



Animal Care
Systems



Innovative Caging Solutions

Our Superior Technology

Animal Care Systems, Inc. (ACS) was founded in 1997 by a veterinary scientist. One of the goals of the new company was to improve the quality of life for both laboratory animals and personnel. Animal Care Systems manufactures state-of-the-art vented caging systems that have eliminated electrically powered blower motors. Powered by HVAC-assisted exhaust venting, our cages feature the only closed-system isolation design for rodents that provides a true barrier at cage level with superior air quality and a total volume air change within the cage. To meet the needs of animals and their caregivers, we make the vented M.I.C.E., OptiMICE, ErgoMICE and OptiRAT caging systems with one primary goal:

Innovative Design. Our original design improves and controls air quality for animals, personnel and the environment. Airborne contaminants, including allergens, waste gases and thermal loads at the source are eliminated. Our M.I.C.E., OptiMICE, ErgoMICE, and OptiRAT caging systems efficiently supply clean air and eliminate contaminants at the source. Instead of mixing and diluting air, our exhaust-ventilated systems direct and filter room air through cages and racks directly to the building's exhaust in a one-pass airflow. The systems provide good air quality and bio-safety to animals and personnel. With our flexible design and innovative technology, ACS caging systems stand out as the ideal solution for animal facilities. From new construction to retrofits, and from entire buildings to counter-top isolated containment spaces, the quality of air and life is improved, and costs are significantly reduced.

A Quality, Eco-Friendly Environment for Lab Animals and Their Caregivers



Animal Care Systems' Headquarters in Centennial, Colorado USA

The Inspiration Behind Our Innovation



Microenvironmental Comfort: Animal Care Systems' racks are negative pressure, vented microisolation containers with enrichment structures. They have adequate, filtered active ventilation — free of blowers or fans — that ensures microenvironmental comfort, isolation, containment, and enrichment at cage level. Our closed cage and rack system uses filtered venting by convection, HVAC-assist, and direct exhaust vented airflow to provide adequate air changes per hour without drafts, metabolic contaminant buildup, and without the need for mechanical ventilation. Animal Care Systems' innovative, motor-less caging design systems provide a noise-free environment that is healthier for the animal and caregiver — eco-friendly and cost-efficient.

Isolation: The closed-system design and low-velocity filtered ventilation of Animal Care Systems' racks ensure biological barriers both in and out of the cage, while providing draft-free ventilation.

Containment: The induced negative pressure through each cage is maintained via a plenum and venting hoses. Hoses are connected to the building exhaust, and provide complete evacuation of cage contaminants and an allergen-free environment for the users. Closed system design, passive filtered ventilation, HVAC-assist, and direct exhaust venting of ACS caging systems ensures in and out biological barriers, while safeguarding animal and occupational health.

Enrichment: Enriched environments are proven to increase the welfare of rodents. Enrichment improvements enhance social interaction and reproduction, exploring, burrowing, nesting, hiding, and climbing behaviors, while reducing confinement-related stress. Animal Care Systems' caging systems promote expression of normal behaviors.

"Putting 13 OptiMICE racks in a facility not designed for individually ventilated cages allowed us to make maximum use of the space while maintaining a specific organism-free environment. The transparent cages allow for easy, non-invasive observation of mice such as health checks and birthing, reducing the amount of stress on the animals. Some previously jumpy strains have also begun to quiet down since the move to this system. The direct installation to the room exhaust, which vents directly outside ensures there are no animal odors in the facility, a set-up that is providing comfort to researchers with allergies. The customer service was excellent from the first contact point, and this service has continued to this date. I have no hesitation in recommending this system to other users; and I encourage them to seek the advice of ACS when laying out and installing the system into the facility." - Jennifer Davis, BRF Manager, The University of Melbourne

The Animal Care Difference



Odor and Allergen Free

ACS caging systems can meet all of your facility's rodent housing needs. Whether you are concerned with cage density, environmental issues, price, breeding, maintenance, or installing the greenest caging systems available, Animal Care Systems has the solution for your lab vivarium.

Cage Density: Animal Care Systems is proud to offer the highest cage density in the industry, with nearly twice that of conventional caging systems.

Maintenance-Free: ACS systems are maintenance-free, with a minimum of moving parts. There are no motors, blowers or belts to wear out. With a low-velocity total volume air change in each cage, Animal Care Systems racks need no calibration. HVAC requirements for our racks are very low.



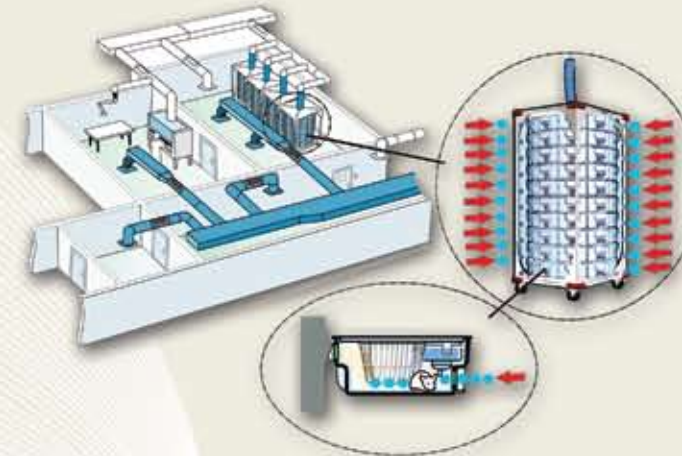
Green: Animal Care Systems caging systems require no electricity. With no motors or blowers, our systems are fail-safe in the event of a power outage. All ACS racks connect directly to the building's HVAC system. This innovative, patented, direct exhaust technology provides a one-pass airflow, completely eliminating odors and allergens that would otherwise be emitted into the atmosphere of the animal room. This closed-system design is able to provide the most stable microenvironment available in the industry. In addition to providing a more desirable atmosphere for animals, caregivers are completely relieved of occupational allergens. ACS racks have a zero carbon footprint, and eliminate emissions of nearly 4,000 lbs of greenhouse gases into the atmosphere each year.

Cost-Efficient: ACS rack systems are a superior overall value. The initial investment in the caging system is the lowest in the industry. Because the systems do not employ motors and blowers to ventilate the racks, cost savings in electricity are immense.

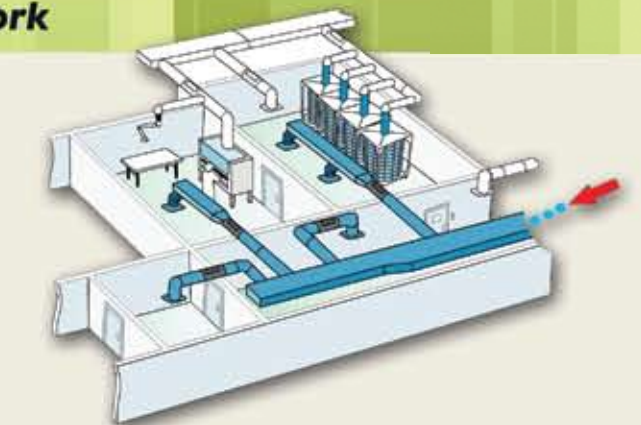
Enhanced Breeding: The low-stress environment provided by Animal Care System' caging systems enhances breeding and provides a much-improved quality of life for the lab animals. With no noisy air-handling systems, operation is silent. Not only is noise eliminated; all vibrations and variables are completely eliminated.

How Animal Care Systems Racks Work

1. Clean air, either fresh or HEPA-filtered (represented in blue dots), is supplied by your HVAC system to the animal room, which is where the filter should be.

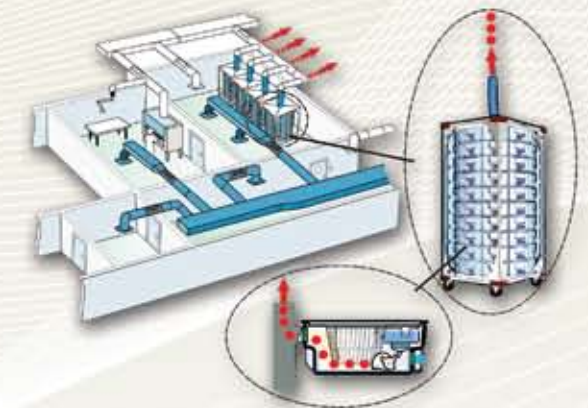


2. This fresh air (blue dots) is filtered again as it is drawn into each cage on the rack through the front filters and across the cages from end to end. For an interactive version, please visit www.animalcaresystems.com.

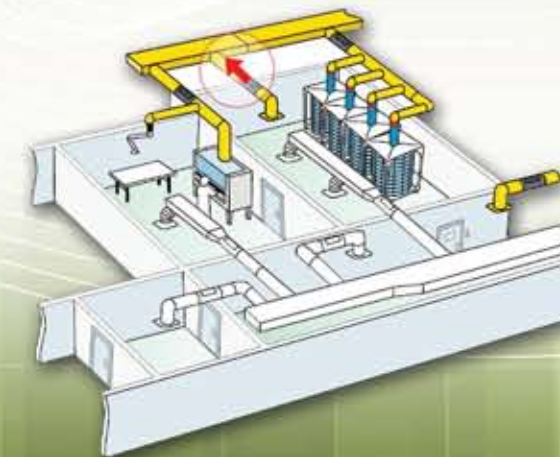


3. The filtered exhaust air (red dots) then travels out the rear cage filters, through the rack plenum and out of the room by controlled exhaust ventilation at the same temperature and relative humidity settings as the room. The filtered exhaust air travels through the vent hose in a controlled, low-velocity, one-pass airflow. Air is distributed through the cages without re-entrainment or leakage.

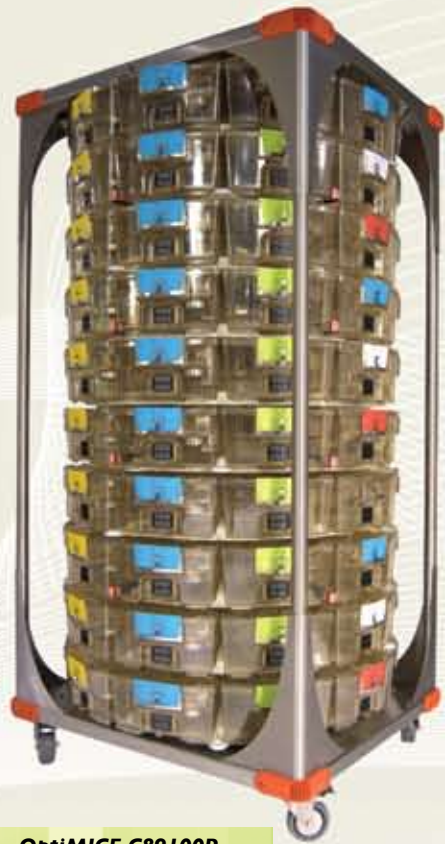
The system achieves a total volume air change within the cage, providing good air quality to the rodents. There are no drafts, turbulence or high turnover of dry air within the cage, providing a very stable microenvironment.



4. Both cage air and room air (represented in yellow) exhaust directly to outside via the building's HVAC system. All Animal Care Systems caging systems protect animals and personnel, and provide flexible, high-density standard environmental and microbiological conditions, and an optimal environment at cage and room levels.



The OptiMICE & ErgoMICE Systems



OptiMICE C89100P



ErgoMICE C89150M

The OptiMICE system design is revolutionary to the laboratory animal sciences industry. It is the only rotating carousel caging system.

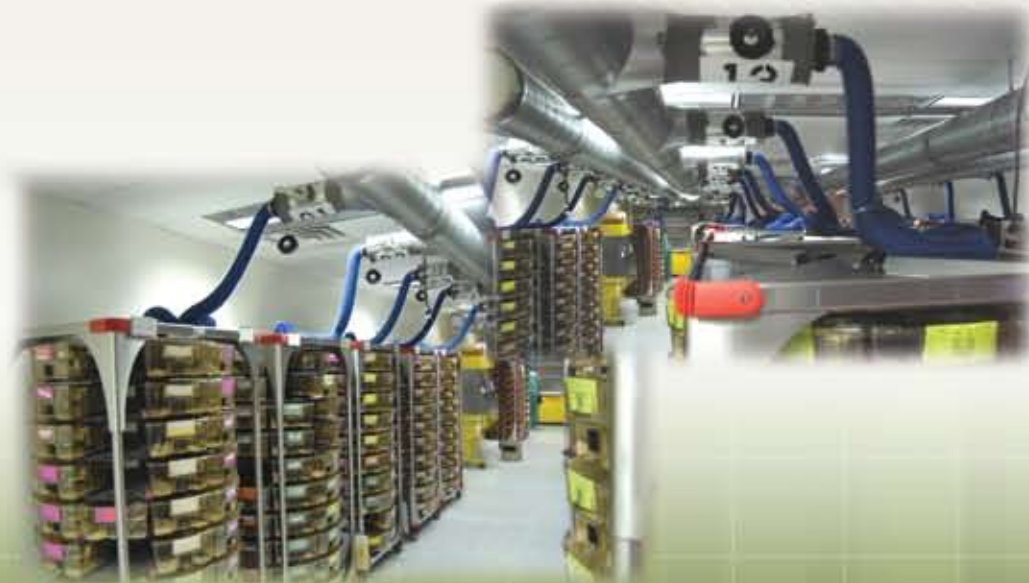
OptiMICE can be positioned against a wall or next to another rack. By rotating the carousel using conveniently located handles on each platter, marked and numbered cage locations are easily accessed. There is no space wasted by unnecessary aisles, and no need to move racks for access.

With no motor, blower, vibration, or airborne allergens and odors, OptiMICE provides the ideal environment for breeding, quarantine, bio-exclusion and conventional rodent housing for research.

OptiMICE boasts the highest cage density in the industry, making it simply the best possible system for optimizing space and enhancing the quality of life for lab animals and their caregivers.

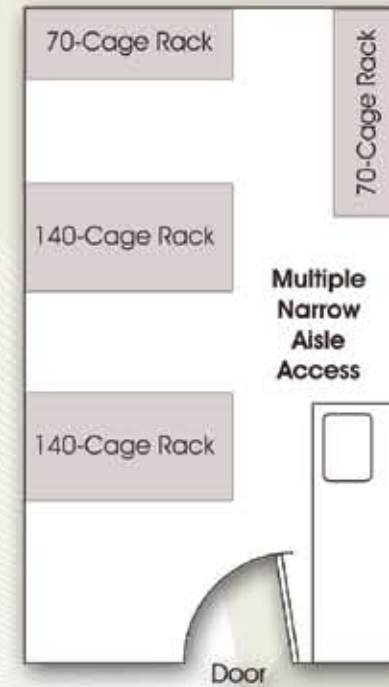
OptiMICE is offered as a 100-cage unit. Also available as ErgoMICE in 50, 70 or 80 cage units.

The OptiMICE and ErgoMICE 80 are available with automatic watering. All systems have three cage options: Polycarbonate Clear (M), Polysulfone Amber (P) and Polysulfone Smoke (S).

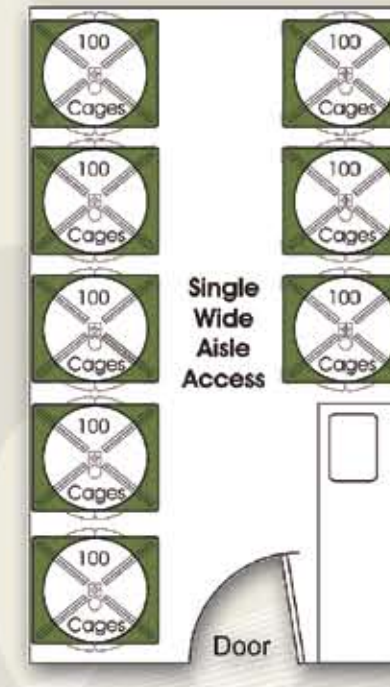


Cage Density Comparison

Standard Cage Layout
(420 cages)



Animal Care Systems Cage Layout
(800 cages)



OptiMICE Technical Specifications

Height	78 inches	(1981 mm)
Width (w/ cages)	39 inches	(991 mm)
Width (w/out cages)	33.7 inches	(856 mm)
Length	39.7 inches	(1008 mm)
Cage Floor Area	75 inches ²	(484 cm ²)
Interior Height	5 inches	(127 mm)
Water Bottle Capacity	13.5 ounces	(400 ml)
Feeder Capacity	17 ounces	(.51 liters)
Optimum Airflow Requirements	60 cfm	(28 L/S) per rack

"I am a researcher with a Ph.D. in Neuroscience, and a keen observer of rodent behavior. I am convinced the OptiMICE set-up affords the most naturalistic and least stressful laboratory environment possible for mice. The price of the caging system is competitive; but I think the real value lies in the breeding efficiency of the animals, and safety for both the animals and users of the system. Perhaps most important has been the instant responsiveness from the team at ACS."
- Sharon Low-Zeddies, Ph.D.,
Musworks, Inc.



C79100S

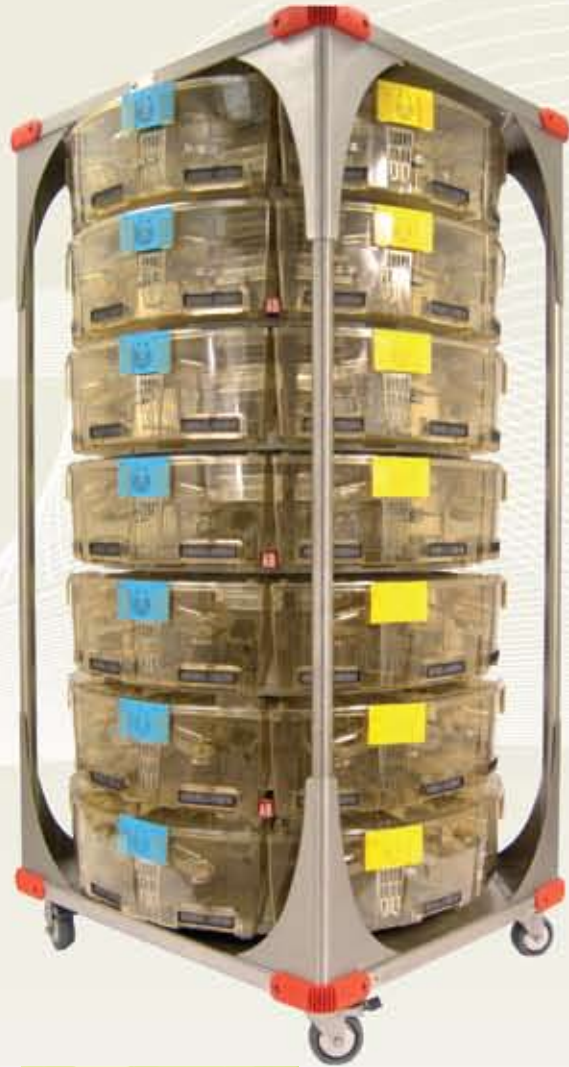


C79100M



C79100P

The OptiRAT System



OptiRAT C86100P

The OptiRAT is the newest addition to the Animal Care Systems caging family. For the first time in the industry, rat cages are ergonomically accessible on a rotating carousel.

Employing the same rack design as the OptiMICE system, OptiRAT's innovative, cylindrical design allows it to easily be positioned against a wall or next to another rack.

As with all Animal Care Systems' caging systems, the OptiRAT creates an odor- and allergen-free environment for rats and caretakers without the use of motors or blowers.

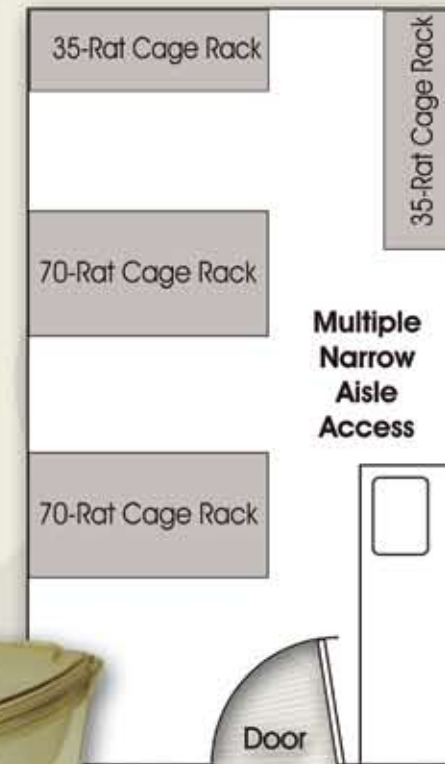
The vibration- and noise-free design provides optimum breeding results. OptiRAT is a 42-cage rack with automatic watering as an option.

Offered in three cage options: Polycarbonate Clear (M), Polysulfone Amber (P) and Polysulfone Smoke (S).

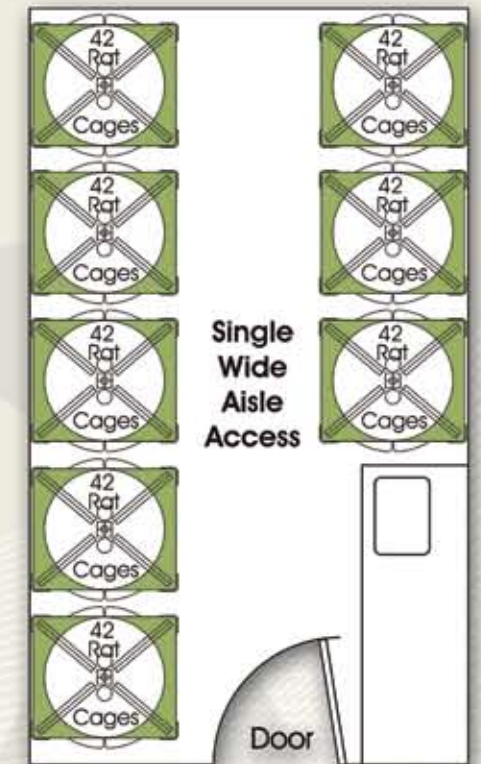


Cage Density Comparison

Standard Cage Layout
(210 cages)



Animal Care Systems Cage Layout
(336 cages)



OptiRAT Technical Specifications

Height	78 inches	(1981 mm)
Width (w/ cages)	39 inches	(991 mm)
Width (w/out cages)	33.7 inches	(865 mm)
Length	39.7 inches	(1008 mm)
Cage Floor Area	160 inches ²	(1032 cm) ²
Interior Height	8.1 inches	(206 mm)
Water Bottle Capacity (2 per cage)	13.5 ounces	(400 ml) each
Feeder Capacity	37 ounces	(1.1 liters)
Optimum Airflow Requirements	82 cfm	(39 L/S) per rack

The M.I.C.E. System



OptiMICE C89100P

The M.I.C.E. Caging System is unique in the field of protected environmental rodent housing. It uses a one-pass, low-velocity airflow, and sound thermodynamic principles to maintain a comfortable, low-stress animal environment.

The modular, closed-system, barrier isolation caging system provides maximum flexibility while increasing population density and improving the welfare of both animals and their caretakers.

The M.I.C.E. System is available in single- or double-sided units, housing as few as 14 or as many as 140 mice cages. Depending on the configuration, the modular system can accommodate seven to 70 rat cages.

All units are available with automatic watering and two cage options: Polycarbonate Clear (M) and Polysulfone Amber (P).



ErgoMICE C89150M



M.I.C.E. System	Mouse Cage	Rat Cage
Cage Floor Area	83 inches ² (536 cm ²)	180 inches ² (1161 cm ²)
Interior Height	6.75 inches (17.1 cm)	6.75 inches (17.1 cm)
Water Bottle Capacity	13.5 oz (400 ml)	21 oz (600 ml)
Feeder Capacity	17.2 oz (.51 L)	33.7 oz (1 L)
Minimum Air Flow Req	14 Cage - 8 cfm 140 Cage - 80 cfm	7 Cage - 8 cfm 70 Cage - 80 cfm

M.I.C.E. System Single-Sided Rack Dimensions

# of Cages	Length in. (mm)	Width in. (mm)	Height in. (mm)
14-Cage Mouse 7-Cage Rat	16.25 (413)	23.25 (591)	75.5 (1918)
28-Cage Mouse 14-Cage Rat	32.5 (826)	23.25 (591)	75.5 (1918)
42-Cage Mouse 21-Cage Rat	48.75 (1238)	23.25 (591)	75.5 (1918)
56-Cage Mouse 28-Cage Rat	65 (1651)	23.25 (591)	75.5 (1918)
70-Cage Mouse 35-Cage Rat	81.25 (2064)	23.25 (591)	75.5 (1918)

M.I.C.E. System Double-Sided Rack Dimensions

# of Cages	Length in. (mm)	Width in. (mm)	Height in. (mm)
56-Cage Mouse 28-Cage Rat	32.5 (826)	36.5 (927)	75.5 (1918)
84-Cage Mouse 42-Cage Rat	48.75 (1238)	36.5 (927)	75.5 (1918)
112-Cage Mouse 56-Cage Rat	65.0 (1651)	36.5 (927)	75.5 (1918)
140-Cage Mouse 70-Cage Rat	81.25 (2064)	36.5 (927)	75.5 (1918)

"We are one of the largest medical research institutes in the southern hemisphere. Our experience with the Animal Care Systems caging systems has produced positive outcomes in all areas of our animal based research. We have noted an increased production rate in all breeding lines, a reduction in variables in research outcomes and reduced aggression in grouped males. In the time frame of three months, the M.I.C.E. and OptiMICE systems have already proven to be an invaluable asset in the future of animal based research at QIMR."

- Suzanne Cassidy, Facility Manager,
Queensland Institute of Medical Research



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