



Recommended Airflow Measurements For M.I.C.E.[®], OptiMICE[®], ErgoMICE[®], & OptiRAT[®] Racks

Each Animal Care Systems rack should be tested after installation to ensure that airflow through the rack meets or exceeds minimum flow requirements. Racks holding small rodents should achieve at least 15-20 Air Changes per Hour (ACH) after hookup to the animal room exhaust. 30 ACH will allow longer cage-changing periods and requires more airflow through the cages. Larger rodents such as rats and guinea pigs require higher airflows due to the greater evaporative transpiration from the animals. The tables below identify both the MINIMUM and the RECOMMENDED hose air velocity measurement for achieving good airflows in the M.I.C.E.[®], OptiMICE[®], ErgoMICE[®], and OptiRAT[®] racks. Minimum flows are equivalent to 15-20 ACH with mice cages. Recommended flows are approximately 25-30 ACH. M.I.C.E. rat racks and OptiRAT racks may require slightly higher minimum airflows due to increased housed animal mass.

Airflow measurements noted in the tables below must be made with an M79210 ACS Anemometer to assure accuracy. Contact Animal Care Systems for assistance if an installation does not achieve the noted MINIMUM values noted in the table.

M.I.C.E.[®] Rack Airflow Data				
Rack Size & No. of Cages¹	MINIMUM Air Volume Needed From Rack Exhaust	Hoses Per Rack	MINIMUM Anemometer Measurement Per Hose	RECOMMENDED Anemometer Measurement Per Hose
S1, 14 Cages	8 CFM	1	1.3 m/s	2.0 m/s
S2, 28 Cages	16 CFM	1	2.6 m/s	3.9 m/s
S3, 42 Cages	24 CFM	1-2	3.9 m/s	5.9 m/s
S4, 56 Cages	32 CFM	2	2.6 m/s	3.9 m/s
S5, 70 Cages	40 CFM	2	3.2 m/s	4.8 m/s
D4, 56 Cages	32 CFM	2	2.6 m/s	3.9 m/s
D6, 84 Cages	48 CFM	2	3.9 m/s	5.9 m/s
D8, 112 Cages	64 CFM	2(3)*	5.2(3.5) m/s	7.8 m/s
D10, 140 Cages	80 CFM	2(3)*	6.5(4.3) m/s	9.8(6.5) m/s

*Some situations with less than ideal room ventilation may require three exhaust hoses on D8 112-Cage and D10 140-Cage racks.

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M.I.C.E.[®] Rat Rack Airflow Data				
Rack Size & No. of Cages¹	MINIMUM Air Volume Needed From Rack Exhaust	Hoses Per Rack	MINIMUM Anemometer Measurement Per Hose	RECOMMENDED Anemometer Measurement Per Hose
S1, 7 Cages	12 CFM	1	1.9 m/s	2.9 m/s
S2, 14 Cages	24 CFM	1	3.8 m/s	5.7 m/s
S3, 21 Cages	36 CFM	1(2)	5.7(2.9) m/s	8.5(4.4) m/s
S4, 56 Cages	48 CFM	2	3.8 m/s	5.7 m/s
S5, 70 Cages	60 CFM	2	4.9 m/s	7.3 m/s
D4, 56 Cages	48 CFM	2	3.8 m/s	5.7 m/s
D6, 84 Cages	72 CFM	2	5.7 m/s	8.5 m/s
D8, 112 Cages	96 CFM	2(3)**	7.8(5.2) m/s	11.7(7.8) m/s
D10, 140 Cages	120 CFM	2(3)**	9.7(6.5) m/s	14.5(9.7) m/s

**Some situations with less than ideal room ventilation may require three exhaust hoses on D8 56-Cage and D10 70-Cage rat racks.

OptiMICE[®] & ErgoMICE[®] Rack Airflow Data				
Rack Size	MINIMUM Air Volume Needed From Rack Exhaust	Hoses Per Rack	MINIMUM Anemometer Measurement Per Hose	RECOMMENDED Anemometer Measurement Per Hose
100 Cage	40 CFM	2	3.5 m/s	5.25 m/s
80 Cage	34 CFM	2	3.0 m/s	4.5 m/s
70 Cage	30 CFM	2	2.6 m/s	3.9 m/s
50 Cage	22 CFM	1	3.8 m/s	5.7 m/s

Note: The 50-Cage ErgoMICE[®] rack uses only one hose for ventilation. The other hose connection is capped with an M21061 Ceiling Flange Cap at the factory.

OptiRAT[®] Rack Airflow Data

Rack Size: 42-Cage (see

Hoses per rack: 2

Minimum Air Volume: 55 CFM = 4.8 m/s ACS Anemometer measurement

Recommended Air Volume: 82 CFM = 7.2 m/s ACS Anemometer measurement

Metric Conversion

To convert CFM to Liters/Second, multiply CFM by .47

To convert CFM to Cubic Meters/Hour (CMH), multiply CFM by 1.7