

**MAXIMUM VOLUME OF ENCLOSURE
THAT CAN BE PROTECTED BY THE FIREDETEC
3.0 LB. SYSTEM WITH FM-200®**



**MAXIMUM VOLUME OF ENCLOSURE
THAT CAN BE PROTECTED BY THE FIREDETEC
7.0 LB. SYSTEM WITH FM-200®**



**MAXIMUM VOLUME OF ENCLOSURE
THAT CAN BE PROTECTED BY THE FIREDETEC
14.0 LB. SYSTEM WITH FM-200®**



OEM PARTNER

Minimax Fire Products

2812 N. Norwalk
Bldg. 10, Suite 119
Mesa, AZ 85215

TABLE 4 - MAXIMUM VOLUME ENCLOSURE FOR 3 LB. SYSTEM

Min. enclosure temperature	Design concentration number									
	7,5	8	9	10	11	12	13	14	15	16
0°F	69.7	65.0	57.2	50.9	45.8	41.5	37.8	34.7	32.0	29.7
10°F	71.3	66.5	58.4	52.0	46.8	42.4	38.7	35.5	32.7	30.0
20°F	73.0	68.1	59.9	53.3	47.9	43.4	39.6	36.4	33.6	31.1
30°F	74.8	69.7	61.3	54.6	49.1	44.5	40.6	37.2	34.4	31.8
40°F	76.5	71.3	62.7	55.8	50.2	45.5	41.5	38.1	35.2	32.6
50°F	78.2	73.0	64.1	57.1	51.3	46.5	42.5	39.0	35.9	33.3
60°F	80.0	74.6	65.6	58.4	52.5	47.5	43.4	39.8	36.7	34.0
70°F	81.7	76.2	67.0	59.6	53.6	48.6	44.3	40.7	37.5	34.8
80°F	83.4	77.8	68.4	60.9	54.7	49.6	45.2	41.5	38.3	35.5
90°F	85.1	79.3	69.7	62.1	55.8	50.6	46.2	42.4	39.1	36.2
100°F	86.8	80.9	71.1	63.3	56.9	51.6	47.1	43.2	39.9	36.9
110°F	88.5	82.5	72.5	64.6	58.0	52.6	48.0	44.1	40.7	37.7
120°F	90.2	84.1	73.9	65.8	59.1	53.6	48.9	44.9	41.4	38.4
130°F	91.8	85.6	75.3	67.0	60.2	54.6	49.8	45.7	42.2	39.1

TABLE 5 - MAXIMUM VOLUME ENCLOSURE FOR 7 LB. SYSTEM

Min. enclosure temperature	Design concentration number									
	7,5	8	9	10	11	12	13	14	15	16
0°F	162.7	151.7	133.4	118.8	106.8	96.8	88.3	81.1	74.8	69.3
10°F	166.3	155.1	136.3	121.4	109.1	89.9	90.2	82.8	76.4	70.8
20°F	170.4	158.9	139.7	124.3	111.8	101.3	92.5	84.9	78.3	72.5
30°F	174.5	162.7	143.0	127.3	114.5	103.7	94.7	86.9	80.2	74.3
40°F	178.5	166.5	146.4	130.3	117.1	106.1	96.9	88.9	82.0	76.0
50°F	182.6	170.2	149.7	133.2	119.8	108.5	99.1	90.9	83.9	77.7
60°F	186.6	174.0	153.0	136.2	122.4	110.9	101.2	92.9	85.7	79.4
70°F	190.6	177.7	156.2	139.1	125.0	113.3	103.4	94.9	87.6	81.1
80°F	194.6	181.4	159.5	142.0	127.6	115.7	105.6	96.9	89.4	82.8
90°F	198.5	185.1	162.7	144.9	130.2	118.0	107.7	98.9	91.2	84.5
100°F	202.5	188.8	166.0	147.7	132.8	120.4	109.9	100.8	93.0	86.2
110°F	206.4	192.5	169.2	150.6	135.4	122.7	112.0	102.8	94.9	87.9
120°F	210.4	196.1	172.5	153.5	138.0	125.1	114.1	104.8	96.7	89.5
130°F	214.3	199.8	175.7	156.4	140.6	127.4	116.3	106.7	98.5	91.2

TABLE 6 - MAXIMUM VOLUME ENCLOSURE FOR 14 LB. SYSTEM

Min. enclosure temperature	Design concentration number									
	7,5	8	9	10	11	12	13	14	15	16
0°F	325.5	303.5	266.8	237.5	213.5	193.5	176.6	162.1	149.5	138.5
10°F	332.6	310.2	272.7	242.7	218.2	197.8	180.5	165.7	152.8	141.6
20°F	340.8	317.7	279.4	248.7	223.6	202.6	184.9	169.7	156.6	145.1
30°F	349.0	325.4	286.1	254.6	228.9	207.5	189.4	173.8	160.3	148.5
40°F	357.0	332.9	292.7	260.5	234.2	212.3	193.7	177.8	164.0	152.0
50°F	365.1	340.5	299.3	266.4	239.5	217.1	198.1	181.9	167.8	155.4
60°F	373.2	348.0	305.9	272.3	244.8	221.9	202.5	185.9	171.5	158.8
70°F	381.2	355.4	312.5	278.1	250.0	226.6	206.8	189.8	175.1	162.3
80°F	389.2	362.9	319.0	284.0	255.3	231.4	211.2	193.8	178.8	165.7
90°F	397.0	370.0	325.5	289.7	260.5	236.1	215.4	197.7	182.4	169.0
100°F	404.9	377.6	332.0	295.5	265.6	240.8	219.7	201.7	186.1	172.4
110°F	412.9	385.0	338.5	301.3	270.9	245.5	224.0	205.6	189.7	175.8
120°F	420.7	392.3	344.9	307.0	276.0	250.2	228.3	209.5	193.3	179.1
130°F	428.6	399.6	351.3	312.7	281.1	254.8	232.5	213.5	196.9	182.4



**FM-200®
PRE-ENGINEERED SYSTEM
CALCULATION GUIDE**

HOW TO DETERMINE THE CORRECT FM-200® FIREDETEC SYSTEM FOR YOUR APPLICATION.

Step 1

Identify the hazard to protect and note the applicable design concentration number.

Example: Hazard is Class (Electrical) = 7.5
Round up to whole number = 8

Electrical Control Cabinet

W = 4 ft.

L = 2 ft.

H = 8 ft.



TABLE 4 - MAXIMUM VOLUME ENCLOSURE FOR 3 LB. SYSTEM

Hazard to protect	Design Concentration
Acetone	10.0
Acetonitrille	7.0
Benzene	9.5
2.butoxyethanol	9.0
Butane	8.6
Commercial Heptane	8.7
Commercial Hexanes	9.0
Crude Oil	8.5
Cyclohexane	9.4
Diesel	8.7
Diethyl Ether	9.8
Ethanol	12.6
Ethyl Acetate	8.9
Gasoline	9.0
N Heptane	9.6
Hydraulic Fluid	8.5
Hydraulic Oils	7.7
Isopropanol	9.8
JP 4	9.0
JP 5	9.0
Kerosene	9.6
Methanol	15.2
Methyl Ethyl Ketone	9.6
Methane	7.2
Propane	8.7
Toluene	7.6
Transformer Oil	9.5
Xylene	7.8
Class C (Electrical)	7.5
Class A Surface fires	7.0

TABLE 2 - FLOODING FACTOR NUMBERS

	Design concentration number									
	6	7	8	9	10	11	12	13	14	15
30°F	0.0316	0.0372	0.0430	0.0489	0.0550	0.0612	0.0675	0.0739	0.0805	0.0873
40°F	0.0309	0.0364	0.0421	0.0478	0.0537	0.0598	0.0659	0.0723	0.0787	0.0853
50°F	0.0302	0.0356	0.0411	0.0468	0.0525	0.0584	0.0645	0.0707	0.0770	0.0835
60°F	0.0295	0.0348	0.0402	0.0458	0.0514	0.0572	0.0631	0.0691	0.0753	0.0817
70°F	0.0289	0.0341	0.0394	0.0448	0.0503	0.0560	0.0618	0.0677	0.0737	0.0799
80°F	0.0283	0.0334	0.0386	0.0439	0.0493	0.0548	0.0605	0.0663	0.0722	0.0783
90°F	0.0278	0.0327	0.0378	0.0430	0.0483	0.0538	0.0593	0.0650	0.0708	0.0767
100°F	0.0272	0.0321	0.0371	0.0422	0.0474	0.0527	0.0581	0.0637	0.0694	0.0752
110°F	0.0267	0.0315	0.0364	0.0414	0.0465	0.0517	0.0570	0.0625	0.0681	0.0738
120°F	0.0262	0.0309	0.0357	0.0406	0.0456	0.0507	0.0560	0.0613	0.0668	0.0724
130°F	0.0257	0.0303	0.0350	0.0398	0.0448	0.0498	0.0549	0.0602	0.0656	0.0711

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Step 2

To identify the flooding factors number determine the enclosure's minimum temperature and align this with the rounded up design concentration number in Table 2 left.

Example: Minimum temperature is 60°F, rounded up number is 8; therefore flooding factors number is 0.0402.

Step 3

Calculate cubic feet of enclosure by multiplying the width x length x height. To identify required system size multiply cubic feet of enclosure by the flooding factors number.

Example: Enclosure is 4 ft. W x 2 ft. L x 8 ft. H = 64 cubic feet. 64 x 0.0402 = 2.5728. This would round up to the 3 lb. system.

Step 4

Use Table 3 to double check that the enclosure to be protected does not exceed the maximum area coverage of the tested nozzles and the volume coverage does not exceed the maximum hazard volume of enclosure in Table 4.

Example: The enclosure area is 8 ft² and the max area coverage of the 3lb. nozzle is 53.3 ft². The 3 lb. specified system can protect an enclosure up to 76.4 feet³ at a minimum temperature of 60°F, with a hazard design concentration of 8. Therefore we are well within the approved systems capabilities.

TABLE 6 - MAXIMUM VOLUME ENCLOSURE FOR 14 LB. SYSTEM

System	Max area coverage
3 lb.	53.3 ft ²
7 lb.	129.0 ft ²
14 lb.	258.2 ft ²