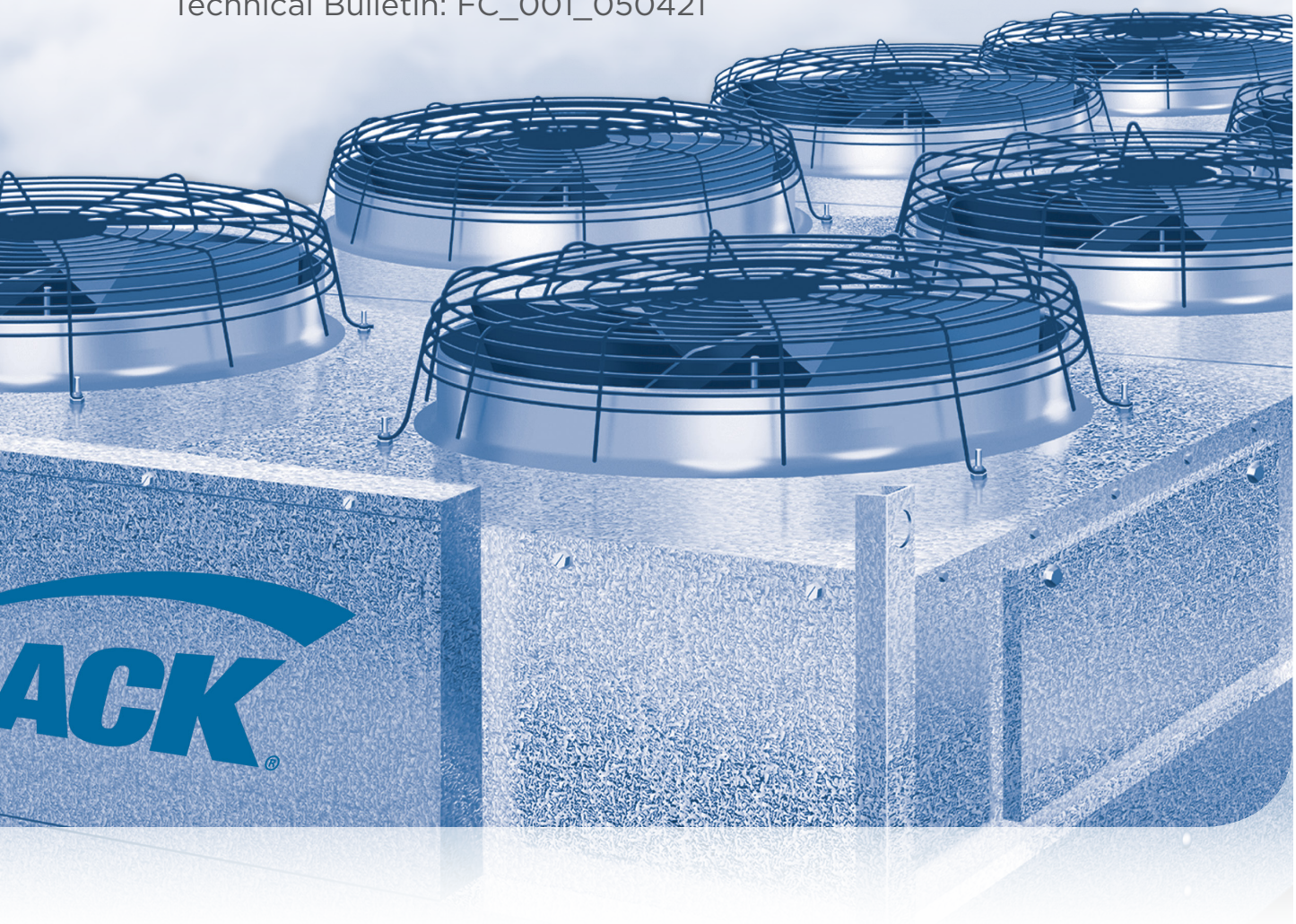




Fluid Cooler Series

AIR-COOLED FLUID COOLING UNITS

Technical Bulletin: FC_001_050421



Products that provide lasting solutions.

Fluid Cooler Series

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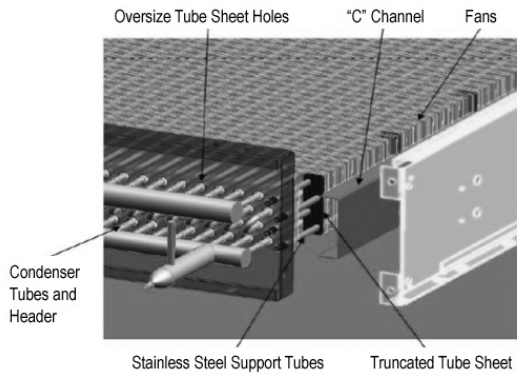
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* See Model Key under Fan / Motor Combination on page 3.

FLUID COOLERS

Specifications subject to change without notice.

Fluid Cooler Series



Benefits and Features

The FLUID COOLER system addresses coil wear and leaks due to vibration and thermal stress.

Environmental concerns and spiraling cost of refrigerants have led to the development of direct drive fluid coolers with the LEVITOR coil support system. This innovative design uses dedicated stainless-steel tubes and a unique coil support system to isolate the fluid tubes from the unit. Coil support is transferred from the fins to the stainless tubes and truncated tube plates which ride freely in “C” channels. Tubes expand and contract without interference. The result, contact, and friction wear are eliminated.

Quiet by Design

LEVITOR coil design does more than just eliminate tube wear. Sound reduction is an added benefit. Unlike traditional air-cooled condensers, fan and coil vibration are isolated from the cabinet, so it is not transmitted to the unit frame and building supports.

Variable Speed (Vspeed) Condenser Fan Solution

- Krack latest fan motor technology is now offered with variable speed fan motor solution called Vspeed under the FEVK configuration, that utilizes a brushless permanent motor (BPM) and panel mounted electronic drive (per motor). The electronic drive will vary the fan speed (1140 RPM at 0 volts / 0 RPM at 10 volts) to match the loads saving more energy versus single speed fans. Fan blade configurations, mounting, and capacities are equivalent to the standard 1140 RPM motor options.

Low Sound Quieter Fan

- The “swept-wing” blade design offers lower noise levels at the same fan speed. For example, the QUIETER fan blade on a 575 RPM motor will be much quieter (8 dBA) than the old 575 RPM fan.
- Lower noise fluid cooler units can translate into savings for your customer by minimizing the need of costly noise barriers.
- Quieter fan not available on 24" models.

Computerized Circuiting

- Our computerized coil circuiting program is designed to maximize efficiency. Every fluid cooler will be custom circuitured to precisely meet your application needs.

Modular Design

- Arranged for vertical or horizontal air discharge. Multi-fan sections compartmented to allow individual fan cycling while preventing off-fan “windmilling”. Large clean-out access doors standard.

Corrosion Resistant

- All models employ mill galvanized steel fan sections and coil side baffles. Legs are heavy gauge mill galvanized steel.

Direct Driven Propeller Fans

- Quiet propeller fans provide uniform air distribution through the coil. Venturi fan orifices optimize efficiency.

High Efficiency Coil

- Mechanically expanded copper tubes into corrugated fully collared aluminum fins spaced 8, 10, or 12 inches apart. Coils are helium leak and pressure tested with 400 psig of dry air shipped pressurized with dry nitrogen.
- Optional Copper Fin.
- Optional Electrofin or Heresite coil coating.
- Optional Polyvinyl Fin coating.

Fan Motors and Electrical Rating

- Outdoor fluid cooler motors are designed with ball bearings with inherent overheat protection in each phase; shaft slingers; enclosure, hardware, and lubrication for all weather conditions. Each motor lead is wired to terminals in an electrical enclosure.
- Inverter duty motors are standard for 230/3, 460/3, and 575/3 (F = 1140 RPM and A = 850 RPM 1 HP only).
- Variable speed motors are available for 230/3 and 460/3 (K = 1140 RPM 1.5 HP) fluid coolers.
- Default AIC rating is 10,000 amps (10 kA) with rating up to 100 kA available with selection of fused disconnect and standard fuses for fan motors.

Versatile Fan Cycling Control Methods

- Temperature fan cycling
- Electronic relay boards
- Energy-saving variable speed options for all fans



Fluid Cooler Series

Fluid Cooler Applications

Locate Fluid Cooler no closer than the length of the width from a wall or other fluid coolers. Avoid locations near exhaust fans, plumbing vents, flues, or chimneys. Refer to fluid cooler IO manual for other considerations with fluid cooler locations.

Common Fluids that can be cooled include water, glycol, and refrigeration oil. These fluids and variety others can be simulated in our computer software program to optimize circuiting and calculate performance for the specific supply temperature, flow rate, and fluid type.

Available Fluid Options:

- Water
- Ethylene Glycol
- Propylene Glycol

Available Refrigeration Oil Options:

- BSE170
- B100
- B320SH
- B150SH

System Design must conform to all local and national codes, laws, and regulations applying to the installation site. In addition, the safety code for mechanical refrigeration (ASME B31.5) should be followed as a guide for installation and operation practice. Line sizes and piping techniques should be obtained from the ASHRAE guide or equivalent reference. Under no circumstances should the pipe connection size of the unit be used as the basis for sizing the lines.

Fluid Cooler Series

Model Key

	F	A	V	F	1	2	4	08	M	A	
UNIT TYPE:	F - Fluid Cooler										FIN MATERIAL:
											A - Aluminum Fins
											V - Vinyl Coated Fins
											C - Copper Fins
TUBE DIAMETER:	A - 3/8"										VOLTAGE:
	E - 1/2"										A - 230/1/60 *
FAN DISCHARGE DIRECTIONS:	H - Horizontal Air Flow										K - 208/230/3/60 **
	V - Vertical Air Flow										L - 380/3/60 ***
	X - Hinged Fan Panel; Vertical Air Flow										M - 460/3/60 **
	E - Hinged Fan Panel; Horizontal Air Flow										P - 575/3/60 ****
FAN / MOTOR COMBINATION:	A - 850 RPM, 1.0 HP, 30"										U - 380/3/50 **
	B - 1140 RPM, 0.5 HP, 24" *										FIN SPACING:
	C - 850 RPM, 1.5 HP, 30"										08 - 8 FPI
	E - 575 RPM, 0.5 HP, 30"										10 - 10 FPI
	F - 1140 RPM, 1.5 HP, 30"										12 - 12 FPI
	K - 1140 RPM, 1.5 HP, 30", BPM Motor with Drive *****										ROWS DEEP:
											2, 3, 4
FANS WIDE:	1, 2										FANS IN LINE:
											1, 2, 3, 4, 5, 6, 7

* FAVB only.

** Inverter suitable motor.

*** Contact Application Engineering for quoting.

**** Inverter suitable motor on 'F' and 'A' models.

***** BPM motors are 208-230/3/60 or 460/3/60 only.

Fluid Cooler Series

FEV* / FEH* Data

ONE FAN WIDE										
MODEL	SHIP WEIGHT (LBS)	INTERNAL VOLUME (GAL)	EST SOUND 10' (dBA)				AIR FLOW (CFM)			
			MOTOR A	MOTOR C	MOTOR E	MOTOR F and K	MOTOR A	MOTOR C	MOTOR E	MOTOR F and K
FEV*11208	437	3.7	63	65	52	72	9075	10748	6350	11416
FEV*11210	439	3.7	63	65	52	72	8968	10468	6292	11310
FEV*11212	444	3.7	63	65	52	72	8859	10201	6233	11201
FEV*11308	466	5.3	63	65	52	72	8754	9956	6174	11097
FEV*11310	469	5.3	63	65	52	72	8585	9589	6076	10924
FEV*11312	478	5.3	63	65	52	72	8403	9252	5978	10750
FEV*11408	495	6.9	63	65	52	72	8410	9260	5983	10755
FEV*11410	499	6.9	63	65	52	72	8148	8850	5856	10515
FEV*11412	508	6.9	63	65	52	72	7865	8487	5718	10276
FEV*12208	718	6.6	66	68	55	75	18150	21496	12700	22832
FEV*12210	721	6.6	66	68	55	75	17936	20936	12584	22620
FEV*12212	729	6.6	66	68	55	75	17718	20402	12466	22402
FEV*12308	773	9.7	66	68	55	75	17508	19912	12348	22194
FEV*12310	779	9.7	66	68	55	75	17170	19178	12152	21848
FEV*12312	792	9.7	66	68	55	75	16806	18504	11956	21500
FEV*12408	830	12.8	66	68	55	75	16820	18520	11966	21510
FEV*12410	838	12.8	66	68	55	75	16296	17700	11712	21030
FEV*12412	855	12.8	66	68	55	75	15730	16974	11436	20552
FEV*13210	1041	9.6	68	70	57	77	26904	31404	18876	33930
FEV*13212	1060	9.6	68	70	57	77	26577	30603	18699	33603
FEV*13308	1126	14.1	68	70	57	77	26262	29868	18522	33291
FEV*13310	1135	14.1	68	70	57	77	25755	28767	18228	32772
FEV*13312	1153	14.1	68	70	57	77	25209	27756	17934	32250
FEV*13408	1210	18.7	68	70	57	77	25230	27780	17949	32265
FEV*13410	1223	18.7	68	70	57	77	24444	26550	17568	31545
FEV*13412	1247	18.7	68	70	57	77	23595	25461	17154	30828
FEV*14308	1437	18.6	69	71	58	78	35016	39824	24696	44388
FEV*14310	1449	18.6	69	71	58	78	34340	38356	24304	43696
FEV*14312	1474	18.6	69	71	58	78	33612	37008	23912	43000
FEV*14408	1550	24.6	69	71	58	78	33640	37040	23932	43020
FEV*14410	1566	24.6	69	71	58	78	32592	35400	23424	42060
FEV*14412	1599	24.6	69	71	58	78	31460	33948	22872	41104
FEV*15308	2020	22.9	70	72	59	79	43770	49780	30870	55485
FEV*15310	2035	22.9	70	72	59	79	42925	47945	30380	54620
FEV*15312	2066	22.9	70	72	59	79	42015	46260	29890	53750
FEV*15408	2160	30.5	70	72	59	79	42050	46300	29915	53775
FEV*15410	2181	30.5	70	72	59	79	40740	44250	29280	52575
FEV*15412	2222	30.5	70	72	59	79	39325	42435	28590	51380
FEV*16308	2554	27.4	71	73	60	80	52524	59736	37044	66582
FEV*16310	2573	27.4	71	73	60	80	51510	57534	36456	65544
FEV*16312	2610	27.4	71	73	60	80	50418	55512	35868	64500
FEV*16408	2784	36.4	71	73	60	80	50460	55560	35898	64530
FEV*16410	2808	36.4	71	73	60	80	48888	53100	35136	63090
FEV*16412	2858	36.4	71	73	60	80	47190	50922	34308	61656
FEV*17308	3020	31.9	72	74	61	81	61278	69692	43218	77679
FEV*17310	3042	31.9	72	74	61	81	60095	67123	42532	76468
FEV*17312	3088	31.9	72	74	61	81	58821	64764	41846	75250
FEV*17408	3279	42.3	72	74	61	81	58870	64820	41881	75285
FEV*17410	3307	42.3	72	74	61	81	57036	61950	40992	73605
FEV*17412	3366	42.3	72	74	61	81	55055	59409	40026	71932

* See Model Key under Fan / Motor Combination on page 3.

Krack recommends the 'K' motor option which has variable speed capability and only needs a controller to provide 0-10 V control signal to meet title 24 regulation. The data in the above table also applies for horizontal air flow models and other models.

Fluid Cooler Series

FEV* / FEH* Data

TWO FANS WIDE										
MODEL	SHIP WEIGHT (LBS)	INTERNAL VOLUME (GAL)	EST SOUND 10' (dBA)				AIR FLOW (CFM)			
			MOTOR A	MOTOR C	MOTOR E	MOTOR F and K	MOTOR A	MOTOR C	MOTOR E	MOTOR F and K
FEV*22208	1311	12.8	69	71	58	78	36300	42992	25400	45664
FEV*22210	1320	12.8	69	71	58	78	35872	41872	25168	45240
FEV*22212	1336	12.8	69	71	58	78	35436	40804	24932	44804
FEV*22308	1425	19.1	69	71	58	78	35016	39824	24696	44388
FEV*22310	1437	19.1	69	71	58	78	34340	38356	24304	43696
FEV*22312	1462	19.1	69	71	58	78	33612	37008	23912	43000
FEV*22408	1539	25.3	69	71	58	78	33640	37040	23932	43020
FEV*22410	1555	25.3	69	71	58	78	32592	35400	23424	42060
FEV*22412	1588	25.3	69	71	58	78	31460	33948	22872	41104
FEV*23210	1875	18.7	71	73	60	80	53808	62808	37752	67860
FEV*23212	1912	18.7	71	73	60	80	53154	61206	37398	67206
FEV*23308	2044	27.9	71	73	60	80	52524	59736	37044	66582
FEV*23310	2063	27.9	71	73	60	80	51510	57534	36456	65544
FEV*23312	2100	27.9	71	73	60	80	50418	55512	35868	64500
FEV*23408	2214	37.1	71	73	60	80	50460	55560	35898	64530
FEV*23410	2238	37.1	71	73	60	80	48888	53100	35136	63090
FEV*23412	2287	37.1	71	73	60	80	47190	50922	34308	61656
FEV*24308	2526	36.7	72	74	61	81	70032	79648	49392	88776
FEV*24310	2651	36.7	72	74	61	81	68680	76712	48608	87392
FEV*24312	2700	36.7	72	74	61	81	67224	74016	47824	86000
FEV*24408	2851	48.8	72	74	61	81	67280	74080	47864	86040
FEV*24410	2884	48.8	72	74	61	81	65184	70800	46848	84120
FEV*24412	2950	48.8	72	74	61	81	62920	67896	45744	82208
FEV*25308	3725	45.6	73	75	62	82	87540	99560	61740	110970
FEV*25310	3755	45.6	73	75	62	82	85850	95890	60760	109240
FEV*25312	3817	45.6	73	75	62	82	84030	92520	59780	107500
FEV*25408	4005	60.7	73	75	62	82	84100	92600	59830	107550
FEV*25410	4046	60.7	73	75	62	82	81480	88500	58560	105150
FEV*25412	4129	60.7	73	75	62	82	78650	84870	57180	102760
FEV*26308	4759	54.6	74	76	63	83	105048	119472	74088	133164
FEV*26310	4796	54.6	74	76	63	83	103020	115068	72912	131088
FEV*26312	4870	54.6	74	76	63	83	100836	111024	71736	129000
FEV*26408	5218	72.5	74	76	63	83	100920	111120	71796	129060
FEV*26410	5268	72.5	74	76	63	83	97776	106200	70272	126180
FEV*26412	5366	72.5	74	76	63	83	94380	101844	68616	123312
FEV*27308	5691	63.6	75	77	64	84	122556	139384	86436	155358
FEV*27310	5734	63.6	75	77	64	84	120190	134246	85064	152936
FEV*27312	5826	63.6	75	77	64	84	117642	129528	83692	150500
FEV*27408	6208	84.3	75	77	64	84	117740	129640	83762	150570
FEV*27410	6266	84.3	75	77	64	84	114072	123900	81984	147210
FEV*27412	6382	84.3	75	77	64	84	110110	118818	80052	143864

* See Model Key under Fan / Motor Combination on page 3.

Krack recommends the 'K' motor option which has variable speed capability and only needs a controller to provide 0-10 V control signal to meet title 24 regulation. The data in the above table also applies for horizontal air flow models and other models.

Fluid Cooler Series

FAVB Data

ONE FAN WIDE				
MODEL	SHIP WEIGHT (LBS)	INTERNAL VOLUME (GAL)	EST SOUND 10' (dBA)	AIR FLOW (CFM)
FAVB11208	178	1.2	65	6900
FAVB11210	181	1.2	65	6750
FAVB11212	184	1.2	65	6606
FAVB11308	180	1.8	65	6594
FAVB11310	185	1.8	65	6400
FAVB11312	190	1.8	65	6217
FAVB11408	193	2.3	65	6224
FAVB11410	200	2.3	65	6000
FAVB11412	207	2.3	65	5799
FAVB12208	346	2.2	68	13800
FAVB12210	352	2.2	68	13500
FAVB12212	358	2.2	68	13212
FAVB12308	362	3.2	68	13188
FAVB12310	372	3.2	68	12800
FAVB12312	382	3.2	68	12434
FAVB12408	386	4.5	68	12448
FAVB12410	400	4.5	68	12000
FAVB12412	413	4.5	68	11598
FAVB13308	544	4.7	70	19782
FAVB13310	559	4.7	70	19200
FAVB13312	574	4.7	70	18651
FAVB13408	580	6.2	70	18672
FAVB13410	600	6.2	70	18000
FAVB13412	620	6.2	70	17397
FAVB14308	820	6.2	71	26376
FAVB14310	840	6.2	71	25600
FAVB14312	860	6.2	71	24868
FAVB14408	873	8.1	71	24896
FAVB14410	900	8.1	71	24000
FAVB14412	927	8.1	71	23196
FAVB15308	836	7.6	72	32970
FAVB15310	861	7.6	72	32000
FAVB15312	886	7.6	72	31085
FAVB15408	917	10.1	72	31120
FAVB15410	950	10.1	72	30000
FAVB15412	983	10.1	72	28995
FAVB16308	1040	9.1	73	39564
FAVB16310	1070	9.1	73	38400
FAVB16312	1100	9.1	73	37302
FAVB16408	1110	12.0	73	37344
FAVB16410	1150	12.0	73	36000
FAVB16412	1190	12.0	73	34794
FAVB17308	1314	10.6	74	46158
FAVB17310	1349	10.6	74	44800
FAVB17312	1384	10.6	74	43519
FAVB17408	1404	14.0	74	43568
FAVB17410	1450	14.0	74	42000
FAVB17412	1497	14.0	74	40593

Fluid Cooler Series

FAVB Data

TWO FANS WIDE				
MODEL	SHIP WEIGHT (LBS)	INTERNAL VOLUME (GAL)	EST SOUND 10' (dBA)	AIR FLOW (CFM)
FAVB22208	642	4.2	71	27600
FAVB22210	654	4.2	71	27000
FAVB22212	666	4.2	71	26424
FAVB22308	845	6.3	71	26376
FAVB22310	865	6.3	71	25600
FAVB22312	885	6.3	71	24868
FAVB22408	895	8.4	71	24896
FAVB22410	925	8.4	71	24000
FAVB22412	953	8.4	71	23196
FAVB23308	1088	9.2	73	39564
FAVB23310	1118	9.2	73	38400
FAVB23312	1148	9.2	73	37302
FAVB23408	1185	12.3	73	37344
FAVB23410	1225	12.3	73	36000
FAVB23412	1265	12.3	73	34794
FAVB24308	1665	12.1	74	52752
FAVB24310	1705	12.1	74	51200
FAVB24312	1745	12.1	74	49736
FAVB24408	1771	16.1	74	49792
FAVB24410	1825	16.1	74	48000
FAVB24412	1880	16.1	74	46392
FAVB25308	1672	15.1	75	65940
FAVB25310	1722	15.1	75	64000
FAVB25312	1772	15.1	75	62170
FAVB25408	1859	20.1	75	62240
FAVB25410	1925	20.1	75	60000
FAVB25412	1991	20.1	75	57990
FAVB26308	2035	18.1	76	79128
FAVB26310	2095	18.1	76	76800
FAVB26312	2155	18.1	76	74604
FAVB26408	2145	24.0	76	74688
FAVB26410	2225	24.0	76	72000
FAVB26412	2305	24.0	76	69588
FAVB27308	2655	21.0	77	92316
FAVB27310	2725	21.0	77	89600
FAVB27312	2795	21.0	77	87038
FAVB27408	2835	27.9	77	87136
FAVB27410	2925	27.9	77	84000
FAVB27412	3015	27.9	77	81186

Fluid Cooler Series

Electrical Motor Data

MOTOR TYPE A - 1 HP 850 RPM (FLA, MCA MOP)												
MODEL	K - 230/3/60			U - 380/3/50			M - 460/3/60			P - 575/3/60		
	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP
1X1	7.3	8.5	20.0	4.8	5.4	15.0	4.9	5.5	15.0	4.3	4.8	15.0
1X2	12.1	13.3	25.0	7.1	7.7	15.0	7.3	7.9	15.0	6.1	6.6	15.0
1X3	16.9	18.1	30.0	9.4	10.0	15.0	9.7	10.3	15.0	7.9	8.4	15.0
1X4	21.7	22.9	35.0	11.7	12.3	15.0	12.1	12.7	15.0	9.7	10.2	15.0
1X5	26.5	27.7	40.0	14.0	14.6	20.0	14.5	15.1	20.0	11.5	12.0	15.0
1X6	31.3	32.5	45.0	16.3	16.9	20.0	16.9	17.5	20.0	13.3	13.8	15.0
1X7	36.1	37.3	50.0	18.6	19.2	25.0	19.3	19.9	25.0	15.1	15.6	20.0
2X2	21.7	22.9	35.0	11.7	12.3	15.0	12.1	12.7	15.0	9.7	10.2	15.0
2X3	31.3	32.5	45.0	16.3	16.9	20.0	16.9	17.5	20.0	13.3	13.8	15.0
2X4	40.9	42.1	50.0	20.9	21.5	25.0	21.7	22.3	25.0	16.9	17.4	20.0
2X5	50.5	51.7	60.0	25.5	26.1	30.0	26.5	27.1	30.0	20.5	21.0	25.0
2X6	60.1	61.3	70.0	30.1	30.7	35.0	31.3	31.9	35.0	24.1	24.6	25.0
2X7	69.7	70.9	80.0	34.7	35.3	40.0	36.1	36.7	40.0	27.7	28.2	30.0

MOTOR TYPE B - 0.5 HP 1140 RPM												
MODEL	A - 230/1/60			K - 230/3/60			M - 460/3/60			P - 575/3/60		
	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP
1X1	6.7	7.8	15.0	5.0	5.6	15.0	3.8	4.1	15.0	3.5	3.7	15.0
1X2	10.9	12.0	20.0	7.5	8.1	15.0	5.1	5.4	15.0	4.4	4.6	15.0
1X3	15.1	16.2	25.0	10.0	10.6	15.0	6.4	6.7	15.0	5.4	5.6	15.0
1X4	19.3	20.4	30.0	12.5	13.1	20.0	7.7	8.0	15.0	6.3	6.5	15.0
1X5	23.5	24.6	35.0	15.0	15.6	20.0	9.0	9.3	15.0	7.3	7.5	15.0
1X6	27.7	28.8	40.0	17.5	18.1	25.0	10.3	10.6	15.0	8.2	8.4	15.0
1X7	31.9	33.0	40.0	20.0	20.6	25.0	11.6	11.9	15.0	9.2	9.4	15.0
2X2	19.3	20.4	30.0	12.5	13.1	20.0	7.7	8.0	15.0	6.3	6.5	15.0
2X3	27.7	28.8	40.0	17.5	18.1	25.0	10.3	10.6	15.0	8.2	8.4	15.0
2X4	36.1	37.2	45.0	22.5	23.1	30.0	12.9	13.2	15.0	10.1	10.3	15.0
2X5	44.5	45.6	50.0	27.5	28.1	35.0	15.5	15.8	15.0	12.0	12.2	15.0
2X6	52.9	54.0	60.0	32.5	33.1	40.0	18.1	18.4	20.0	13.9	14.1	15.0
2X7	61.3	62.4	70.0	37.5	38.1	45.0	20.7	21.0	20.0	15.8	16.0	15.0

Fluid Cooler Series

Electrical Motor Data

MOTOR TYPE C - 1.5 HP 850 RPM												
MODEL	K - 230/3/60			U - 380/3/50			M - 460/3/60			P - 575/3/60		
	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP
1X1	9.4	11.1	30.0	5.4	6.1	15.0	5.8	6.6	15.0	5.0	5.6	15.0
1X2	16.3	18.0	35.0	8.3	9.0	15.0	9.1	9.9	15.0	7.5	8.1	15.0
1X3	23.2	24.9	40.0	11.2	11.9	15.0	12.4	13.2	20.0	10.0	10.6	15.0
1X4	30.1	31.8	50.0	14.1	14.8	20.0	15.7	16.5	25.0	12.5	13.1	20.0
1X5	37.0	38.7	50.0	17.0	17.7	25.0	19.0	19.8	25.0	15.0	15.6	20.0
1X6	43.9	45.6	60.0	19.9	20.6	25.0	22.3	23.1	30.0	17.5	18.1	25.0
1X7	50.8	52.5	70.0	22.8	23.5	30.0	25.6	26.4	35.0	20.0	20.6	25.0
2X2	30.1	31.8	50.0	14.1	14.8	20.0	15.7	16.5	25.0	12.5	13.1	20.0
2X3	43.9	45.6	60.0	19.9	20.6	25.0	22.3	23.1	30.0	17.5	18.1	25.0
2X4	57.7	59.4	70.0	25.7	26.4	30.0	28.9	29.7	35.0	22.5	23.1	30.0
2X5	71.5	73.2	90.0	31.5	32.2	40.0	35.5	36.3	45.0	27.5	28.1	35.0
2X6	85.3	87.0	100.0	37.3	38.0	45.0	42.1	42.9	50.0	32.5	33.1	40.0
2X7	99.1	100.8	110.0	43.1	43.8	50.0	48.7	49.5	50.0	37.5	38.1	45.0

MOTOR TYPE E - 0.5 HP 575 RPM												
MODEL	K - 230/3/60			U - 380/3/50			M - 460/3/60			P - 575/3/60		
	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP
1X1	5.9	6.8	15.0	3.9	4.3	15.0	4.1	4.5	15.0	4.0	4.3	15.0
1X2	9.3	10.2	15.0	5.3	5.7	15.0	5.7	6.1	15.0	5.4	5.8	15.0
1X3	12.7	13.6	20.0	6.7	7.1	15.0	7.3	7.7	15.0	6.9	7.2	15.0
1X4	16.1	17.0	25.0	8.1	8.5	15.0	8.9	9.3	15.0	8.3	8.7	15.0
1X5	19.5	20.4	25.0	9.5	9.9	15.0	10.5	10.9	15.0	9.8	10.1	15.0
1X6	22.9	23.8	30.0	10.9	11.3	15.0	12.1	12.5	15.0	11.2	11.6	15.0
1X7	26.3	27.2	35.0	12.3	12.7	15.0	13.7	14.1	15.0	12.7	13.0	15.0
2X2	16.1	17.0	25.0	8.1	8.5	15.0	8.9	9.3	15.0	8.3	8.7	15.0
2X3	22.9	23.8	30.0	10.9	11.3	15.0	12.1	12.5	15.0	11.2	11.6	15.0
2X4	29.7	30.6	35.0	13.7	14.1	15.0	15.3	15.7	20.0	14.1	14.5	15.0
2X5	36.5	37.4	45.0	16.5	16.9	20.0	18.5	18.9	20.0	17.0	17.4	20.0
2X6	43.3	44.2	50.0	19.3	19.7	20.0	21.7	22.1	25.0	19.9	20.3	20.0
2X7	50.1	51.0	60.0	22.1	22.5	25.0	24.9	25.3	25.0	22.8	23.2	25.0

Fluid Cooler Series

Electrical Motor Data

MOTOR TYPE F - 1.5 HP 1140 RPM															
MODEL	K - 230/3/60			U - 380/3/50			L - 380/3/60			M - 460/3/60			P - 575/3/60		
	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP
1X1	7.9	9.3	20.0	4.6	5.1	15.0	5.5	6.3	15.0	5.0	5.6	15.0	5.0	5.6	15.0
1X2	13.3	14.7	25.0	6.7	7.2	15.0	8.5	9.3	15.0	7.5	8.1	15.0	7.5	8.1	15.0
1X3	18.7	20.1	30.0	8.8	9.3	15.0	11.5	12.3	20.0	10.0	10.6	15.0	10.0	10.6	15.0
1X4	24.1	25.5	40.0	10.9	11.4	15.0	14.5	15.3	20.0	12.5	13.1	20.0	12.5	13.1	20.0
1X5	29.5	30.9	45.0	13.0	13.5	15.0	17.5	18.3	25.0	15.0	15.6	20.0	15.0	15.6	20.0
1X6	34.9	36.3	50.0	15.1	15.6	20.0	20.5	21.3	25.0	17.5	18.1	25.0	17.5	18.1	25.0
1X7	40.3	41.7	50.0	17.2	17.7	20.0	23.5	24.3	30.0	20.0	20.6	25.0	20.0	20.6	25.0
2X2	24.1	25.5	40.0	10.9	11.4	15.0	14.5	15.3	20.0	12.5	13.1	20.0	12.5	13.1	20.0
2X3	34.9	36.3	50.0	15.1	15.6	20.0	20.5	21.3	25.0	17.5	18.1	25.0	17.5	18.1	25.0
2X4	45.7	47.1	60.0	19.3	19.8	25.0	26.5	27.3	35.0	22.5	23.1	30.0	22.5	23.1	30.0
2X5	56.5	57.9	70.0	23.5	24.0	25.0	32.5	33.3	40.0	27.5	28.1	35.0	27.5	28.1	35.0
2X6	67.3	68.7	80.0	27.7	28.2	30.0	38.5	39.3	45.0	32.5	33.1	40.0	32.5	33.1	40.0
2X7	78.1	79.5	90.0	31.9	32.4	35.0	44.5	45.3	50.0	37.5	38.1	45.0	37.5	38.1	45.0

MOTOR TYPE K - 1.5 HP 1140 RPM (FLA, MCA MOP)

MODEL	K - 230/3/60			M - 460/3/60		
	UNIT FLA	MCA	MOP	UNIT FLA	MCA	MOP
1X1	7.9	9.3	20.0	5.5	6.3	15.0
1X2	13.3	14.7	25.0	8.5	9.3	15.0
1X3	18.7	20.1	30.0	11.5	12.3	20.0
1X4	24.1	25.5	40.0	14.5	15.3	20.0
1X5	29.5	30.9	45.0	17.5	18.3	25.0
1X6	34.9	36.3	50.0	20.5	21.3	25.0
1X7	40.3	41.7	50.0	23.5	24.3	30.0
2X2	24.1	25.5	40.0	14.5	15.3	20.0
2X3	34.9	36.3	50.0	20.5	21.3	25.0
2X4	45.7	47.1	60.0	26.5	27.3	35.0
2X5	56.5	57.9	70.0	32.5	33.3	40.0
2X6	67.3	68.7	80.0	38.5	39.3	45.0
2X7	78.1	79.5	90.0	44.5	45.3	50.0

Electrical Motor Data at 60 Hz

MOTOR DATA AT 60 Hz			
MOTOR TYPE	MOTOR RPM	MOTOR HP	MOTOR AMPS AT 380/50/3
A	700	0.75	2.3
C	700	1.00	2.9
E	420	0.33	1.4
F	950	1.00	2.1
K	950	1.00	TBD

Fluid Cooler Series

Fan Motor Combination (KW)

MOTOR FLA										
MOTOR TYPE	A-230/1/60	K-230/3/60	U-380/1/60	L-380/3/60	M-460/3/60	P-575/3/60				
A	N/A	4.8	2.3	N/A	2.4	1.8	A	850 RPM	1.0 HP	30"
B	4.2	2.5	N/A	N/A	1.3	1.0	B	1140 RPM	0.5 HP	24"
C	N/A	6.9	2.9	N/A	3.3	2.5	C	850 RPM	1.5 HP	30"
E	N/A	3.4	1.4	N/A	1.6	1.5	E	575 RPM	0.5 HP	30"
F	N/A	5.4	2.1	3.0	2.5	2.5	F	1140 RPM	1.5 HP	30"
K	N/A	5.4	N/A	N/A	3.0	N/A	K	1140 RPM	1.5 HP	30"

Motor KW Rating at 60 Hz

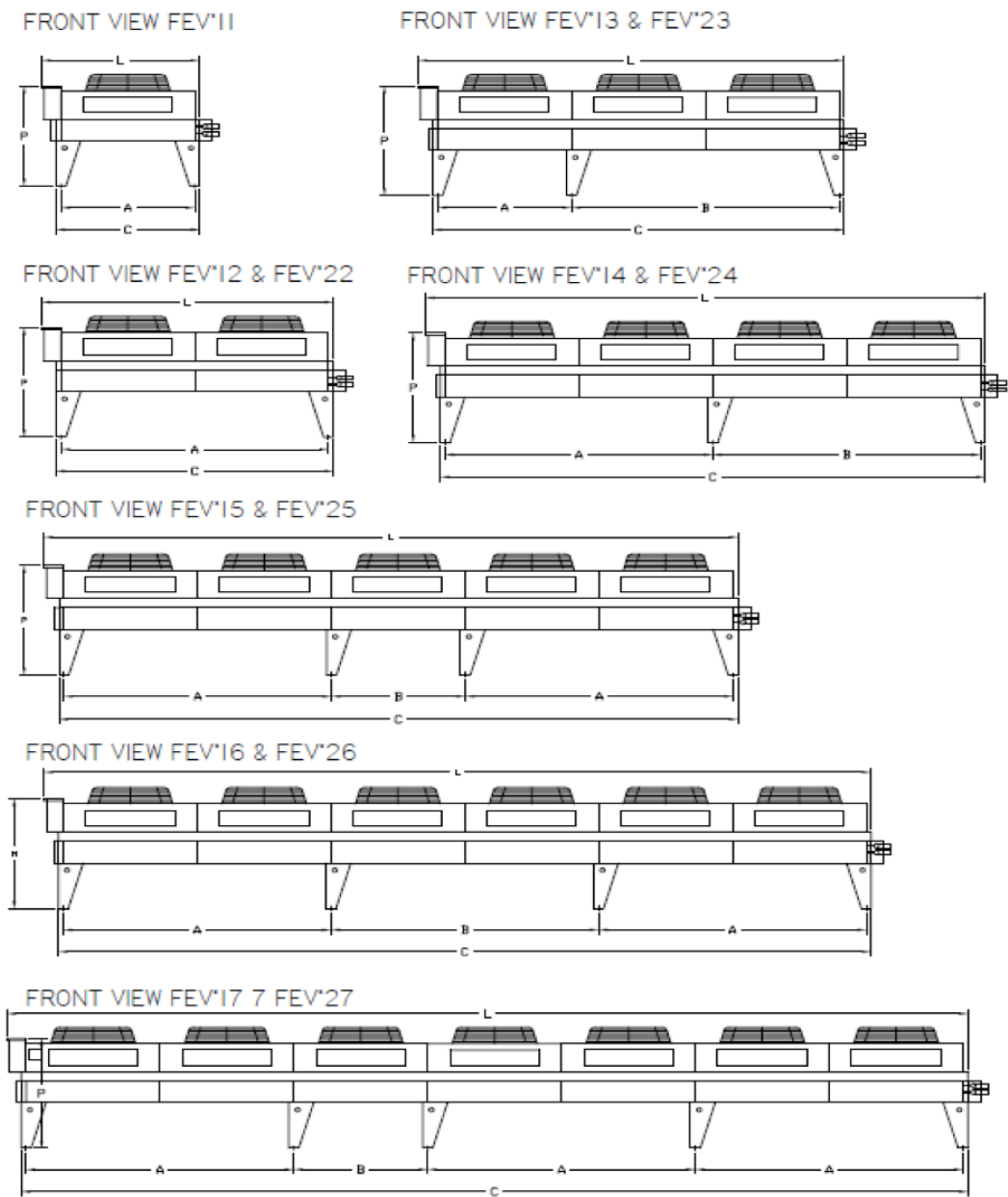
KW MOTOR DATA AT 60 Hz						
MODEL	A	B	C	E	F	K
11208	0.90	0.61	1.07	0.27	1.17	1.15
11210	0.91	0.61	1.08	0.28	1.17	1.15
11212	0.92	0.61	1.09	0.28	1.18	1.16
11308	0.92	0.61	1.10	0.28	1.19	1.17
11310	0.93	0.62	1.13	0.28	1.21	1.19
11312	0.94	0.62	1.15	0.29	1.22	1.20
11408	0.94	0.63	1.15	0.29	1.22	1.20
11410	0.96	0.63	1.17	0.29	1.24	1.22
11412	0.98	0.64	1.20	0.30	1.27	1.25

Motor KW Rating at 50 Hz

KW MOTOR DATA AT 50 Hz						
MODEL	A	B	C	E	F	K
11208	0.75	0.51	0.89	0.23	0.98	0.96
11210	0.76	0.51	0.90	0.23	0.98	0.96
11212	0.77	0.51	0.91	0.23	0.98	0.97
11308	0.77	0.51	0.92	0.23	0.99	0.98
11310	0.78	0.52	0.94	0.23	1.01	0.99
11312	0.78	0.52	0.96	0.24	1.02	1.00
11408	0.78	0.53	0.96	0.24	1.02	1.00
11410	0.80	0.53	0.98	0.24	1.03	1.02
11412	0.82	0.53	1.00	0.25	1.06	1.04

Fluid Cooler Series

Dimensional Drawings for FEV*

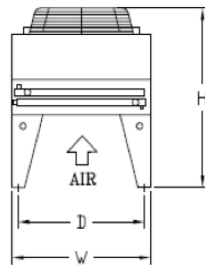


* See Model Key under Fan / Motor Combination on page 3.

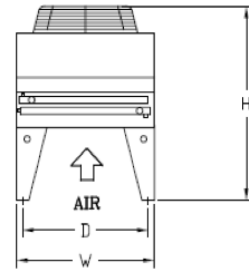
Fluid Cooler Series

*Dimensional Drawings for FEV**

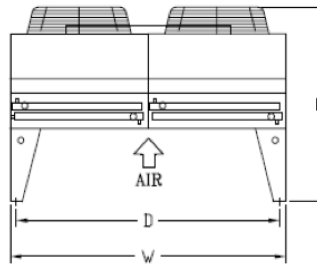
END VIEW FEV*11



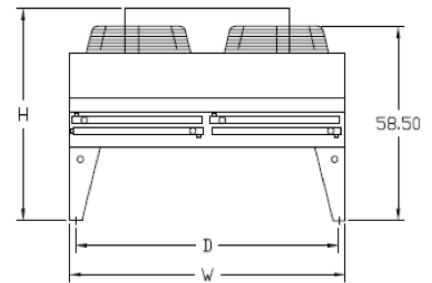
END VIEW
FEV*12, FEV*13, FEV*14,
FEV*15, FEV*16, FEV*17



END VIEW
FEV*22, FEV*23, FEV*24



END VIEW
FEV*25, FEV*26, FEV*27



* See Model Key under Fan / Motor Combination on page 3.

Fluid Cooler Series

Dimensional Table for FEV*

ONE FAN									TWO FANS								
MODEL	L	W	H	A	B	C	D	P	MODEL	L	W	H	A	B	C	D	P
FEV*11	63.85	45.25	54.00	54.00	NA	58.00	41.25	48.50	FEV*22	117.85	90.50	58.50	108.00	NA	112.00	86.55	53.00
FEV*12	117.85	45.25	58.50	108.00	NA	112.00	41.25	53.00	FEV*23	171.85	90.50	58.50	54.00	108.00	166.00	86.55	53.00
FEV*13	171.85	45.25	58.50	54.00	108.00	166.00	41.25	53.00	FEV*24	225.85	90.50	58.50	108.00	108.00	220.00	86.55	53.00
FEV*14	225.85	45.25	58.50	108.00	108.00	220.00	41.25	53.00	FEV*25	279.85	90.50	64.00	108.00	54.00	274.00	86.55	53.00
FEV*15	279.85	45.25	58.50	108.00	54.00	274.00	41.25	53.00	FEV*26	333.85	90.50	64.00	108.00	108.00	328.00	86.55	53.00
FEV*16	333.85	45.25	58.50	108.00	108.00	328.00	41.25	53.00	FEV*27	387.85	90.50	64.00	108.00	54.00	382.00	86.55	53.00
FEV*17	387.85	45.25	58.50	108.00	54.00	382.00	41.25	53.00									

* A, C, E, and F fan / motor combinations. All models dimensions listed are in inches with standard 22" legs.

Optional Leg and Height Dimensions for FEV*

ONE FAN														
LEG HEIGHT	FEV*11		FEV*12		FEV*13		FEV*14		FEV*15		FEV*16		FEV*17	
	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS
15	47	4	51.5	4	51.5	4	51.5	6	51.5	6	51.5	8	51.5	10
30	62	4	66.5	4	66.5	6	66.5	6	66.5	8	66.5	8	66.5	10
36	68	4	72.5	4	72.5	6	72.5	6	72.5	8	72.5	8	72.5	10
42	74	4	78.5	4	78.5	6	78.5	6	78.5	8	78.5	8	78.5	10
48	80	4	84.5	6	84.5	8	84.5	10	84.5	12	84.5	14	84.5	16
60	93	4	96.5	6	96.5	8	96.5	10	96.5	12	96.5	14	96.5	16

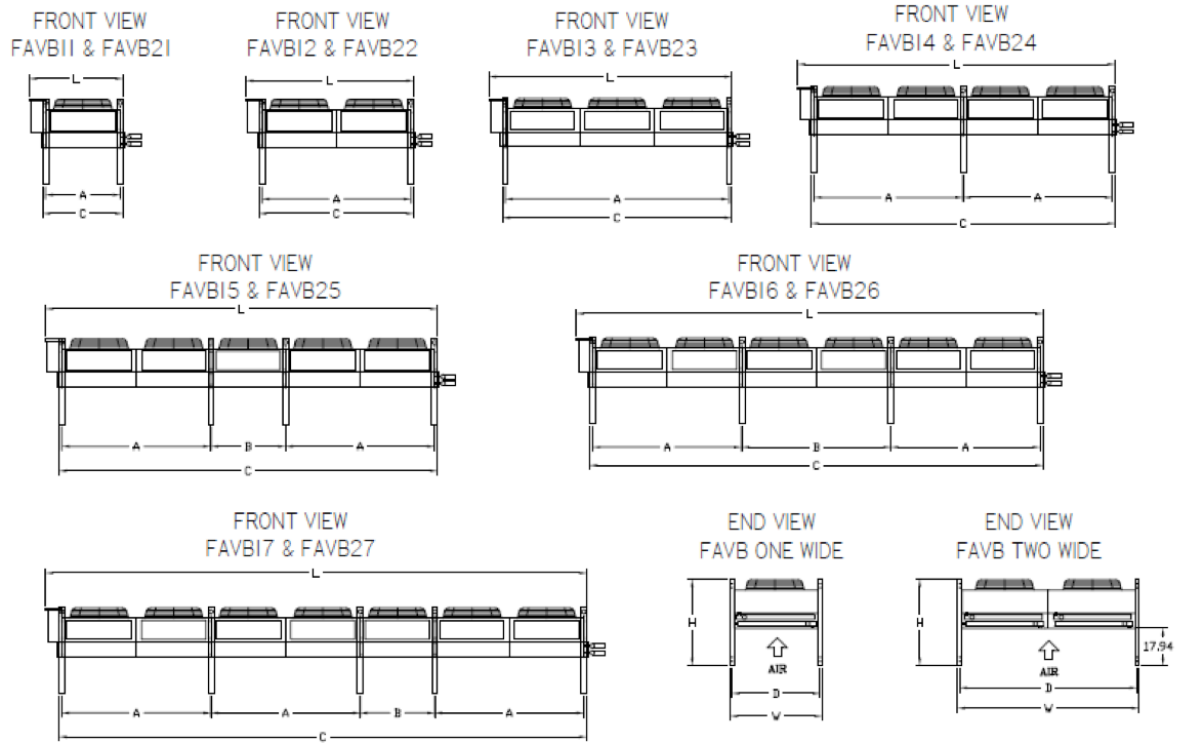
TWO FANS														
LEG HEIGHT	--		FEV*22		FEV*23		FEV*24		FEV*25		FEV*26		FEV*27	
	-	-	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS
15	-	-	51.5	4	51.5	6	51.5	6	57	8	57	8	57	10
30	-	-	66.5	4	66.5	6	66.5	6	72	8	72	8	72	10
36	-	-	72.5	4	72.5	6	72.5	6	78	8	78	8	78	10
42	-	-	78.5	4	78.5	6	78.5	6	84	8	84	8	84	10
48	-	-	84.5	6	84.5	8	84.5	10	90	12	90	14	90	16
60	-	-	96.5	6	96.5	8	96.5	10	102	12	102	14	102	16

* A, C, E, and F fan / motor combinations.

Fluid coolers are offered with multiple leg height options. See table above for dimensions and quantities required. All model dimensions listed are in inches.

Fluid Cooler Series

Dimensional Drawings for FAVB



Dimensional Table for FAVB

ONE FAN							
MODEL	L	W	H	A	B	C	D
FAVB11	45.22	44.55	41.44	36.00	NA	38.75	42.55
FAVB12	81.22	44.55	41.44	72.00	NA	74.75	42.55
FAVB13	117.22	44.55	41.44	108.00	NA	110.75	42.55
FAVB14	153.22	44.55	41.44	72.00	NA	146.75	42.55
FAVB15	189.22	44.55	41.44	72.00	36.00	182.75	42.55
FAVB16	225.22	44.55	41.44	72.00	NA	218.75	42.55
FAVB17	261.22	44.55	41.44	72.00	36.00	254.75	42.55

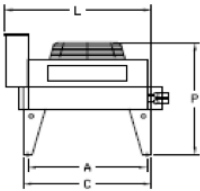
TWO FANS							
MODEL	L	W	H	A	B	C	D
FAVB22	81.22	87.62	41.44	72.00	NA	74.75	85.62
FAVB23	117.22	87.62	41.44	108.00	NA	110.75	85.62
FAVB24	153.22	87.62	41.44	72.00	NA	146.75	85.62
FAVB25	189.22	87.62	41.44	72.00	36.00	182.75	85.62
FAVB26	225.22	87.62	41.44	72.00	NA	218.75	85.62
FAVB27	261.22	87.62	41.44	72.00	36.00	254.75	85.62

All model dimensions listed are in inches.

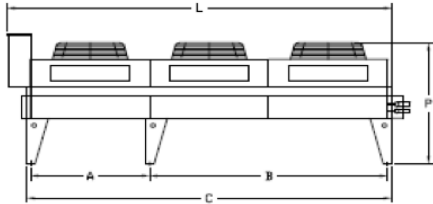
Fluid Cooler Series

Dimensional Drawings for K Fan Models

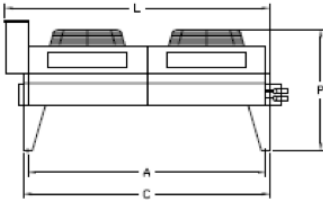
FRONT VIEW FEVK11



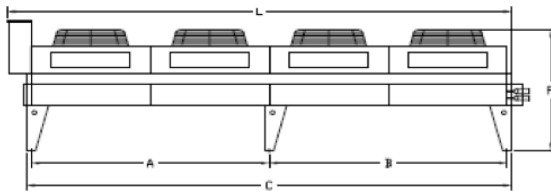
FRONT VIEW FEVK13 & FEVK23



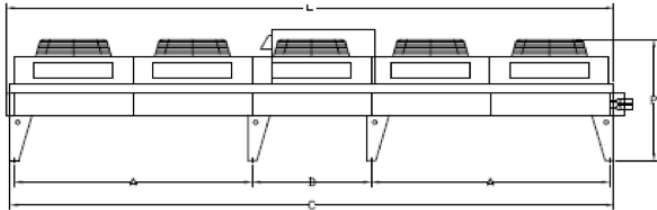
FRONT VIEW FEVK12 & FEVK22



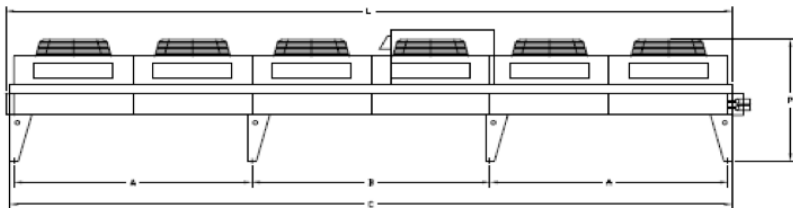
FRONT VIEW FEVK14 & FEVK24



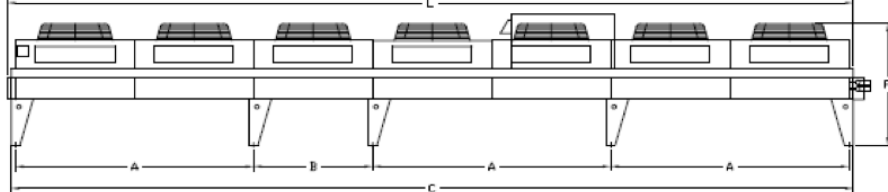
FRONT VIEW FEVK15



FRONT VIEW FEVK16

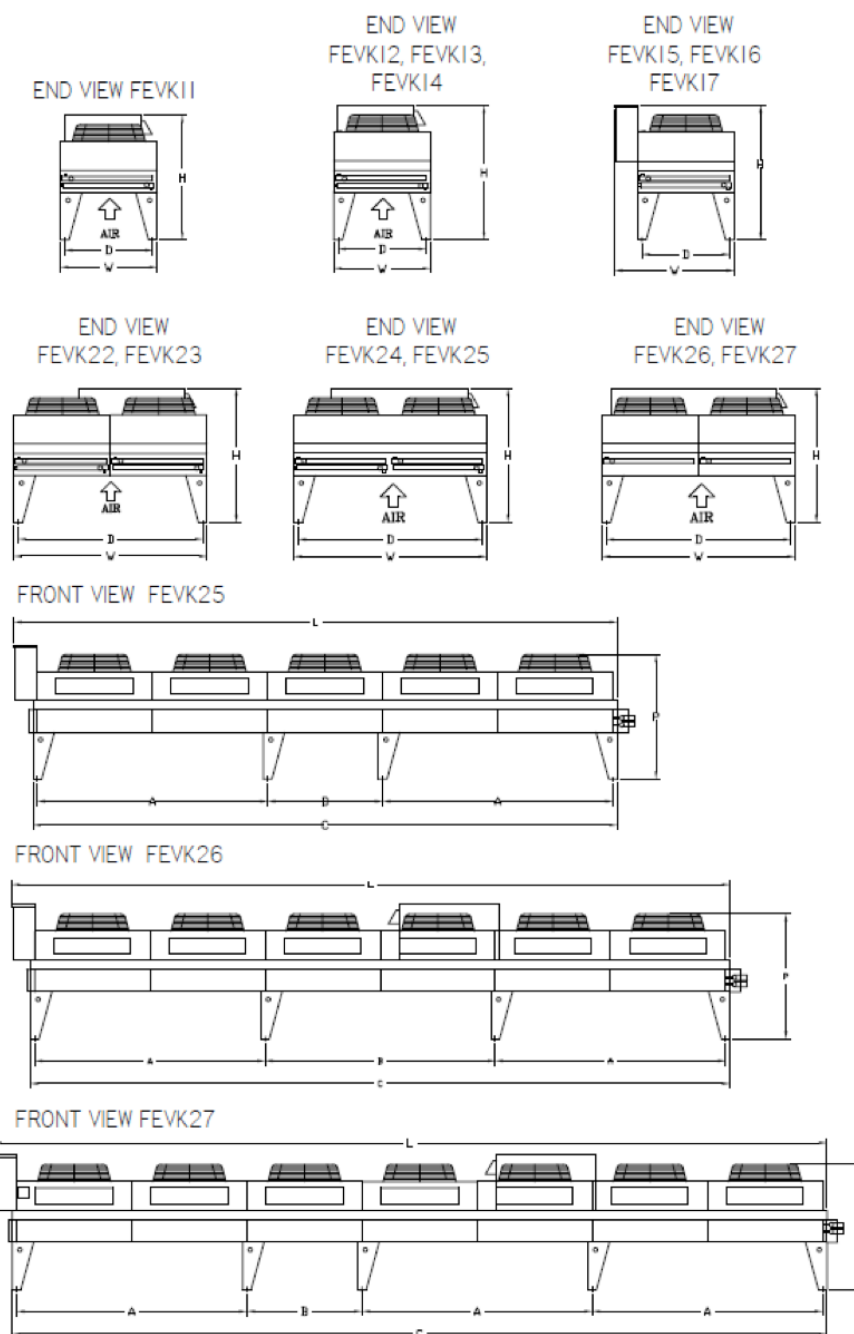


FRONT VIEW FEVK17



Fluid Cooler Series

Dimensional Drawings for K Fan Models



Fluid Cooler Series

Dimensional Table for FEVK

ONE FAN									TWO FANS								
MODEL	L	W	H	A	B	C	D	P	MODEL	L	W	H	A	B	C	D	P
FEVK11	66.75	45.25	58.50	54.00	NA	58.00	41.25	54.00	FEVK22	120.75	90.50	63.00	108.00	NA	112.00	86.55	58.50
FEVK12	120.75	45.25	63.00	108.00	NA	112.00	41.25	58.50	FEVK23	174.75	90.50	63.00	54.00	108.00	166.00	86.55	58.50
FEVK13	174.75	45.25	63.00	54.00	108.00	166.00	41.25	58.50	FEVK24	228.75	90.50	63.00	108.00	108.00	220.00	86.55	58.50
FEVK14	228.75	45.25	63.00	108.00	108.00	220.00	41.25	58.50	FEVK25	282.75	90.50	63.00	108.00	54.00	274.00	86.55	58.50
FEVK15	274.00	56.00	63.00	108.00	54.00	274.00	41.25	58.50	FEVK26	336.75	90.50	63.00	108.00	108.00	328.00	86.55	58.50
FEVK16	328.00	56.00	63.00	108.00	108.00	328.00	41.25	58.50	FEVK27	390.75	90.50	63.00	108.00	54.00	382.00	86.55	58.50
FEVK17	382.00	56.00	63.00	108.00	54.00	382.00	41.25	58.50									

All models dimensions listed are in inches.

Optional Leg and Height Dimensions for FEVK

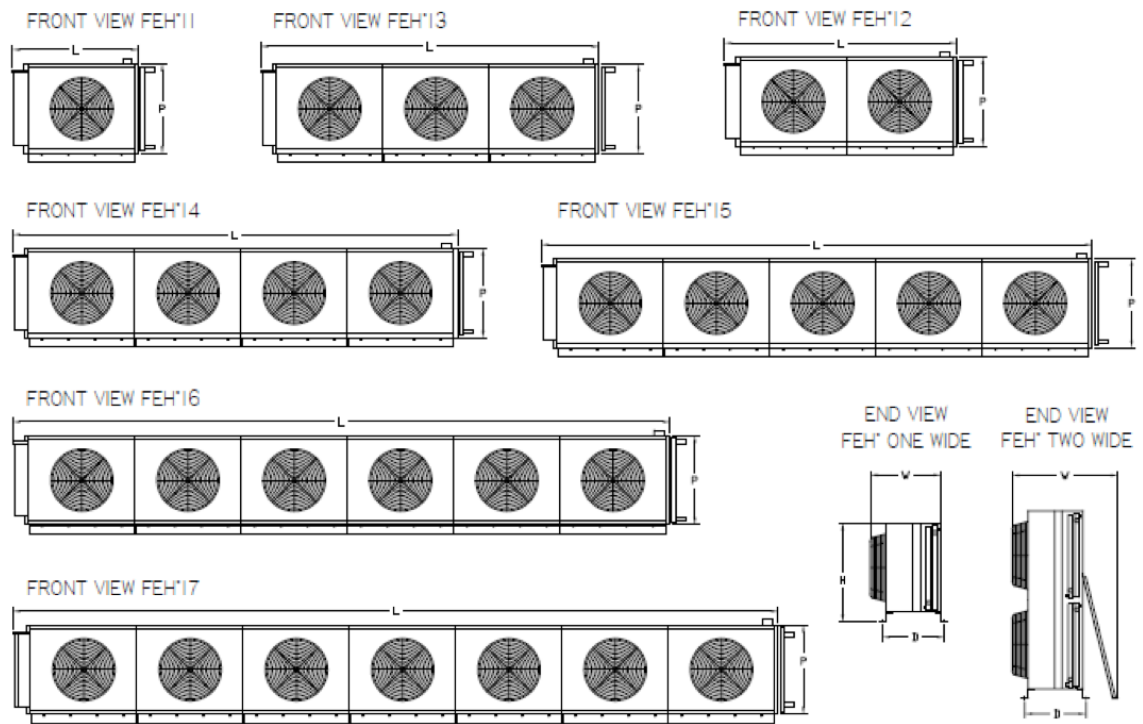
ONE FAN														
LEG HEIGHT	FEVK11		FEVK12		FEVK13		FEVK14		FEVK15		FEVK16		FEVK17	
	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS
15	51.5	4	56	4	56	6	56	6	56	8	56	8	56	10
30	66.5	4	71.0	4	71.0	6	71.0	6	71.0	8	71.0	8	71.0	10
36	72.5	4	77.0	4	77.0	6	77.0	6	77.0	8	77.0	8	77.0	10
42	78.5	4	83.0	4	83.0	6	83.0	6	83.0	8	83.0	8	83.0	10
48	84.5	4	89.0	6	89.0	8	89.0	10	89.0	12	89.0	14	89.0	16
60	96.5	4	101.0	6	101.0	8	101.0	10	101.0	12	101.0	14	101.0	16

TWO FANS														
LEG HEIGHT	--		FEVK22		FEVK23		FEVK24		FEVK25		FEVK26		FEVK27	
	-	-	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS	HEIGHT	# OF LEGS
15	-	-	56.0	4	56.0	6	56.0	6	56.0	8	56.0	8	56.0	10
30	-	-	71.0	4	71.0	6	71.0	6	71.0	8	71.0	8	71.0	10
36	-	-	77.0	4	77.0	6	77.0	6	77.0	8	77.0	8	77.0	10
42	-	-	83.0	4	83.0	6	83.0	6	83.0	8	83.0	8	83.0	10
48	-	-	89.0	6	89.0	8	89.0	10	89.0	12	89.0	14	89.0	16
60	-	-	101.0	6	101.0	8	101.0	10	101.0	12	101.0	14	101.0	16

All model dimensions listed are in inches.

Fluid Cooler Series

Dimensional Drawings for FEH*



* See Model Key under Fan / Motor Combination on page 3.

Dimensional Table for FEH*

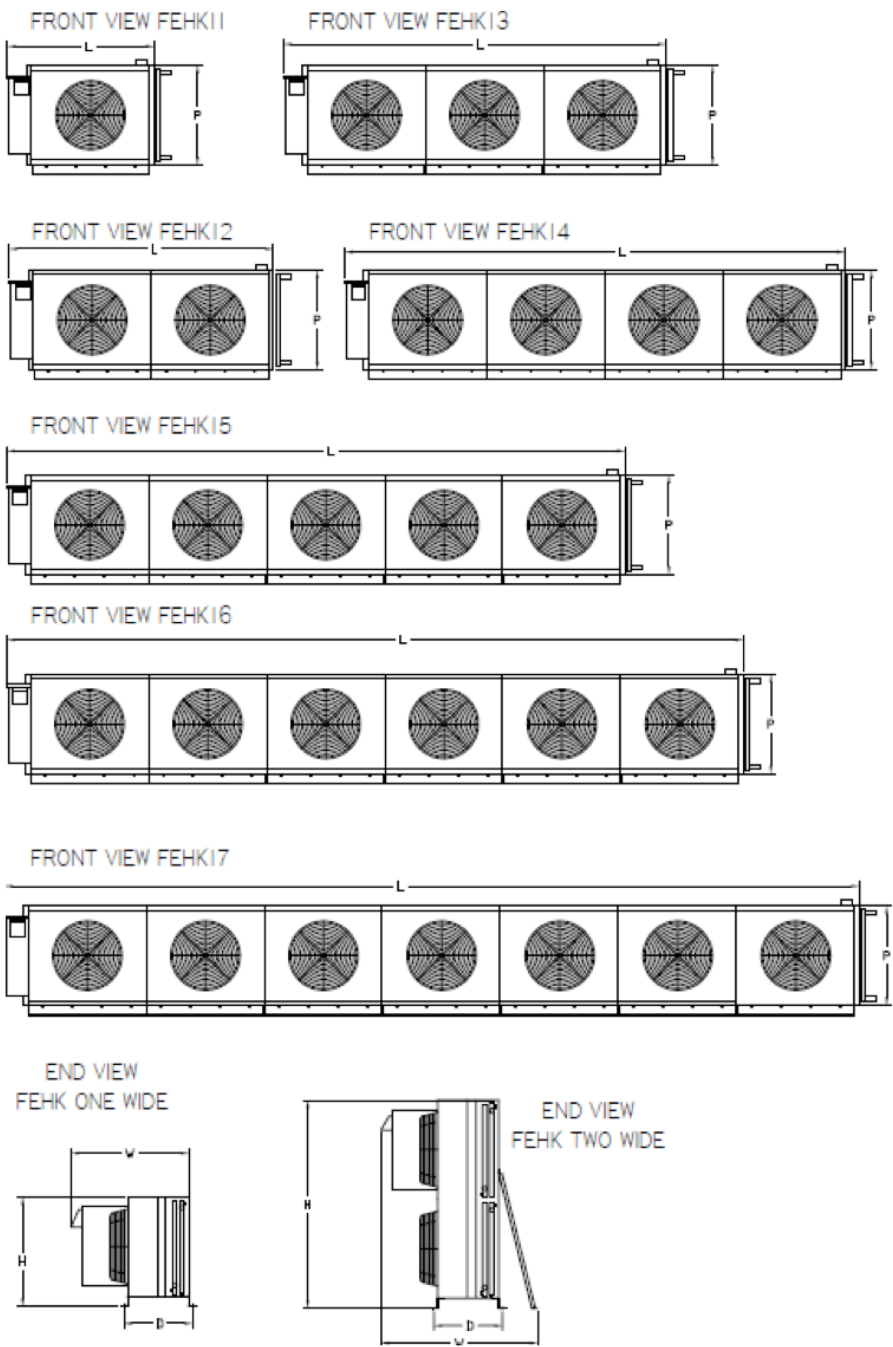
ONE FAN					
MODEL	L	W	H	D	P
FEH*11	63.85	36.50	49.94	31.75	45.25
FEH*12	117.85	36.50	54.71	31.75	45.25
FEH*13	171.85	36.50	54.71	31.75	45.25
FEH*14	225.85	36.50	54.71	31.75	45.25
FEH*15	279.85	36.50	54.71	31.75	45.25
FEH*16	333.85	36.50	54.71	31.75	45.25
FEH*17	388.88	36.50	54.71	31.75	45.25

TWO FANS					
MODEL	L	W	H	D	P
FEH*22	117.85	53.46	99.96	31.75	90.50
FEH*23	171.85	53.46	99.96	31.75	90.50
FEH*24	225.85	53.46	99.96	31.75	90.50
FEH*25	279.85	53.46	99.96	31.75	90.50
FEH*26	333.85	53.46	99.96	31.75	90.50
FEH*27	388.88	53.46	99.96	31.75	90.50

* See Model Key under Fan / Motor Combination on page 3.
All model dimensions listed are in inches.

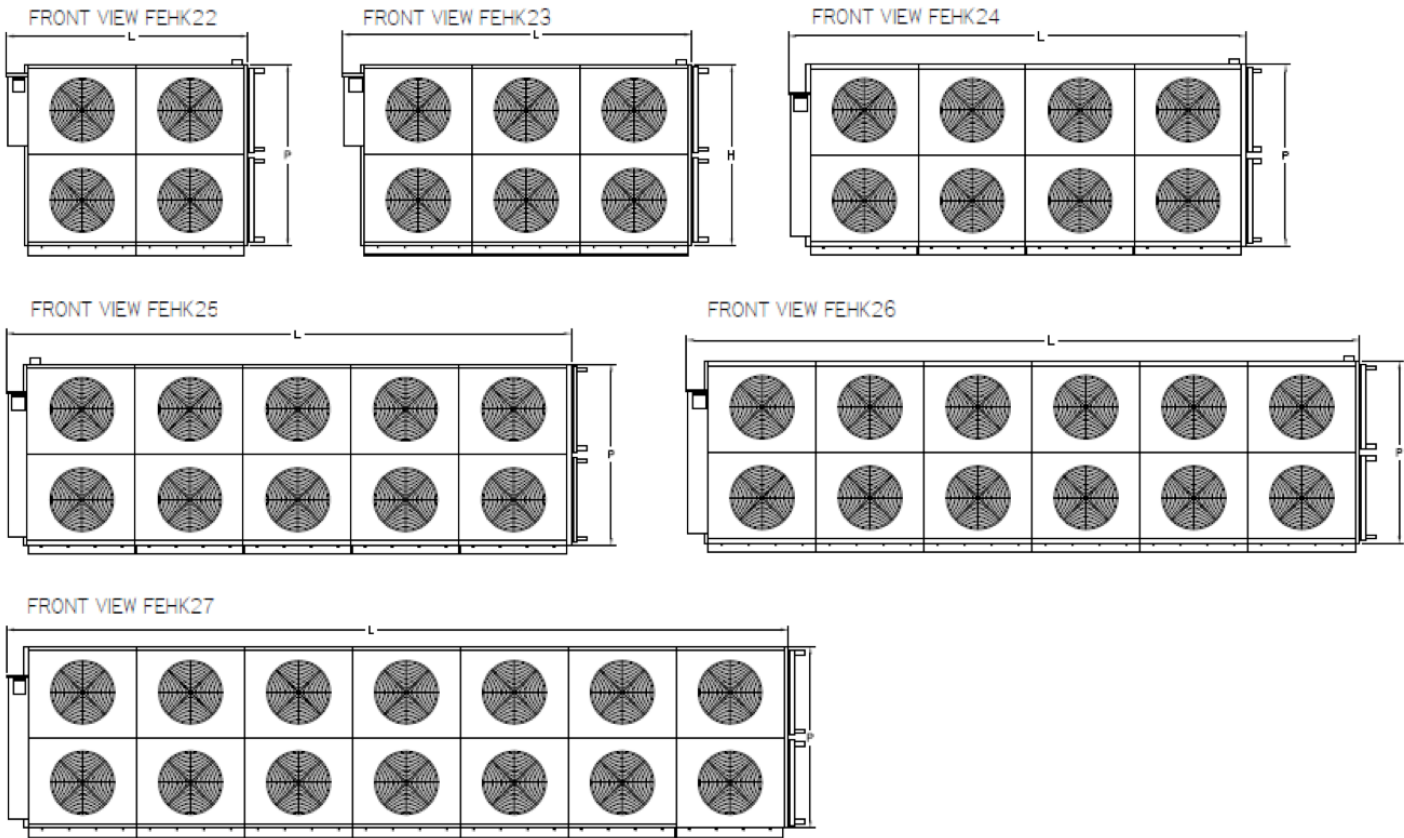
Fluid Cooler Series

Dimensional Drawings for FEHK



Fluid Cooler Series

Dimensional Drawings for FEHK



Dimensional Table for FEHK

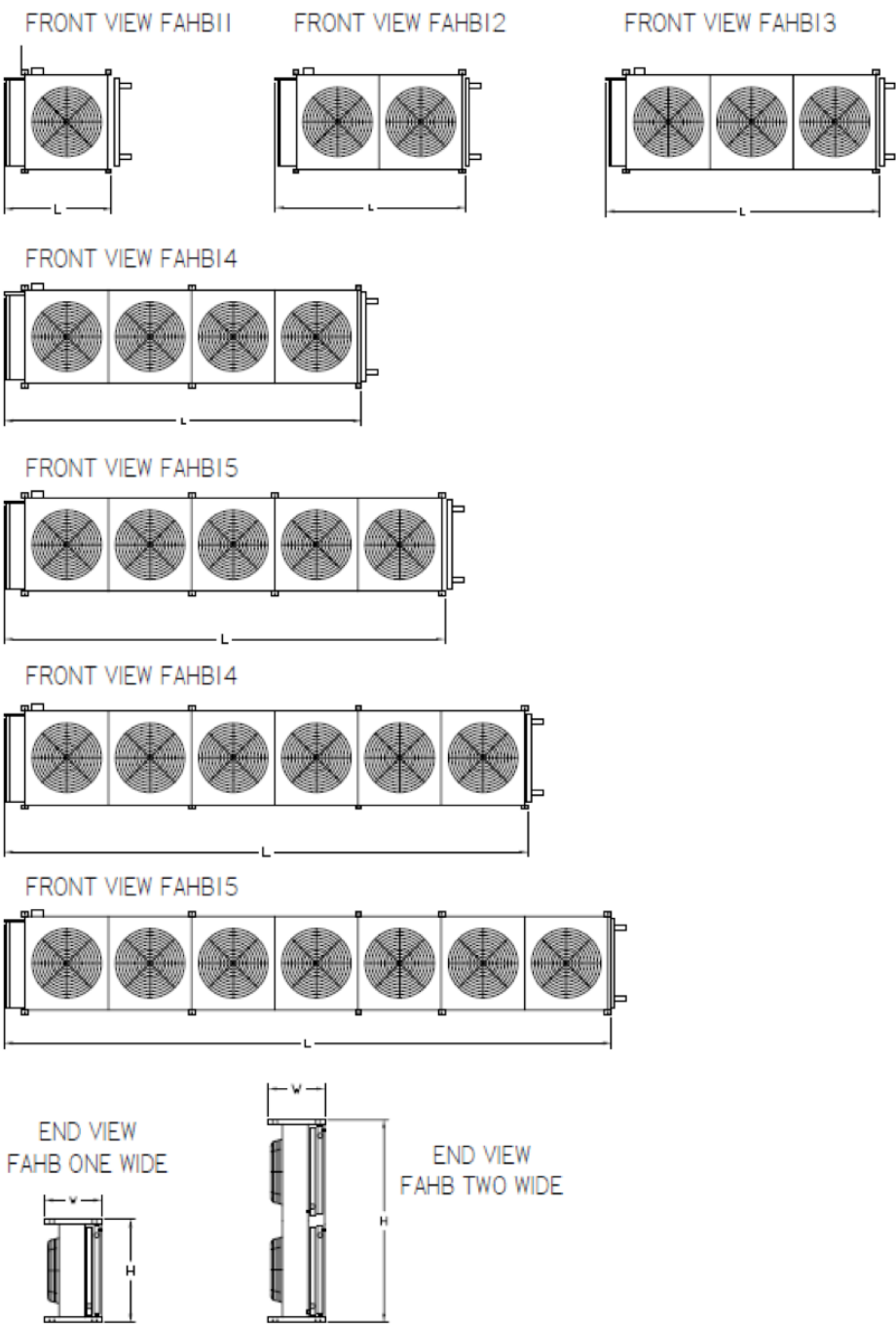
ONE FAN					
MODEL	L	W	H	D	P
FEHK11	66.75	49.90	49.94	31.75	45.25
FEHK12	120.75	53.90	54.71	31.75	45.25
FEHK13	174.75	53.90	54.71	31.75	45.25
FEHK14	228.75	53.90	54.71	31.75	45.25
FEHK15	282.75	53.90	54.71	31.75	45.25
FEHK16	336.75	53.90	54.71	31.75	45.25
FEHK17	390.75	53.90	54.71	31.75	45.25

TWO FANS					
MODEL	L	W	H	D	P
FEHK22	120.75	71.36	99.96	31.75	90.50
FEHK23	174.75	71.36	99.96	31.75	90.50
FEHK24	228.75	71.36	99.96	31.75	90.50
FEHK25	282.75	71.36	99.96	31.75	90.50
FEHK26	336.75	71.36	99.96	31.75	90.50
FEHK27	390.75	71.36	99.96	31.75	90.50

All model dimensions listed are in inches.

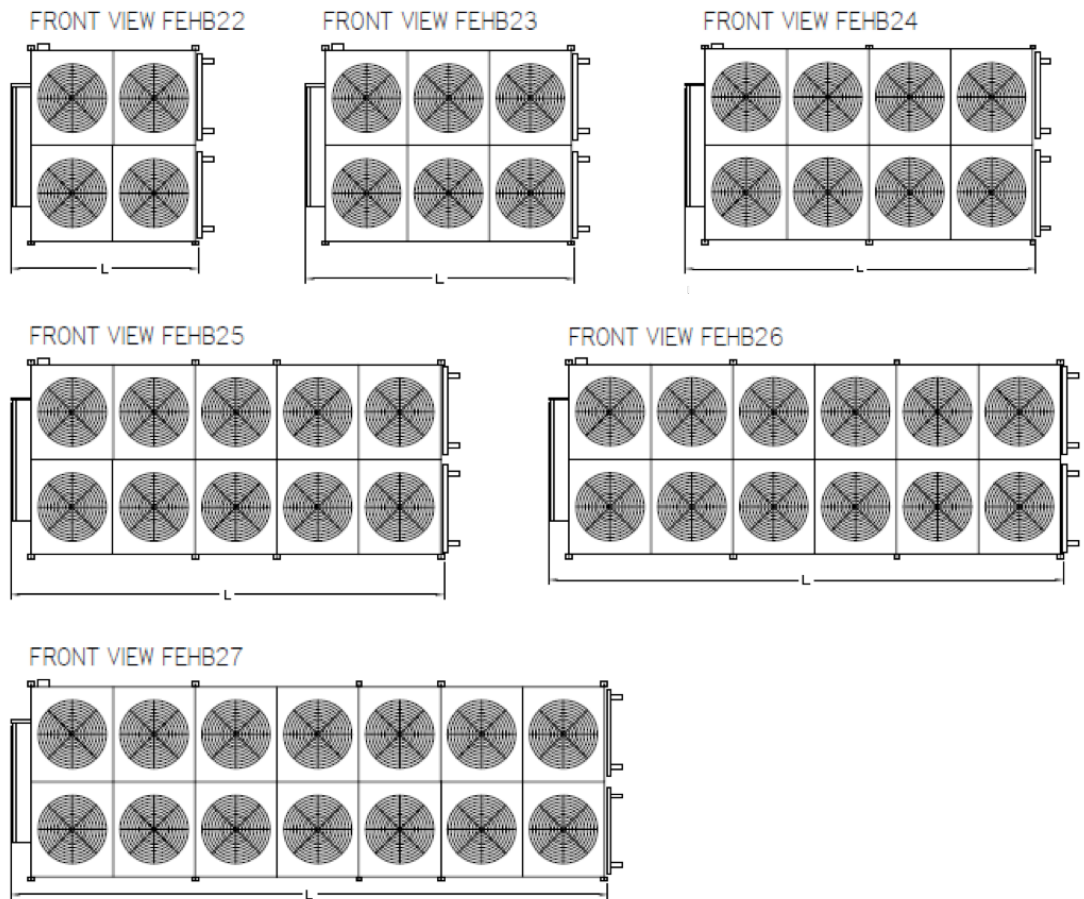
Fluid Cooler Series

Dimensional Drawings for FAHB



Fluid Cooler Series

Dimensional Drawings for FAHB



Dimensional Table for FAHB

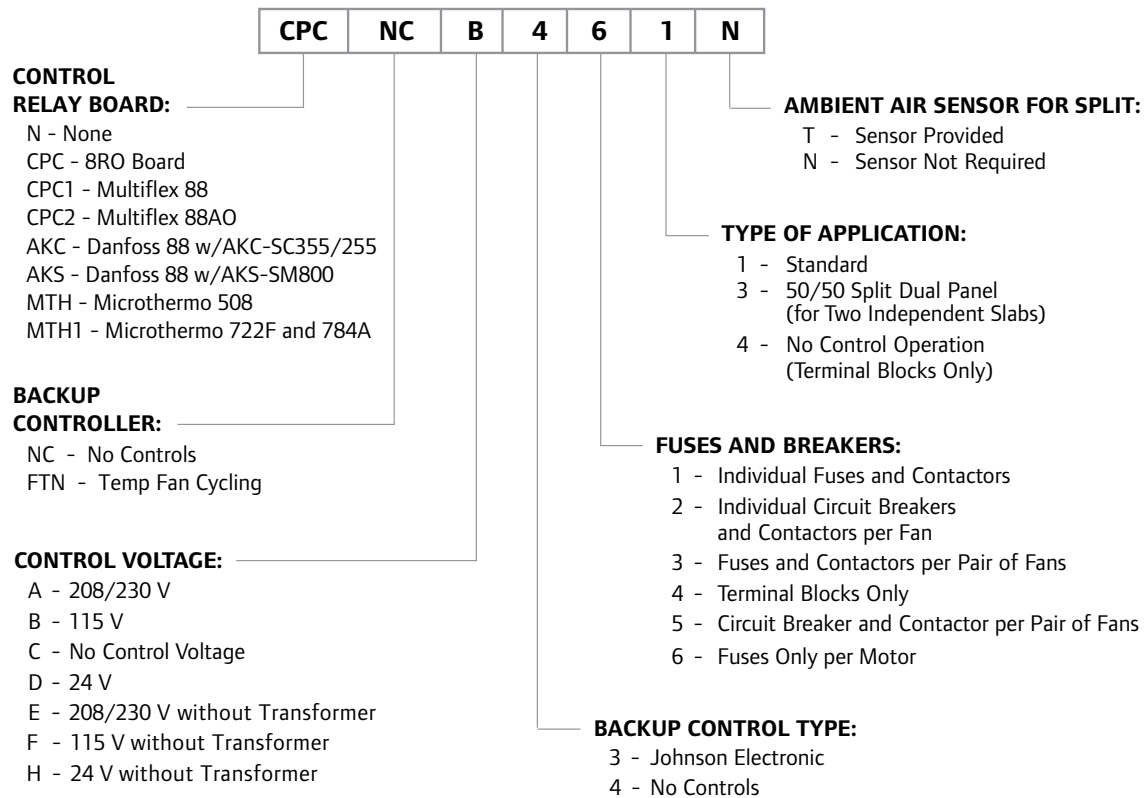
ONE FAN			
MODEL	L	W	H
FAHB11	46.31	24.50	44.55
FAHB12	82.31	24.50	44.55
FAHB13	118.31	24.50	44.55
FAHB14	154.31	24.50	44.55
FAHB15	190.31	24.50	44.55
FAHB16	226.31	24.50	44.55
FAHB17	262.31	24.50	44.55

TWO FANS			
MODEL	L	W	H
FAHB22	82.31	24.50	87.62
FAHB23	118.31	24.50	87.62
FAHB24	154.31	24.50	87.62
FAHB25	190.31	24.50	87.62
FAHB26	226.31	24.50	87.62
FAHB27	262.31	24.50	87.62

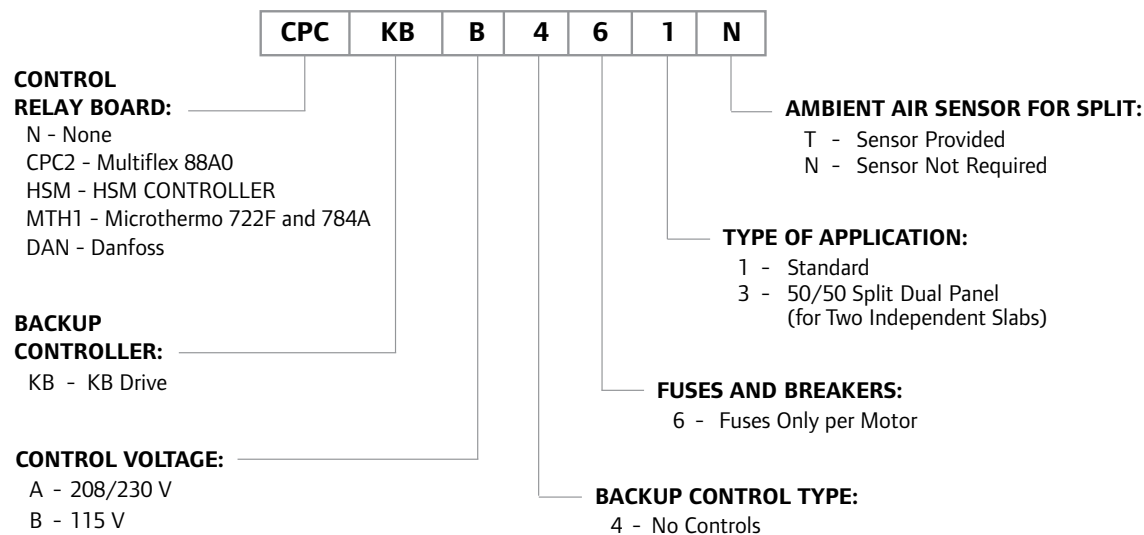
All model dimensions listed are in inches.

Fluid Cooler Series

Control Panel Nomenclature



Control Panel Nomenclature for K Models



Standard Fan Cycling / Control Arrangements

Standard Fan Cycling

- Electronic temperature control cycles fans in response to entering air temperature. Set points and differential for each step are adjustable.
- Fan cycling sequenced-fans are cycled off individually or side-by-side in pairs in sequence from the end opposite to the header to the header end. Header end fans run continuously if compressors are operating.

Control Panel

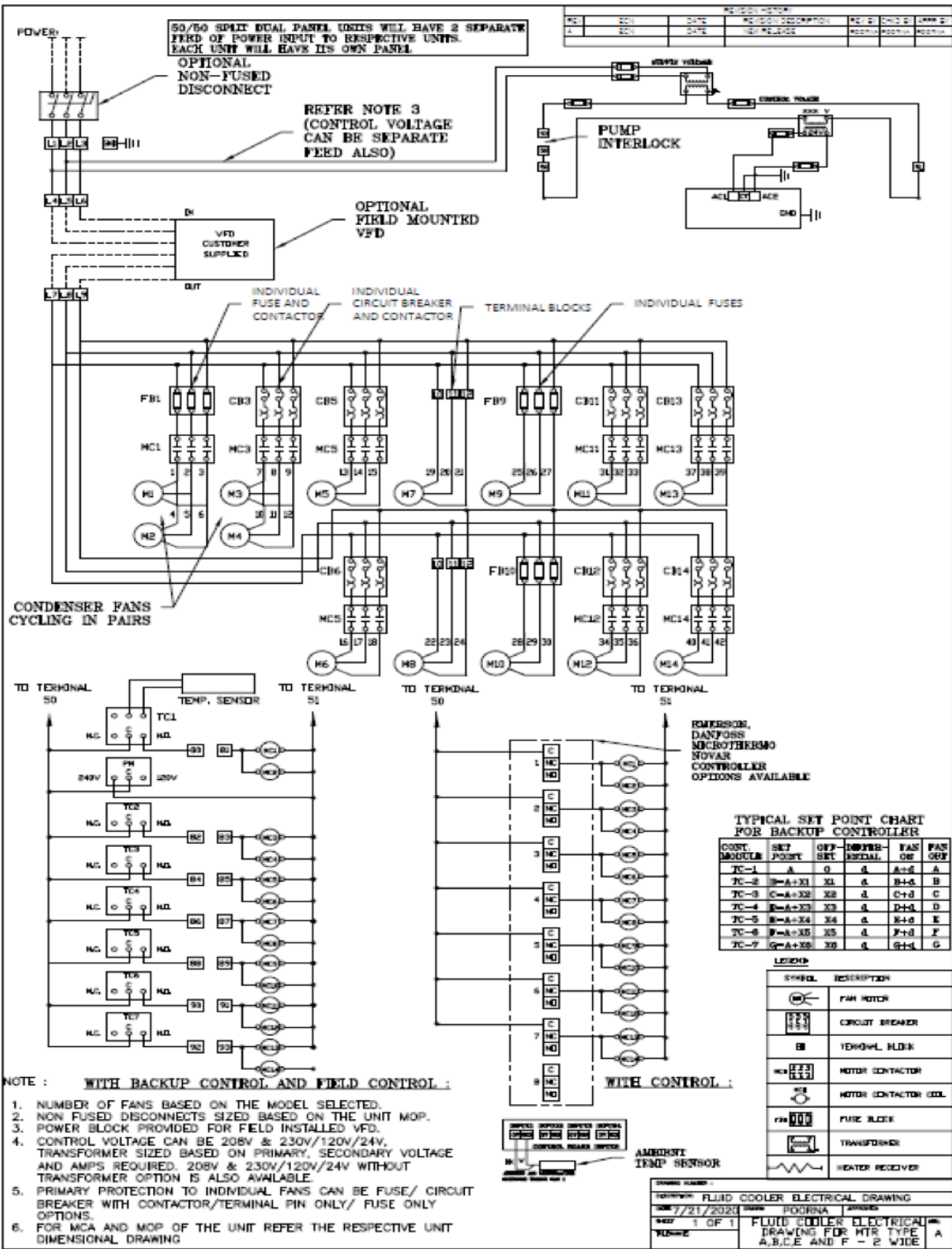
- Standard weather resistant enclosure is mounted on the opposite end of the unit when looking at the headers.
- Control power is 24, 115, or 230 volts. A transformer is factory installed when required.
- Fan contactor with branch circuit fuse protection. Each motor or bank of motors protected by fuses.
- Disconnects not included but may be required to meet local codes.

Optional Arrangements

- Fan motor contactors and fuses only.
- Fan motor contactor and fuses only which operate via a customer specified solid state board. Circuit board is factory mounted and wired.
- 50/50 split with two fan wide models. Each side is controlled separately with individual control panels on each side.
- Consult price list for additional options.

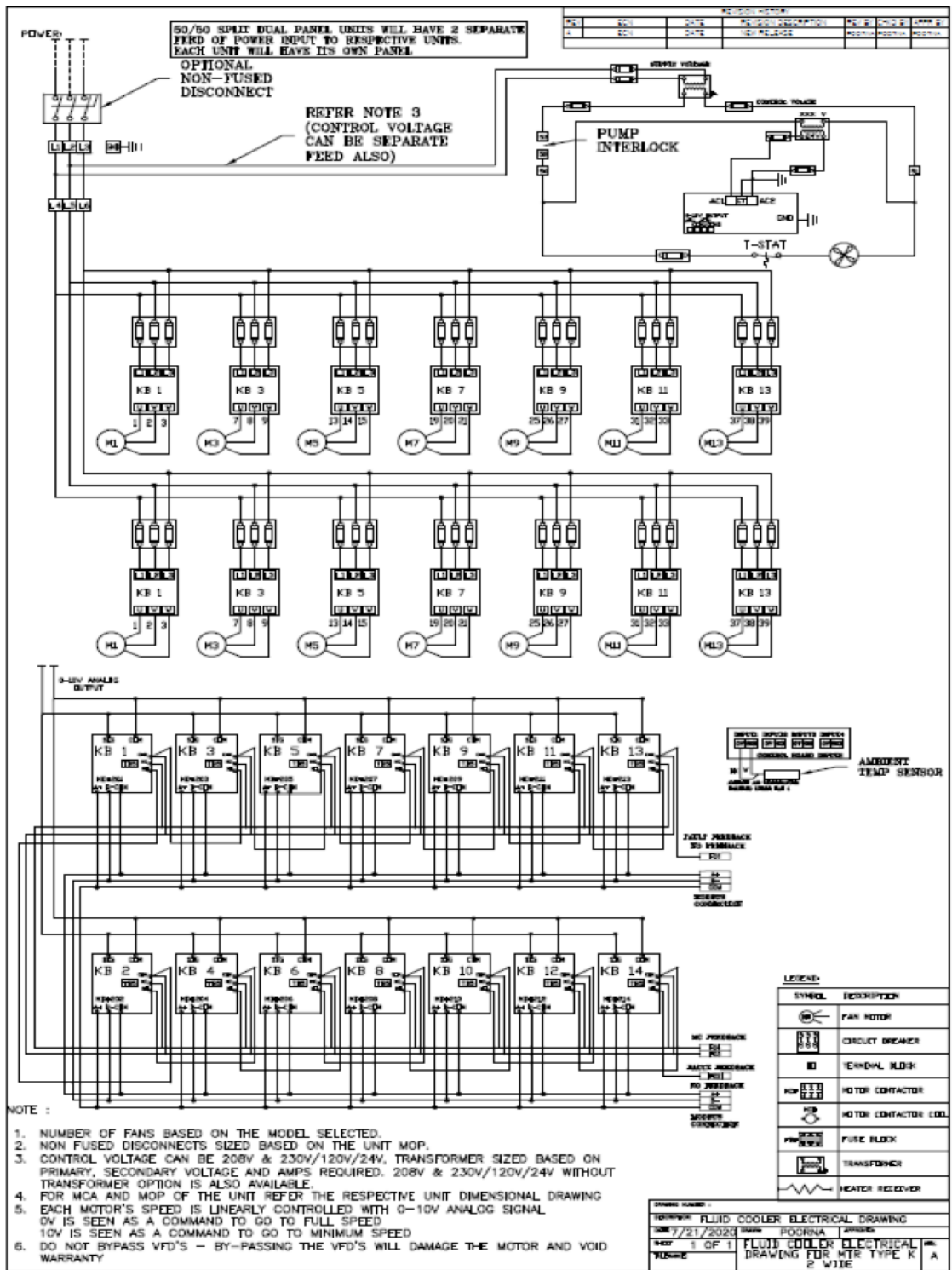
Fluid Cooler Series

Sample Wiring Diagrams



Fluid Cooler Series

Sample Wiring Diagrams



Fluid Cooler Series

Notes



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