



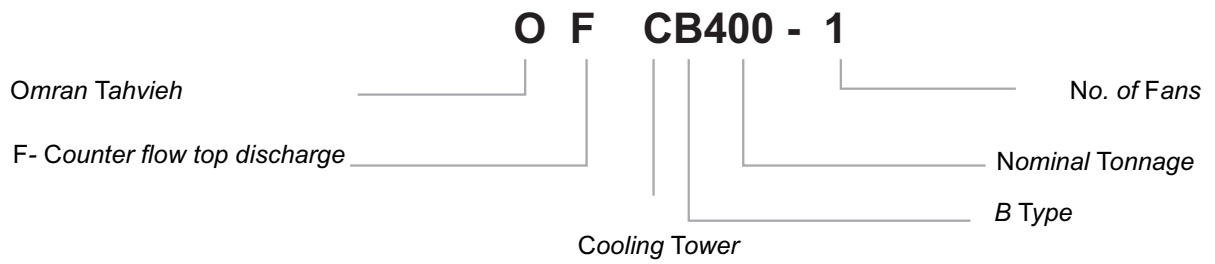
OFC SERIES

COUNTER FLOW TOP DISCHARGE (FILM FILL) COOLING TOWERS





COOLING TOWER
OMRAN TAHVIEH



GENERAL SPECIFICATIONS OF COUNTERFLOW COOLING TOWERS

OMRAN TAHVIEH COUNTER FLOW COOLING TOWERS FURNISH AND INSTALL, AS SHOWN ON THE PLAN DRAWINGS.

CASING :The casing of galvanized steel sheets gives full protection against corrosion .

BASINS : Heavy gauge galvanized steel sheets are used to fabricate basins . Tower basins are completed with make up water float control valve as well as over flow, drain and suction fitting .

WATER DISTRIBUTION : Water shall be distributed evenly over the tower fill area by a water distribution system consisting of galvanized steel header and spray nozzles .

FILLING : Fill elements shall be made of PVC or ABS materials.
Fill elements shall have sufficient contact area for removal of heat .

FAN: Statically and dynamically balanced forward curved centrifugal fans with a rigid housing shall be used on all counter flow OMRAN TAHVIEH cooling towers.

DRIVE : OFCB cooling towers fans are beltdrive.

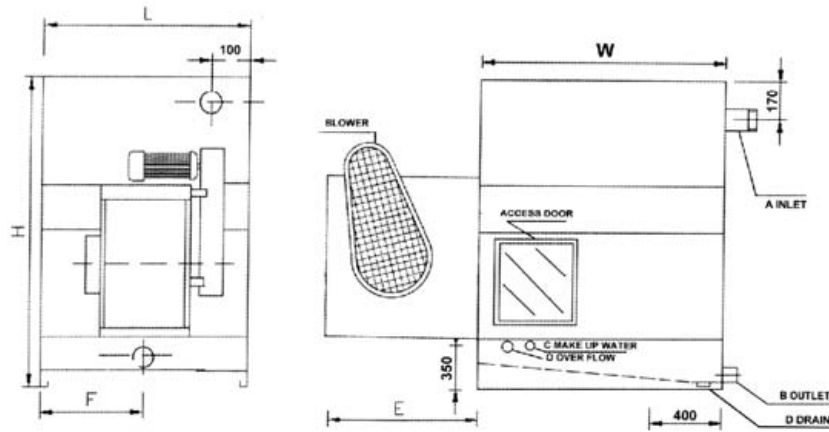


TABLE: 1
Single Fan

Subject to modification

MODEL	L	W	H	E	F	A	B	C	D	O
OFCB 10 - 1	500	950	2000	600	250	1 1/2"	1 1/2"	1/2"	3/4"	2"
OFCB 15 - 1	720	950	2000	680	360	1 1/2"	1 1/2"	1/2"	3/4"	2"
OFCB 20 - 1	1000	950	2000	750	470	2"	2"	1/2"	3/4"	2"
OFCB 25 - 1	1000	1250	2000	750	470	2"	2"	1/2"	3/4"	2"
OFCB 30 - 1	1000	1450	2000	800	470	3"	3"	3/4"	1"	2"
OFCB 35 - 1	1000	1750	2000	950	470	3"	3"	3/4"	1"	2"
OFCB 40 - 1	1000	1950	2000	950	470	3"	3"	3/4"	1"	2"
OFCB 50 - 1	1200	1950	2000	950	600	3"	3"	3/4"	1"	2"
OFCB 60 - 1	1450	1950	2750	950	720	4"	4"	3/4"	1"	2"

ALL DIMENSIONS ARE IN mm



COOLING TOWER OMRAN TAHVIEH

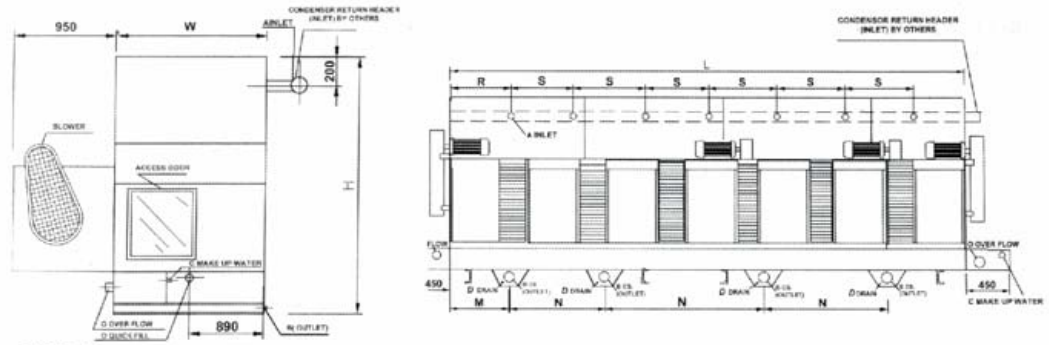


TABLE 2
FANS ON ONE SIDE

Subject to modification

MODEL	L	W	H	NO. x A	NO. x B	NO. x C	NO. x D	NO. x O	Q	M	NO. x N	R	NO. x S
OFCB 75 - 2	1750	1950	2750	1 x 4"	1 x 4"	1 x 1"	1 x 1"	1 x 2"	1"	900			
OFCB 90 - 2	1950	1950	2750	1 x 4"	1 x 4"	1 x 1"	1 x 1"	1 x 2"	1"	1000			
OFCB 105 - 2	2400	1950	2750	3 x 3"	1 x 4"	1 x 1"	1 x 1"	1 x 2"	1"	1200		400	2 x 800
OFCB 120 - 3	2900	1950	2750	3 x 3"	1 x 5"	1 x 1"	1 x 1"	1 x 2"	1"	1450		500	2 x 950
OFCB 140 - 3	3350	1950	2750	4 x 3"	1 x 5"	1 x 1"	1 x 1"	1 x 2"	1"	1650		400	3 x 850
OFCB 160 - 4	3900	1950	2750	4 x 3"	2 x 4"	1 x 1"	2 x 1"	1 x 2"	1"	1000	1 x 1900	500	3 x 950
OFCB 180 - 4	4200	1950	2750	5 x 3"	2 x 4"	1 x 1"	2 x 1"	1 x 2"	1"	1000	1 x 2200	400	4 x 850
OFCB 220 - 5	4900	1950	2750	6 x 3"	3 x 4"	1 x 1"	3 x 1"	1 x 2"	1"	1000	2 x 1450	550	4 x 950
OFCB 260 - 6	5800	1950	2750	6 x 3"	3 x 4"	1 x 1"	3 x 1"	1 x 2"	1"	1000	2 x 1900	500	5 x 950
OFCB 300 - 7	6800	1950	2750	8 x 3"	3 x 5"	2 x 1"	3 x 1"	2 x 2"	1"	1000	2 x 2400	550	6 x 950
OFCB 340 - 8	7800	1950	2750	8 x 3"	3 x 5"	2 x 1"	3 x 1"	2 x 2"	1"	1000	2 x 2900	550	7 x 950

ALL DIMENSIONS ARE IN MM

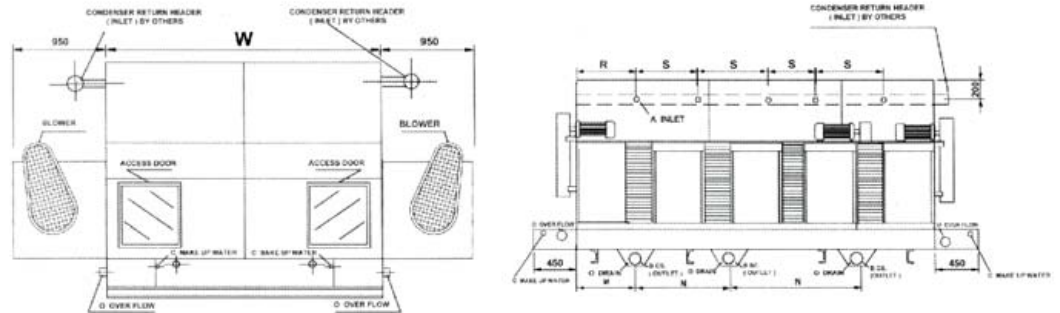


TABLE 3
FANS ON BOTH SIDES

Subject to modification

MODEL	L	W	H	NO. x A	NO. x B	NO. x C	NO. x D	NO. x O	Q	M	NO. x N	R	NO. x S
OFCB 340 - 8	3900	3800	2750	8 x 3"	4 x 4"	2 x 1"	4 x 1"	2 x 2"	1"	1000	1 x 1800	500	3 x 950
OFCB 400 - 10	4900	3800	2750	10 x 3"	4 x 5"	2 x 1"	4 x 1"	2 x 2"	1"	1000	1 x 1800	500	4 x 950
OFCB 450 - 12	5700	3800	2750	12 x 3"	4 x 5"	2 x 1"	4 x 1"	2 x 2"	1"	1000	1 x 1800	450	5 x 950
OFCB 500 - 12	5850	3800	2750	12 x 3"	4 x 5"	2 x 1"	4 x 1"	2 x 2"	1"	1000	1 x 1800	500	5 x 950
OFCB 580 - 14	6800	3800	2750	14 x 3"	4 x 5"	4 x 1"	4 x 1"	4 x 2"	1"	1000	1 x 1800	550	6 x 950
OFCB 660 - 16	7800	3800	2750	16 x 3"	4 x 5"	4 x 1"	4 x 1"	4 x 2"	1"	1000	1 x 1800	550	7 x 950
OFCB 740 - 18	8750	3800	2750	18 x 3"	6 x 5"	4 x 1"	2 x 1 1/2"	4 x 2"	1"	1000	2 x 900	550	8 x 950
OFCB 820 - 20	9750	3800	2750	20 x 3"	6 x 5"	4 x 1"	2 x 1 1/2"	4 x 2"	1"	1000	2 x 900	550	9 x 950
OFCB 900 - 22	10700	3800	2750	22 x 3"	6 x 5"	4 x 1"	2 x 1 1/2"	4 x 2"	1"	1000	2 x 900	550	10 x 950
OFCB 980 - 24	11650	3800	2750	24 x 3"	8 x 5"	4 x 1"	2 x 1 1/2"	4 x 2"	1"	1000	3 x 600	550	11 x 950
OFCB 1060 - 26	12650	3800	2750	26 x 3"	8 x 5"	4 x 1"	2 x 1 1/2"	4 x 2"	1"	1000	3 x 600	550	12 x 950
OFCB 1140 - 28	13600	3800	2750	28 x 3"	8 x 5"	4 x 1"	2 x 1 1/2"	4 x 2"	1"	1000	3 x 600	550	13 x 950

ALL DIMENSIONS ARE IN MM

SELECTION METHOD

1. Nominal Condition

$$\text{Tons} = \frac{\text{gpm}}{3}$$

physical data table is used to select cooling tower.

2. For Other Conditions

$$\text{Tonnage} = \frac{\text{gpm}}{3} \times \text{correction factor}$$

Note : For degree ranges , greater than 15 °F consult OMRAN office .

NOMINAL CONDITION

Wet bulb temp .	70 °F
Inlet water temp .	95 °F
Outlet water temp .	85 °F

CORRECTION FACTOR

Degree Range = Difference between entering and leaving water temperatures in °F .

Approach Temp . = leaving water temp . °F - Entering air wet bulb temp . °F

EXAMPLE:

1. Water flow rate = 300 GPM
2. Entering water temperature = 95 °F
3. Leaving water temperature = 85 °F
4. Entering air wet bulb temperature = 75 °F

A. Nominal Tonnage

$$\text{Tons} = \frac{300}{3} = 100 \text{ TR}$$

B. Correction Factor

Degree range = 95 - 85 = 10 °F

Approach temperature = 85 - 75 = 10 °F

The correction factor is determined from chart 1 .

For a degree range of 10 °F , approach temperature of 10 °F and an entering air wet bulb temperature of 75 °F we read a correction factor of 1.275

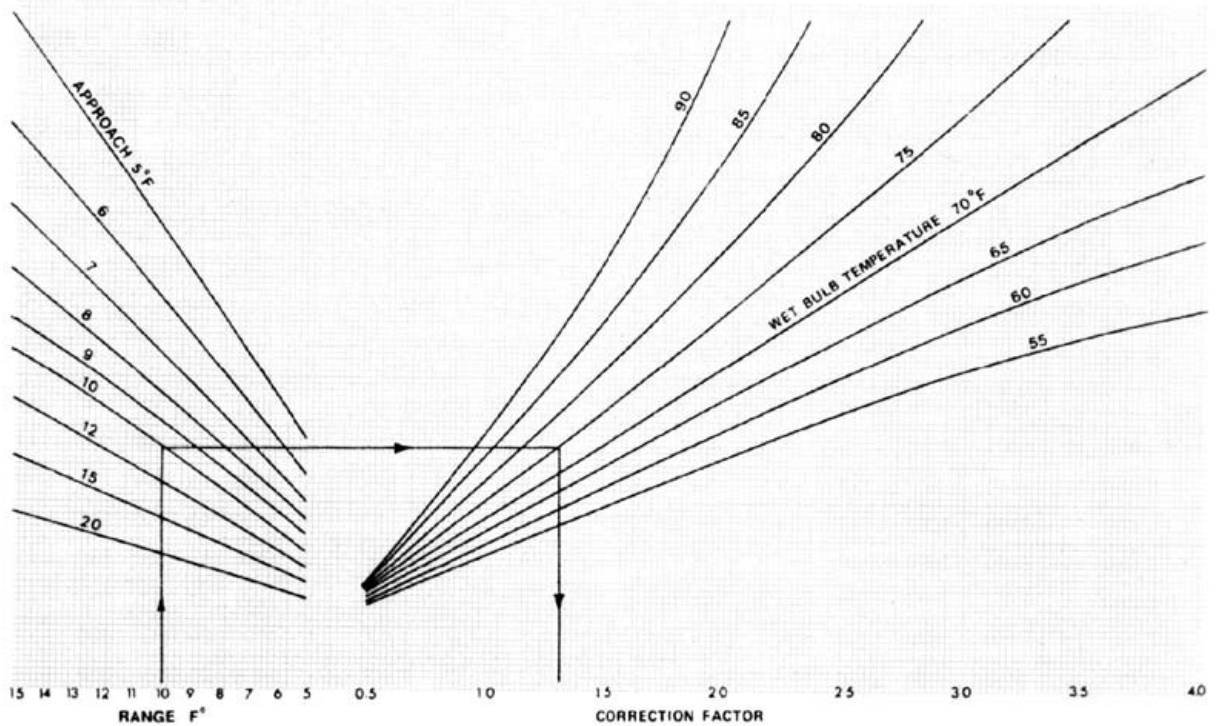
C. Corrected Tonnage

Nominal tonnage x correction factor = corrected tonnage .

Corrected tonnage = 100 x 1.275 = 127.5 tons .

From physical data table OFCB 140 - 3 is selected .

CORRECTION FACTOR CHART



PLEASE WHEN RELATIVE HUMIDITY IS HIGH CONSULT OMRAN SALES OFFICE



PHYSICAL DATA

TABLE:4
PHYSICAL DATA

Subject to modification

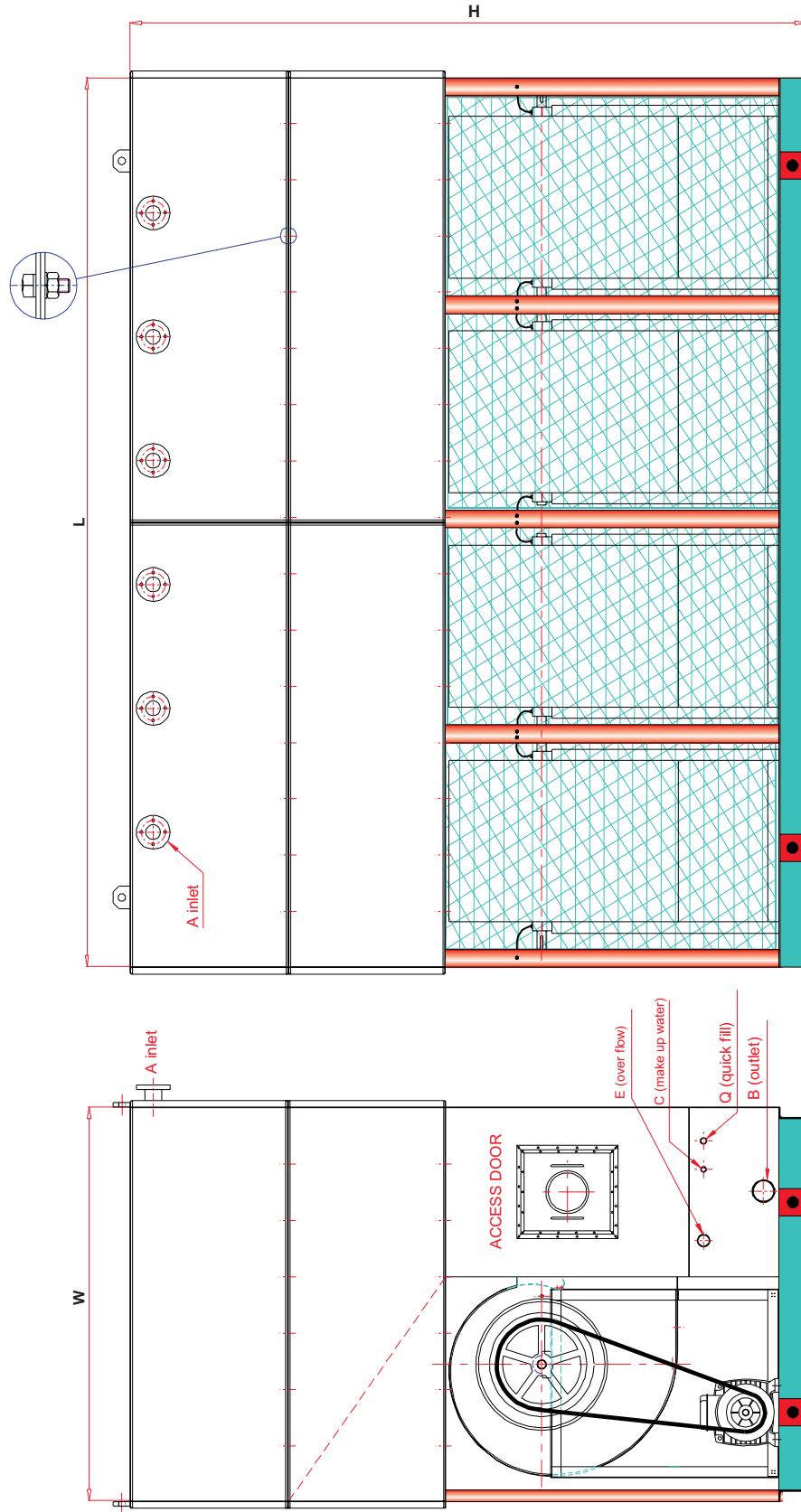
MODEL	NOMINAL RATING		DIMENSIONS(mm)			BLOWERS		MOTOR		AIRFLOW	PD	WEIGHT (kg)	
	TONS	GPM	L	W	H	NO.	SIZE (in)	NO.	hp.	CFM	ft	SHIPPING	OPER.
OFCB 10 - 1	10	30	500	950	2000	1	15	1	3/4	2800	22	270	380
OFCB 15 - 1	15	45	720	950	2000	1	15	1	1.5	4200	22	320	480
OFCB 20 - 1	20	60	1000	950	2000	1	18	1	2	5400	22	380	580
OFCB 25 - 1	25	75	1000	1250	2000	1	20	1	3	7000	22	460	720
OFCB 30 - 1	30	90	1000	1450	2000	1	22	1	3	8400	22	570	860
OFCB 35 - 1	35	105	1000	1750	2000	1	22	1	4	9800	22	640	990
OFCB 40 - 1	40	120	1000	1950	2000	1	22	1	5.5	11300	22	690	1080
OFCB 50 - 1	50	150	1200	1950	2000	1	22	1	7.5	14000	23	800	1300
OFCB 60 - 1	60	180	1450	1950	2750	1	22	1	7.5	17000	23	980	1750
OFCB 75 - 2	75	225	1750	1950	2750	2	22	1	10	21000	23	1400	2500
OFCB 90 - 2	90	270	1950	1950	2750	2	22	1	10	23500	23	1450	2600
OFCB 105-2	105	318	2400	1950	2750	2	22	1	10	28000	23	1600	3000
OFCB 120-3	120	360	2900	1950	2750	3	22	2	1 x 10 1 x 5.5	34000	23	2050	3800
OFCB 140 - 3	140	420	3350	1950	2750	3	22	2	1 x 10 1 x 5.5	39000	23	2300	4200
OFCB 160 - 4	160	480	3900	1950	2750	4	22	2	10	45000	23	2900	5100
OFCB 180 - 4	180	540	4200	1950	2750	4	22	2	10	48500	23	3000	5400
OFCB 220-5	220	660	4900	1950	2750	5	22	3	2 x 10 1 x 5.5	55000	23	3500	6300
OFCB 260 - 6	260	780	5800	1950	2750	6	22	3	3 x 10	66000	23	4100	7400
OFCB 300-7	300	900	6800	1950	2750	7	22	4	3 x 10 1 x 5.5	78000	23	4800	8700
OFCB 340 - 8	340	1020	7800	1950	2750	8	22	4	4 x 10	89000	23	5400	9900
OFCB 340 - 8	340	1020	3900	3800	2750	8	22	4	4 x 10	89000	23	5300	9700
OFCB 400-10	400	1200	4900	3800	2750	10	22	6	4 x 10 2 x 5.5	110000	23	6300	11800
OFCB 450 - 12	450	1350	5700	3800	2750	12	22	6	6 x 10	128000	23	7800	14100
OFCB 500 - 12	500	1500	5850	3800	2750	12	22	6	6 x 10	132000	23	7900	14400
OFCB 530 - 14	530	1740	6800	3800	2750	14	22	8	6 x 10 2 x 5.5	152800	23	9000	16600
OFCB 660 - 16	660	1990	7800	3800	2750	16	22	8	8 x 10	175000	23	10400	19100
OFCB 740-18	740	2220	8750	3800	2750	18	22	10	8 x 10 2 x 5.5	196500	23	11600	21400
OFCB 820 - 20	820	2460	9790	3800	2750	20	22	10	10 x 10	219000	23	12900	23800
OFCB 900 - 20	900	2700	10700	3800	2750	22	22	12	10 x 10 2 x 5.5	240000	23	14000	25900
OFCB 980 - 24	980	2940	11650	3800	2750	24	22	12	12 x 10	262000	23	15200	28200
OFCB 1050 - 26	1050	3130	12650	3800	2750	26	22	14	12 x 10 2 x 5.5	284000	23	16500	30500
OFCB 1140 - 28	1140	3420	13690	3800	2750	28	22	14	14 x 10	305600	23	17600	32700

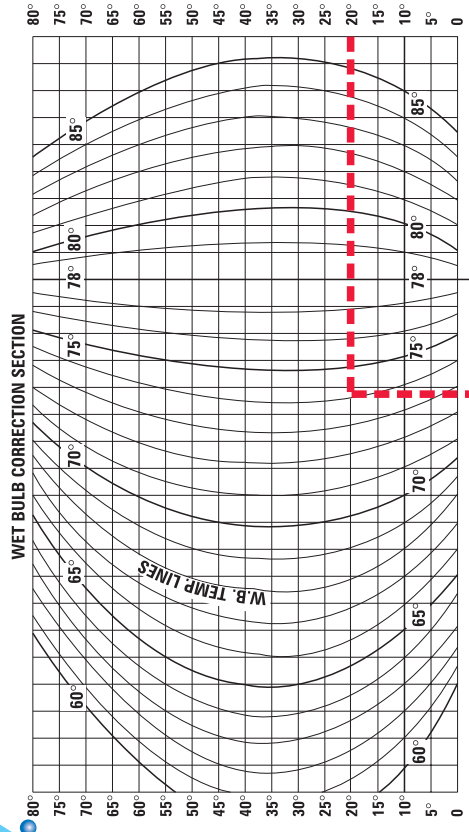
OFCC

COOLING TOWERS

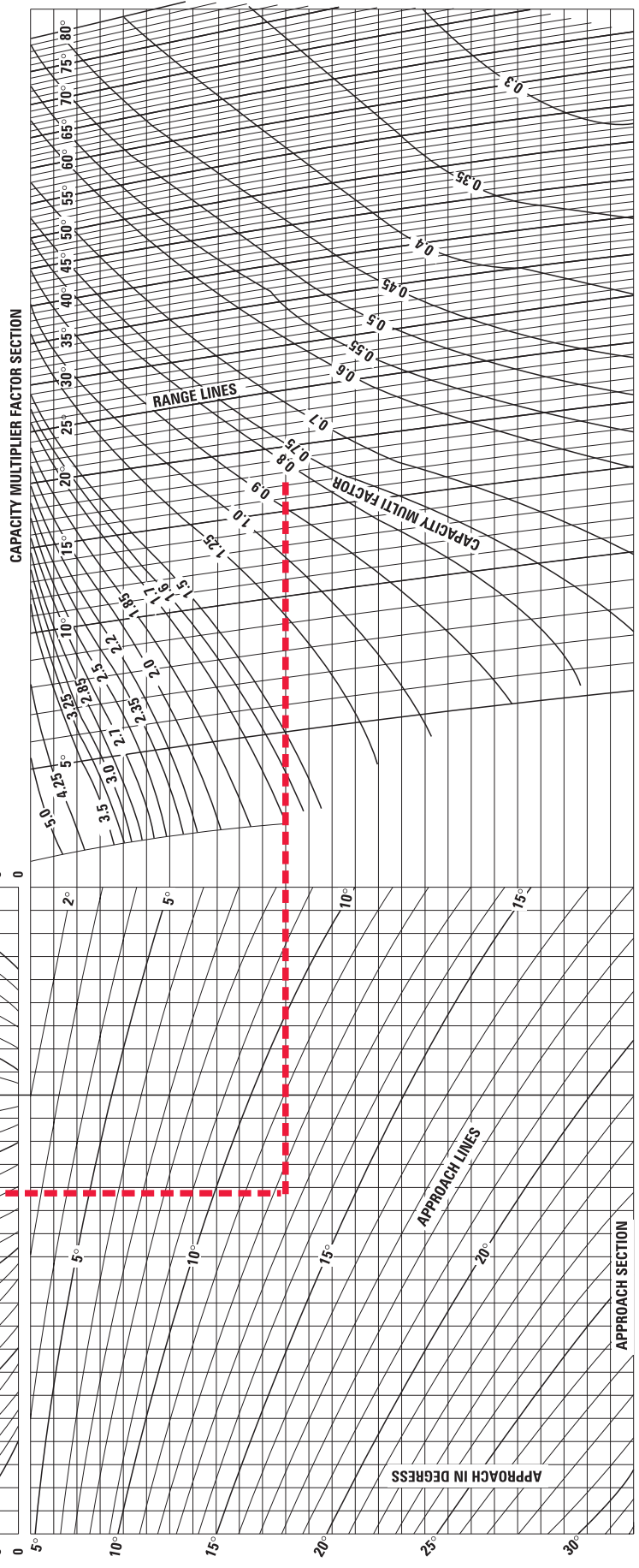
Model	NOMINAL TONS	GPM NOMINAL	MOTOR (QNT.) × HP	BLOWER		WEIGHT (KG)	
				QNT.	DIA.	NET	OPER.
10FCC10	10	30	1 × 3/4	1	15 "	310	360
10FCC15	15	45	1 × 1	1	15 "	320	370
10FCC20	20	60	1 × 1 1/2	1	15 "	400	480
10FCC25	25	75	1 × 2	1	18 "	480	500
10FCC30	30	90	1 × 3	1	18 "	470	620
10FCC35	35	105	1 × 3	1	22 "	600	800
10FCC40	40	120	1 × 3	1	22 "	700	1000
10FCC50	50	150	1 × 3	1	22 "	800	1050
10FCC60	60	180	1 × 4	1	22 "	900	1200
10FCC75	75	225	1 × 5.5	1	22 "	1050	1500
10FCC90	90	270	1 × 7.5	1	22 "	1400	1950
10FCC105	105	315	1 × 7.5	2	22 "	1700	2300
10FCC120	120	360	1 × 10	2	22 "	1800	2400
10FCC140	140	420	1 × 15	2	22 "	1900	2600
10FCC160	150	480	1×10+1×5.5	3	22 "	2700	3600
10FCC180	180	540	1×10+1×5.5	3	22 "	2800	3850
10FCC200	200	600	1×10+1×5.5	3	22 "	3000	4300
10FCC250	250	750	2 × 10	4	22 "	3500	5000
10FCC300	300	900	2×10+1×5.5	5	22 "	4200	6000
10FCC350	350	1050	3 × 10	6	22 "	5000	7000
10FCC400	400	1200	3 × 10	6	22 "	5400	7500
10FCC450	450	1350	3×10+1×5.5	7	22 "	6000	8500
20FCC500	500	1500	4 × 10	8	22 "	7000	9500
20FCC600	600	1800	4×10+2×5.5	10	22 "	8500	11500
20FCC700	700	2100	6 × 10	12	22 "	10000	13500
20FCC800	800	2400	6 × 10	12	22 "	11500	16000
20FCC900	900	2700	6×10+2×5.5	14	22 "	13000	18000
20FCC1000	1000	3000	8 × 10	16	22 "	13200	18500
20FCC1200	1200	3600	10 × 10	20	22 "	16000	22000

MODEL	DIMENSIONS & SIZES								
	LENGHT	WIDTH	HEIGHT	NO. × A	NO. × B	NO. × C	NO. × D	NO. × E	NO. × Q
10FCC10	500	950	2000	1×1/2"	1×1/2"	1×1/2"	1×3/4"	1×2"	1×1/2"
10FCC15	750	950	2000	1×1/2"	1×1/2"	1×1/2"	1×3/4"	1×2"	1×1/2"
10FCC20	950	950	2000	1×2"	1×2"	1×1/2"	1×3/4"	1×2"	1×1/2"
10FCC25	950	1250	2000	1×2"	1×2"	1×1/2"	1×3/4"	1×2"	1×1/2"
10FCC30	950	1450	2000	1×3"	1×3"	1×1/2"	1×1"	1×2"	1×1/2"
10FCC35	950	1450	2700	1×3"	1×3"	1×3/4"	1×1"	1×2"	1×3/4"
10FCC40	950	1500	3000	1×3"	1×3"	1×3/4"	1×1"	1×2"	1×3/4"
10FCC50	950	1750	3000	1×3"	1×3"	1×3/4"	1×1"	1×2"	1×3/4"
10FCC60	950	1950	3000	1×4"	1×4"	1×3/4"	1×1"	1×2"	1×3/4"
10FCC75	1200	1950	3000	1×4"	1×4"	1×1"	1×1"	1×2"	1×1"
10FCC90	1750	1950	3000	1×4"	1×4"	1×1"	1×1"	1×2"	1×1"
10FCC105	1900	1950	3000	3×3"	1×4"	1×1"	1×1"	1×2"	1×1"
10FCC120	1950	1950	3000	3×3"	1×5"	1×1"	1×1"	1×2"	1×1"
10FCC140	2150	1950	3000	4×3"	1×5"	1×1"	1×1"	1×2"	1×1"
10FCC160	2950	1950	3000	4×3"	2×4"	2×1"	2×1"	2×2"	2×1"
10FCC180	3000	1950	3000	5×3"	2×4"	2×1"	2×1"	2×2"	2×1"
10FCC200	3350	1950	3000	5×3"	3×4"	2×1"	2×1"	2×2"	2×1"
10FCC250	3950	1950	3000	6×3"	3×4"	2×1"	3×1"	2×2"	2×1"
10FCC300	4950	1950	3000	7×3"	3×5"	2×1"	3×1"	2×2"	2×1"
10FCC350	5950	1950	3000	8×3"	3×5"	2×1"	3×1"	2×2"	2×1"
10FCC400	6800	1950	3000	10×3"	4×5"	2×1"	4×1"	2×2"	2×1"
10FCC450	7400	1950	3000	12×3"	4×5"	2×1"	4×1"	2×2"	2×1"
20FCC500	3950	3800	3000	12×3"	4×5"	4×1"	4×1"	4×2"	4×1"
20FCC600	4950	3800	3000	14×3"	4×5"	4×1"	4×1"	4×2"	4×1"
20FCC700	5950	3800	3000	16×3"	4×5"	4×1"	4×1"	4×2"	4×1"
20FCC800	6500	3800	3000	18×3"	6×5"	4×1"	6×1/2"	4×2"	4×1"
20FCC900	7400	3800	3000	22×3"	6×5"	4×1"	6×1/2"	4×2"	4×1"
20FCC1000	8000	3800	3000	24×3"	8×5"	4×1"	6×1/2"	4×2"	4×1"
20FCC1200	9950	3800	3000	28×3"	8×5"	4×1"	6×1/2"	4×2"	4×1"





Selection Example :
 GIVEN : To cool 700 GPM from 104° F to 84° F with 73° F wet bulb .
 SOLUTION :
 RANGE : 104° - 84° = 20°
 APPROACH : 84° - 73° = 11°
 LOAD = $\frac{700 \times 500 \times 20}{15000} = 466.6$ TON
 The Multiplier Factor is 0.85
 $466.6 \times 0.85 = 396.6$ Corrected Tons .
 MODEL : 10 FCC - 400 is selected from physical data .





PROJECT INFORMATION

SERVICE LOG

DATE	COMMENTS

PROJECT INFORMATION

System	
Model Number	Date of Start-Up
Serial Number	Service Contractor
Refrigerant	Phone
Electrical Supply	Fax



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 - 2Tel & Fax : (98 - 21) 8318852.