

Series O10 - Series O15

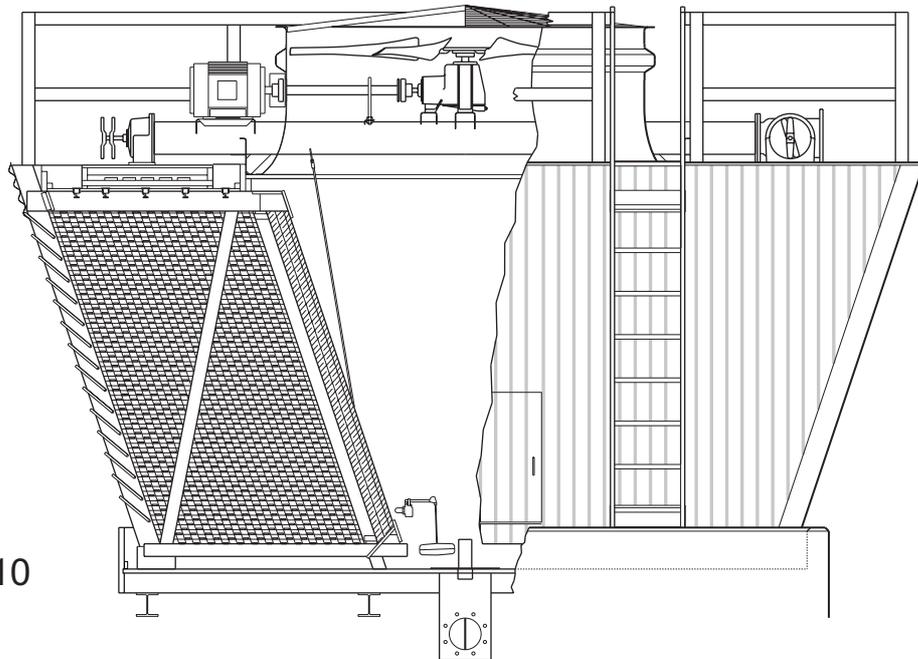
CROSS FLOW COOLING TOWERS



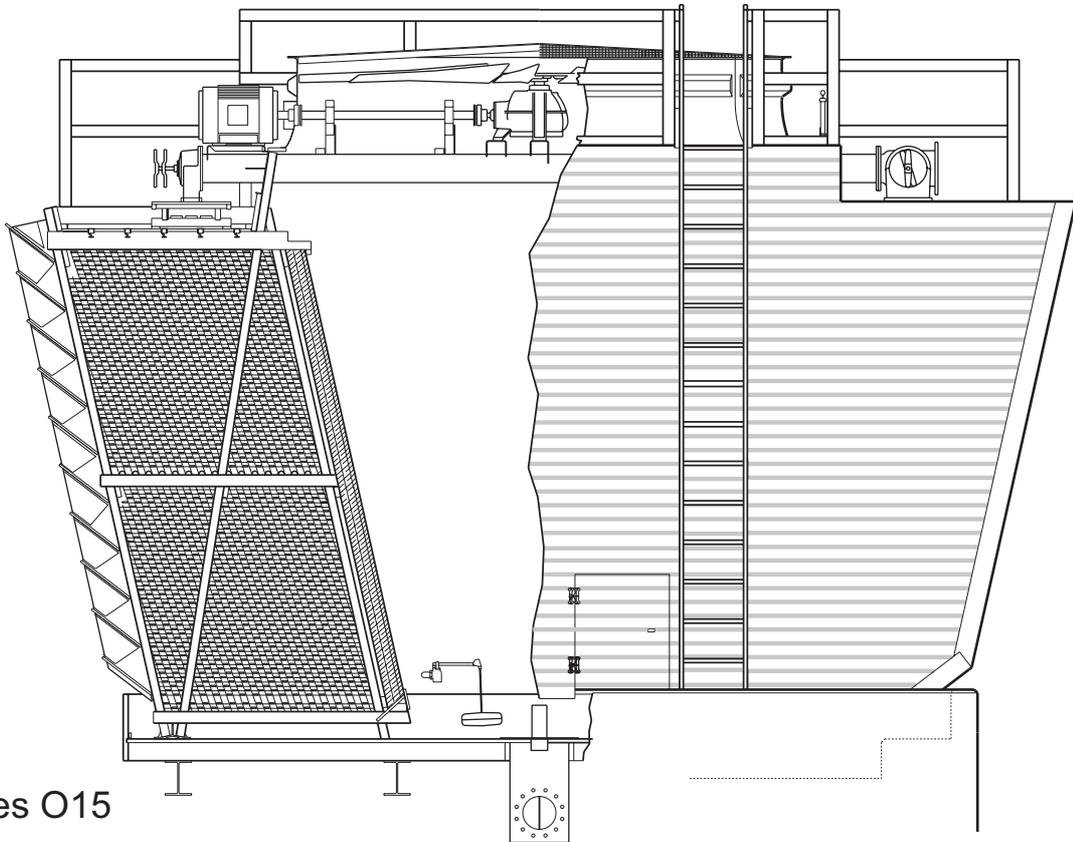
Series O10 and **Series O15** cooling tower are field constructed, splash fill, crossflow cooling towers, designed to serve all normal cooling water systems as well as those “dirty water” systems which would place the long term operation of a film-fill tower in jeopardy. The principle reason for this reputation is our recognition that each component of a cooling tower must perform at its peak --- and all work compatibly toward overall efficiency.

- **Fan Design** is optimized for the static pressure imposition and airflow requirements of the tower.
- **Fan Cylinders** and their associated eased inlets, augment fan operation.
- **Fill and Fan Combination** are mutually supportive for maximum thermal performance in system configuration.
- **Nozzles and Water Distribution** systems provide uniform fill coverage without excessive contribution to air pressure losses.
- **The Geareducer** provides consistently optimum fan speeds, and operates reliably in a saturated air/vapor mixture of corrosive nature.
- **Fan Motors** are designed to Omran specification for extra demands of cooling tower duty. Motors are insulated with extra protection from moisture.
- **Driveshafts** are designed to absorb operational shock loads, thereby increasing the service life of these critical components.

Series O10



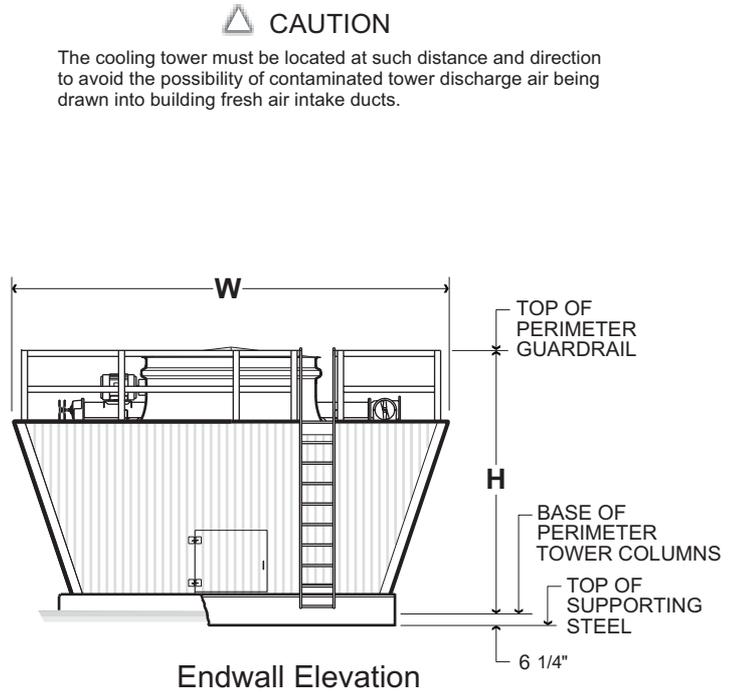
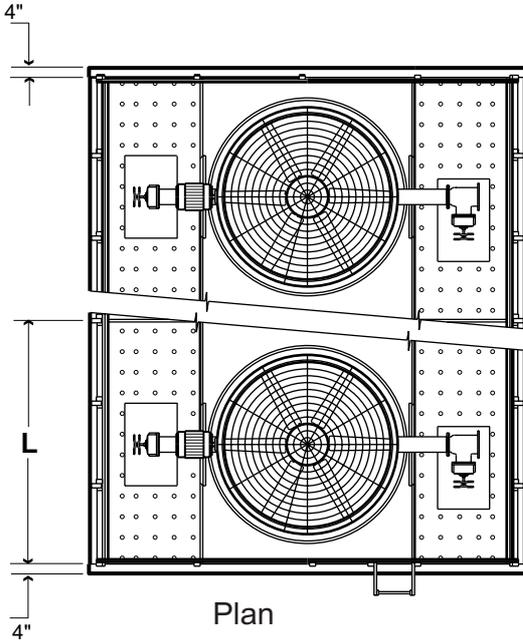
The Quality Advantage



Series O15

- Lower operating costs.** Adjustable pitch fans with true airfoil blades and 98% efficient Geared drive assure maximum utilization of applied fan power. Computer optimized fill configuration and low pressure-drop drift eliminators afford maximum cooling with minimum power input. Gravity flow water distribution minimizes pump power requirements.
- Lower maintenance costs.** Heavy-duty aluminum alloy fans, cast-iron Geared drives, and stainless steel driveshafts require only periodic maintenance. Low-maintenance materials are used throughout the cooling tower. Wide spaced splash-fill helps prevent clogging. The fill area is readily accessible for cleaning.
- Two-year drivetrain warranty.**
- Single-source parts availability.** All tower components except the electric motors are manufactured, guaranteed, and stocked by Omran.
- Flexible Cooling Capacity.** Twenty-four tower models with capacities to 6720 GPM per fan cell, provide the flexibility to fit almost any job. Greater capacity is available with multiple fan-cells.
- Proven Performance.** Omran stands by its responsibility for reliable thermal performance. We guarantee it!
- Extremely Low Drift.** Drift eliminators really get rid of costly nuisance of drift spotting on objects around the tower. The corrosion resistance of PVC assures you that you'll probably never have to replace eliminators for the life of the tower.
- Longer Service life.** pressure-treated Russian fir structure and splash-fill bars, FRP fill support grids, PVC drift eliminators, and all other tower components are designed for years of service.

Series O10 Schematic



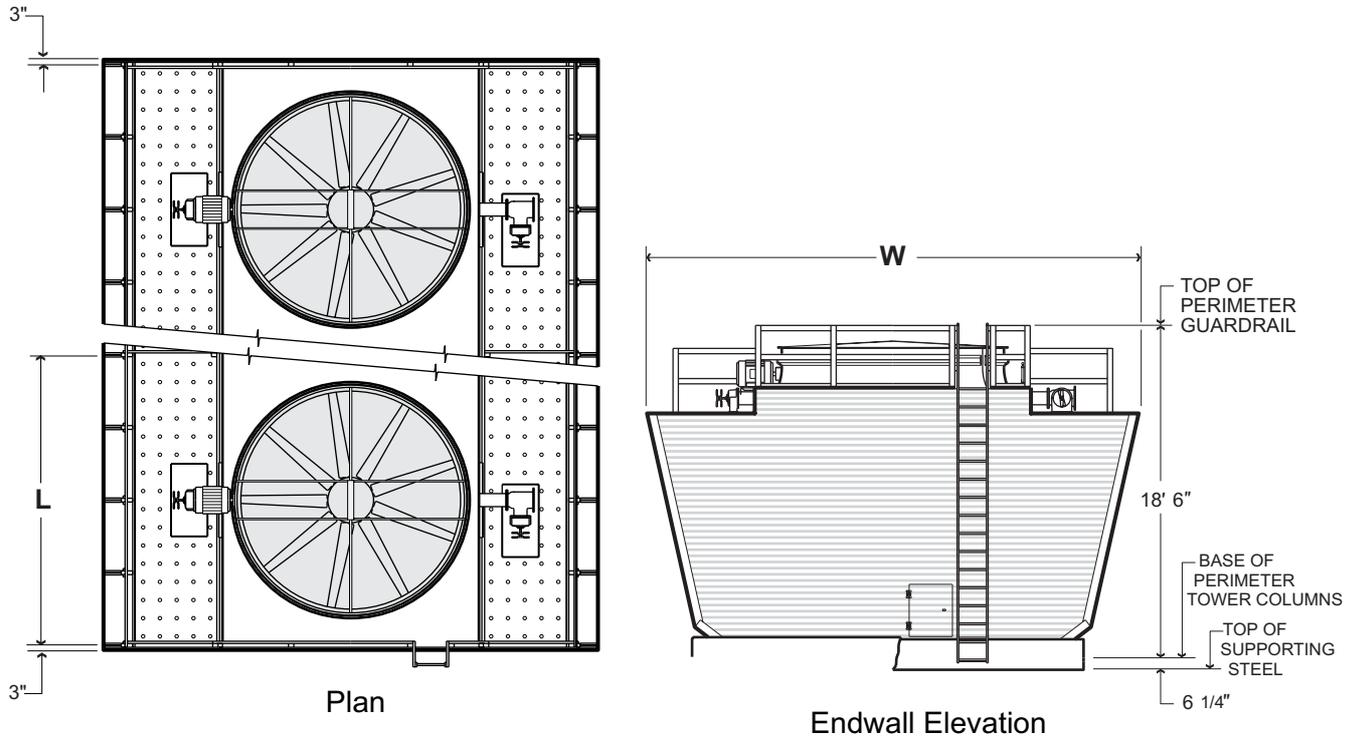
Tower Model Note 1	GPM per Cell	Dimensions			
		L	W	H	Fan diameter
OT361-101	135-1000	8' 0"	19' 2"	10' 10 q/f '	72"
OT362-101	165-1235	8' 0"	21' 2"	10' 10 q/f '	72"
OT363-101	135-1000	8' 0"	19' 2"	12' 10 q/f '	72"
OT364-101	165-1235	8' 0"	21' 2"	12' 10 q/f '	72"
OT365-101	190-1455	8' 0"	23' 2"	12' 10 q/f '	72"
OT366-101	205-1500	12' 0"	21' 2"	10' 10 q/f '	96"
OT367-101	245-1850	12' 0"	23' 2"	10' 10 q/f '	96"
OT368-101	205-1500	12' 0"	21' 2"	12' 10 q/f '	96"
OT369-101	245-1850	12' 0"	23' 2"	12' 10 q/f '	96"
OT370-101	285-2185	12' 0"	25' 2"	12' 10 q/f '	96"
OT371-101	270-2000	16' 0"	21' 2"	12' 10 q/f '	96"
OT372-101	325-2465	16' 0"	23' 2"	12' 10 q/f '	96"
OT373-101	380-2910	16' 0"	25' 2"	12' 10 q/f '	96"
OT374-101	340-2500	20' 0"	23' 2"	12' 10 q/f '	120"
OT375-101	410-3080	20' 0"	25' 2"	12' 10 q/f '	120"
OT376-101	475-3640	20' 0"	27' 2"	12' 10 q/f '	120"

Note

1. The last number of the model indicates number of cells change as appropriate for your selection.
2. Overall length of the tower is: **fan cells × L+8"**. primary engineering data is per cell.
3. Tower installations with an elevation of 20' 0" or more from top of the tower fan deck to the grade or roof level require a safety cage on the tower ladder. Safety cage is an available.

1. All tower installations require a minimum of 4' 0" from the tower endwall to any vertical obstruction at the tower ladder location.
5. **Use this bulletin for preliminary layouts only. Do not use for construction.** Obtain current drawings from your Omran sales representative.

Series O15 Schematic

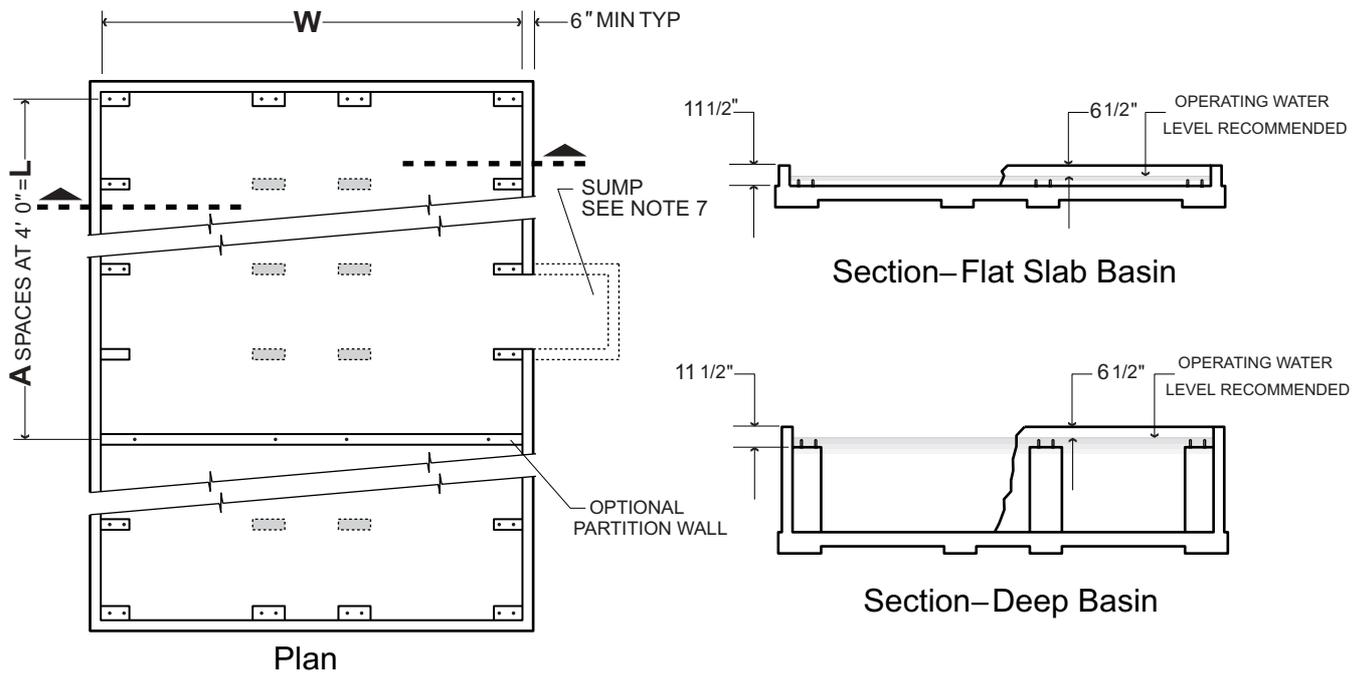


Tower Model	GPM per Cell	Dimensions		
		L	W	Fan diameter
Note 1				
OT451-201	201-2400	12' 0"	25' 0"	120"
OT452-201	270-3200	16' 0"	27' 0"	144"
OT453-201	340-4000	20' 0"	29' 0"	168"
OT454-201	410-4800	24' 0"	29' 0"	168"
OT456-201	285-3360	12' 0"	29' 0"	120"
OT457-201	380-4480	16' 0"	31' 0"	144"
OT458-201	475-5600	20' 0"	33' 0"	168"
OT459-201	570-6720	24' 0"	33' 0"	168"

Note

- The last number of the model indicates number of cells . Change as appropriate for your selection.
- Overall length of the tower is : **fan cells × L+6"** .
Primary engineering data is per cell.
- Tower installations with an elevation of 20' 0" or more from top of the tower fan deck to the grade or roof level require a safety cage on the tower ladder . Safety cage is an available option.
- All tower installations require a minimum of 4' 0" from the tower end wall to any vertical obstruction at the tower ladder location .
- Use this bulletin for preliminary layouts only. Do not use for construction.** Obtain current drawings from your Omran sales representative.

Series O10 Concrete Basin

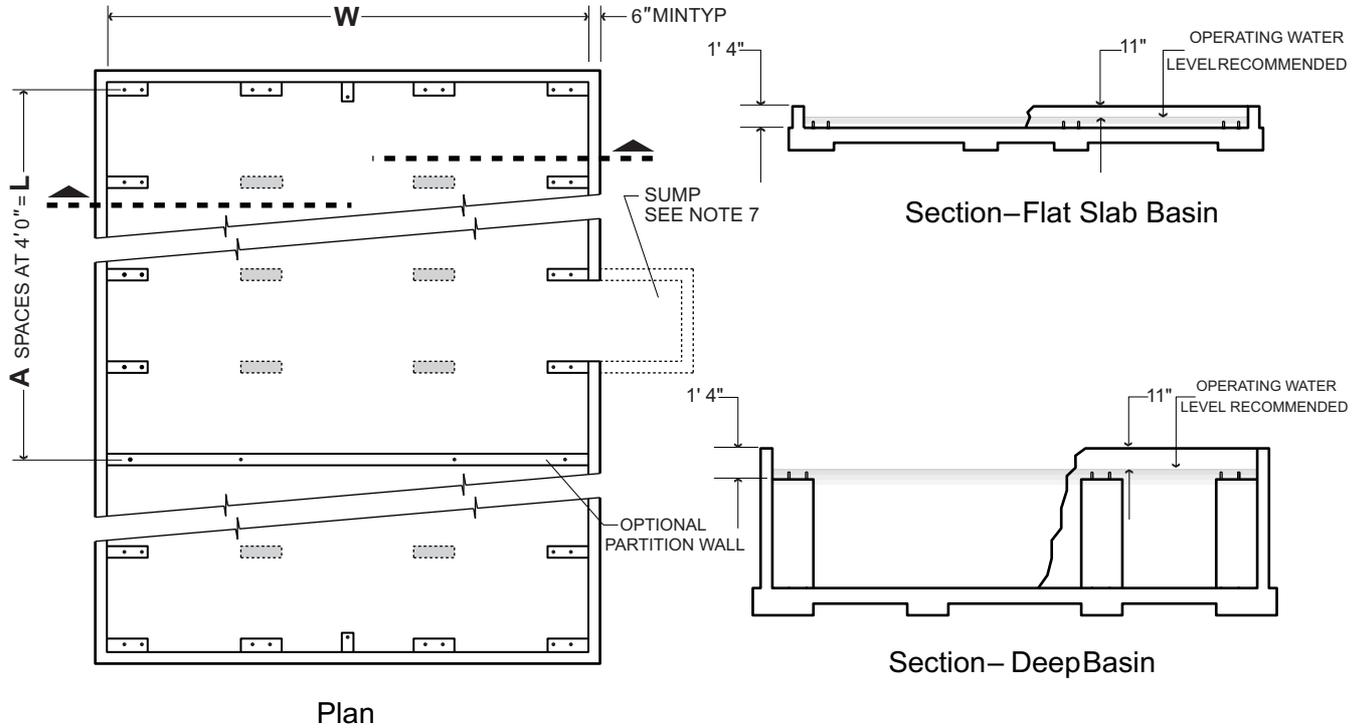


Tower Model Note 4	Dimensions			Operating Weight lb	
	L	W	A	Single Fan Cell	Each Cell Add
OT361-101	8' 0"	15' 0"	2	9,240	7,880
OT362-101	8' 0"	17' 0"	2	10,660	9,160
OT363-101	8' 0"	13' 0"	2	11,210	9,580
OT364-101	8' 0"	15' 0"	2	12,690	10,780
OT365-101	8' 0"	17' 0"	2	14,210	12,140
OT366-101	12' 0"	17' 0"	3	13,380	11,820
OT367-101	12' 0"	19' 0"	3	15,440	13,740
OT368-101	12' 0"	15' 0"	3	16,260	14,370
OT369-101	12' 0"	17' 0"	3	18,340	16,170
OT370-101	12' 0"	19' 0"	3	20,540	18,210
OT371-101	16' 0"	15' 0"	4	20,280	18,400
OT372-101	16' 0"	17' 0"	4	23,010	20,840
OT373-101	16' 0"	19' 0"	4	25,870	23,560
OT374-101	20' 0"	17' 0"	5	25,700	23,650
OT375-101	20' 0"	19' 0"	5	29,060	26,700
OT376-101	20' 0"	21' 0"	5	32,580	30,100

Note

- 1- Use this bulletin for preliminary layouts only. Do not use for construction. Obtain current drawings from your Omran sales representative.
- 2- Tower weight is total wet operating weight of tower only excluding water in concrete basin.
- 3- Purchaser to design, construct and furnish concrete basin complete to suit the general dimensions of current Omran drawings.
- 4- Last number of model indicates number of cells. Change as appropriate for your selection. Primary engineering data is per cell.
- 5- 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.
- 6- Maintain no less than 2' 0" clear space at tower end walls for construction purposes. Louvered faces must have unobstructed air supply. If obstructions exist nearby, consult your Omran sales representative.
- 7- Other contractors or purchaser must design, locate, construct and furnish sump(s) and overflow(s) to suit requirements. The sump(s) should be designed according to the pump manufacturer's recommendations.

Series O15 Concrete Basin



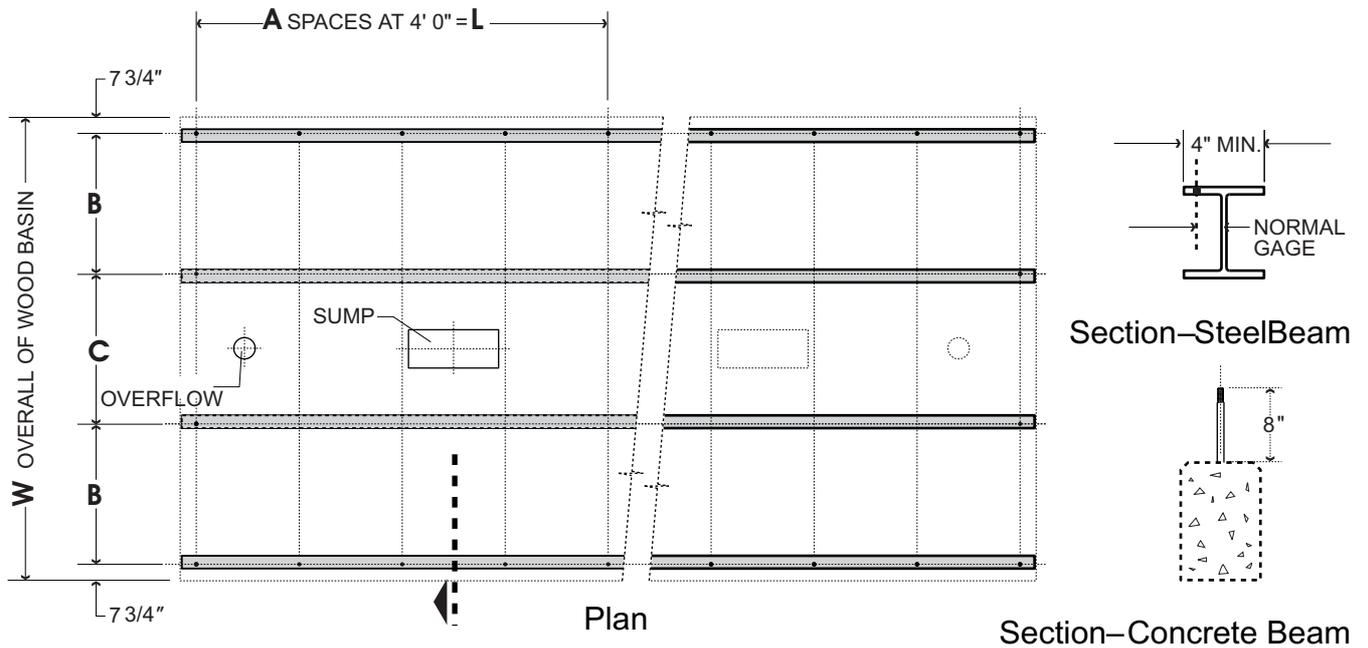
Tower Model Note 4	Dimensions			Operating Weight lb	
	L	W	A		
OT451-201	12' 0"	18' 8"	3	28,560	26,460
OT452-201	16' 0"	20' 8"	4	36,280	33,440
OT453-201	20' 0"	22' 8"	5	45,140	41,850
OT454-201	24' 0"	22' 8"	6	52,410	48,900
OT456-201	12' 0"	22' 8"	3	35,060	32,460
OT457-201	16' 0"	24' 8"	4	44,820	41,520
OT458-201	20' 0"	26' 8"	5	55,660	51,900
OT459-201	24' 0"	26' 8"	6	64,960	60,960

Note

- 1- Use this bulletin for preliminary layouts only. Do not use for construction. Obtain current drawings from your Omran sales representative.
- 2- Tower weight is total wet operating weight of tower only excluding water in concrete basin.
- 3- Purchaser to design, construct and furnish concrete basin complete to suit the general dimensions of current OMRAN drawings.
- 4- Last number of model indicates number of cells. Change as appropriate for your selection. Primary engineering data is per cell.
- 5- 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- partition wall anchor bolts must have 3 1/2" projection.
- 6- Maintain no less than 2' 0" clear space at tower end walls for construction purposes. Louvered faces must have unobstructed air supply. If obstructions exist nearby, consult your Omran sales representative.
- 7- Other contractors or purchaser must design, locate, construct and furnish sump(s) and overflow(s) to suit requirements. The sump(s) should be designed according to the pump manufacturer's recommendations.



Series O10 Wood Basin Support



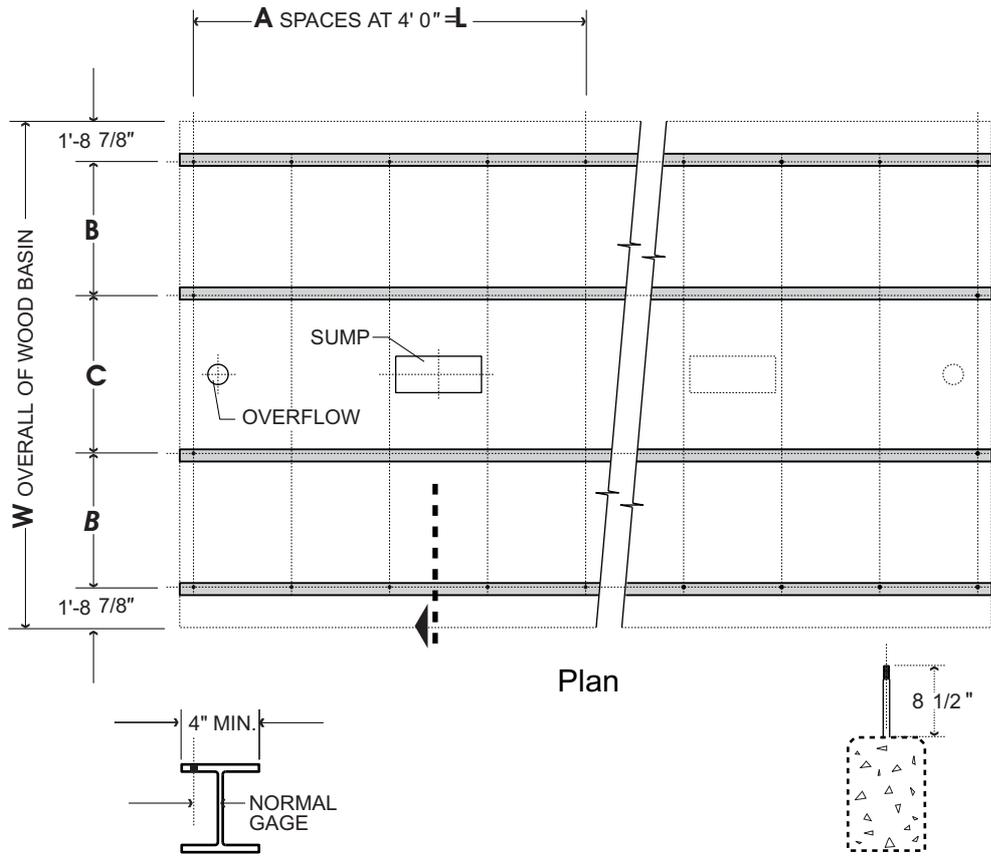
Tower Model	Dimensions					Operating Weight lb	
	L	W	A	B	C	Single Fan Cell	Each Cell Add
Note 4							
OT361-101	8' 0"	15' 5 1/2"	2	5' 1"	4' 0"	13,980	11,880
OT362-101	8' 0"	17' 5 1/2"	2	6' 1"	4' 0"	15,990	13,660
OT363-101	8' 0"	14' 1 1/2"	2	5' 1"	2' 8"	15,520	13,240
OT364-101	8' 0"	16' 1 1/2"	2	6' 1"	2' 8"	17,640	14,960
OT365-101	8' 0"	18' 1 1/2"	2	7' 1"	2' 8"	19,720	16,800
OT366-101	12' 0"	17' 5 1/2"	3	5' 1"	6' 0"	20,960	18,570
OT367-101	12' 0"	19' 5 1/2"	3	6' 1"	6' 0"	23,880	21,270
OT368-101	12' 0"	16' 1 1/2"	3	5' 1"	4' 8"	23,240	20,610
OT369-101	12' 0"	18' 1 1/2"	3	6' 1"	4' 8"	26,220	23,190
OT370-101	12' 0"	20' 1 1/2"	3	7' 1"	4' 8"	29,240	25,980
OT371-101	16' 0"	16' 1 1/2"	4	5' 1"	4' 8"	29,390	26,760
OT372-101	16' 0"	18' 1 1/2"	4	6' 1"	4' 8"	33,260	30,240
OT373-101	16' 0"	20' 1 1/2"	4	7' 1"	4' 8"	37,230	33,960
OT374-101	20' 0"	18' 1 1/2"	5	5' 1"	6' 8"	38,300	35,400
OT375-101	20' 0"	20' 1 1/2"	5	6' 1"	6' 8"	42,940	39,650
OT376-101	20' 0"	22' 1 1/2"	5	7' 1"	6' 8"	48,100	44,550

Note

- 1- Use this bulletin for preliminary layouts only. Do not use for construction. Obtain current drawings from your Omran sales representative.
- 2- Operating weights include 5" of water in the collection basin. This is the recommended operating water level. Total collection basin depth is 11 1/8".
- 3- Purchaser to design, construct and furnish tower support complete to suit the general dimensions of current Omran drawings.
- 4- Last number of model indicates number of cells. Change as appropriate for your selection. Primary engineering data is per cell.
- 5- If steel beam are used, they must include 5/8" diameter holes to accept 1/2" diameter anchor bolts provided by Omran.
- 6- If concrete beams or walls are used, 1/2" diameter anchor bolts with 8" projection and 2" minimum thread must be provided by the contractor or purchaser. Bolts must be imbedded in the concrete.
- 7- Maintain no less than 2' 0" of clear space at tower end walls for construction purposes. Louvered faces must have unobstructed air supply. If obstructions exist nearby, consult your Omran sales representative.
- 8- Except for "W" overall of wood basin, all dimensions are to the centerline of the anchor bolts.



Series O15 Wood Basin Support



Section-Steel Beam

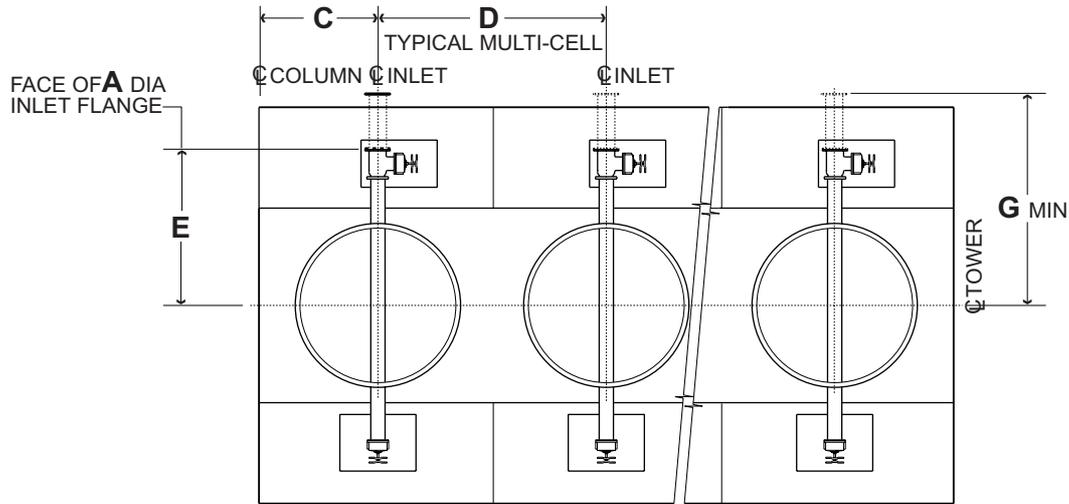
Section-Concrete Beam

Tower Model Note 4	Dimensions					Operating Weight lb	
	L	W	A	B	C		
OT451-201	12' 0"	19' 2"	3	5' 6"	4' 8 1/4"	37,280	34,110
OT452-201	16' 0"	21' 2"	4	5' 6"	6' 8 1/4"	48,700	44,720
OT453-201	20' 0"	23' 2"	5	5' 6"	8' 8 1/4"	61,860	57,300
OT454-201	24' 0"	23' 2"	6	5' 6"	8' 8 1/4"	72,220	67,440
OT456-201	12' 0"	23' 2"	3	7' 6"	4' 8 1/4"	45,560	41,730
OT457-201	16' 0"	25' 2"	4	7' 6"	6' 8 1/4"	59,560	54,880
OT458-201	20' 0"	27' 2"	5	7' 6"	8' 8 1/4"	75,220	69,950
OT459-201	24' 0"	27' 2"	6	7' 6"	8' 8 1/4"	88,090	82,620

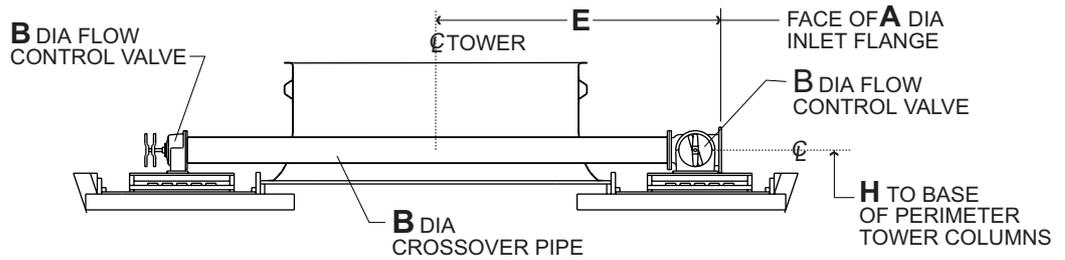
Note

- 1- Use this bulletin for preliminary layouts only. Do not use for construction . Obtain current drawings from your Omran sales representative .
- 2- Operating weights include 1" of water in the collection basin. This is the recommended operating water level. Total collection basin depth is 1 1 3/4" .
- 3- Purchaser to design , construct and furnish tower support complete to suit the general dimensions of current Omran drawings .
- 4- Last number of model indicates number of cells. Change as appropriate for your selection. Primary engineering data is per cell.
- 5- If steel beam are used , they must include 5/8" diameter holes to accept 3/4" diameter anchor bolts provided by Omran .
- 6- If concrete beams or walls are used, 3/4" diameter anchor bolts with 8 1/2" projection and 1 1/2" minimum thread must be provided by the contractor or purchaser . Bolts must be imbedded in the concrete.
- 7- Maintain no less than 2 0" of clear space at tower end walls for construction purposes. Louvered faces must have unobstructed air supply . If obstructions exist nearby , consult your Omran sales representative .
- 8- Except for "W" overall of wood basin , all dimensions are to the centerline of the anchor bolts.

External Piping Plans

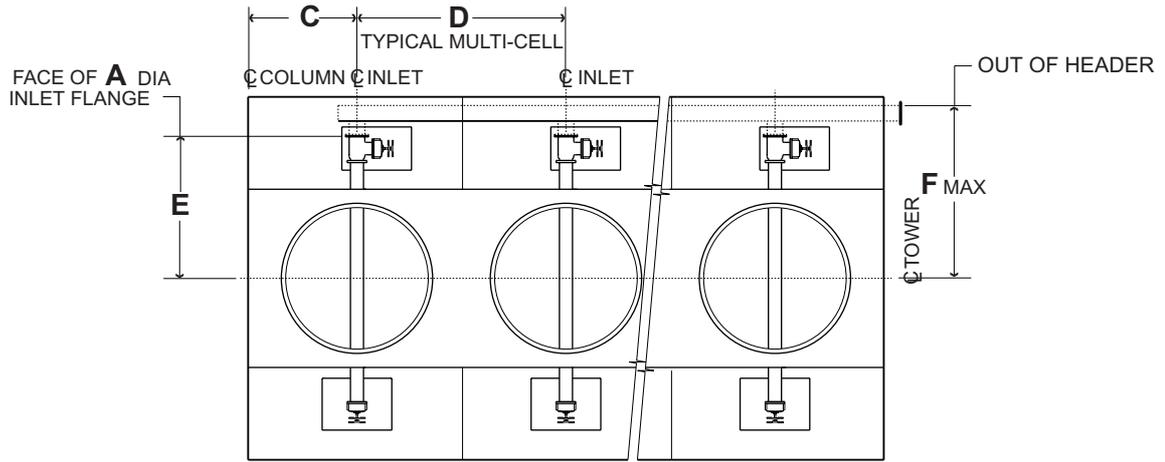


Typical Plan-Side Inlet

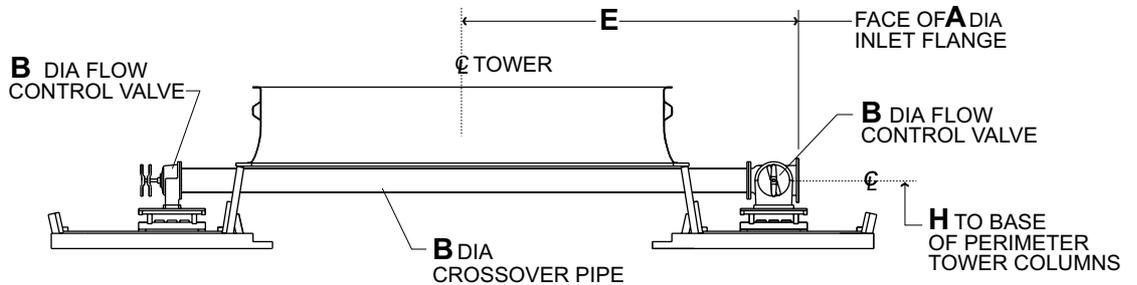


Section-Series O10 Distribution System

Tower Model	GPM per Cell	Dimensions							
		A	B	C	D	E	F	G	H
OT361-101	135-1000	8"	6"	4' 0"	8' 0"	7' 1"	8' 10 3/4"	10' 7"	7' 10 1/2"
OT362-101	165-1235	8"	6"	4' 0"	8' 0"	7' 1"	9' 10 3/4"	11' 7"	7' 10 1/2"
OT363-101	135-1000	8"	6"	4' 0"	8' 0"	7' 1"	8' 10 3/4"	10' 7"	9' 10 1/2"
OT364-101	165-1235	8"	6"	4' 0"	8' 0"	7' 1"	9' 10 3/4"	11' 7"	9' 10 1/2"
OT365-101	190-1455	8"	6"	4' 0"	8' 0"	7' 1"	10' 10 3/4"	12' 7"	9' 10 1/2"
OT366-101	205-1500	10"	8"	6' 0"	12' 0"	8' 2"	9' 10 3/4"	11' 7"	7' 10 1/2"
OT367-101	245-1850	10"	8"	6' 0"	12' 0"	8' 2"	10' 10 3/4"	12' 7"	7' 10 1/2"
OT368-101	205-1500	10"	8"	6' 0"	12' 0"	8' 2"	9' 10 3/4"	11' 7"	9' 10 1/2"
OT369-101	245-1850	10"	8"	6' 0"	12' 0"	8' 2"	10' 10 3/4"	12' 7"	9' 10 1/2"
OT370-101	285-2185	10"	8"	6' 0"	12' 0"	8' 2"	11' 10 3/4"	13' 7"	9' 10 1/2"
OT371-101	270-2000	10"	8"	8' 0"	16' 0"	8' 2"	9' 10 3/4"	11' 7"	9' 10 1/2"
OT372-101	325-2465	10"	8"	8' 0"	16' 0"	8' 2"	10' 10 3/4"	12' 7"	9' 10 1/2"
OT373-101	380-2910	10"	8"	8' 0"	16' 0"	8' 2"	11' 10 3/4"	13' 7"	9' 10 1/2"
OT374-101	340-2500	12"	10"	10' 0"	20' 0"	9' 2 1/4"	10' 10 3/4"	12' 7"	10' 10 1/2"
OT375-101	410-3080	12"	10"	10' 0"	20' 0"	9' 2 1/4"	11' 10 3/4"	13' 7"	10' 10 1/2"
OT376-101	475-3640	12"	10"	10' 0"	20' 0"	9' 2 1/4"	12' 10 3/4"	14' 7"	10' 16 1/2"



Typical Plan-End Inlet



Section-Series O15 Distribution System

Tower Model	GPM per Cell	Dimensions							
		A	B	C	D	E	F	G	H
OT451-201	201-2400	10"	8"	6' 0"	12' 0"	9' 0 1/2"	10' 9"	13' 6"	14' 5 3/4"
OT452-201	270-3200	10"	8"	8' 0"	16' 0"	10' 0 1/2"	11' 9"	14' 6"	14' 5 3/4"
OT453-201	340-4000	12"	10"	10' 0"	20' 0"	11' 4 1/2"	12' 9"	15' 6"	14' 4 3/4"
OT454-201	410-4800	12"	10"	12' 0"	24' 0"	11' 4 1/2"	12' 9"	15' 6"	14' 4 3/4"
OT456-201	285-3360	10"	8"	6' 0"	12' 0"	9' 0 1/2"	12' 9"	15' 6"	14' 5 3/4"
OT457-201	380-3690	10"	8"	8' 0"	16' 0"	10' 0 1/2"	13' 9"	16' 6"	14' 5 3/4"
OT457-201	3691-4480	12"	8"	8' 0"	16' 0"	10' 6 1/2"	13' 9"	16' 6"	14' 5 3/4"
OT458-201	475-5600	12"	10"	10' 0"	20' 0"	11' 4 1/2"	14' 9"	17' 6"	14' 4 3/4"
OT459-201	570-5300	12"	10"	12' 0"	24' 0"	11' 4 1/2"	14' 9"	17' 6"	14' 4 3/4"
OT459-201	5301-6720	14"	10"	12' 0"	24' 0"	11' 4 1/2"	14' 9"	17' 6"	14' 4 3/4"

Note

- 1- Use this bulletin for preliminary layouts only. Do not use for construction . Obtain current drawings from your Omran sales representative .
- 2- Pumping head contributed by the tower is static lift "H" . Actual pumping head will vary according to tower circulating GPM. Total pumping head will be furnished at time of proposal.
- 3- Header should be located opposite fan motor when possible for better distribution of tower loads.
- 4- Supports on tower for header and crossover pipe are furnished by Omran. Riser piping must be supported externally.
- 5- Omran piping terminates at the face of a cast iron flat face flange. Inlet and bolt circledimensions conform to class 125 lb.
- 6- If your application requires a bypass system, recommended location is through tower end wall into plenum area. Review of the system by Omran engineering is required .

Additional Services

Omran is dedicated to satisfying the needs of our customers-needs which begin far in advance of the actual purchase of a new cooling tower and vary over the operating lifetime of the project. Here is a partial listing of the additional services offered by Omran to help you job most effectively :

Application/Sizing/Layout Services - Omran sales representatives are trained to help you choose the proper type and size of cooling tower and will guide you in its appropriate location on site. They will also help you write the specifications for its purchase. Omran can offer you wide range of options to meet your requirements.

Construction Service - If you choose a field - erected cooling tower Omran can supply either supervision only - or a complete , experienced prequalified crew to handle construction .

Parts Service - Omran maintains a stock of spare parts specific to your tower . Omran manufactures all the parts required (except for the motor) so you'll be able to rely on consistent , immediate parts availability.

Maintenance Service - In addition to providing complete instructions and continuing guidance, Omran will either provide as much "hands on" maintenance as you require, or will recommend a local service contractor for your consideration .

Condition Inspection Service - From time to time , for your peace of mind, Omran can give your tower a thorough inspection to evaluate its current condition. This usually allows you to foresee and forestall problems before they become serious

Concrete Tower Repair and Reconstruction - The skilled Omran tack force of engineering ,production and construction specialists stand ready to upgrade, refurbish and repair your concrete tower, whether manufactured by Omran or others .

Renewal Service - Some day, your tower may eventually need more extensive repairs than just normal maintenance. Omran's reconstruction service can return your tower to as new condition.

Performance Improvement Service - Systems served by cooling towers grow in response to demand for the product produced by that system. Most customers find that they could produce more product if the cooling tower could deliver colder water . Fortunately , cooling tower technology advances with time and Omran can apply this increased technology to upgrade your tower's thermal performance.

Tower Replacement Service - Occasionally ,customers will benefit from replacing an installed tower, rather than refurbishing it . Omran stands ready to assist you in that endeavor - and in many cases, the replacement will require little or no change to your concrete basin or support structure.



All data and specification subject to change without notice .

OMRAN TAHVIEH

Heating , Ventilation And Air Conditioning

Central Office : # 1.2 , 1st floor , No . 108 , Iranshahr Ave., Tehran - Iran , Tel : (98 - 21) 8847372 - 3 , 8318850 - 2 Tel & Fax : (98 - 21) 8318852.