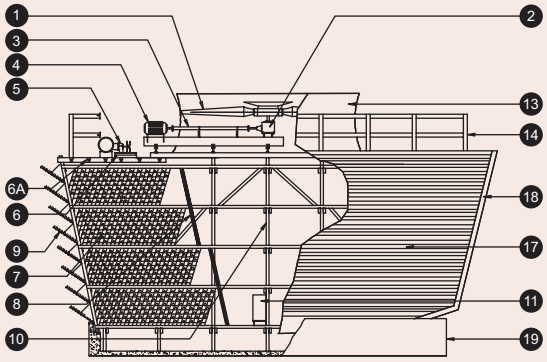
300 CLASS



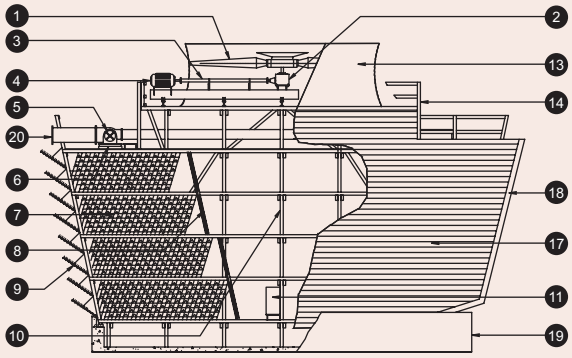
400 CLASS



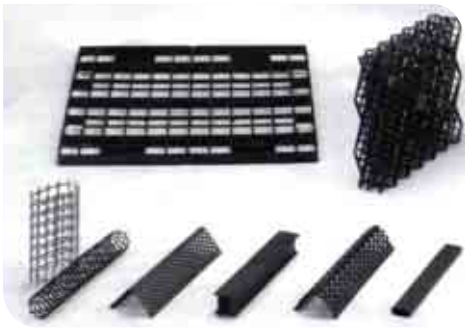
500 CLASS



600 CLASS



Item	Description	Item	Description	Item	Description
1	Fan Assembly	7	Grid & Splash Bar	15	Cross Over Pipe
2	Gear Reducer	8	Drift Eliminator	16	Ladder
2A	V - Belt & Pulley	9	Inlet Louver	17	End Wall Casing
3	Drive Shaft Assembly	10	Mainframe Structure	18	Corner Trim
4	Motor	11	Access Door	19	Concrete Basin (By Others)
5	Flow Control Valve	12	Fan Guard	20	Hot Water Inlet Pipe (By Others)
6A	Target Nozzle	14	Hand Rail		



:: Component replacement

:: Performance testing

:: Structural repair

:: Reconstruction & Thermal upgrades

AFTER MARKET SERVICES

Truwater offers a full range of services to help you get the most from all your cooling towers.

Our capabilities include:

- Thermal upgrades
- Structural repair
- Performance testing
- Performance analysis
- Tower inspections
- Component replacement
- Mechanical equipment
- Construction supervision

We apply modern upgrading or retrofitting techniques to maximize the performance of your cooling tower. Our approach involves a step-by-step investigation; namely, pretesting of existing tower-physical inspection-thermal analysis-engineering-fabrication-construction and post-t-testing to determine the degree of improvement achieved.

TWI SERIES CROSSFLOW COOLING TOWER SPECIFICATION

1.0 COOLING TOWER

Furnish and install an induced draft, crossflow, factory-fabricated, field assembly wood or FRP Pultruded cooling tower.

2.0 PERFORMANCE

Tower shall have capacity to cool __m/hr from ___ C to ___ C at a design entering wet bulb temperature of ___ C.

3.0 FRAMEWORK

Structural framework shall be tropical hardwood or FRP Pultruded Structure. All framework joints shall be through-bolted. Columns and diagonals will transmit wond loads to anchorage.

4.0 CASING, LOUVERS & FAN DECK

Casing and louvers shall be corrugated fibreglass reinforced polyester. Louvers shall be slip fit into the louver column. Fan deck shall be FRP Pultruded Structure.

5.0 FILL & ELIMINATORS

Fill splash bars shall consist of tropical hardwood or PVC extruded bars. Splash bar shall be supported in stainless steel grid support which are firmly attached to structural girt members. Drift eliminators shall be 2-pass design tropical hardwood blades slipfitted into the fibreglass reinforced polyester holders or 3-pass Cellular PVC design.

6.0 DISTRIBUTION SYSTEM

Hot water distribution basin floor shall be FRP moulded type. Equally sized and symmetrically spaced, removable and replaceable polypropylene target nozzle installed in the floors of the two open basins shall distribute water uniformly over the entire fill area. Adjustable flow control valves with cast iron bodies and locking bars shall be included to balance flow of water at each cell.

7.0 ACCESS & SAFETY

Access ladder shall be provided to give safe access to the fan deck. Access door shall be provided for access to eliminator plenum. A FRP Pultruded handrail & kneerail shall be furnished around the entire fan deck perimeter. A hot dip galvanised steel fan guard shall be furnished over each fan cylinder.

10.0 HARDWARE & FINISH

All bolts, nuts and washers shall be hot dip galvanised steel. All steel components shall be hot dip galvanised after fabrication. Stainless steel hardware are available as options.

11.0 MECHANICAL EQUIPMENT

Each tower cell shall be equipped with one propeller type axial flow fan with six or more cast aluminium blades. Each blade shall be adjustable and individually attached to cast iron hub. Fan drive shall be through right angle spiral bevel gear reducer. The motor driver and speed reducer shall be coupled through a full-floating driveshaft of stainless steel tubular design. Fan motor shall be not less ___kW, ___rpm, ___Phase / ___Hz ___volts. The motors must be designed and manufactured specifically for the cooling tower environment. A tapered fibreglass reinforced polyester fan cylinder shall be provided.

12.0 WORK BY OTHERS

Concrete basin and foundation, starting equipment, pumps, cabling and external pipings shall be supplied by other contractors.

TCT/C/004

TRUWATER™ **Truwater Cooling Towers Sdn Bhd (188113-A)**

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