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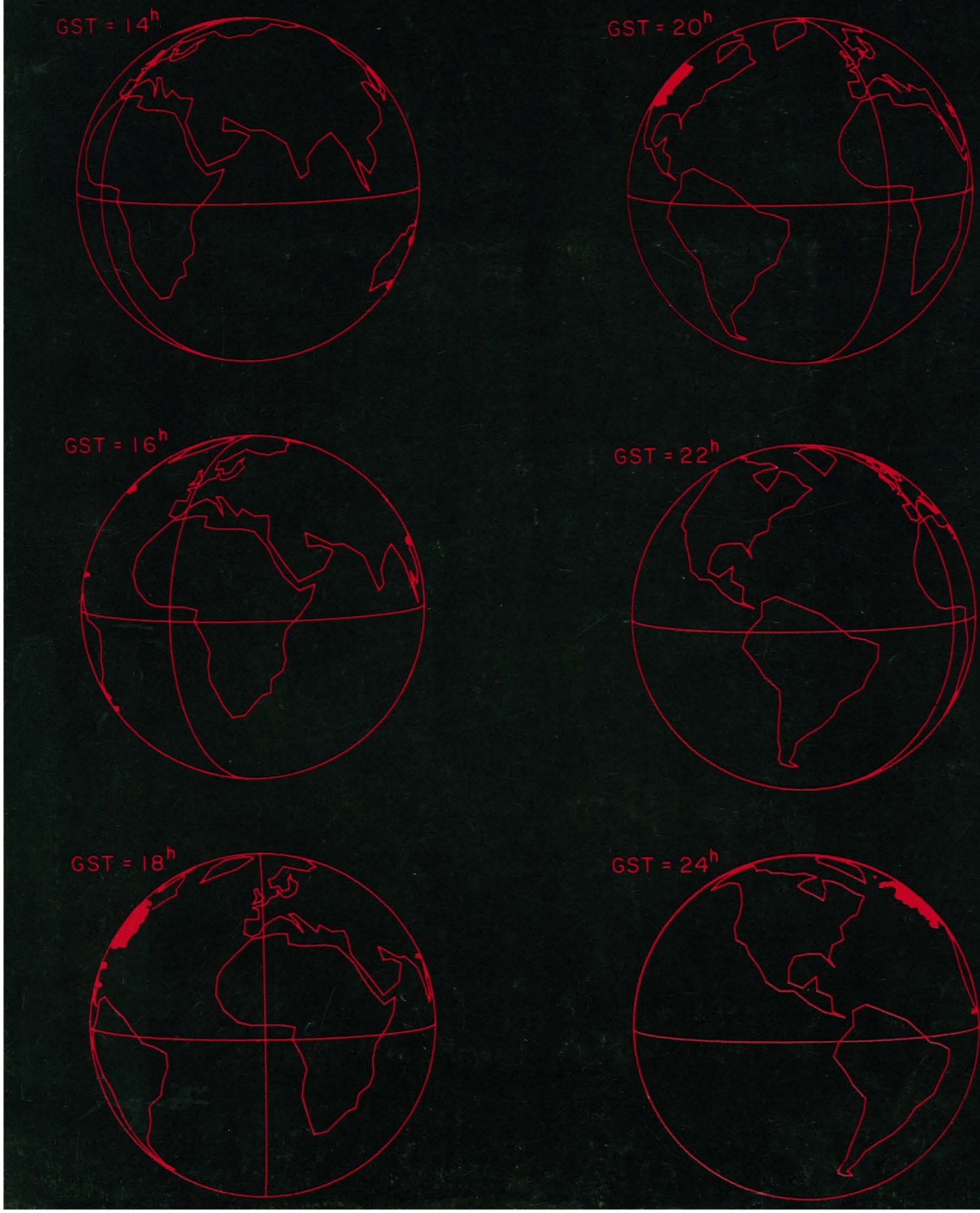

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From long proteins to short peptides, the one instrument that can handle all major methodologies in automated sequential analysis is the Beckman Model 890C Sequencer. Day and night, completely automatically, 20 to 24 amino acid residues a day, the Beckman spinning cup Sequencer reduces what used to take man-years to a matter of weeks.

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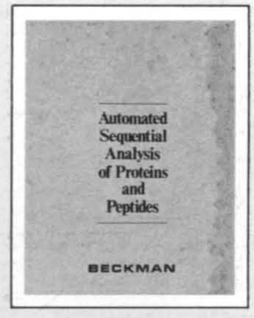

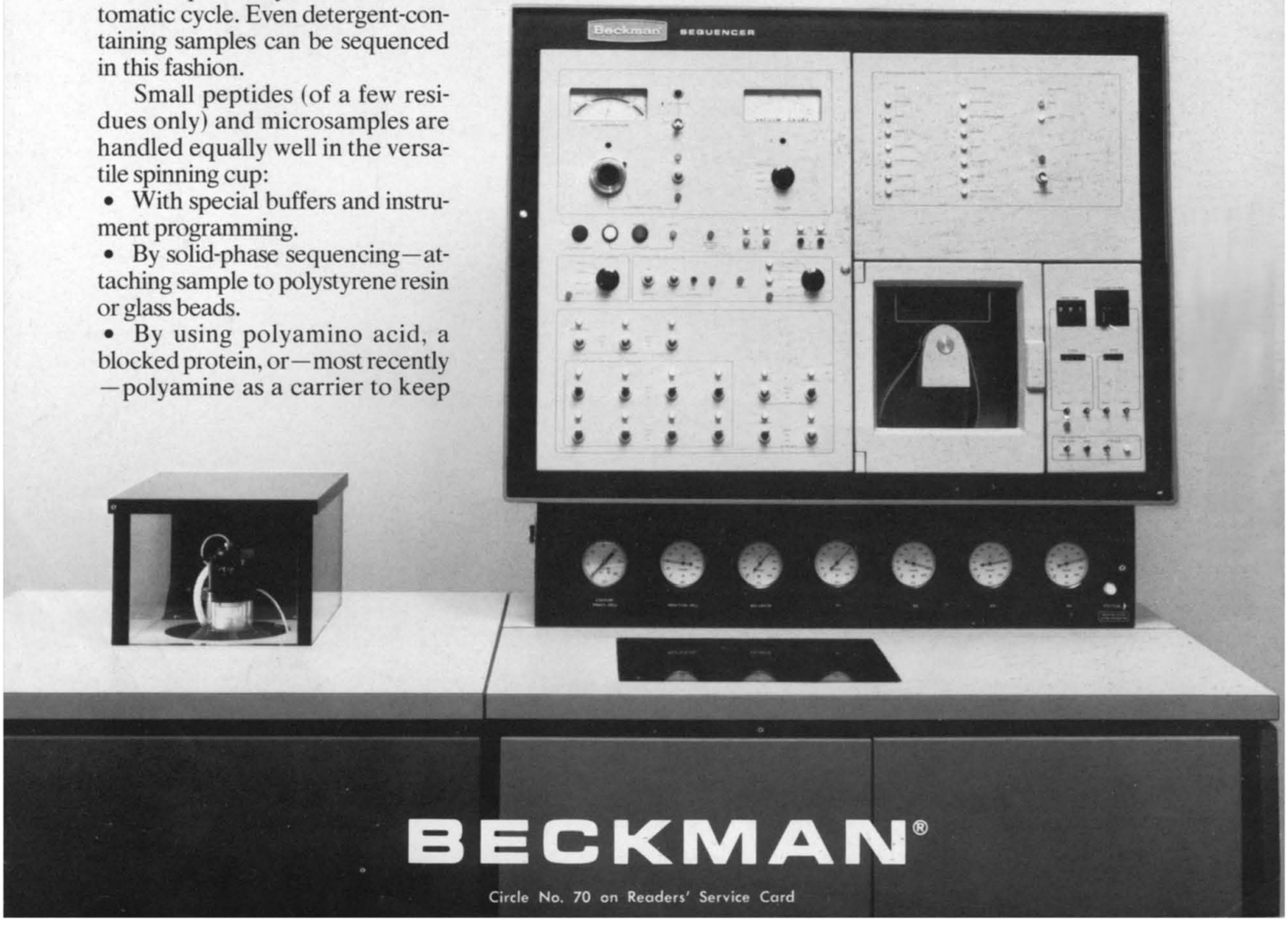

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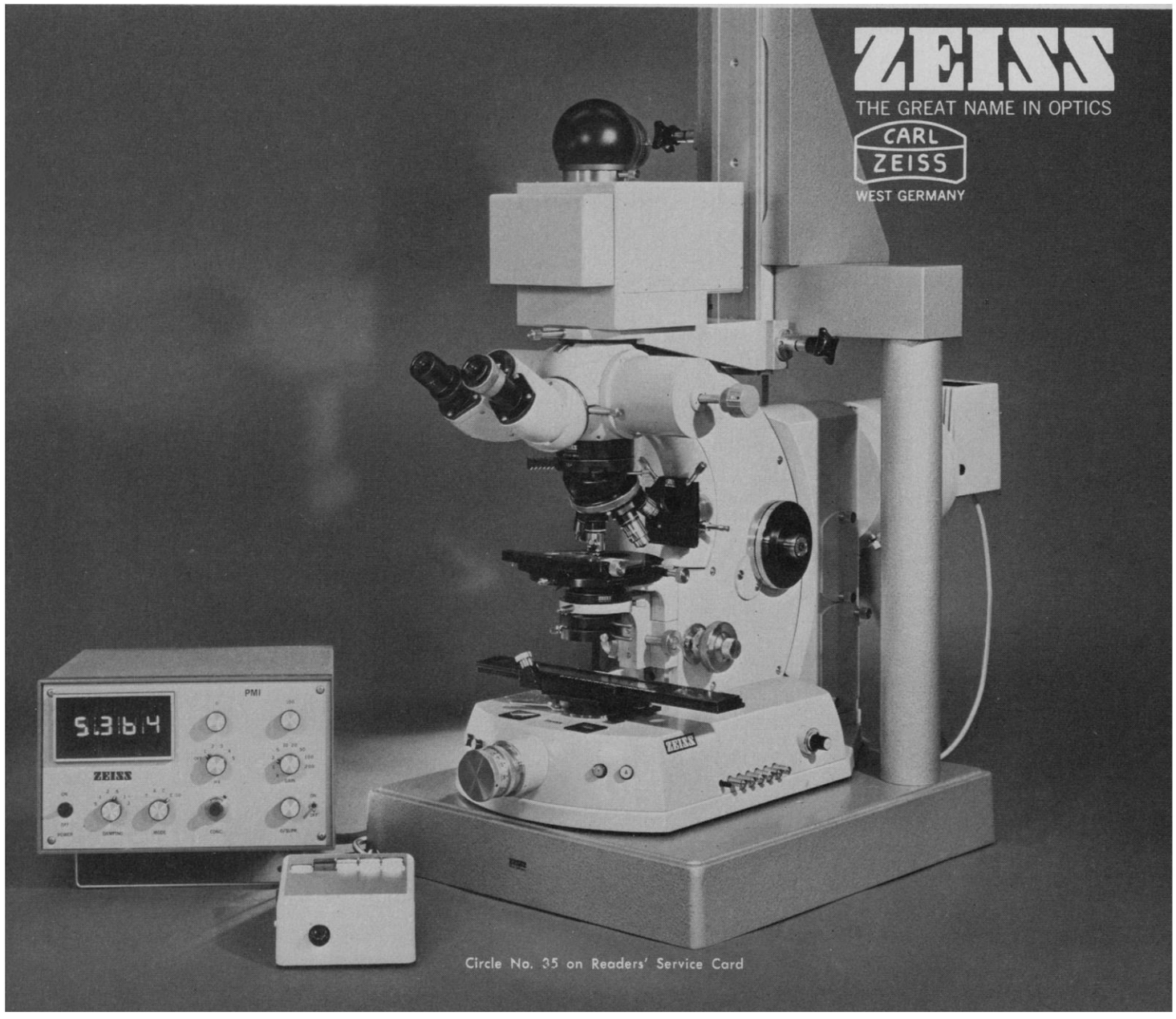

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SCIENCE

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COVER

Sequence of views of the spinning globe at 2-hour intervals as seen from the direction of Barnard's star. Television transmitters illuminating the viewer at any time are shown as red dots and occur only in a narrow band along the edge of the earth's disk. See page 377. [W. T. Sullivan III, S. Brown, and C. Wetherill, Department of Astronomy, University of Washington, Seattle]

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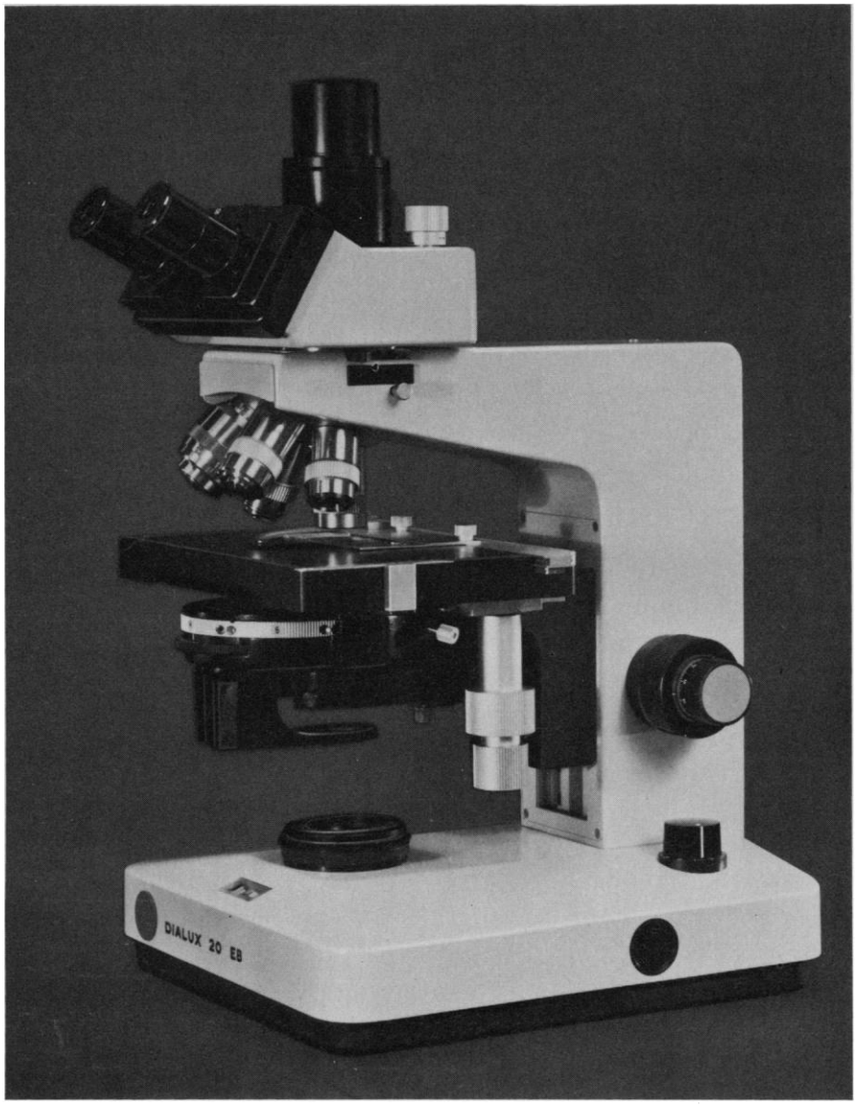

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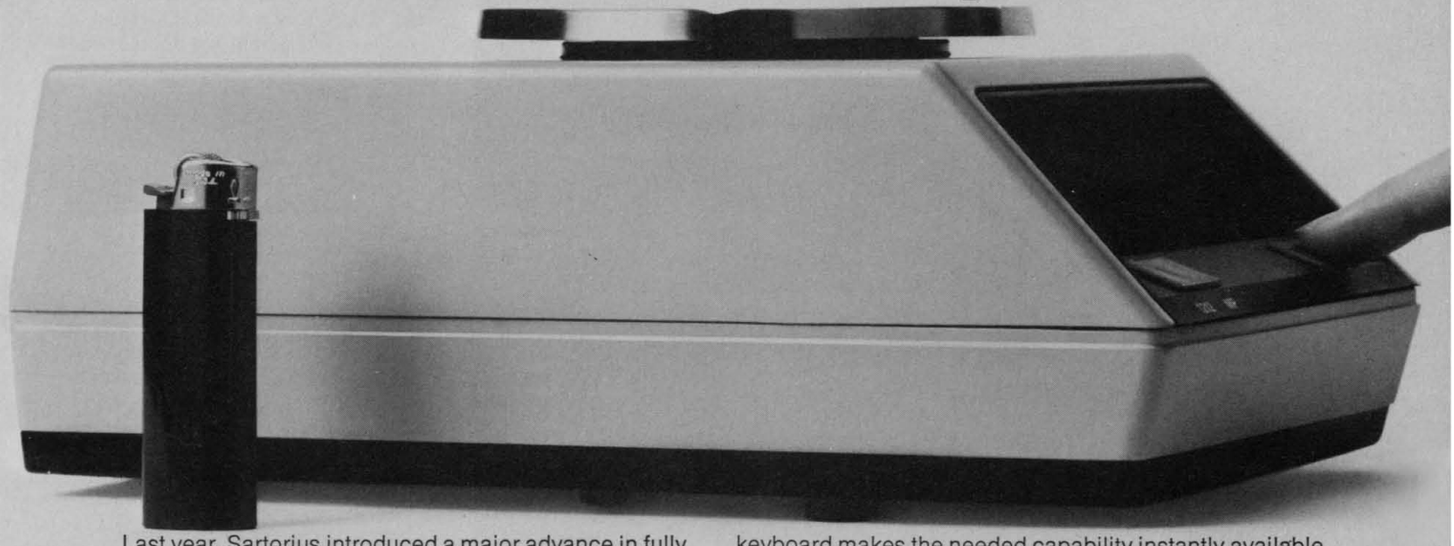

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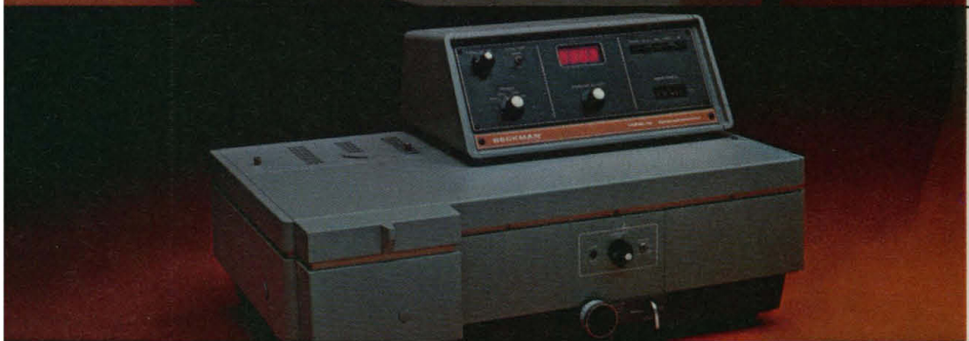

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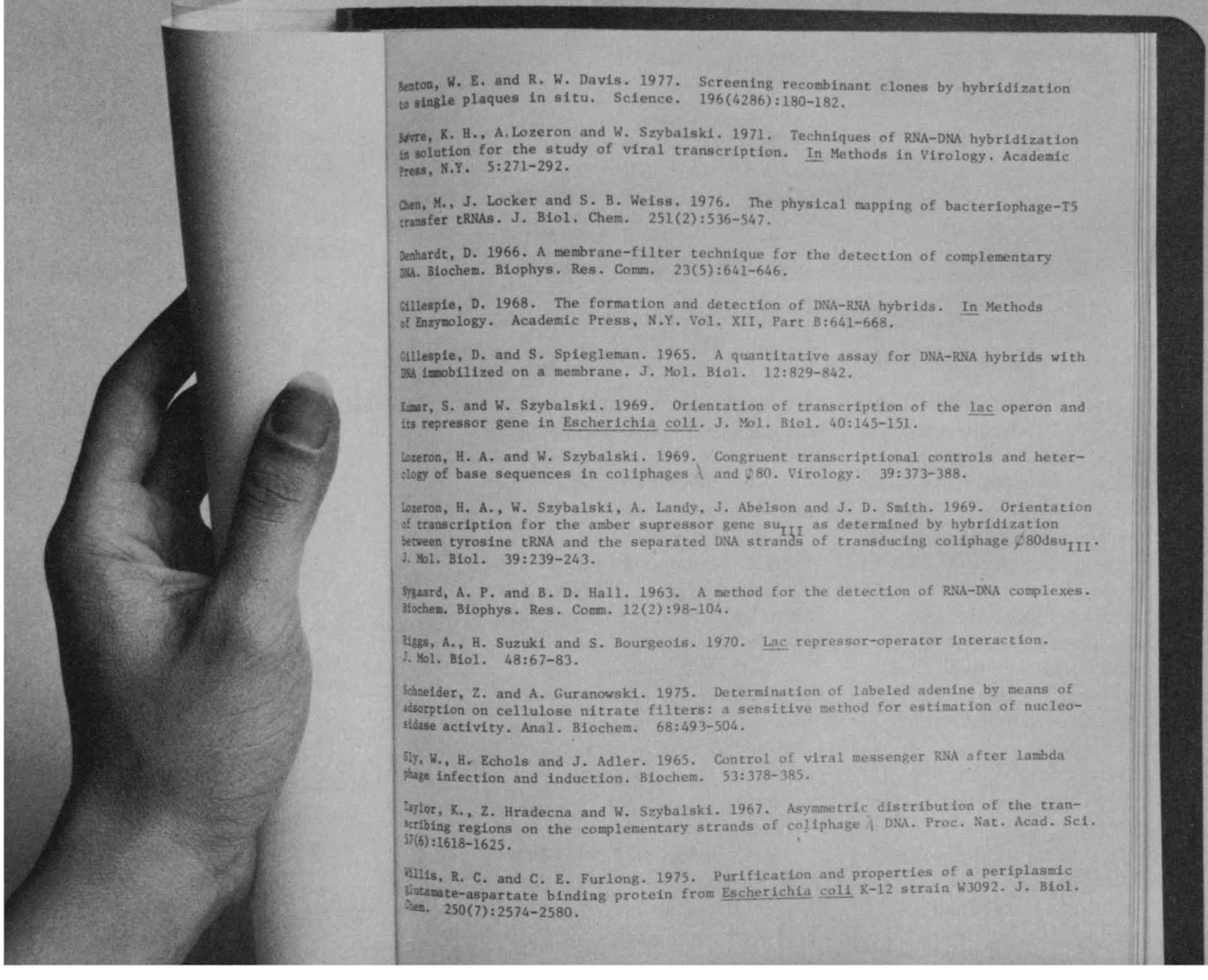

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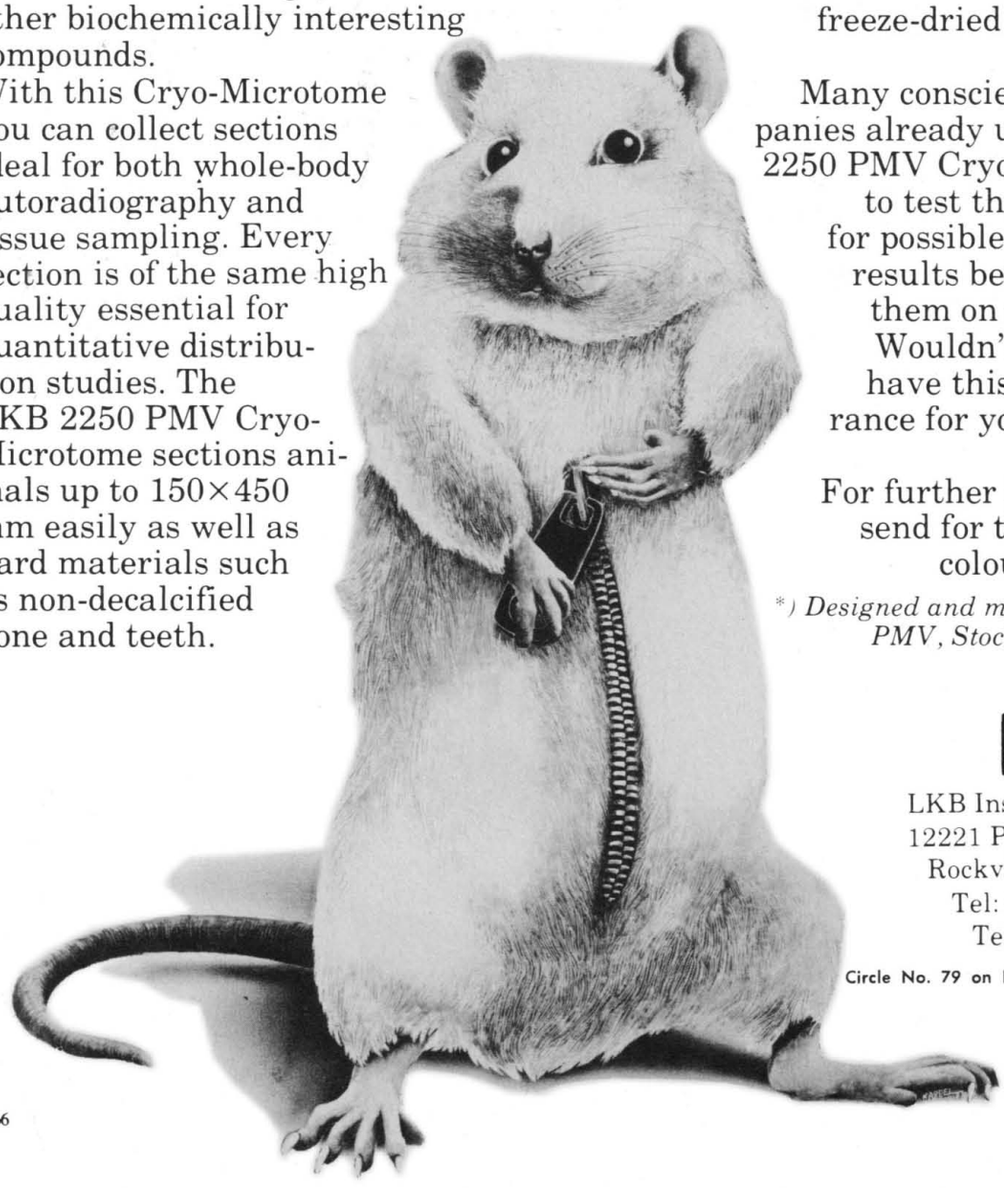

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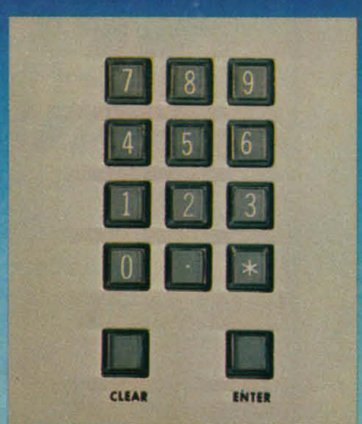

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LETTERS

Randomization in Clinical Trials

Gina Bari Kolata (News and Comment, 16 Dec. 1977, p. 1127) repeats the often stated belief that "The randomization [in controlled clinical trials] is designed to average out possible pertinent differences among the trial participants, such as age, sex, and general state of health. The treatment and control groups, then, should be medically equivalent." In fact, randomization never completely eliminates between-group differences; with small group sizes such differences may still be quite appreciable after randomization. It is questionable whether such groups could be considered medically equivalent.

The real rationale of randomization lies in the statistical theory of errors that distinguishes between systematic (biasing) errors and random (variable) errors. Even if the trial subjects were selected by identified criteria (age, sex, and so forth), there is no assurance that some attributes affecting the result may not be more (or less) predominant in one group than in the other. Since these factors are hidden, they cannot be measured, and the result cannot be corrected for the bias they introduce. Allocating by chance (randomizing) the subjects to the treatment and control groups does not make the groups medically equivalent, but it distributes the biasing factors to the groups also according to chance, that is, the biasing errors become random errors. Their magnitude can be calculated as the standard deviation and be allowed for in arriving at the result by tests of significance and confidence limits. Without randomization, such tests lack the appropriate logical foundation. That randomization also makes the subject groups more uniform is a by-product, welcome but not essential, of its primary function.

HERBERT A. WENDEL
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OTEC: Feasibility and Costs

The article "Ocean thermal energy: The biggest gamble in solar power" by William D. Metz (Research News, 14 Oct. 1977, p. 178) inspired a vigorous discussion in the Letters section (9 Dec. 1977, p. 989), some of which related to statements made by me and to results obtained by my research group. This dis-

cussion unfortunately presents several excellent illustrations of what must be one of the roots of our most serious problems: the difficulty of communicating precisely.

In the original article, Metz said, "Experiments conducted so far in the OTEC [ocean thermal energy conversion] program indicate that only ¼ millimeter of slime would reduce the plant's performance by 60 percent." This is *technically* incorrect. However, it is incorrect only in that no experiments yet conducted have been allowed to continue long enough for ¼ millimeter of slime to accumulate. Avery, in his letter (9 Dec. 1977, p. 990), replies that "No experience indicates that ¼ millimeter of slime growth on marine hardware would reduce OTEC performance by 60 percent." This is technically correct for the reason stated above. However, it is fundamentally misleading. If, for example, we assume OTEC heat exchanger tubes 1 inch in diameter with a seawater flow velocity inside of about 6 feet per second, ¼ millimeter of slime growth will indeed reduce the heat transfer coefficient by about 60 percent if biological slime has a thermal conductivity equal to that of seawater. (In fact it probably has a lower conductivity, so the degree of degradation will be even greater.) Let no one then be misled. Metz's statement was indeed "a fair characterization."

The point is in any case not the important one. There is no longer any doubt that slime growth will reach unacceptable levels if it is not inhibited. The critical question, about which there exists so far only the most preliminary evidence, concerns whether a feasible method can be developed to prevent or remove slime growth. Most of us who are working on this problem feel confident that it can be done, but this has yet to be convincingly demonstrated. Of greater concern are the potentially more serious problems of scale formation and corrosion in the OTEC heat exchanges, which may take years to resolve. More effort should be concentrated in these areas.

The letter by Duguay (9 Dec. 1977, p. 992) is a good illustration of another aspect of the communication problem. Certainly the casual, or nonexpert, reader might be convinced by it that the OTEC program should be abandoned. Before doing so, however, it would be well to look more carefully at Duguay's arguments. In his first paragraph he argues, based on relative efficiencies, that "the cost of a competitive OTEC power plant would have to be 20 times less than the cost of an equivalent land-based

power plant." Here, he seems to mean by "equivalent" that the plants have equal thermal energy *input*. (Clearly, if he means equal output, competitive plants would then just need to cost about the same.) From this, he concludes in his second paragraph that ". . . OTEC supporters claim to be able to build and maintain a . . . power plant that would be 15 times cheaper than a land-based power plant."

Now this must certainly have a strong negative impact on the nonexpert reader. However, we can slightly reword Duguay's statement, making it more complete without changing its sense at all. It would then read ". . . OTEC supporters claim to be able to build and maintain a . . . power plant that would be 15 times cheaper than a land-based power plant *producing 20 times the output power*." In this form, the statement doesn't seem nearly so shocking.

Until now, I have felt constrained to compare power plant costs on the basis of energy output rather than input. If we are to be allowed to cast about for other figures of merit that are more suited to our own biases, we open up a whole new field of endeavor which, I confess, gives much freer reign to the imagination and is therefore more fun. As my first contribution in this area, I submit the following syllogism.

Coal-fired power plants require about 20,000 times as many pounds of fuel as do nuclear plants. The cost of fuel in nuclear plants is not a negligible factor in the cost of power. Proponents of coal-fired plants, therefore, claim to be able to obtain fuel at about $^1/_{20,000}$ of the cost of the equivalent fuel for a nuclear plant. In view of the implausibility, I may even say ludicrousness, of such a scenario, we must obviously shut down immediately all coal-fired plants.

On second thought, perhaps we should continue comparing costs of plants per unit of power output.

JOHN G. FETKOVICH
Department of Physics,
Carnegie-Mellon University,
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In his letter of 9 December, Duguay suggests making cost comparisons rather than cost estimates for undeveloped energy technologies in order to reduce confusion and then proceeds to misrepresent the relative capital investment requirements of ocean thermal energy conversion (OTEC) and coal-fired power plants. Duguay is correct that the thermal-to-electrical conversion efficiency of modern coal-fired plants may exceed achievable OTEC efficiencies by a

Congressional Science Fellowship: Child Policy Applications Invited

The American Association for the Advancement of Science invites applications for the sixth year of its Congressional Science Fellow Program.

Program

The AAAS selects individuals from a broad range of disciplines and science-related professions to spend one year working in some area of Congress, and administers the program for its own and other sponsors' Fellows. The AAAS provides a two-week orientation. Each Fellow chooses his or her own assignment with guidance from the AAAS.

Awards

This year the AAAS will make five Congressional Science Fellowship Awards: four in some area of child and family policy—that is, child development, education, health policy, etc., and one in an unspecified area. The fellowship award includes an $18,000 stipend for the period of one year, beginning 1 September 1978, and $1500 for moving and travel expenses. Interested applicants requiring a higher stipend are encouraged to discuss their situation with the program director.

Application

Candidates may apply from any physical, biological, or behavioral science or field of engineering, or any health, education, or child-policy related area. They must be AAAS members or concurrently applying for membership.

Information on the selection criteria, application procedure, and program details are available from **Dr. Richard A. Scribner, Director, AAAS Congressional Science Fellow Program, AAAS, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036.** Deadline for application is 15 March 1978. Announcement of the awards will be made before 1 May 1978.

factor of 20. However, the conclusion that, in order for OTEC to be competitive with coal, the capital cost ratio of the two designs must be equal to the efficiency ratio is misleading. Neglecting for the moment fuel costs, the cost of electricity to a first approximation is determined solely by the appropriate capital investment cost, capital recovery factor, and plant factor. Thus, the thermal-to-electrical conversion efficiency of the plant does not even enter into the calculation.

When fuel costs are included, the conversion efficiency and the cost of fuel determine the contribution of fuel charges to the cost of electricity. If the comparison is between designs using two alternative depletable fuel choices, then the ratios of fuel costs and efficiencies determine the ratio of fuel costs. In a comparison of technologies based on a nonrenewable resource (coal) and a renewable resource (solar), the thermal-to-electrical conversion efficiency plays an unusual role, since the fuel for the technology based on the renewable resource is effectively available at no cost.

Accordingly, it is entirely conceivable that competitive electricity prices may be obtainable from OTEC facilities with capital costs that are in fact higher than those for a coal-fired unit with an equivalent capacity. Moreover, the fuel costs of a coal-fired facility are subject to future price escalations, while the "fuel" costs of an OTEC plant are fixed at the time of construction. Thus, the OTEC supporters do not have to meet the stringent requirements that are suggested by Duguay. Conversely, if the cost of mining and transporting coal contributes about 25 percent of the cost of electricity and maintenance costs are neglected, competitive OTEC plants may be implemented with capital investment costs as much as 33 percent higher than those of a coal-fired facility.

LARRY ICERMAN
Department of Technology and Human Affairs, Washington University, St. Louis, Missouri 63130

Bipedalism: An Early Warning System for Miocene Hominoids

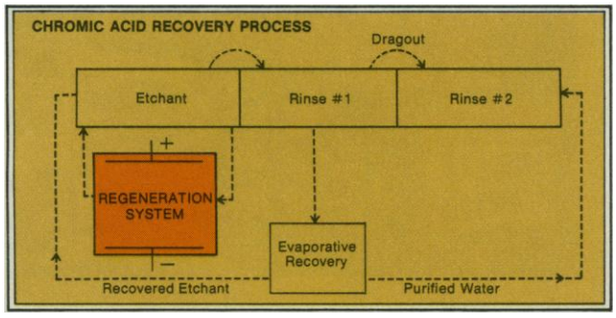
In the article "Human evolution: Hominoids of the Miocene" (Research News, 15 July 1977, p. 244), Gina Bari Kolata quotes David Pilbeam as speculating on possible morphological and behavioral effects brought about by environmental changes. Specifically, he suggests that the movements of Miocene hominoids into more open country (from forest) may have contributed to the smaller of the species of this group becoming bipedal as a partial consequence of changes in the way they fed.

In open grassland bipedalism would have an additional advantage for small hominoids. A small hominoid not possessing highly developed olfactory or auditory senses, foraging in relatively tall grass, would have difficulty scanning the surrounding terrain. Such a hominoid would be easy prey for a predator hunting by sight and capable of looking over the grass. Line of sight contact would not be essential, as the predator could track the "submerged" hominoid by the disturbance its movements created in the grass.

A hominoid of similar size capable of adopting a bipedal stance who was placed in a similar situation would be able to see over the grass (if it were not too tall) and thus become aware of an approaching predator much earlier than the nonbipedal hominoid. Even intermittent bipedalism would serve as an efficient early warning system.

M. RAVEY
8, Shimka Street, Haifa, Israel

In industry, chromic acid and oil-water machining emulsions usually live only once. They do their job; then they get discharged, sludged, trucked away, and buried. End of story.



Or is it?

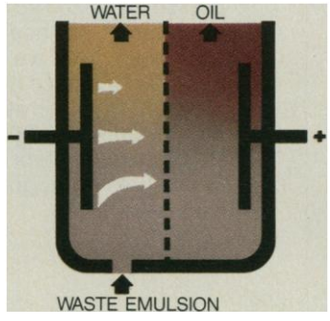
Recently, electrochemists here at the General Motors Research Laboratories have developed ways to infuse new life into these spent materials. In fact, GM's Guide Division is presently using a process of ours to recycle chromic acid.

The acid etches plastic components for plating. However, etching reduces the hexavalent chromium ions to a less effective trivalent form, and eventually the etchant loses its bite. At one time, that meant dumping the bath.

Now, our electrolytic process oxidizes the Cr (III) ions back to Cr (VI). This restores good etching and greatly extends chromic acid life. But first we had to:

- Find an anode material that would favor ion oxidation, rather than oxygen evolution.
- Determine the best anode/cathode ratio and current densities for efficient conversion.

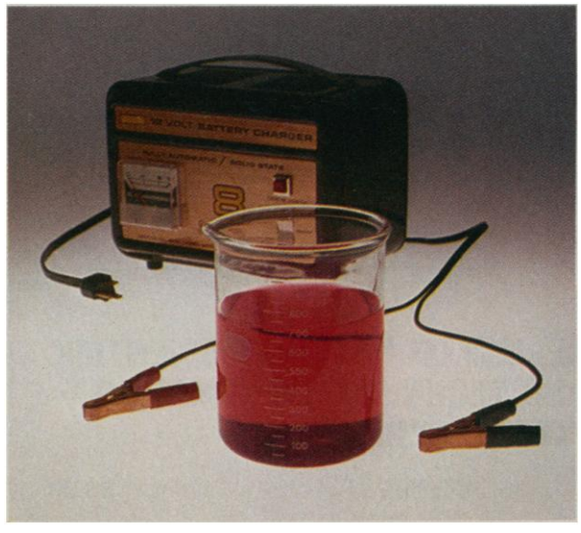
We hope to extend oil life too, in this case by breaking up oil-water emulsions. It's all done in a multicelled electrophoretic unit. Direct current drives oil droplets to the anodes. There the droplets coalesce, and the oil floats to the surface to be collected.



In a successful pilot test, our method reclaimed nearly 90% of the oil without requiring chemicals or forming sludge.

Applying electrochemical technology: Part of the Labs' ongoing program to help conserve critical materials and protect the environment.

We're recharging and reclaiming "waste" materials.



General Motors Research Laboratories
Warren, Michigan 48090

27 January 1978, Volume 199, Number 4327 SCIENCE

The Next Generation of Agricultural Research

Productivity of the major food crops has plateaued. Yields of wheat, maize, sorghum, soybeans, and potatoes in the United States have not increased since 1970. This is true of maize, potatoes, wheat, and cassava in Latin America. World grain yields have declined. Increased production has been achieved largely by cropping more land.

This phenomenon needs careful analysis. Farm yields rose rapidly in the United States following World War II. These were accompanied by technologies requiring massive inputs of fossil energy channeled to the farm as fertilizer, pesticides, irrigation, mechanization, and new seeds. Greater production efficiency was the goal. The result was plentiful food at low cost. All of these external inputs, with the possible exception of genetic improvements, are becoming increasingly costly, subject to more constraints, and less available. Some come from nonrenewable resources. Meanwhile, soil erosion continues unabated nationally and globally. After 40 years of a U.S. soil conservation program no more than 25 percent of our farmlands are under approved conservation practices. Topsoil continues to be lost at an enormous rate. Soil organic matter is being reduced. There is greater compaction from excess and untimely tillage. Air pollution is becoming more severe. Additional land areas brought into cultivation may be less productive. With increasingly greater pressures on the productive land resource base, the options for use of water, fertilizer, pesticides, and mechanization become progressively less.

Some would credit the recent plateauing of crop yields to adverse and fluctuating climate and weather. Season-to-season variations, however, are far more significant than any identifiable long-term trends. Regulatory and financial constraints on the use of labor, chemicals, water, and energy are increasingly costly and stifle production. Finally, there has been a 12-year erosion of the federal investment in agricultural research, not only in manpower but in new equipment and facilities. Enrollments in the colleges of agriculture in the land-grant universities have tripled in 10 years with little if any increase in faculty. Scientist years in support of agricultural research have not changed since 1966. Teaching needs had to be met. Research was left behind.

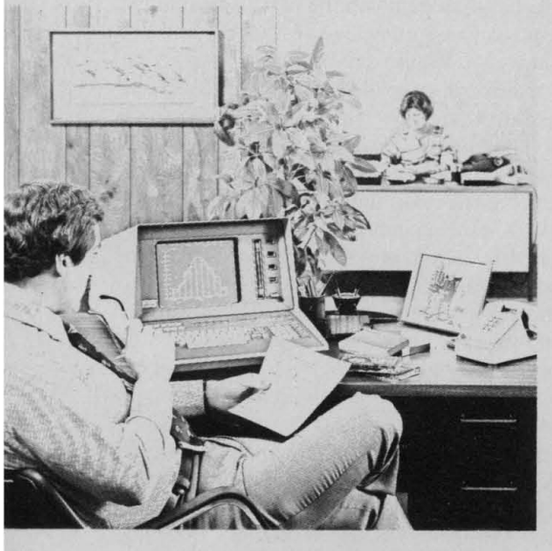
This brings us to the next generation of agricultural research. There are technologies that will result in stable food and fiber production at high levels, are nonpolluting, will add to rather than diminish the earth's resources, be sparing of capital, management, and nonrenewable resources, and are scale neutral. The time strategy, however, requires more than a 3- to 5-year plan. These technologies depend on mission-oriented basic research relating to the biological processes that control and now limit crop and livestock productivity. It is research that will address the problems of enabling plants and animals to more effectively utilize present environmental resources, through (i) greater photosynthetic efficiency; (ii) improved biological nitrogen fixation; (iii) new techniques for genetic improvement; (iv) more efficient nutrient and water uptake and utilization, and reduced losses of nitrogen fertilizer from nitrification and denitrification; and (v) more resistance to competing biological systems and environmental stresses. These are the areas identified in recent National Academy of Sciences–National Research Council reports and elsewhere as grossly underfunded; where we no longer exercise world leadership, and where the United States with its vast human, financial, and natural resources could make its greatest contribution to the agricultural development of Third World nations. Such technologies would be economically, socially, and ecologically sound. They could ease the inevitable transition we must make from nonrenewable to renewable resources. We must address ourselves to them.—S. H. WITTWER, *Director, Michigan State University Agricultural Experiment Station, East Lansing 48824*

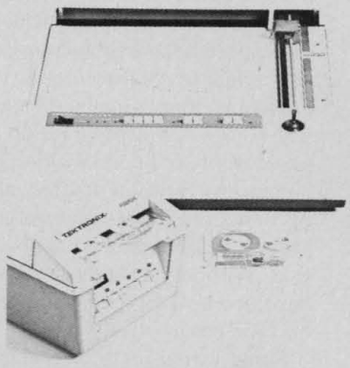
"Until now, we'd been mistaking access to processing for access to answers."

Problem: It takes more than a desktop processor to organize output into its simplest, most usable form.

A personal computer can shave timeshare expenses, but do nothing about trimming the fat off alphanumeric answers. You can give up the power of a mainframe without the promise of more intelligent, instantly visible data.

Solution: Tektronix' 4051. The one desktop unit that shapes information into usable graphics.





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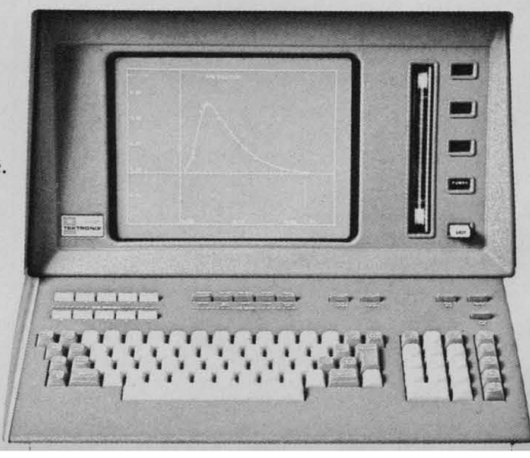

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- This 68-page catalog is an exceptionally useful BUYING GUIDE of products for laboratory animal housing and care.
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Lab Products...
not just
plastic cages,
metal cages,
custom fabrication,
laminar flow systems,
bedding,
automatic watering systems,
accessories...

table of contents

plastic cages

Lab Products offers the widest selection of plastic cages for housing small laboratory animals — as well as the most complete choice of options — to provide maximum latitude in matching the housing system to both the application and the budget. The housing systems and accessories described here are "state-of-the-art" and adhere to all NAS, NIH, and Public Health Law 89-544 requirements.

Guidelines for choosing plastic cages and accessories

The plastic cage section of this catalog consists of the following discussion of options plus a series of four Selector Guides for mice, rats, hamsters, and guinea pigs, along with photographs of all products.

The option section below discusses all the alternatives available in plastic cage housing systems in order to simplify choice and to relate such selection easily to specific need. All discussions are cross-referenced to the appropriate photographs.

The individual Selector Guides then bring together virtually all the specifications of available systems and indicate also which options and accessories are available.

Cage sizes

The choice of the appropriate cage size is a matter of professional judgment. Nevertheless, specific guidelines as related to intended use have been developed by the Institute of Laboratory Animal Resources* and are reproduced here in abbreviated form. These are recommendations only and may have to be modified depending upon individual circumstances.

Floor area guidelines

Animal	Weanling (Minimum)	Adult (Maximum)	Female With Litter
Mouse	6 in.^{2}(39 cm^2)	15 in.^{2}(97 cm^2)	50 in.^{2}(320 cm^2)
Rat	17 in.^{2}(110 cm^2)	40 in.^{2}(258 cm^2)	150 in.^{2}(975 cm^2)
Hamster	10 in.^{2}(64.5 cm^2)	15 in.^{2}(97.5 cm^2)	150 in.^{2}(975 cm^2)
Guinea Pig	60 in.^{2}(390 cm^2)	90 in.^{2}(585 cm^2)	180 in.^{2}(1170 cm^2)

Lab Products plastic cages accommodate mice, rats, hamsters, and guinea pigs. Please refer to the appropriate Selector Guides on pages 8, 12, 14, and 18.

Cage life: permanent or disposable

Lab Products *permanent* plastic cages are designed to withstand repeated handling, cleaning, disinfecting and contact with animal waste. But when washing and sterilization are to be avoided, or when contamination from radioactive, toxic, or infectious materials can cause problems, Lab Products *disposable* cages may be the appropriate choice.

* See "Guide for the Care and Use of Laboratory Animals" DHEW Pub. No. (NIH) 73-23 (Rev. 1972)

PLASTIC MATERIALS COMPARISON CHART

	A.S.T.M. Test Method	Polypropylene	Polycarbonate	Optional: General Purpose Polystyrene	Optional: Polyethylene
Burning rate	D635	Slow	Self extinguishing	Slow	Very slow
Effect of sunlight		Requires black	Yellows slightly	Slightly yellow	Requires black
Effects of weak acids	D543	Very resistant	None	None	Very resistant
Effect of strong acids	D543	Attacked slowly by oxidizing acids	Attacked slowly	Attacked by oxidizing acids	Attacked slowly by oxidizing acids
Effect of weak alkalies	D543	None	Resistant (limited)	None	Very resistant
Effect of strong alkalies	D543	Very resistant	Attacked	None	Very resistant
Effect of organic solvents	D543	Resistant (below 80°C)	Resistant to parafines, soluble in aromatic and chlorinated hydrocarbons	Soluble in aromatic and chlorinated hydrocarbons	Resistant (below 80°C)
Machining qualities		Excellent	Excellent	Fair to good	Excellent
Clarity		Translucent, transparent, opaque	Transparent	Transparent (88%-92% light transmission)	Translucent to opaque
Water absorption 24 hr. 1/8" thickness %	D648	0.01	0.3	0.03-0.05	0.01
Heat distortion 66 psi °F		230	250	176	180
Hardness	D785	R80	R118	M70	R40
Tensile strength LBS/IN^2	D638	4900	8000	6300	3300
Flexural strength LBS/IN^2	D790	5000	12000	8500	3000
Compressive strength LBS/IN^2	D695	9000	11000	13000	2400
Impact strength 120D Notch	D256	.8	14.0	.25	7.0
Major advantages		Heat resistance, light weight, rigidity	Heat resistance, strength, clarity	Low cost, quality fabrication, rigidity	Rigidity, low permeability, chemical resistance

Plastic materials

Lab Products *permanent* plastic cages are made of polycarbonate (clear), polypropylene (opaque), polyethylene (opaque), or fiberglass (opaque).

Lab Products *disposable* plastic cages are molded of polypropylene (translucent) or polystyrene (clear).

Polycarbonate is a transparent, rigid, warm-surfaced material which permits ready inspection of animals. It offers exceptional impact strength, resistance to high temperatures and is machine washable or autoclavable at temperatures under 250° F.

Polypropylene is opaque to translucent, rigid, warm-surfaced plastic with high heat and impact resistance. Cages made of polypropylene can be steam cleaned without dimensional change.

Polyethylene is opaque, rigid, and highly resistant to chemical attack. Polyethylene cages withstand steam cleaning.

Fiberglass cages are compression molded of fiberglass fibers reinforced with plastic molding compounds. Cages made of this material are opaque, have a hard, smooth finish, and can be autoclaved at temperatures under 250° F.

Polystyrene is transparent, very rigid and can be machine washed at temperatures under 180° F. The comparative low cost of polystyrene makes it an ideal material for disposable type cages.

Bedded cages

Lab Products disposable plastic cages are available "pre-bedded" with Ab-sorb-dri bedding to save time and money. For detailed information on Ab-sorb-dri™ bedding, see page 51. For cages bedded with Pine-dri™ or other bedding materials, please write indicating your needs.

Isolation systems

Lab Products offers a variety of systems for isolating small laboratory animals from their environments. This catalog offers three such separate approaches:

1. Individual cages protected by filter caps. Two systems are now available: the Isosystem™ with disposable filter caps, and Enviro-gard™ filter systems with permanent filter bonnets.

2. See-Through ™ suspended cage systems available with disposable formed plenum filters or flat filter sheets. (See pages 20–27 for details.)

3. Stay-Clean™ laminar flow systems which provide a flow of highly filtered laminar flow air directed across an enclosed animal cage chamber. (Refer to pages 28–31 for further information.)

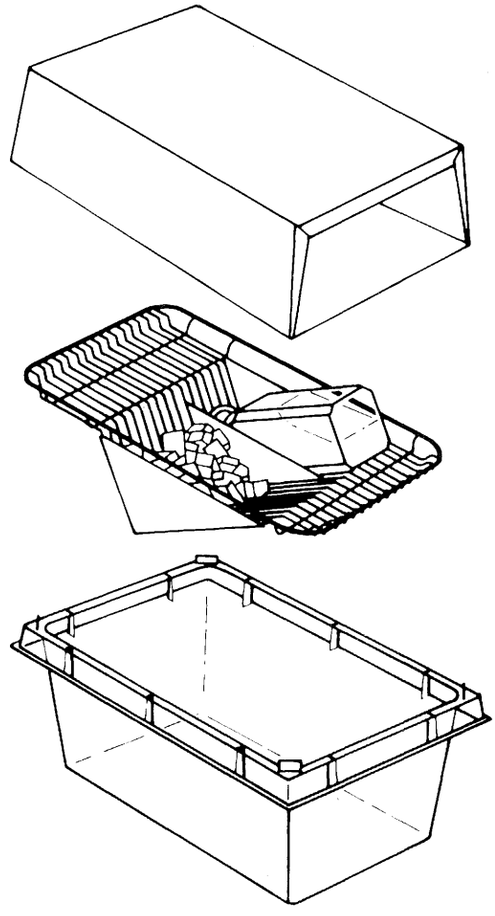
The individually protected cages, described in (1) above, easily and effectively provide a separate and protected micro-environment anywhere. These systems can isolate animals from harmful environmental influences (e.g., airborne contaminants such as viruses, bacteria, or any particulate matter, light, noise and sudden temperature changes). These isolation environments help to control diarrheal diseases of infant mice as well as the other outside influences that can threaten a program or a colony. These systems can also help control cross-contamination by aiding in infection confinement.

The Isosystem is a simple, integrated unit consisting of a *disposable* Isocap™ filter cap, an Isocage™ animal cage, and an Isolid™ cage lid. Isocages are available in polycarbonate (transparent), polypropylene (opaque), or disposable polypropylene (translucent). The disposable cage is also available bedded with Ab-sorb-dri. (See Selector Guide on page 8).

Enviro-Gard bonnets are *permanent* spun-bonded polyester filters for plastic cages. One-piece molded design provides optimum filtering surface and uniform porosity. They can be repeatedly washed and autoclaved and are available for a variety of cage sizes; see Selector Guides on pages 8, 12, 14, and 18.

Cage bottoms

Most Lab Products plastic cages have solid bottoms. However, two open bottom cage sizes, with integral stainless steel mesh floors specifically designed for the See-Through I™ suspended cage systems (see page 22), are also available. As reference to the Cage Selector Guides will show, raised wire floors are available for some mouse and rat solid-bottom cages (see discussion below).



Raised wire floors

These stainless steel, wire-bar raised floors are useful for solid-bottom cages when animals must be separated from their excrement. (See Selector Guides pages 8 and 12).

Covers

The standard plastic cage covers are:

Wire-bar
Chrome-plated
Stainless steel
Zinc plated

Perforated
Drop-on, flat
Drop-on, with slotted feeder
Slide-on, flat, with locking device
Slide-on, with feeder and locking device

Note: Lab Products can also custom fabricate covers to meet your specialized requirements.

Wire-bar covers

Lab Products wire-bar covers are designed for positive containment by virtue of appropriate wire spacing and bars extending to all corners (an exclusive feature). Each wire cover has a built-in food hopper and water bottle holder with an extra large disc that prevents the animals from chewing the bottle stopper. The food hopper and bottle holder are separated by a divider which collapses to facilitate nesting of covers (U.S. patent #3,358,649). Stainless steel, despite higher initial cost, provides long term economy. Chrome and zinc plated covers, although not as durable as stainless steel, are also practical, serviceable covers. However, chrome plated covers offer a substantially longer life than zinc plated covers, when exposed to similar treatment.

Perforated stainless steel covers

These covers are fabricated of Type 304 stainless steel with 2B finish. Perforations are ¼" with a ⅜" hole for sipper tube entry, and slots for bottle-holding saddles. Drop-on covers have dutch lap, heliarc welded corners.

The drop-on covers for use with mice are either flat (requiring separate hanging feeders; see page 8) or with built-in feeders.

The slide-on covers for rats, hamsters, and guinea pigs are also either flat (requiring separate hanging feeders; see pages 12, 14 and 18) or with built-in feeders. All sliding covers come equipped with escape-proof locking devices.

Water bottle saddle for perforated covers

Perforated covers require "saddles" for water bottles to provide the proper angle for water flow. Each cover has the appropriate slots for accommodating these saddles. Saddles are of stainless steel. (See Selector Guides for appropriate saddles.)

Feeders

All wire-bar covers have built-in feeders.

Some perforated covers require separate hanging feeders (see Selector Guides and Accessories page 56).

Water supply

Lab Products supplies glass or plastic water bottles, bottle stoppers, and stainless steel sipper tubes for all applications. See Selector Guides and Accessories (page 58) for details. Also available: stainless steel water bottle rack with 24 bottle capacity for easy transport and washing.

Lab Products also supplies a wide range of automatic watering sytems. (See page 22 or write for more information.)

Specialized plastic cages

Lab Products offers a variety of plastic (and metal) restraining cages for mice, rats, hamsters, guinea pigs, and rabbits. (See Accessories page 52.)

Cardholders

Three types of hanging cardholders are available for inserting 3" x 5" index cards for logging experimental data. (See Accessories page 59.)

Care and maintenance of polycarbonate cages

The usable life of polycarbonate cages can be prolonged by adhering to these use and cleaning instructions.

Care

Contact between animal waste products and cages should be kept to a minimum by using a sufficient quantity of an absorbent bedding material and replacing it with fresh material as often as possible.

Residues left by adhesive tape or crayons used for identifying cages can be removed with ethyl alcohol. Other solvents should NOT be used. (Avoid felt pens—their solvents can damage plastics.)

Cleaning

Plastic spatulas are useful—and safe—for removing bedding from cages. Banging cages can weaken them.

Wash cages with hot water and detergent (keeping the pH of the washing solution between 4.5-7.5).

Soft water minimizes formation of a whitish-grey layer on cages that are washed frequently.

Disinfection

First, check with the disinfectant manufacturer regarding the safety of his product for polycarbonate cages since many disinfectants have the potential for damaging polycarbonate.

Never heat cages wetted with disinfectant materials.

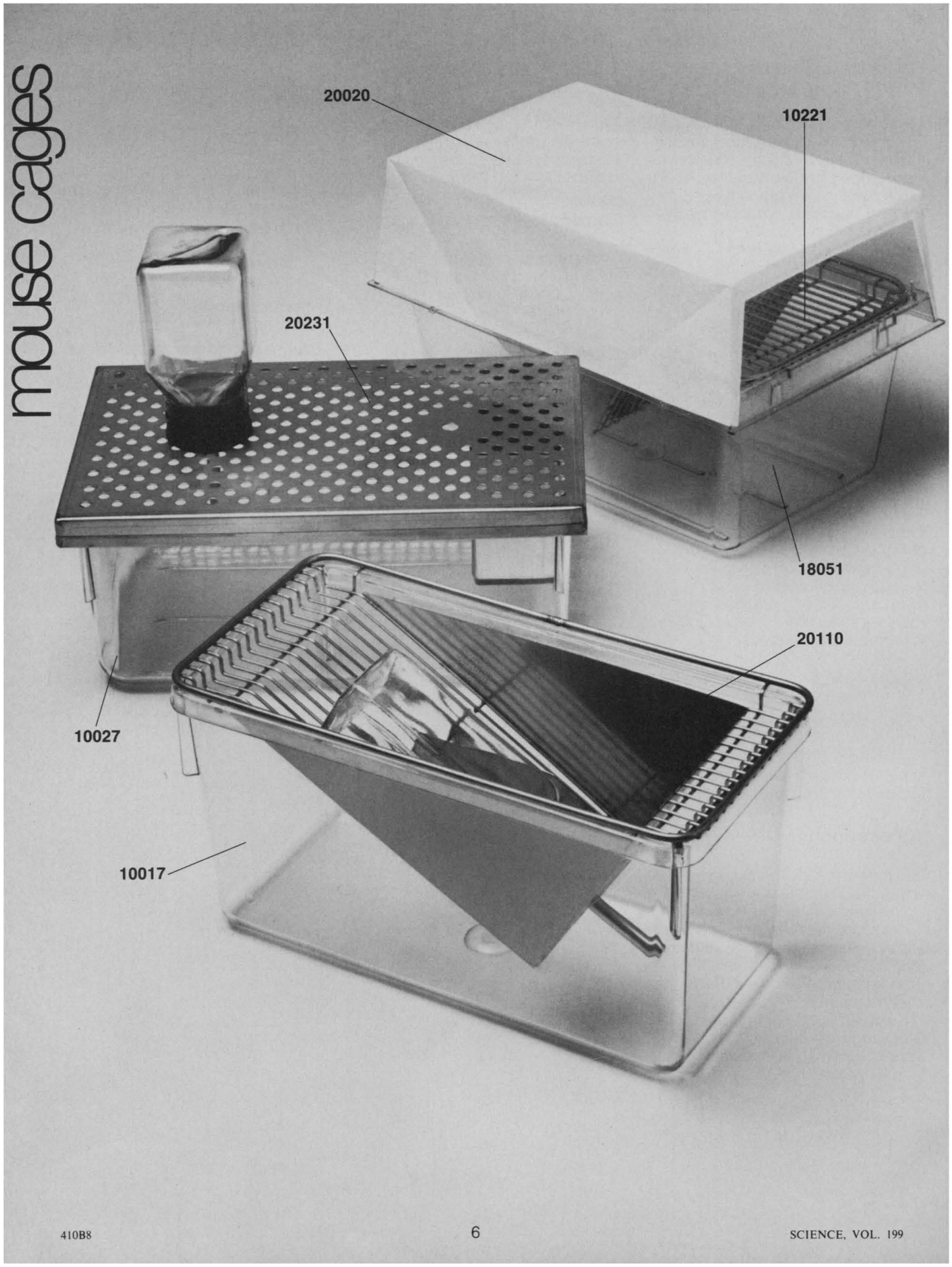
Sterilization

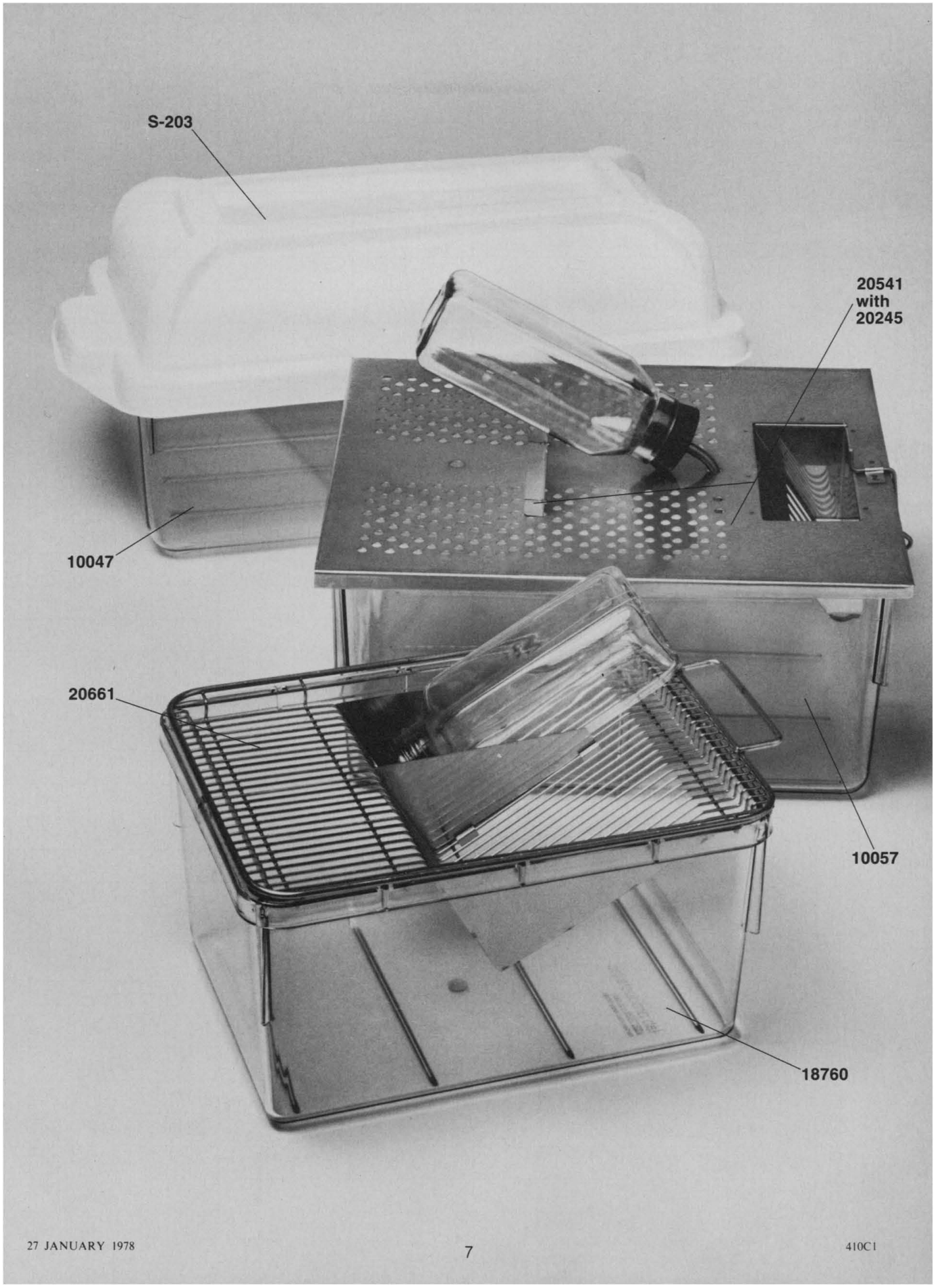
All bedding *must* be removed from cages prior to thermal sterilization since heat can release potentially damaging substances from bedding materials.

Chemical treatment: 2% peracetic acid may be used . . . but observe all safety precautions!

Hot air treatment: polycarbonate cages are heat stable up to about 250°F. Do *not* exceed. Avoid hot air sterilization that permits development of localized hot spots in excess of 250°F.

Steam treatment: these cages can be autoclaved at 245°F-250°F. Do not stack cages in heights over 30 inches. Effective steam sterilization depends upon proper temperature controls and an adequate steam supply. Alkaline corrosion inhibitors from boiler feed water may destroy plastic materials or dull the cage surface layer.


mouse cages
20020
10221
20231
18051
20110
10027
10017


S-203
20541
with
20245
10047
20661
10057
18760

mouse cage selector guide

Mouse Cages

	Catalog No.	Cage Size LxWxD Inches	Floor Area Sq. Inches	Number of Mice per cage		Type of Rack		Plastic material	Isolation System Filter Cap		Bottom	
				Adults	Female with litter	Shelf †††	See-Through		Isocap	Enviro-gard	Solid	Open
PERMANENT	10017	11½x5¾x6	47	3	1	38121 38123		Poly-carbonate		S-211	✓	
	10015	11½x5¾x6	47	3	1	"		Poly-propylene		S-211	✓	
	10027	11½x7½x5	70	4	1	"		Poly-carbonate	**	S-201 OR S-204*	✓	
	10025	11½x7½x5	70	4	1	"		Poly-propylene	**		✓	
	18051	12⅜x7¾x5	64	4	1	"		Poly-carbonate	20020	S-206	✓	
	18052	12⅜x7¾x5	64	4	1	"		Poly-propylene	20020	S-206	✓	
	18170	11x8½x6	72	4	1	"		Poly-carbonate		S-130	✓	
	18150	11x8½x6	72	4	1	"		Poly-propylene		"	✓	
	18760	12½x9¼x6	75	5	1	"		Poly-carbonate			✓	
	18560	12½x9¼x6	75	5	1	"		Poly-propylene			✓	
	18670	13⅞x8⅝x5⅛	88	5	1	38122 38124		Poly-carbonate		S-630	✓	
	18650	13⅞x8⅝x5⅛	88	5	1	"		Poly-propylene		"	✓	
	18870	19x8⅞x5⅝	135	9	1	"		Poly-carbonate			✓	
	18850	19x8⅞x5⅝	135	9	1	"		Poly-propylene			✓	
	10047	19x10½x6	153	10	1	"		Poly-carbonate		S-203 OR S-209*	✓	
	10045	19x10½x6	153	10	1	"		Poly-propylene			✓	
	10037	19x10½x5	154	10	1	"		Poly-carbonate		S-203	✓	
	10035	19x10½x5	154	10	1	"		Poly-propylene		"	✓	
	10057	14⅞x12⅞x6⅝	154	10	1	"		Poly-carbonate		S-202 OR S-213*	✓	
	10055	14⅞x12⅞x6⅝	154	10	1	"		Poly-propylene			✓	
SEE THROUGH	18710	10½x9½x8	62	4	1		I	Poly-carbonate		††	✓	
	18715-OM	10½x9½x8	62	4	1		I	Poly-carbonate		††		✓
	18760	12½x9¼x6	75	5	1		II	Poly-carbonate		††	✓	
	18780	19x10½x8	143	9	1		I	Poly-carbonate		††	✓	
	18785-OM	19x10½x8	143	9	1		I	Poly-carbonate		††		✓
DISPOSABLE	18049†	12⅜x7¾x5	64	4	1	38121 38123		Poly-propylene	20020	S-206	✓	
	18050	12⅜x7¾x5	64	4	1	"		Poly-propylene	20020	S-206	✓	
	10021	11½x7½x5	60	4	1	"		Poly-styrene		S-201 OR S-204*	✓	
	10023†	11½x7½x5	60	4	1	"		Poly-styrene			✓	

*S-201, S-202, S-203, for wire bar covers, S-204, S-209, S-213 for perforated covers.

**Special flat filter frame #40027 available for use with this cage using wire bar covers #20220, 20221, 20222.

See accessory section for water bottles, stoppers & sipper tubes.

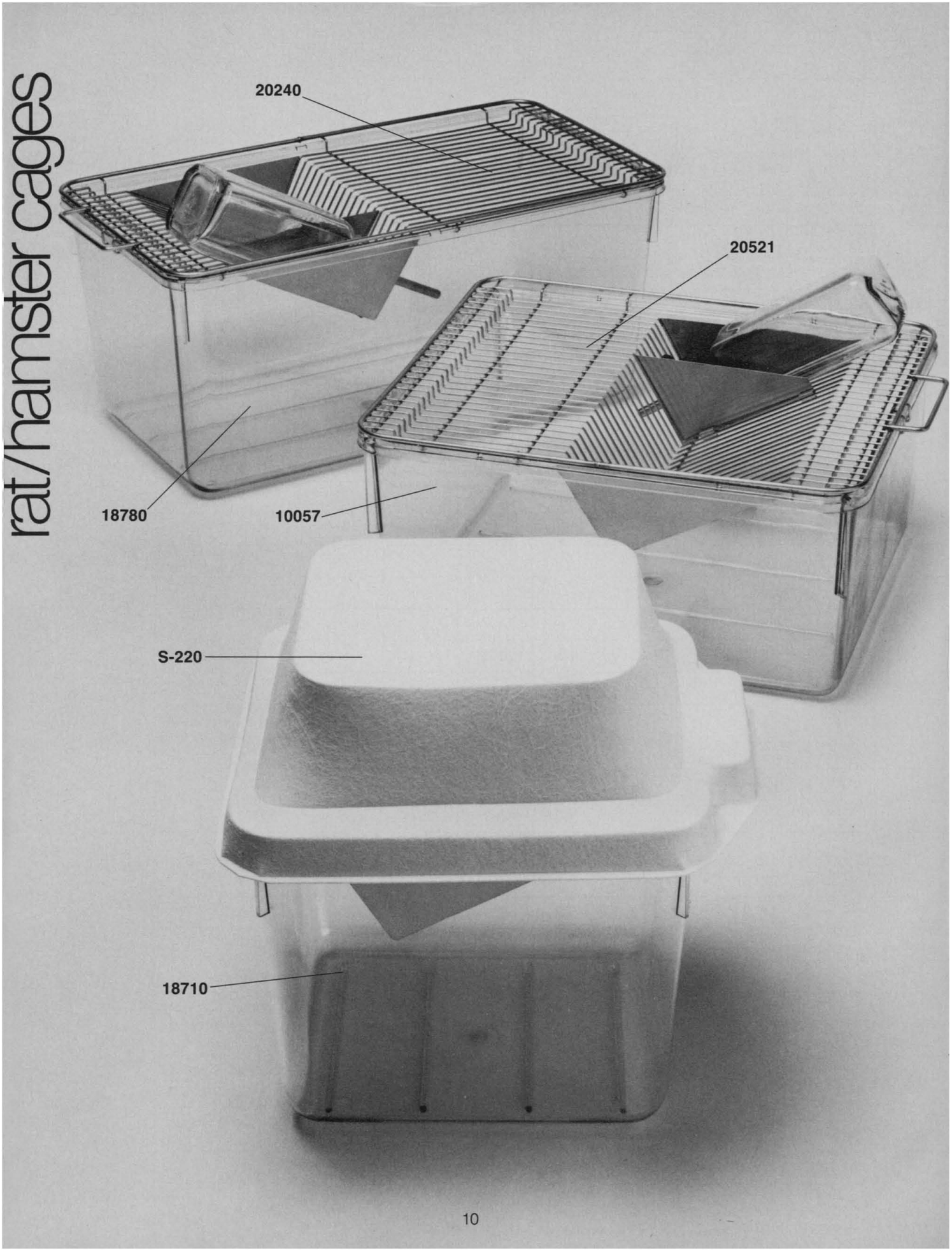
Raised Wire Floor	Covers							Water Bottle Saddle for perforated covers	Feeders	Card Holders
	Wire Bar			Perforated (Stainless Steel)						
	Chrome Plated	Stainless Steel	Zinc Plated	Drop-on Flat	Drop-on Slotted Feeder	Slide-on flat Locking Device	Slide-on Locking Device			
	20110	20121	20122							30305
	20110	20121	20122							"
30222	20220	20221	20222	20231	20241			20245	30100 30200	30305 30305H
30222	20220	20221	20222	20231	20241			"	30100 30200	"
	10220	10221	10222							20001
	10220	10221	10222							"
		18194 M	18124 M							30305 30305H
		18194 M	18124 M							"
		20661 M	20662 M							"
		20661 M	20662 M							"
		18694	18624							"
		18694	18624							"
		18894	18820							"
		18894	18820							"
30422	20420 M	20421 M	20422 M		20451	20431	20441	20245	30200 30300	"
30422	20420 M	20421 M	20422 M		20451	20431	20441	"	30200 30300	"
	20420 M	20421 M	20422 M							"
	20420 M	20421 M	20422 M							"
	20520 M	20521 M	20522 M		20551	20531	20541	"	30200	"
	20520 M	20521 M	20522 M		20551	20531	20541	"	30200	"
									44023	"
									44023	"
									44023	"
									44024	"
									44024	"
	10220	10221	10222							20001
	10220	10221	10222							20001
	20220	20221	20222	20231	20241				30100 30200	30305 30305H
	20220	20221	20222	20231	20241				30100 30200	"

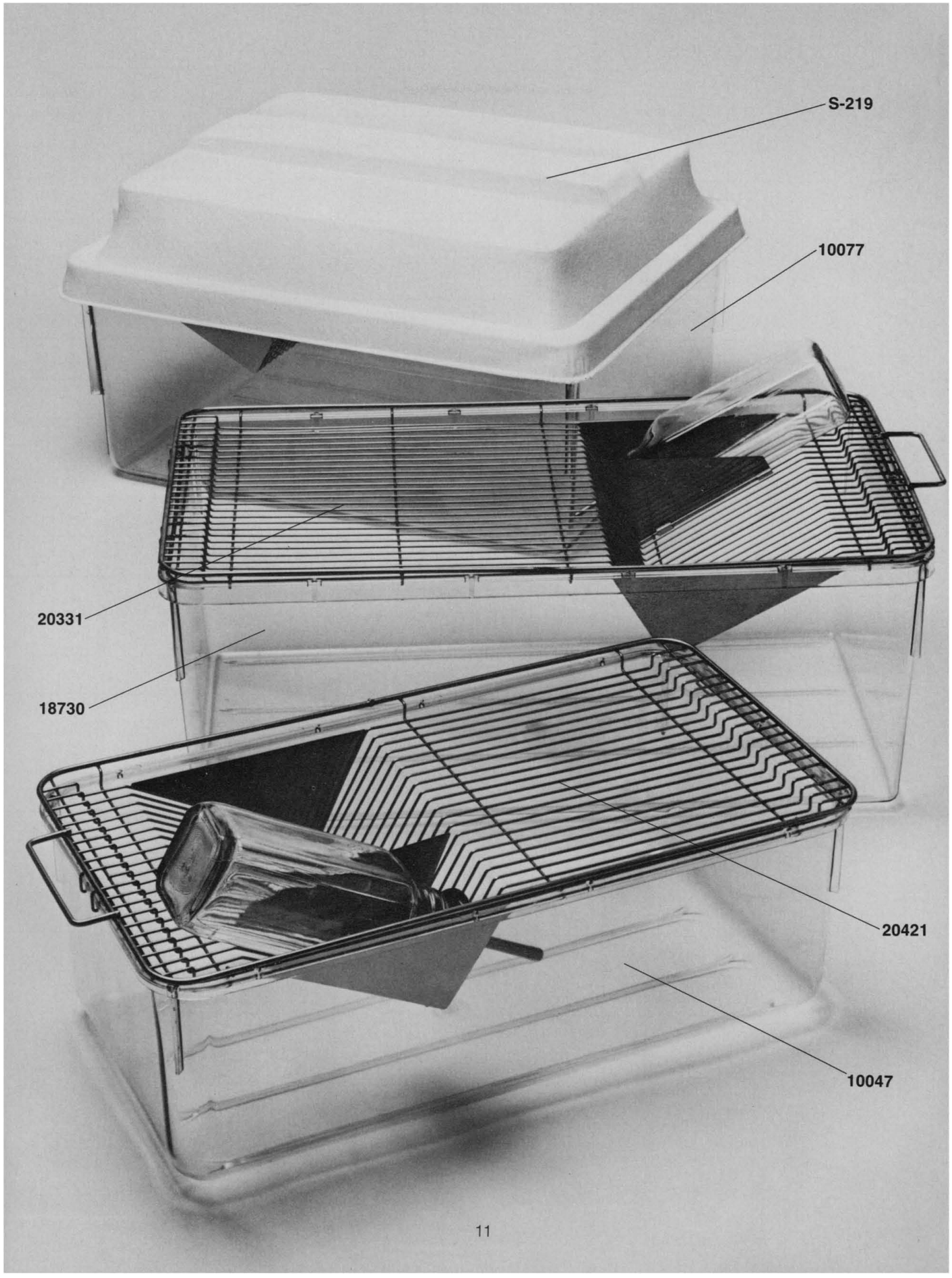
†Bedded with Ab-sorb-dri bedding

††For filters on See-Through cages see the See-Through section.

†††See adjustable racks page 50.

rat/hamster cages




S-219
10077
20331
18730
20421
10047

rat cage selector guide

Rat Cages

Catalog No.	Cage Size LxWxD Inches	Floor Area Sq. Inches	Number of Rats per cage		Type of Rack		Plastic material	Isolation System Filter Cap	Bottom	
			Adults	Female with litter	Shelf †††	See-Through		Envirogard	Solid	Open
18710	10½x9½x8	62	1		38121 38123		Poly-carbonate	S-220	✓	
18510	10½ x9½x8	62	1		"		Poly-propylene	S-220	✓	
18170	11x8½x6	72	1		"		Poly-carbonate		✓	
18150	11x8½x6	"	1		"		Poly-propylene		✓	
18760	12½x9¼x6	75	1		"		Poly-carbonate		✓	
18560	12½x9¼x6	75	1		"		Poly-propylene		✓	
10057	14⅞x12⅞x6⅝	154	3	1	38122 38124		Poly-carbonate	S-202 OR S-213*	✓	
10055	14⅞x12⅞x6⅝	154	3	1	"		Poly-propylene		✓	
10047	19x10½x6	153	3	1	"		Poly-carbonate	S-203 OR S-209*	✓	
10045	19x10½x6	153	3	1	"		Poly-propylene		✓	
18780	19x10½x8	143	3	1	"		Poly-carbonate	S-203 OR S-209*	✓	
18580	19x10½x8	143	3	1	"		Poly-propylene		✓	
18730	22x12½x8	202	5	1	"		Poly-carbonate		✓	
18530	22x12½x8	202	5	1	"		Poly-propylene		✓	
10077	20x16x8	267	6	1	"		Poly-carbonate	S-219*	✓	
10075	20x16x8	267	6	1	"		Poly-propylene	S-219*	✓	

SEE-THROUGH

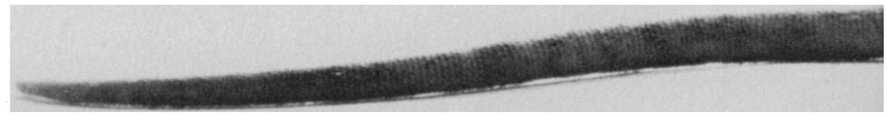
18710	10½x9½x8	62	1			I	Poly-carbonate	††	✓	
18715-OR	10½x9⅛x8	62	1			I	Poly-carbonate	††		✓
18760	12½x9¼x6	75	1			II	Poly-carbonate	††	✓	
18780	19x10½x8	143	3	1		I	Poly-carbonate	††	✓	
18785-OR	19x10½x8	143	3	1		I	Poly-carbonate	††		✓
18730	22x12½x8	202	5	1		II	Poly-carbonate	††	✓	

*S-202, S-203, S-219 for wire bar covers, S-209, S-213 for perforated covers.

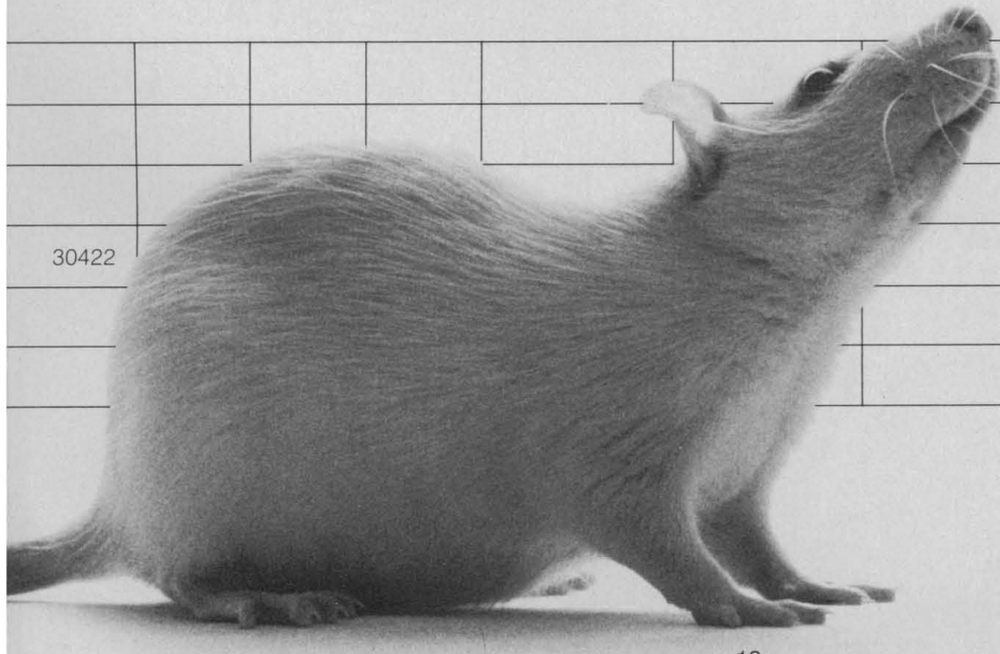
††For filters on See-Through cages see the See-Through section.

†††See adjustable racks page 50.

See accessory section for water bottles, stoppers & sipper tubes.



Raised Wire Floor	Covers					Water Bottle Saddle for perforated covers	Feeders	Card Holders
	Wire Bar			Perforated (Stainless Steel)				
	Chrome Plated	Stainless Steel	Zinc Plated	Slide-on flat Locking Device	Slide-on Locking Device			
	10210	10211	10212					30305 30305H
	10210	10211	10212					"
		18194	18124					"
		18194	18124					"
		20661	20662					"
		20661	20662					"
	20520	20521	20522	20531	20541	20245	30200 30300	"
	20520	20521	20522	20531	20541	"	30200 30300	"
30422	20420	20421	20422	20431	20441	"	30200 30300	"
30422	20420	20421	20422	20431	20441	"	30200 30300	"
	20420	20421	20422	20431	20441	"	30200	"
	20420	20421	20422	20431	20441	"	"	"
		20331	20332					"
		20331	20332					"
		20721	20722	20731		20245	30300	"
		20721	20722	20731		"	30300	"
							44023	"
							44023	"
							44023	"
30422							44024	"
							44024	"
							44024	"



hamster cage selector guide

Hamster Cages

Catalog No.	Cage Size LxWxD inches	Floor Area Sq. Inches	Number of Hamsters per cage		Type of Rack		Plastic material	Isolation System Filter Cap	Bottom	
			Adults	Female with litter	Shelf †††	See-Through		Envirogard	Solid	Open
18710	10½x9½x8	62	4		38121 38123		Poly-carbonate	S-220	✓	
18510	10½x9½x8	62	4		"		Poly-propylene	S-220	✓	
18170	11x8½x6	72	4	1	"		Poly-carbonate		✓	
18150	11x8½x6	"	4	1	"		Poly-propylene		✓	
18760	12½x9¼x6	75	5		"		Poly-carbonate		✓	
18560	12½x9¼x6	75	5		"		Poly-propylene		✓	
10057	14⅞x12⅞x6⅝	154	10	1	38122 38124		Poly-carbonate	S-202 OR S-213*	✓	
10055	14⅞x12⅞x6⅝	154	10	1	"		Poly-propylene		✓	
10047	19x10½x6	153	10	1	"		Poly-carbonate	S-203 OR S-209*	✓	
10045	19x10½x6	153	10	1	"		Poly-propylene		✓	
18780	19x10½x8	143	9	1	"		Poly-carbonate	S-203 OR S-209*	✓	
18580	19x10½x8	143	9	1	"		Poly-propylene		✓	
18730	22x12½x8	202	13	1	"		Poly-carbonate		✓	
18530	22x12½x8	202	13	1	"		Poly-propylene		✓	

SEE-THROUGH

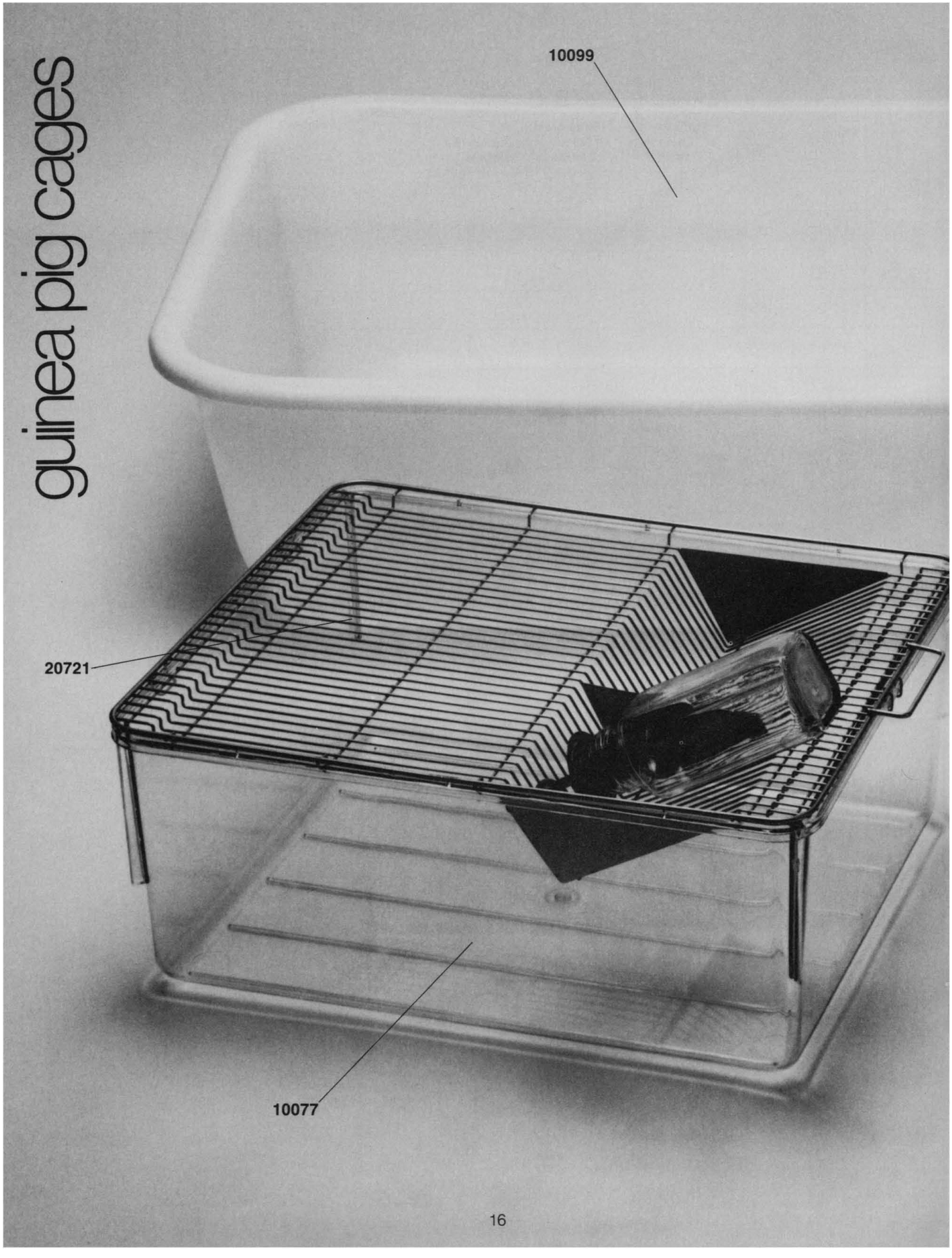
18710	10½x9½x8	62	4			I	Poly-carbonate	††	✓	
18760	12½x9½x6	75	5			II	Poly-carbonate	††	✓	
18780	19x10½x8	143	9	1		I	Poly-carbonate	††	✓	
18730	22x12½x8	202	13	1		II	Poly-carbonate	††	✓	

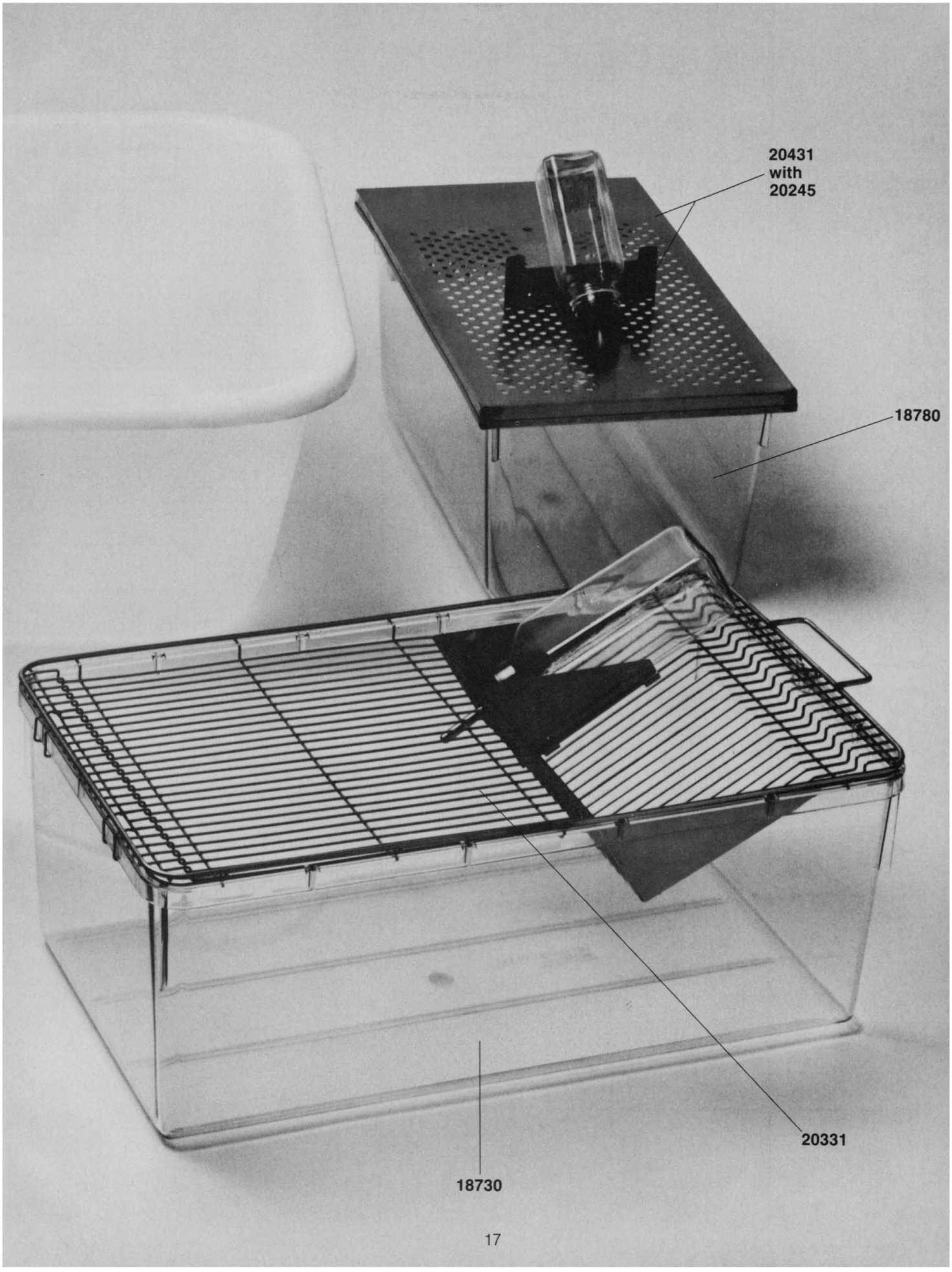
*S-202, S-203 for wire bar covers, S-209, S-213 for perforated covers.
††For filters on See-Through cages see the See-Through section.
†††See adjustable racks page 50.
See accessory section for water bottles, stoppers & sipper tubes.

Covers					Water Bottle Saddle for Perforated Covers	Feeders	Card Holders
Wire Bar			Perforated (Stainless Steel)				
Chrome Plated	Stainless Steel	Zinc Plated	Slide-on flat Locking Device	Slide-on Locking Device			
10210	10211	10212					30305 30305H
10210	10211	10212					"
	18194	18124					"
	18194	18124					"
	20661	20662					"
	20661	20662					"
20520	20521	20522	20531	20541	20245	30200	"
20520	20521	20522	20531	20541	"	30200	"
20420	20421	20422	20431	20441	"	30200	"
20420	20421	20422	20431	20441	"	30200	"
20420	20421	20422	20431	20441	"	30200	"
20420	20421	20422	20431	20441	"	"	"
	20331	20332					"
	20331	20332					"

						44023 44024	"
						44023 44024	"
						44024	"
						44024	"

guinea pig cages




20431
with
20245
18780
20331
18730

guinea pig cage selector guide

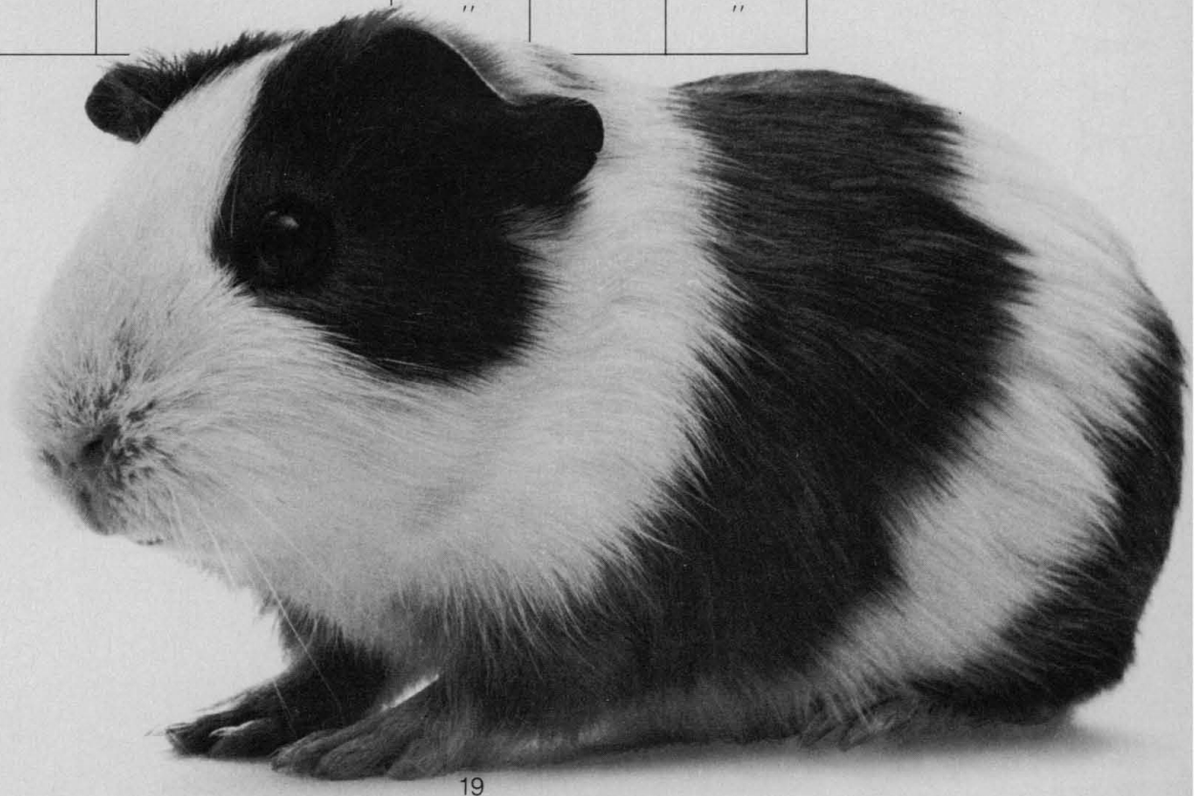
Guinea Pig Cages

Catalog No.	Cage Size LxWxD inches	Floor Area Sq. Inches	Number of Guinea Pigs per Cage		Type of Rack		Plastic material	Isolation System Filter Cap	Bottom	
			Adults Weanling to 350 gms.	Female with litter	Shelf †††	See-Through		Envirogard	Solid	Open
18780	19x10½x8	143	1		38122 38124		Poly-carbonate	S-203 OR S209*	✓	
18580	19x10½x8	143	1		"		Poly-propylene		✓	
18730	22x12½x8	202	2	1	"		Poly-carbonate		✓	
18530	22x12½x8	202	2	1	"		Poly-propylene		✓	
10077	20x16x8	267	3	1	"		Poly-carbonate	S-219*	✓	
10075	20x16x8	267	3	1	"		Poly-propylene	S-219*	✓	
10099	38¾x26¾x10	700	7	1	"		Poly-ethylene		✓	
SEE-THROUGH										
18710	10½x9½x8	62	1			I	Poly-carbonate	††	✓	
18715-OM	10½x9½x8	62	1			I	Poly-carbonate	††		✓
18780	19x10½x8	143	1			I	Poly-carbonate	††	✓	
18785-OM	19x10½x8	143	1			I	Poly-carbonate	††		✓
18730	22x12½x8	202	2	1		II	Poly-carbonate	††	✓	

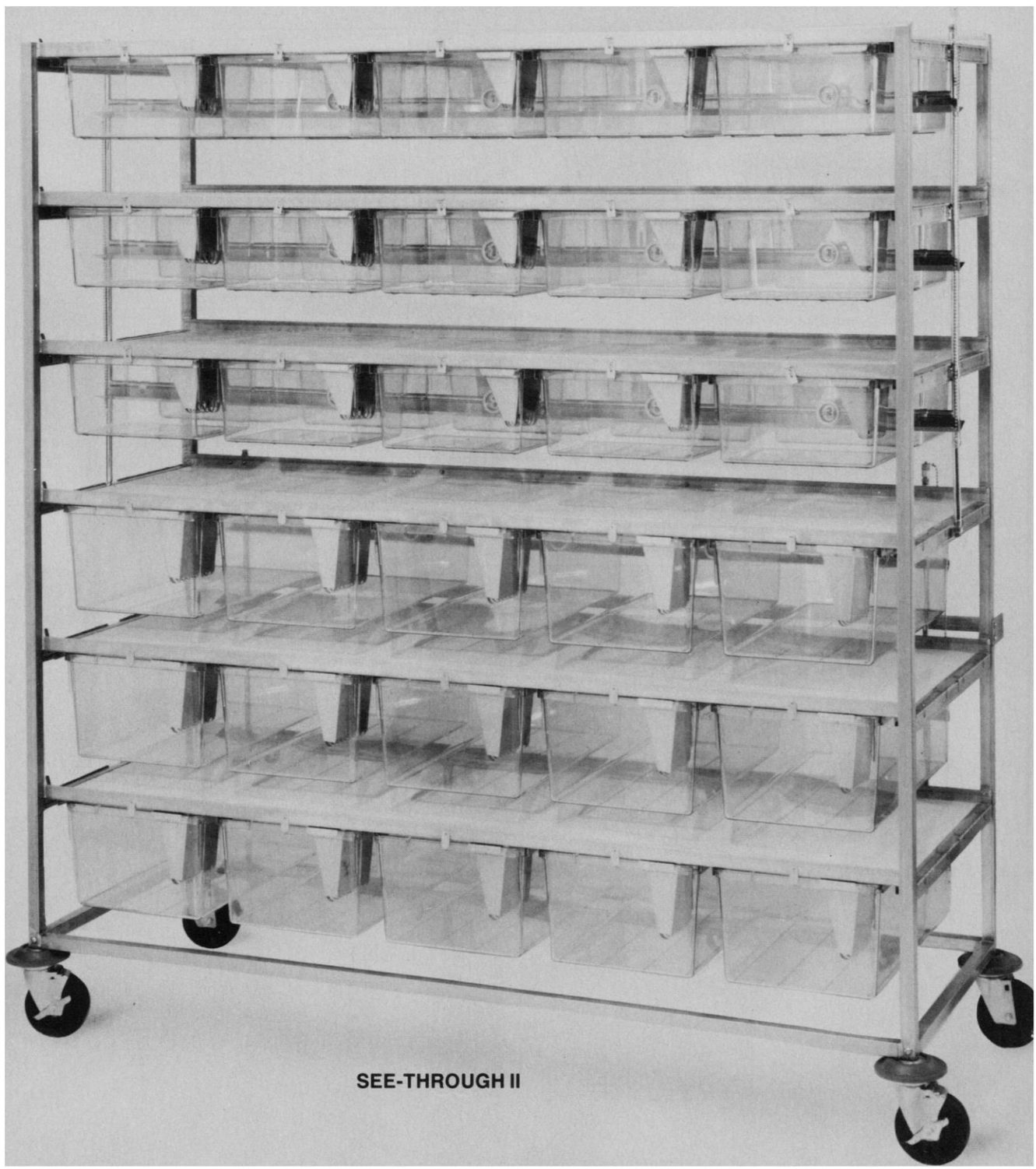
*S-203, S-219 for wire bar covers, S-209 for perforated covers.
††For filters on See-Through cages see the See-Through section.
†††See adjustable racks page 50.
See accessory section for water bottles, stoppers & sipper tubes.

Covers				Feeders	Water Bottle Saddle for perforated covers	Card Holders
Wire Bar			Perforated (Stainless Steel)			
Chrome Plated	Stainless Steel	Zinc Plated	Slide-on flat Locking Device			
20420	20421	20422	20431	44025 44028 30500	20245	30305 30305H
20420	20421	20422	20431	"	"	"
	20331	20332		"		"
	20331	20332		"		"
	20721	20722	20731	"	20245	"
	20721	20722	20731	"	"	"
	COVERS NOT REQUIRED					

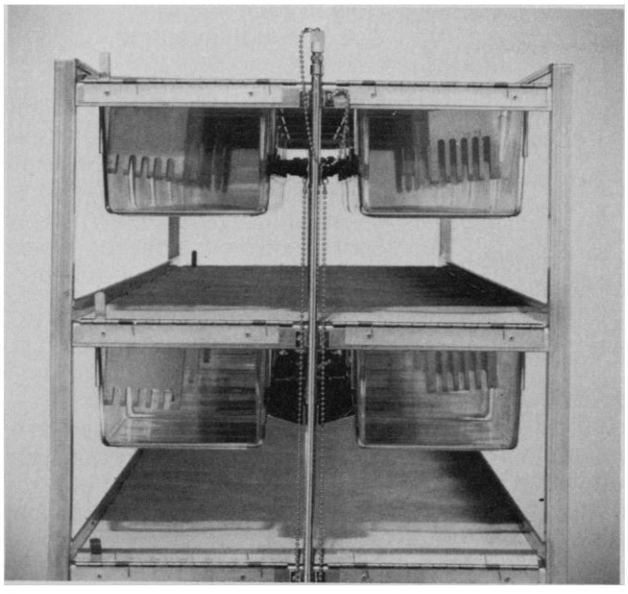
				"		"
				"		"
				"		"
				"		"
				"		"



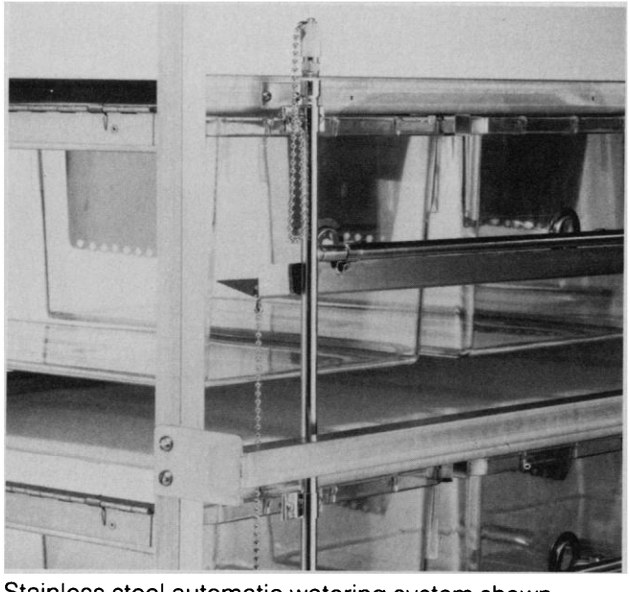
See-Through™ suspended cage systems



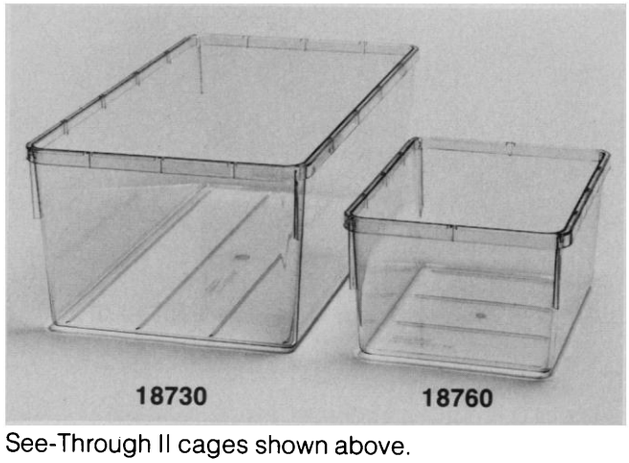
SEE-THROUGH II



Disposable flat filter sheets.



Stainless steel automatic watering system shown, CPVC automatic watering systems or bottle watering also available.



See-Through II cages shown above.

The most versatile small animal housing systems available.

Basically, these systems involve mobile stainless steel racks with suspended clear polycarbonate cages. These systems are ideal for housing rats, mice, hamsters and guinea pigs.

As the Selector Guides show, the See-Through approach offers so many options that you can virtually "build" to your own specifications. And, at least as important, the inherent flexibility of these systems allows easy modification to meet future requirements.

Features of the See-Through™ systems

Multiple cage sizes

10½" x 9½" x 8" D
19" x 10½" x 8" D

12½" x 9¼" x 6" D
22" x 12½" x 8" D

The last two cages, used in See-Through II, meet new housing specifications. The 6" deep cage with 75 sq. in. floor area will house 5 mice (15 sq. in. per animal). The 8" deep cage with 202 sq. in. floor area will house 5 rats (40 sq. in. per animal) or 2 guinea pigs (101 square inches per animal).

Cages

All See-Through cages are made of clear polycarbonate. (Open bottom cages have wire mesh walk floors described below.)

Polycarbonate is a "permanent" material that is transparent, rigid, and warm-surfaced. It has an exceptional strength and resistance to high temperatures (machine washable or autoclavable at temperatures under 250°F).

Cages nest for easy handling and storage.

Cage bottoms

Cage bottoms are either solid or open with stainless steel wire mesh walk floors mounted in the injection molded cage so as to "float" for urine and feces to pass through. Two walk floor meshes are available: 2x2 for rats and 3x3 for mice. (Only available in See-Through I.)

Filtering systems

These are available: disposable and permanent.

The disposable filter is a formed spun bonded polyester filter that provides at least 100% more filter area than flat sheet filters. Effective in reducing cross-contamination and in minimizing the stress of high ammonia atmosphere. (For See-Through I only.)

The "permanent" filter is also *formed* of spun bonded polyester material that permits washing and autoclaving. (For See-Through I only.)

Flat washable and autoclavable filter sheets are available for See-Through I & II.

High visibility

As the See-Through name suggests—and the photos demonstrate—animal observation is completely unimpaired in the clear polycarbonate cages.

No separate cage lids

Each cage is suspended from the shelf above—and that shelf is *perforated*. Consequently, the perforated shelf itself serves as the "cover" for the cage immediately below. No initial cover cost. No cover handling. No cover replacement.

Watering systems

Bottle Watering: cages can be supplied with grommeted openings for a standard 5/16" diameter stainless steel and with our unique outside-the-cage stainless steel bottle holder.

Automatic watering for See-Through Systems is available in any of the following configurations:

A) Inside the Cage—Center Manifold: Arrangement designed for use with racks of 50 or 60 10½x9¼ cages in back-to-back configuration—(See-Through I only—wire bottom cages)

B) Outside the Cage—Center Manifold: Arrangement designed for use with racks of 60 or 70 9¼x12½ cages in back-to-back configuration. (See-Through II only)

C) Inside the Cage—Rear Manifold: Arrangement designed for use with racks of 25 or 30 19x10½ cages. (See-Through I only—wire bottom cages)

D) Outside the Cage—Rear Manifold: Arrangement designed for use with racks of 25 or 30 19x10½ cages or 25 or 30 22½x12½ cages. (See-Through I & II)

E) Outside the cage—Front and Rear Manifold: Arrangement designed for use with racks of 50 or 60 9½x10½ cages or with racks of 25 or 30 19x10½ cages. Employs valves mounted on flexible hoses.

Manifold systems are available in CPVC plastic or stainless steel.

Because of options available and flexibility of the Lab Products See-Through cage system, it is advisable to consult with a Lab Products representative prior to ordering. He will assist you in designing the precise system for your application.

Racks

Racks are made of heliarc welded Type 304, 2B finished stainless steel. They are mounted on heavy duty 5" swivel-type casters (front casters have locks).

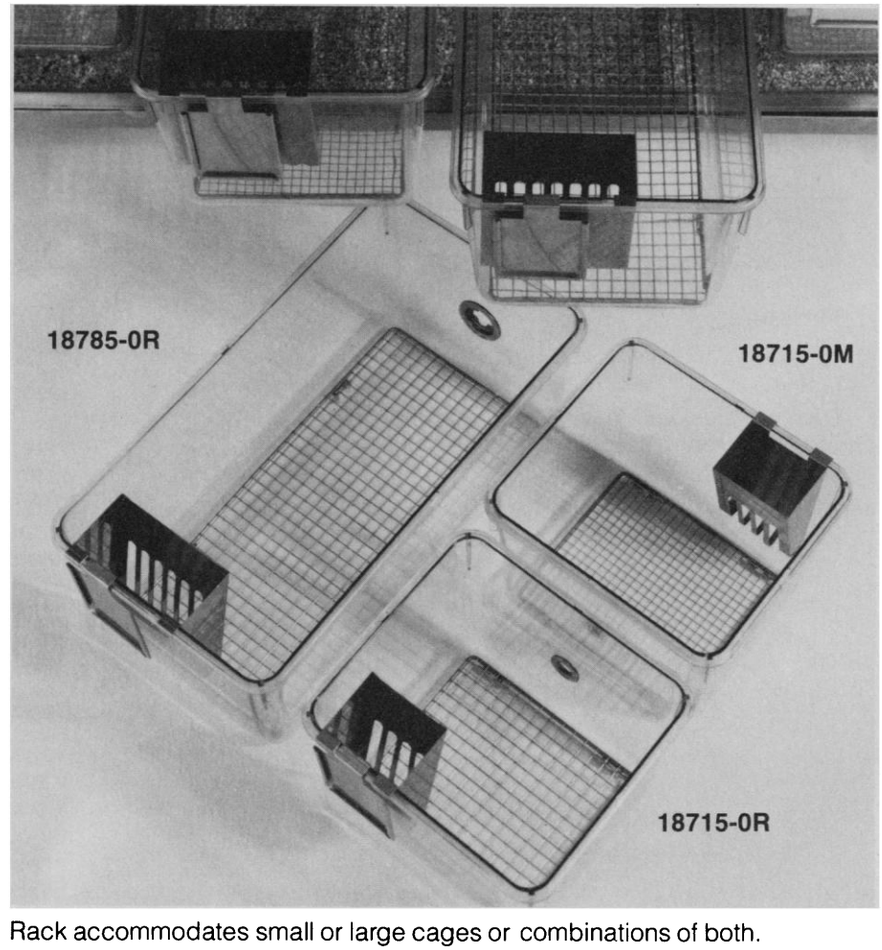
How to order See-Through systems

1. Complete systems

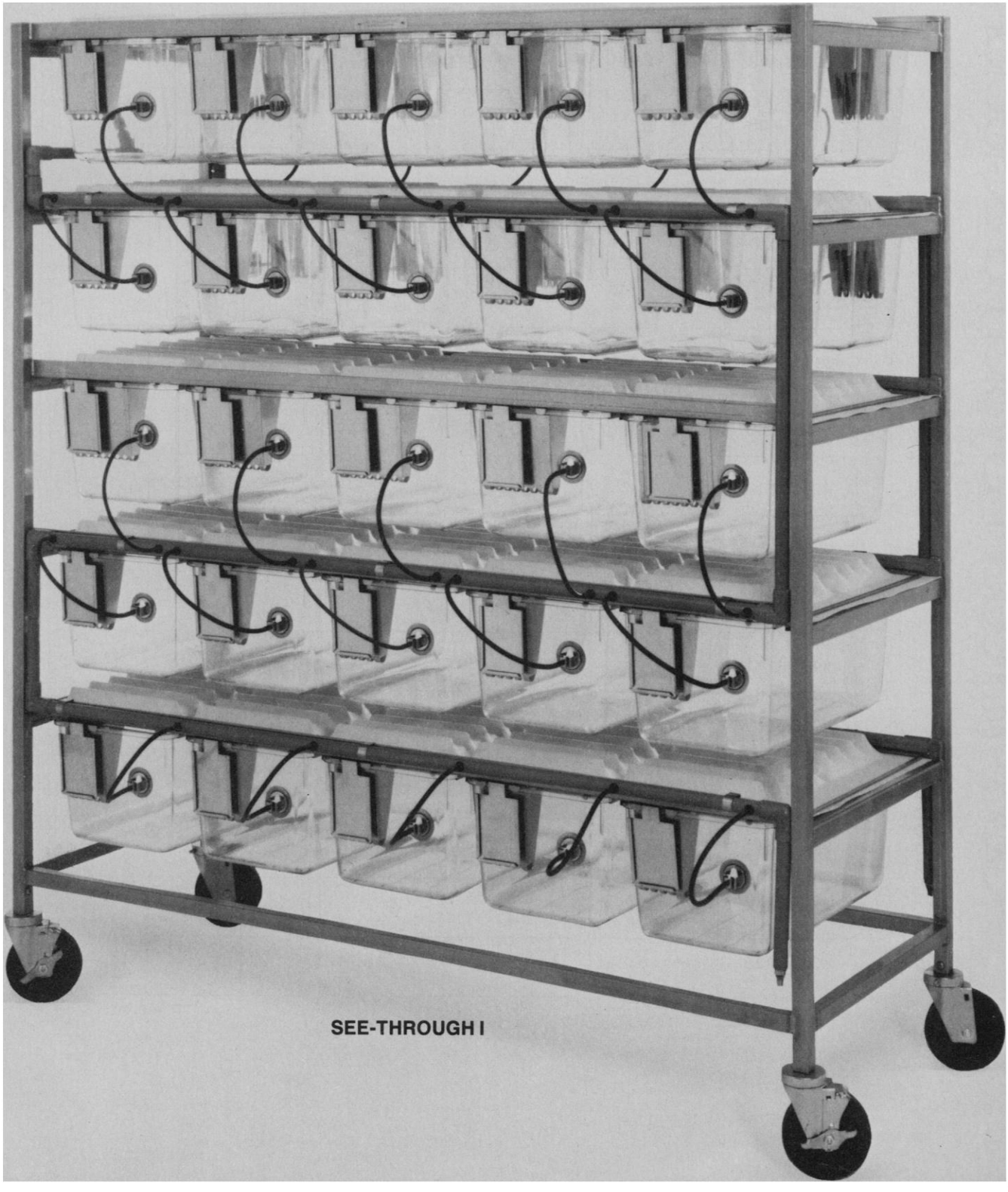
Sixteen separate *complete* systems (and optional accessories) are shown in the first Selector Guide. These 16 systems have been developed to satisfy virtually every current need. Simply choose the desired system and accessories from the Guide.

2. For specialized needs

Write or call outlining your requirements and we'll be happy to work closely with you to provide appropriate See-Through systems. Similarly, if you have any questions about the various options available, write or call for additional information.



Rack accommodates small or large cages or combinations of both.


SEE-THROUGH I

See-Through™ Systems selector guide

Complete See-Through™ Systems

	Numbers for Complete System	Rack (Stainless Steel)	STANDARD EQUIPMENT: Small Cages[8] (Polycarbonate, Clear) Solid Bottom	Small Cages[8] Open Bottom 3×3 Mesh (Mice)	Small Cages[8] Open Bottom 2×2 Mesh (Rats)	Large Cages[8] (Polycarbonate, Clear) Solid Bottom	Large Cages[8] Open Bottom 3×3 Mesh (Mice)	Large Cages[8] Open Bottom 2×2 Mesh (Rats)	Cage Feeders (Stainless Steel)
SEE THROUGH I	**43915-30S**	5 Tier (69″L×21″W ×66″H)				30[12]			30[2]
	43915-60S	″	60[13]						60[1]
	43916-30/OM	″					30[12]		30[2]
	43916-30/OR	″						30[12]	30[2]
	43916-60/OM	″		60[13]					60[1]
	43916-60/OR	″			60[13]				60[1]
	43919-25S	5 Tier (60″L ×21″W ×66″H)				25[12]			25[2]
	43919-50S	″	50[13]						50[2]
	43920-25/OM	″					25[12]		25[2]
	43920-25/OR	″						25[12]	25[2]
	43920-50/OM	″		50[13]					50[2]
	43920-50/OR	″			50[13]				50[2]
SEE THROUGH II	**43917-25S**	5 Tier (70″L×24″W ×66″H)				25[14]			25[2]
	43917-30S	6 Tier (70″L×24″W ×72″H)				30[14]			30[2]
	43918-60S	5 Tier (70″L×24″W ×66″H)	60[20]						60[1]
	43918-70S	7 Tier (70″L×24″W ×72″H)	70[20]						70[1]

		OPTIONAL ACCESSORIES				
				Enviro-Gard Filters		
Card Holders[3] (Stainless Steel)	**Slides and Excreta Trays**	**Bottle Watering**	**Automatic Watering Systems**	Disposable	Permanent	Filter Retainers
30	Not Required	Available[4]	Available[6]	STS-103[9]	STS-104[10]	44181[11]
60	Not Required	Available[5]	Available[7]	STS-103[9]	STS-104[10]	44181[11]
30	Included	Available[4]	Available[6]			
30	Included	Available[4]	Available[6]			
60	Included	Available[5]	Available[7]			
60	Included	Available[5]	Available[7]			
25	Not Required	Available[4]	Available[6]	STS-105[9]	STS-106[10]	44186[11]
50	Not Required	Available[5]	Available[7]	STS-105[9]	STS-106[10]	44186[11]
25	Included	Available[4]	Available[6]			
25	Included	Available[4]	Available[6]			
50	Included	Available[5]	Available[7]			
50	Included	Available[5]	Available[7]			
25	Not Required	Available[15]	Available[16]		STS(II)-109[17)]	44187[23]
30	Not Required	Available[4]	Available[6]		STS(II)-109[17]	44187[24]
60	Not Required	Available[5]	Available[7]		STS(II)-109[17]	44187[23]
70	Not Required	Available[22]	Available[22)]		STS(II)-109[19]	44187[25]

Footnotes:

1. 3″W×2½″D×5⅜″H
2. 6″W×2½″D×5⅜″H
3. 3″W×5″H
4. 30 each: glass pint bottles, rubber stoppers, stainless steel wire bottle holders, and grommets for sipper tube hole in cages
5. As with (4.) above but 60 units of each
6. Complete system for 30 cages
7. Complete system for 60 cages
8. See plastic cage section of catalog for additional details
9. Formed spun bonded polyester filter (10 per unit)
10. Washable, autoclavable, formed spun bonded filter (10 per unit)
11. Stainless steel rings (10 per unit)
12. 19″×10½″×8″D
13. 10½″×9½″×8″D
14. 22″×12½″×8″D (meets new ILAR housing specifications)
15. As with (4.) above but 25 units of each
16. Complete system for 25 cages
17. Washable autoclavable flat polyester filter sheets (5 per unit)
18. As with (17) (6 per unit)
19. As with (17) (7 per unit)
20. 12½″×9¼″×6″D (meets new ILAR housing specifications)
21. As with (4.) above but 70 units of each
22. Complete system for 70 cages
23. Stainless steel filter retainer clamps (welded to rack) (10 per unit)
24. As with (23)—(12 per unit)
25. As with (23)—(14 per unit)

See-Through Systems replacement selector guide

See-Through™ Systems Individual Replacement Components*

	See-Through System Numbers	Small Cages (Polycarbonate, Clear)			Large Cages (Polycarbonate, Clear)			Mouse/Rat Cage Feeders (Stainless Steel)
		Solid Bottom	Open Bottom 3×3 Mesh (Mice)	Open Bottom 2×2 Mesh (Rats)	Solid Bottom	Open Bottom 3×3 Mesh (Mice)	Open Bottom 2×2 Mesh (Rats)	
SEE THROUGH I	**43915-30S**				18780			44024
	43915-60S	18710						44023
	43916-30/OM					18785-OM		44024
	43916-30/OR						18785-OR	44024
	43916-60/OM		18715-OM					44023
	43916-60/OR			18715-OR				44023
	43919-25S				18780			44024
	43919-50S	18710						44023
	43920-25/OM					18785-OM		44024
	43920-25/OR						18785-OR	44024
	43920-50/OM		18715-OM					44023
	43920-50/OR			18715-OR				44023
SEE THROUGH II	**43917-25S**				18730			44024
	43917-30S				18730			44024
	43918-60S	18760						44023
	43918-70S	18760						44023

*See plastic cage & accessory section for specific details on cages & feeders

†Stainless steel wire bottle holder 44179 employed for bottle watering through front of cage

Guinea Pig Feeders		Bottle† Watering	Automatic Watering	Excreta Trays	Enviro-Gard Filter		
Inside Cage	Outside Cage				Disposable	Permanent	Filter Retainers (Stainless Steel)
44028 30500	44025	See accessories section of catalog	Call or write for specific information		STS-103	STS-104	44181
	44025				STS-103	STS-104	44181
44028 30500	44025			44222			
				44222			
	44025			44222			
				44222			
44028 30500	44025				STS-105	STS-106	44186
	44025				STS-105	STS-106	44186
44028 30500	44025			44226			
	44025			44226			
	44025			44226			
				44226			
44028 30500	44025					STS(11)109	44187
44028 30500	44025					STS(11)109	44187
						STS(11)109	44187
						STS(11)109	44187

Stay-Clean™ Systems

Stay-Clean systems protect your laboratory animals from airborne contamination.

If airborne microbial contamination can jeopardize your work or interfere with interpretation of your results in any way, consider our Stay-Clean systems.

How is the air purified?

The air is purified by continuous processing through high efficiency particulate air (HEPA) filters which effectively remove virtually all particulate matter of any origin of 0.3 microns or larger.

Why use a Stay-Clean system?

There is ample evidence that microbial airborne contamination plays an important role in the incidence of animal colony infection and that turbulent dirty air is a major mediator of such contamination. Filtered unidirectional air flow over animal cages greatly reduces the concentration of airborne contaminants, be they microbial (bacteria, fungi, molds, spores, etc.) or non-viable particulate matter. Additionally, since animals are "downstream" of the air source, the airflow effectively prevents re-entry of ambient contaminants.

How do these systems work?

Ambient air enters the unit through a course "prefilter". The blowers force the air down into a plenum air distribution chamber and then through a final "high efficiency particulate air" (HEPA) filter which removes all particulate matter 0.3 microns or larger. The filtered air now moves through the cage area as a unidirectional, non-turbulent flow. Accordingly, everything within the Stay-Clean enclosure is continually bathed in unidirectional ultra-clean air.

How is room air affected?

Because Stay-Clean continuously "washes" the ambient air in a room, the overall airborne contamination in a room that houses a Stay-Clean system tends to decrease. The extent to which this improvement occurs is related to: size of room, isolation of room, and number of operating Stay-Clean units within the enclosed area.

How is the Stay-Clean being used?

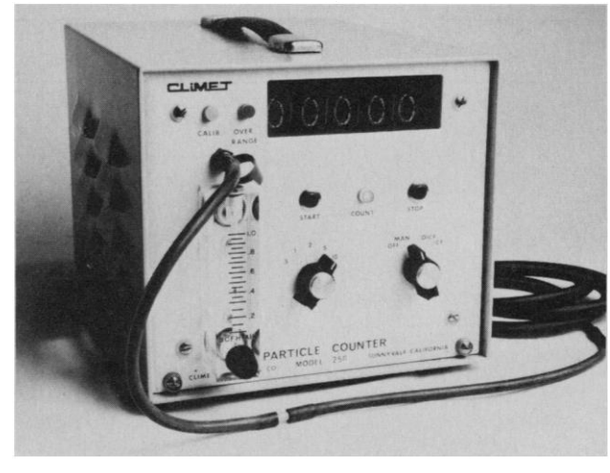
Generally speaking, whenever airborne contamination can jeopardize a colony or a research effort, these systems can aid materially in reducing such contamination and its untoward effects. Stay-Clean systems are particularly useful in reducing colony-threatening cross-contamination, and in the maintenance of nude mice and other highly susceptible animal species.

Who is using Stay-Clean systems?

A partial listing of customers includes:

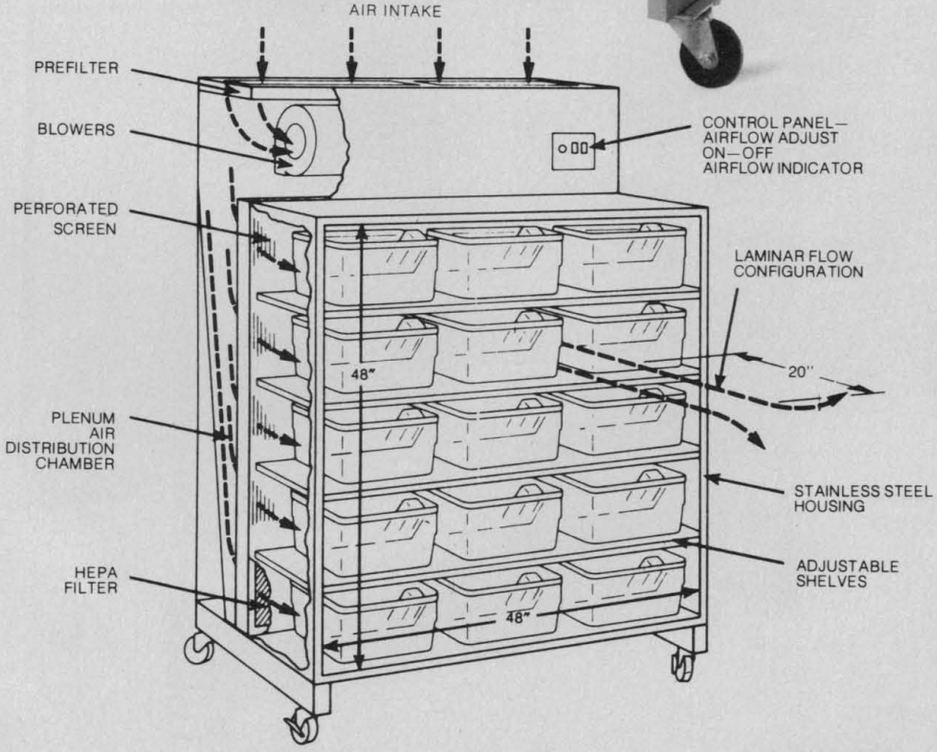
University of Notre Dame
Sloan-Kettering Institute
Wayne State University
University of Cincinnati
University of Rochester
Albert Einstein College of Medicine
Union Carbide Corporation
National Naval Medical Center
University of Pittsburgh
National Institutes of Health
U.S. Department of Agriculture
Johns Hopkins School of Medicine
University of Missouri
Environmental Protection Agency
M.I.T.
University of Southern California
Pennsylvania State University
University of Michigan
New York University Medical Center
University of Wisconsin
University of Alabama
Cornell University Medical Center
Litton Bionetics
Hoffmann-La Roche

Note: Since there are now hundreds of Stay-Clean systems in operation, there may well be one near you now. Why not let us know if you'd like to see one in operation in your area.



Also available: Particle counter for continuously monitoring air purity. Write or call for details. **#C1250**

System A
#30448



Isolation System References

1. Kraft, L.M. Observation on the Control and Natural History of Epidemic Diarrhea of Infant Mice (EDIM). Yale J. Biol. Med. 31, 121-137, 1958
2. McGarrity, Gerard J. and Coriell, Lewis L. Mass Airflow Cabinet of Airborne Infection of Laboratory Rodents. Applied Microbiology Vol. 26, No. 2 (1973).
3. Barbeito, Manuel S. A Mass Air Filtered Modular Animal Containment System. 17th Biological Safety Conference. (1974).
4. Melby, Edward C., Jr. and Altman, Norman H. Handbook of Laboratory Animal Science, Vol. I (1974).
5. Coriell, Lewis L., McGarrity, Gerard J., and Horneff, James. 1967. Medical Applications of Dust-Free Rooms: 1. Elimination of Airborne Bacteria In A Research Laboratory, A.J.P.H. Vol. 57, No. 10 (1967).
6. Anonymous. Effective Use of the Laminar Flow Biological Safety Cabinet. U.S. Department of Health, Education & Welfare, National Cancer Institute, Office of Biohazard & Environmental Control, Bethesda, Maryland.
7. Beall, James R., Torning, F.E., and Runkle, Robert S. A Laminar Flow System for Animal Maintenance. Laboratory Animal Science 21, 206 (1971).
8. Phillips, G. Briggs and Runkle, Robert S. Biomedical Applications of Laminar Airflow. CRC Press, Cleveland, Ohio (1973).

Stay-Clean selector guide

System	Description	Air Flow	Overall Size	Number of Shelves (Dimensions)	Optional Extra Shelves	Number Of Cages* Per Unit
Stay-Clean System A #30448	Permanently Attached Cage Rack† All Stainless Steel	Horizontal	49⅝"W×37½"D ×72"H	4 Shelves (47" L ×20" W)	#30433	48 (11½× 5¾×6) 36 (11½× 7½×5) 16 (19 ×10½×6) 16 (19 ×10½×8) 16 (10½× 9½×8) 12 (14⅞×12⅞×6⅝)
Stay-Clean System B #30460	Detachable Cage Rack† with Independent Casters (Rack Included) All Stainless Steel)	Horizontal	60"W×37½"D ×72"H	4 Shelves (59" L ×20" W)	#30434	60 (11½× 5¾×6) 48 (11½× 7½×5) 20 (19 ×10½×6) 20 (19 ×10½×8) 20 (10½× 9½×8) 16 (14⅞×12⅞×6⅝)
Stay-Clean System C #30470	Accommodates Standard Racks Up To (70"L×34"W×80"H) (Rack Not Included) All Stainless Steel	Vertical	75"W×36"D ×96"H			(Dependent Upon Rack And Cage Size Used)

*See plastic cage section of catalogue for available cages.
†Can be supplied with rack that accepts hanging plastic cages, either open bottom (with excreta trays) or solid bottom. For other modifications, call or write.

System B #30460

Filter Area	HEPA Filters	Pre-Filters	Particles Removed By Filters	Air Velocity	Power Requirements	Optional Particle Counter	Comments
48″w×48″H	#30451 24″×48″×6″ (2 Per Unit)	#30499 (4 Per Unit)	0.3 Microns or Larger	50 Ft. Per Minute ±5 Ft. (Unloaded) 90 Ft. Per Min. ±5 Ft. (Loaded) (Adjustable)	115 V.A.C. Single Phase 60Hz, 15 Amp.	#CI250	System Minimizes Cage-To-Cage Contamination
60″w×48″H	# 30452 30″×48″×6″ (2 Per Unit)	# 30499 (5 Per Unit)	0.3 Microns or Larger	50 Ft. Per Minute ±5 Ft. (Unloaded) 90 Ft. Per Min. ±15 Ft. (Loaded) (Adjustable)	115 V.A.C. Single Phase 60Hz, 15 Amp.	#CI250	System Minimizes Cage-To-Cage Contamination
60″W×30″D	#30453 30″×60″×6″ (1 Per Unit)	#30499 (1 Per Unit)	0.3 Microns or Larger	50 Ft. Per Minute ±15 Ft. (Unloaded) 90 Ft. Per Min. ±15 Ft. (Loaded) (Adjustable)	115 V.A.C. Single Phase 60Hz, 15 Amp.	#CI250	LEXAN Plastic Doors Enclose Rack; System Minimizes Rack-To-Rack Contamination.

System C
#30470

Warranty Note: All Stay-Clean systems include a full one-year warranty. Beyond the warranty period: A continuing service/ recertification program available. Write or call for details!

metal cages rabbit cage units

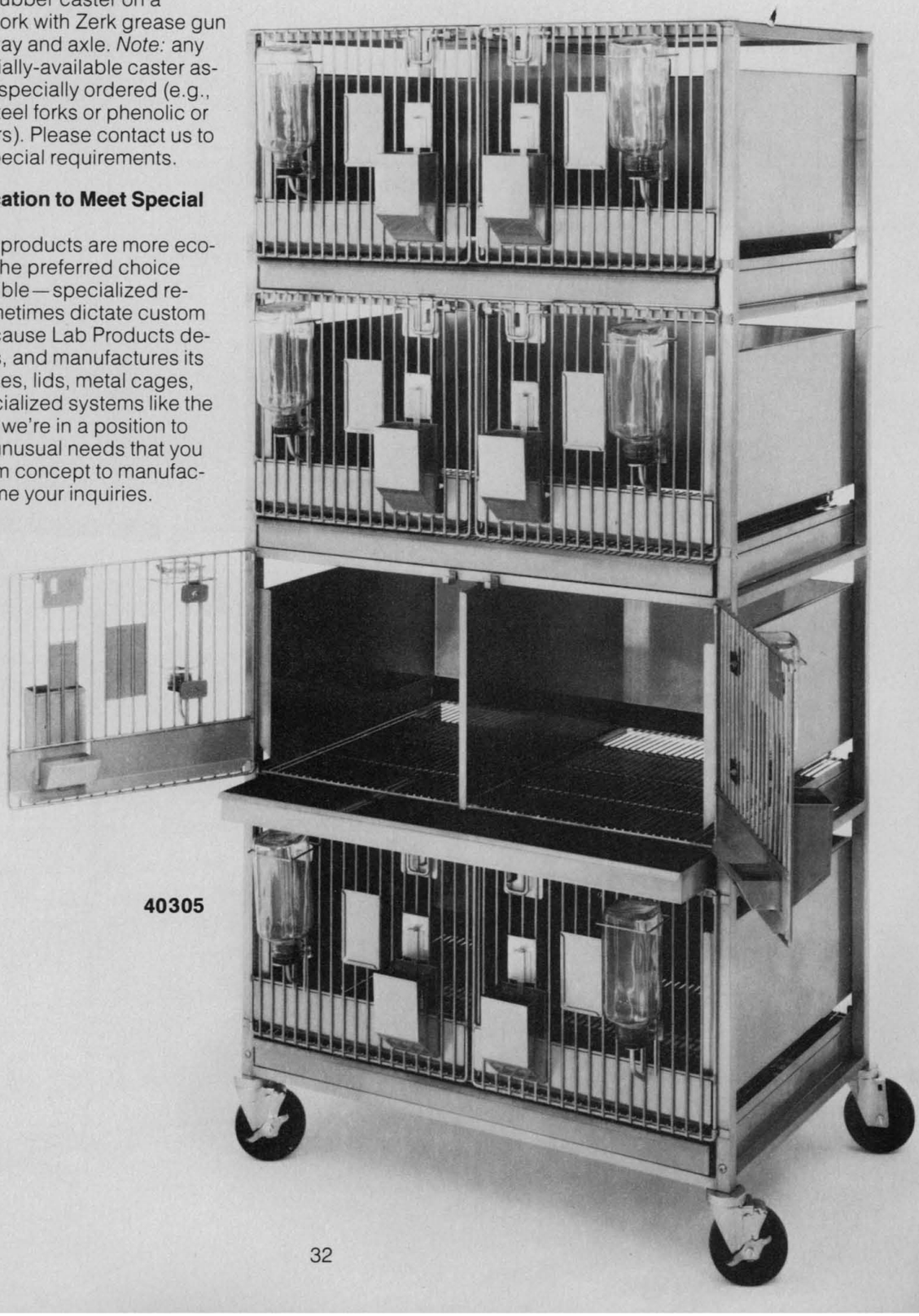
All standard Lab Products metal cage systems are constructed of type 304 stainless steel 2B finish. All weld marks and burns are removed, by standard procedures, prior to final inspection.

Casters

The *standard* Lab Products caster assembly meets industry standards: 5″ diameter hard rubber caster on a nickel-chrome fork with Zerk grease gun fittings in raceway and axle. *Note:* any other commercially-available caster assembly can be specially ordered (e.g., with stainless steel forks or phenolic or urethane casters). Please contact us to discuss your special requirements.

Custom Fabrication to Meet Special Needs

While standard products are more economical — and the preferred choice whenever possible — specialized requirements sometimes dictate custom fabrication. Because Lab Products designs, develops, and manufactures its own plastic cages, lids, metal cages, racks, and specialized systems like the See-Through™, we're in a position to help meet any unusual needs that you may have — from concept to manufacture. We welcome your inquiries.



40305

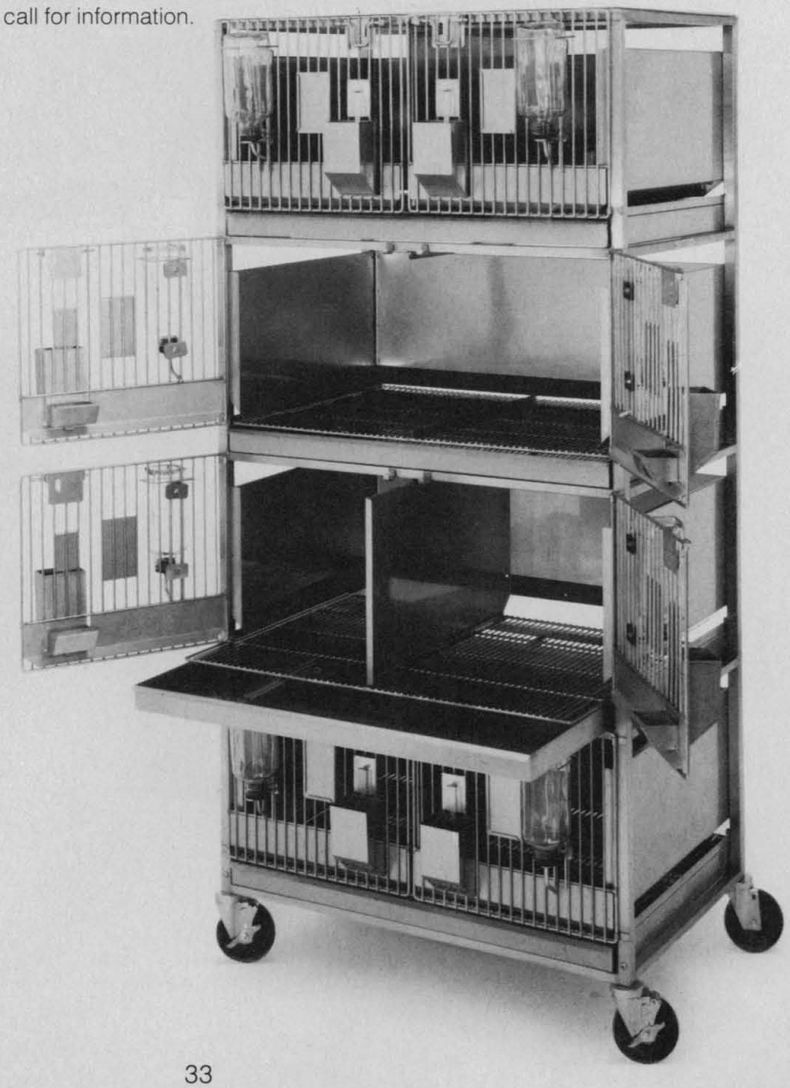
Cages and racks integrated (cages not removable for separate use)

Product Number	Description	Overall Dimensions	Cage Size				Animals Accommodated		Food Hopper	Watering	Waste Tray	Casters[1]
			Individual (Divider In)		Tier (Divider Out)							
			Size	Floor Area	Size	Floor Area	Individual Cage	Tier				
40305	Integrated 8 Cages & 4 Tier Rack	38″W × 24⅛″D × 80″H	18″W × 24″D × 16″H	432 sq. ″	36″W × 24″D × 16″H	864 sq. ″	1 Rabbit/ Cage up to 9 lbs.	3-5 lbs.-6/Tier 6-8 lbs.-3/Tier 9+lbs.-2/Tier	"J" Type	Individual Bottle or Automatic[2]	Each Tier Has Common Tray 2″ Deep	5″
40324	Integrated 8 Cages & 4 Tier Rack	50″W × 24⅛″D × 80″H	24″W × 24″D × 16″H	576 sq. ″	48″W × 24″D × 16″H	1152 sq. ″	1/cage up to 11 lbs.	3-5 lbs.-8/Tier 6-8 lbs.-4/Tier 9+ lbs.-2/Tier	"J" Type	Individual Bottle or Automatic[2]	Each Tier Has Common Tray 2″ Deep	5″
40330	Integrated 8 Cages & 4 Tier Rack	38″W × 30⅛″D × 80″H	18″W × 30″D × 16″H	540 sq. ″	36″W × 30″D × 16″H	1080 sq. ″	″	3-5 lbs.-7/Tier 6-8 lbs.-3/Tier 9+ lbs.-2/Tier	"J" Type	Individual Bottle or Automatic[2]	Each Tier Has Common Tray 2″ Deep	5″

(1) For caster information see page 32.

(2) For automatic watering systems, contact Lab Products.

Note: To order replacement components, please call for information.



rabbit cage units

Removable cages suspended over individual waste tray (waste trays not integrated into cages)

Product Number	Description	Overall Dimensions	Cage Size		Animals Accommodated	Food Hopper	Watering	Waste Tray	Casters[1]
			Size	Floor Area					
40317	6 Suspended, Removable Cages and 3 Tier Rack (Wire-Sided Cages)[3]	54″ W × 26″ D × 72″ H	24″ W × 24″ D × 16″ H	576 sq. ″	1 Rabbit/ Cage up to 11 lbs.	"J" Type	Individual Bottle, Can or Automatic[2]	Tray Rests On Rack Not Integrated Into Cage	5″
40318	8 Suspended, Removable Cages and 4 Tier Rack (Wire-Sided Cages)[3]	54″ W × 26″ D × 76⅛″ H	24″ W × 24″ D × 14″ H	576 sq. ″	1 Rabbit/ Cage up to 11 lbs.	"J" Type	Individual Bottle, Can or Automatic[2]	Tray Rests On Rack Not Integrated Into Cage	5″
40319	8 Suspended Removable Cages and 4 Tier Rack (Wire-Sided Cages)[3]	45″ W × 26″ D × 76⅛″ H	18″ W × 24″ D × 14″ H	432 sq. ″	1 Rabbit/ Cage up to 9 lbs.	"J" Type	Individual Bottle, Can or Automatic[2]	Tray Rests On Rack Not Integrated Into Cage	5″
40320	9 Suspended Removable Cages and 3 Tier Rack (Wire-Sided Cages)[3]	60½″ W × 26″ D × 72″ H	18″ W × 24″ D × 16″ H	432 sq. ″	1 Rabbit/ Cage up to 9 lbs.	"J" Type	Individual Bottle, Can or Automatic[2]	Tray Rests On Rack Not Integrated Into Cage	5″

(1) For caster information see page 32.
(2) For automatic watering systems, contact Lab Products.
(3) Available also with perforated metal sides. For details contact Lab Products.
Note: To order replacement components, please call for information.

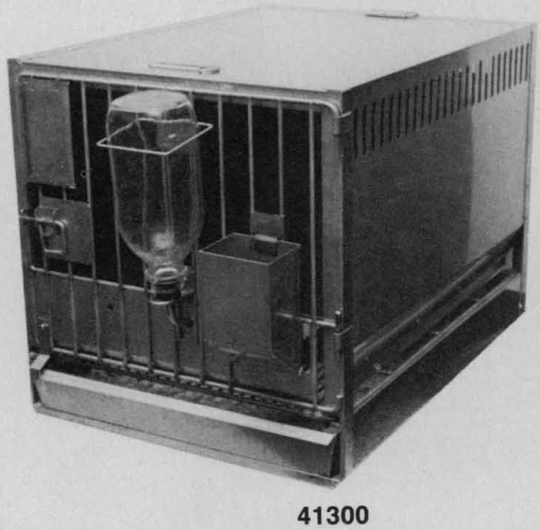
Cages totally self-contained and removable from racks

Product Number	Description	Overall Dimensions	Cage Size		Animals Accommodated	Food Hopper	Watering	Waste Tray	Casters(1)
			Size	Floor Area					
40316	6 Totally Self-Contained Cages, Suspended On 3 Tier Rack	58″ W × 24″ D × 79″ H	24″ W × 24″ D × 16″ H	576 sq. ″	1 Rabbit/ Cage up to 11 lbs.	"J" Type	Individual Bottle, or Automatic(2)	Totally Integrated Into Cage	5″
40307	As Above Cages Resting On Rack	64″ W × 24″ D × 72½″ H	30″ W × 24″ D × 20″ H	720 sq. ″	1 Rabbit/ Cage 12+ lbs.	"J" Type	Individual Bottle, or Automatic(2)	Totally Integrated Into Cage	5″

(1) For caster information see page 32.
(2) For automatic watering systems, contact Lab Products.

Individual cages.

Product Number	Description	Cage Size		Animals Accommodated	Food Hopper	Water Bottle	Waste Tray	Racks
		Size	Floor Area					
41300	Totally Self-Contained	18″W × 24″D × 18″H	432 sq. ″	1 Rabbit/ Cage up to 9 lbs.	"J" Type	See Accessories Section Of Catalog	Totally Integrated Into Cage	See Page 50
41302	Totally Self-Contained	24″ W × 24″ D × 18″ H	576 sq. ″	1 Rabbit/ Cage up to 11 lbs.	"J" Type	See Accessories Section Of Catalog	Totally Integrated Into Cage	See Page 50



41300

40307

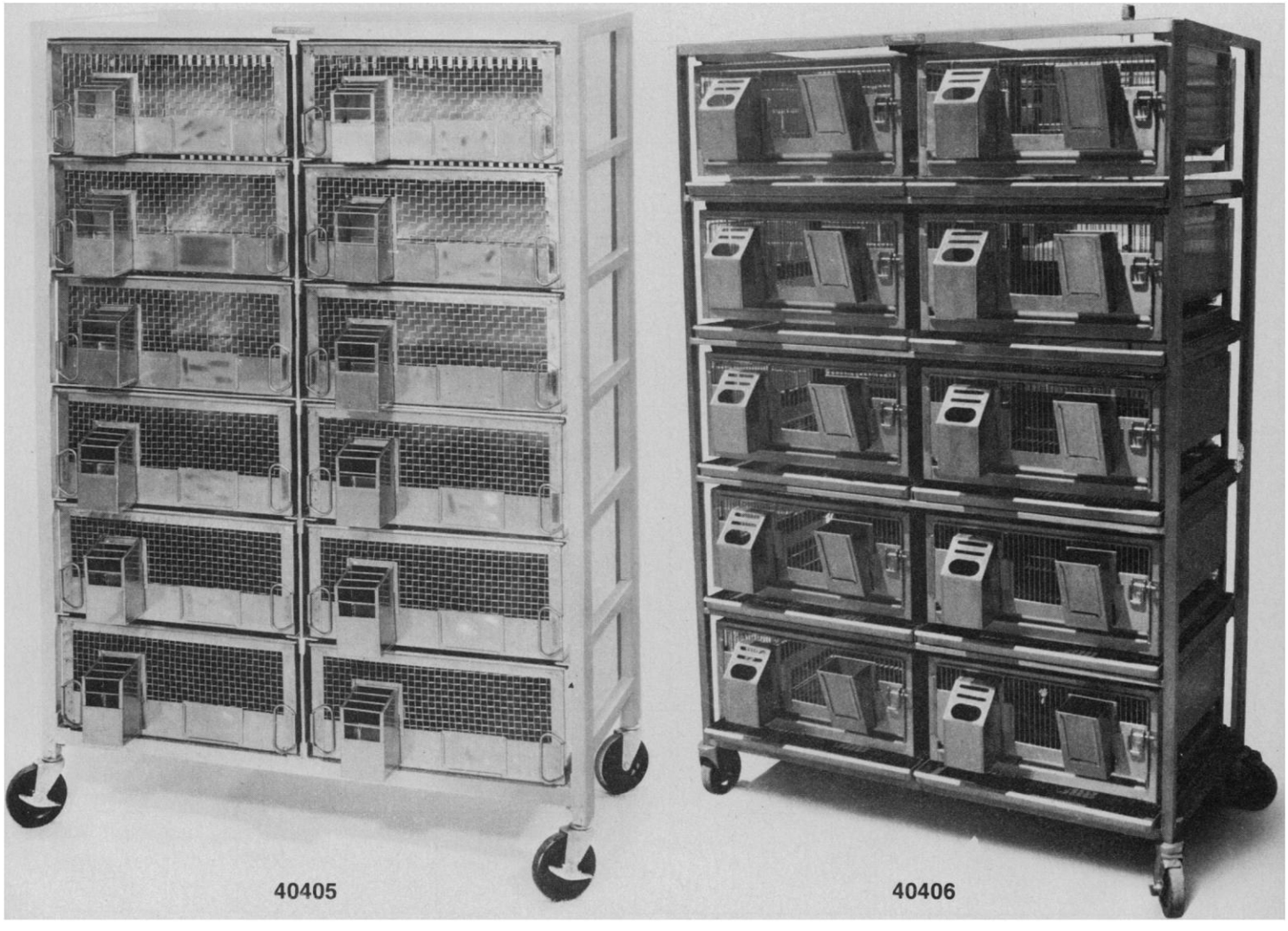
Note: To order replacement components, please call for information.

guinea pig cage units

Product Number	Description	Overall Dimensions	Cage Size				Adult Animals Accommodated		Food Hopper	Water Device[1]	Waste Tray	Casters[2]
			Individual (Divider Out)		Tier (Divider In)							
			Size	Floor Area	Size	Floor Area	Individual Cage	Tier				
40401	Integrated 10 Cages & 5 Tier Rack	42″ W × 23″ D × 62 9/16″ H	20″ W × 22″ D × 9″ H	440 sq. ″	40″ W × 22″ D × 9″ H	880 sq. ″	4	9	"J" Type	Bottle	Each Tier Has Common Tray	5″
40405	12 Cages & 6 Tier Rack *	45″ W × 22½″ D × 65¾″ H	20″ W × 22″ D × 9″ H	440 sq. ″	—	—	4	—	"J" Type	Bottle	None *	5″
40406	10 Cages & 5 Tier Rack	49″ W × 22″ D × 73¼″ H	20″ W × 22″ D × 10″ H	440 sq. ″	—	—	4	—	"J" Type	Water Can	1/Cage	5″

(1) For automatic watering systems, contact Lab Products.
(2) For caster information see page 32.
* Cages solid bottom & removable

Note: To order replacement components, please call for information.



40405

40406

modular rat/mouse units

Modular Rat Units

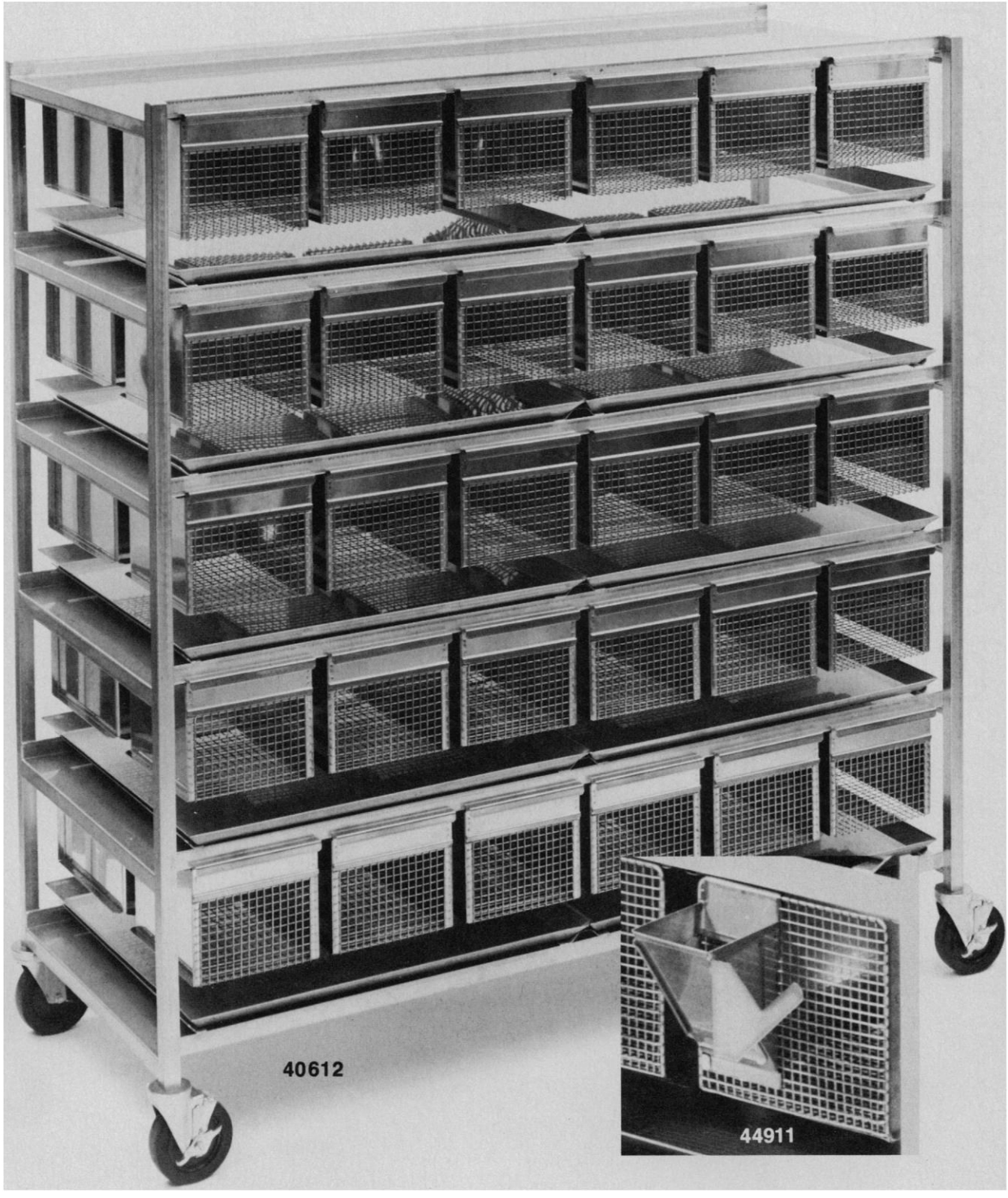
Product Number	Rack	Cage Size		Adult Animals Accomod-ated per cage	Number of cages in rack	Mesh Size	Food Hopper*	Water Bottle Holder(1)*	Auto-matic watering	Waste Tray	Automatic Flush Racks
		Size	Floor Area								
40609	5 Tier Single-Sided 57" W × 14" D × 63½" H #43902	7" W × 10" D × 7" H	70 sq."	1	30# 41611	2 × 2	✓	✓	Available(2)	✓	Available(2)
40612	5 Tier Double-Sided 57" W × 24" D × 63½" H #43903	7" W × 10" D × 7" H	70 sq."	1	60# 41611	2 × 2	✓	✓	Available(2)	✓	Available(2)
40610	5 Tier Single-Sided 57" W × 14" D × 63½" H #43902	16" W × 10" D × 7" H	160 sq."	4	15# 41612	2 × 2	✓	✓	Available(2)	✓	Available(2)
40613	5 Tier Double-Sided 57" W × 14" D × 63½" H #43903	16" W × 10" D × 7" H	160 sq."	4	30# 41612	2 × 2	✓	✓	Available(2)	✓	Available(2)
40611	5 Tier Single-Sided 57" W × 14" D × 63½" H #43902	25" W × 10" D × 7" H	250 sq."	6	10# 41613	2 × 2	✓	✓	Available(2)	✓	Available(2)
40614	5 Tier Double-Sided 57" W × 24" D × 63½" H #43903	25" W × 10" D × 7" H	250 sq."	6	20# 41613	2 × 2	✓	✓	Available(2)	✓	Available(2)

Modular Mouse Units

Product Number	Rack	Cage Size		Adult Animals Accomod-ated per cage	Number of cages in rack	Mesh Size	Food Hopper*	Water Bottle Holder(1)*	Auto-matic watering	Waste Tray	Automatic Flush Racks
		Size(3)	Floor Area								
40709	5 Tier Single-Sided 57" W × 14" D × 63½" H #43902	7" W × 10" D × 7" H	70 sq."	4	30 # 41711	3 × 3	✓	✓	Available(2)	✓	Available(2)
40712	5 Tier Double-Sided 57" W × 24" D × 63½" H #43903	7" W × 10" D × 7" H	70 sq."	4	60 # 41711	3 × 3	✓	✓	Available(2)	✓	Available(2)
40710	5 Tier Single-Sided 57" W × 14" D × 63½" H #43902	16" W × 10" D × 7" H	160 sq."	10	15 # 41712	3 × 3	✓	✓	Available(2)	✓	Available(2)
40713	5 Tier Double-Sided 57" W × 24" D × 63½" H #43903	16" W × 10" D × 7" H	160 sq."	10	30 # 41712	3 × 3	✓	✓	Available(2)	✓	Available(2)
40711	5 Tier Single-Sided 57" W × 24" D × 63½" H #43902	25" W × 10" D × 7" H	250 sq."	16	10 # 41713	3 × 3	✓	✓	Available(2)	✓	Available(2)
40714	5 Tier Double-Sided 57" W × 24" D × 63½" H #43903	25" W × 10" D × 7" H	250 sq."	16	20 # 41713	3 × 3	✓	✓	Available(2)	✓	Available(2)

(1) See accesory section for water bottles.
(2) Contact Lab Products for information.
(3) 5" high mouse caging available.

* Stainless steel food hopper and water bottle holder w/3"x5" card holder #44911 shown at right.

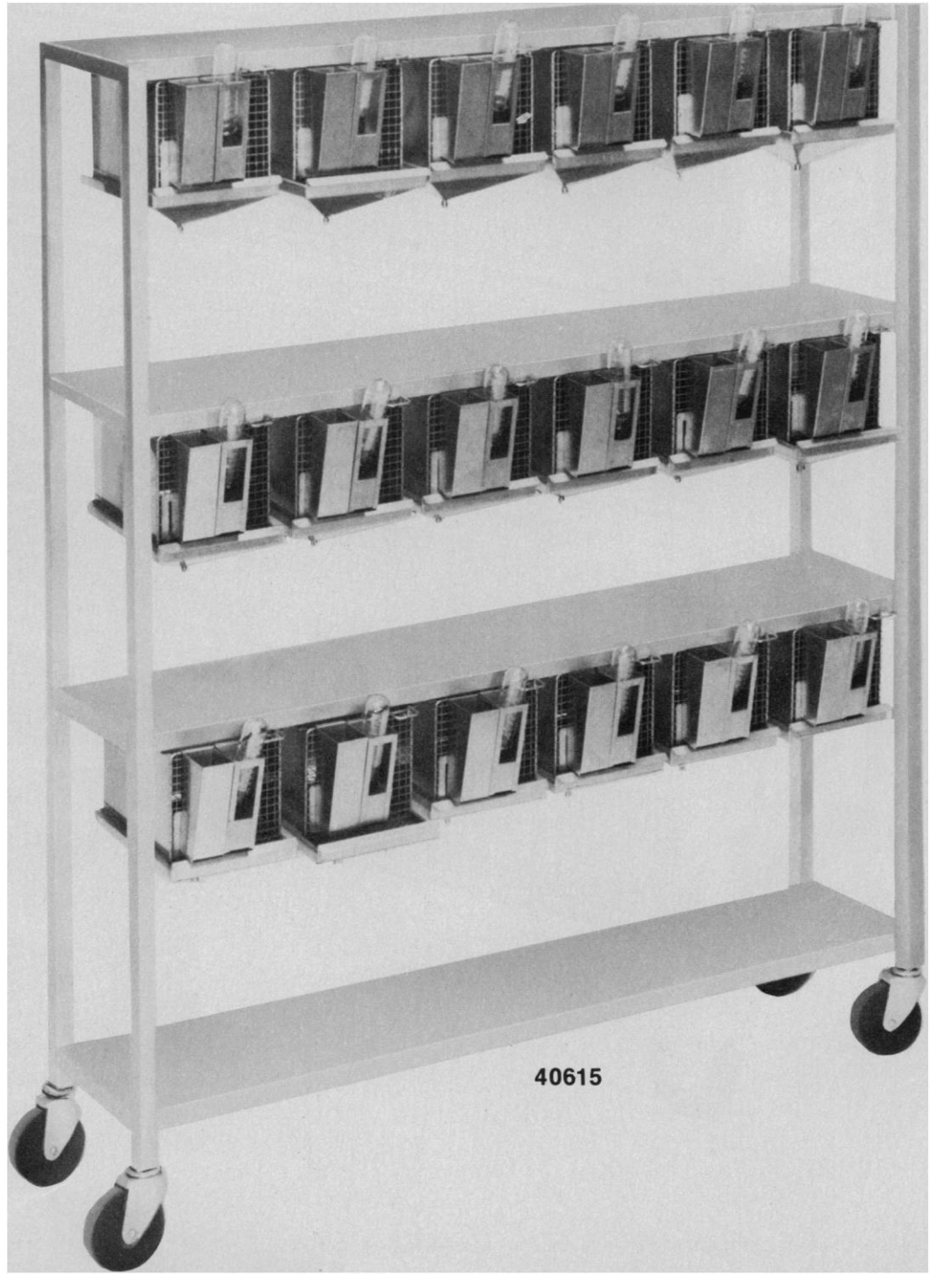


Note: To order replacement components, please call for information.

rat/mouse metabolism units

Product Number	Rack	Cage Size		Animals Accommod-ated per cage	Number of cages in rack
		Size	Floor Area		
40615	3 Tier Single-Sided 60″ W × 14″ D × 72″ H	7″ W × 10″ D × 7″ H	70 sq. ″	1 Rat 4 Mice	18
40617	3 Tier Double-Sided 60″ W × 24″ D 72″ H	7″ W × 10″ D × 7″ H	70 sq. ″	1 Rat 4 Mice	36

Also includes appropriate quantities of:
Funnels, feces screens, food devices, calibrated fountains with fountain holders, and drinking tubes.



Product Number	Description	Overall Dimensions	Cage Size		Animals Accommodated	Food Hoppers	Watering	Waste Tray	Casters[1]
			Size	Floor Area					
40204	6 Totally Self-Contained Cages in a 2 Tier Rack	59¼" W × 24⅝" D × 72" H	18" W × 24" D × 30" H	432 sq. "	1	✔	Stainless Steel Bowl	Totally Integrated Into Cage	5"

(1) For caster information see page 32.
Note: To order replacement components, please call for information.

dog cage units

Product Number	Description	Overall Dimensions	Cage Size	Floor Area	Animals Accommodated	Watering	Food Hopper	Waste Tray	Casters[1]
40105	One cage mounted over other in two tiers. All stainless steel.	84″ high* 32″ wide 36.5″ deep (43″ deep with tilt pan)	32″ high 32″ wide 36″ deep	8 sq. ft.	1 per cage	Automatic or bowl available as option.	1 per Cage	Options: (1) standard flat pan (2) rear-flushing pan (3) combination tiltpan: metabolism pan plus rear-draining flush pan.	Available with or without 5″ diameter casters.

(1) For caster information see page 32.

*Cages can be easily separated to simplify transport through doorways, etc.

Note: To order replacement components, please call for information.

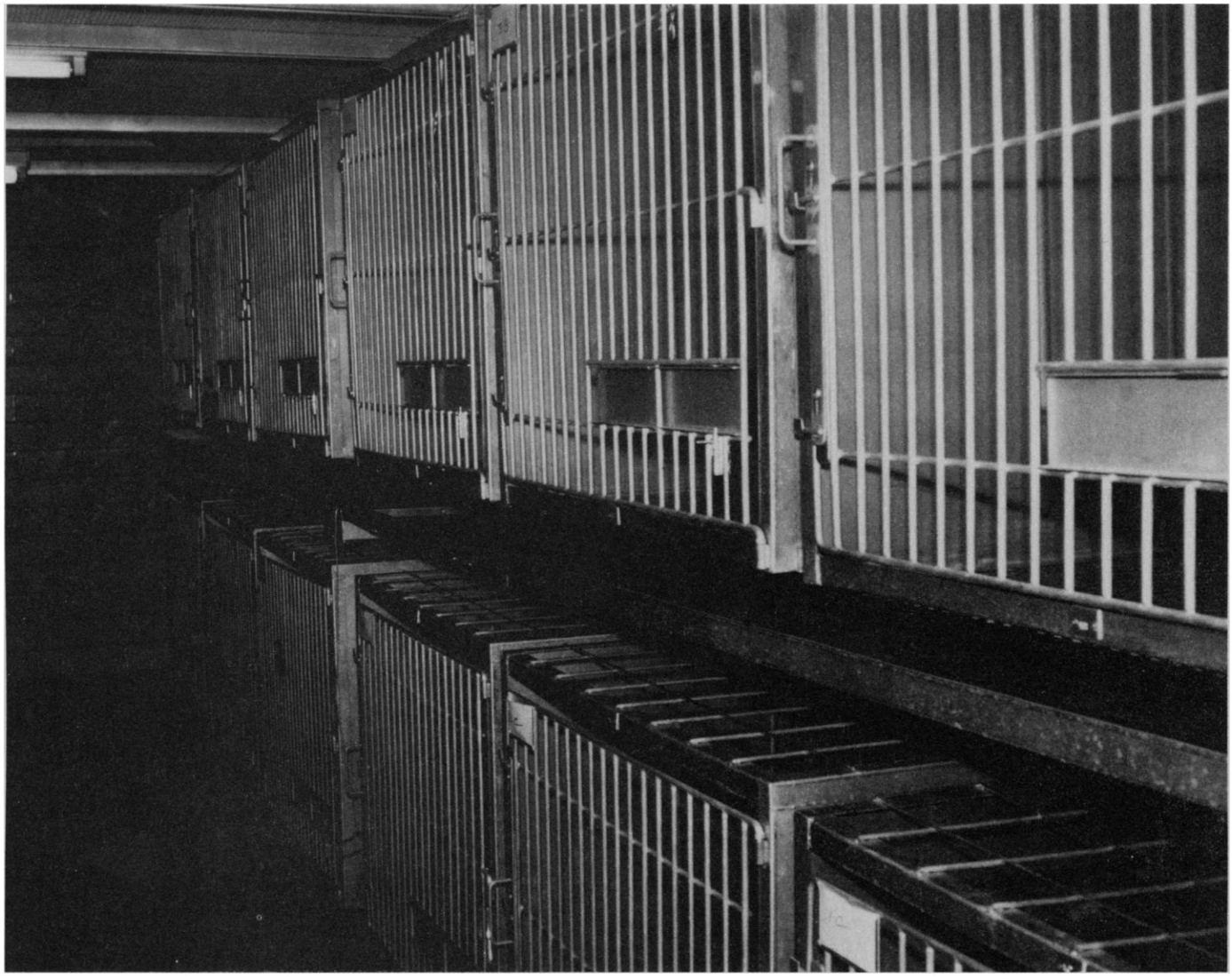
40105

Wire Type; Rack or Wall Hung

These all stainless steel (type 304, #2B finish) dog cages can be wall-mounted or rack-supported. Water is automatically supplied to each cage by a special low pressure drinking valve and each cage is supplied with a stainless steel feeder. Wastes fall into a stainless steel tray that is sloped toward the rear drain to simplify hose cleaning.

These cages can be mounted in single or double-decks depending upon cage and room dimensions and user's preferences.

Arrangements can be made for cage installation by Lab Products Inc. For further information concerning these systems or their installation, please call or write.



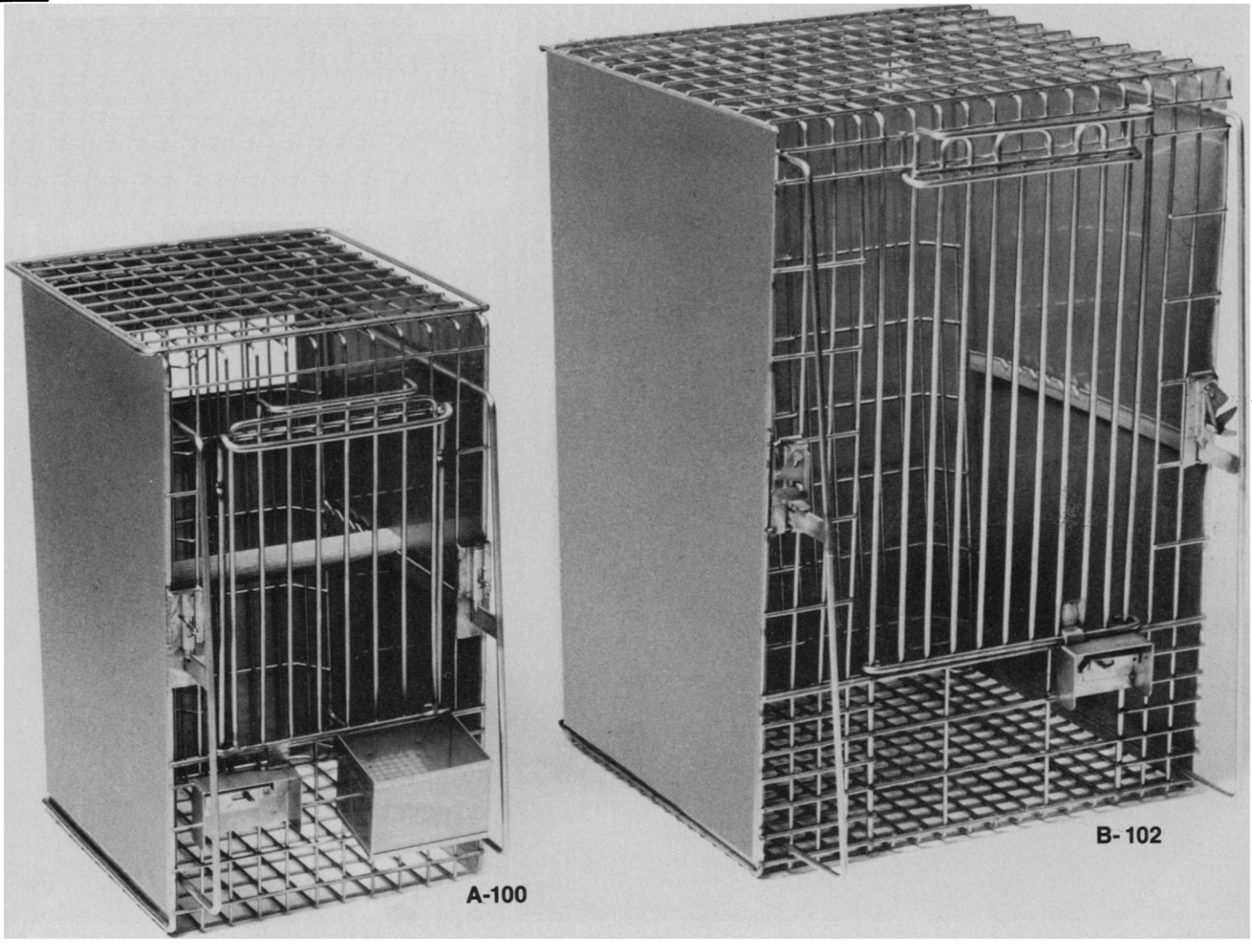
primate cage units

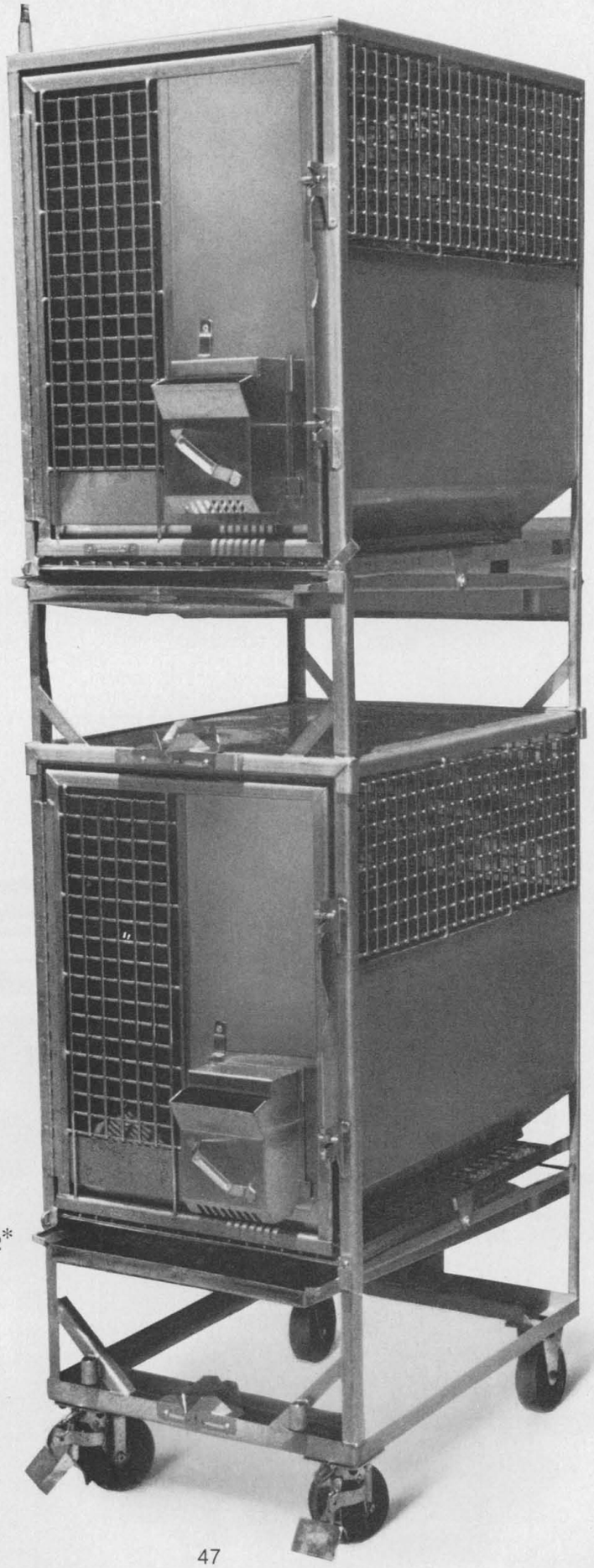
Wire Type; Rack or Wall Hung

All stainless steel (type 304, #2B finish) primate cages can be wall-mounted or rack-supported. Water is automatically supplied to each cage by a special low pressure drinking valve and each cage is supplied with a stainless steel feeder. Waste falls into stainless steel troughing, located below caging, sloping toward rear drains to facilitate manual flushing.

Cages can be mounted in single or double-decks depending upon cage and room dimensions and user's preferences.

Arrangements can be made for cage installation by Lab Products Inc. For further information concerning these systems or their installation, please call or write.





40002*

*See pages 48 and 49 for details.

Note: To order replacement components, please call for information.

410H1

primate cage units

Wire Type; Rack or Wall Hung

Product Number	Description	Overall cage Dimensions	Cage Size	Floor Area	Animals Accommodated
A-100	All stainless steel/solid sides, and back/wire top, front, bottom	11″ wide 16″ deep top 14″ deep bottom 20″ high		154 sq. in. 1.07 sq. ft.	1 small primate (marmoset)
A-101	All stainless steel/ solid sides and back/wire top, front bottom	14″ wide 24″ deep top 22″ deep bottom 20″ high		2.1 sq. ft.	1 primate up to 1 kg
B-102	All stainless steel/ solid sides and back/wire top, front, bottom	18″ wide 26″ deep top 24″ deep bottom 30″ high		3.0 sq. ft.	1 primate up to 3 kg
B-103	All stainless steel/ solid sides and back/wire top, front, bottom	24″ wide 28″ deep top 26″ deep bottom 30″ high		4.3 sq. ft.	1 primate up to 15 kg
40002	All stainless steel construction. Two-tiered configuration. One cage mounted over the other.	89 15/16″ high × 23″ wide × 32″ deep. (With tilt pan-38.250″ deep)	29-5/16″ high × 23″ wide × 32″ deep	736 sq. in. 5.11 sq. ft.	1 per cage

Watering	Food Hopper	Waste Tray	Casters	Rack System	Wall Mount System
Automatic	1 per Cage	Wall troughing		Available	✓
Automatic	1 per Cage	Wall troughing		Available	✓
Automatic	1 per Cage	Wall troughing		Available	✓
Automatic	1 per Cage	Wall troughing		Available	✓
Automatic	1 per cage	Combination metabolism and rear draining flush pan.	5″ dia. 2 with brakes.	—	—

adjustable racks

As can be seen from the illustration, the Lab Products adjustable rack can accommodate a variety of cage sizes for convenient animal housing.

The adjustable rack is constructed of Type 304 stainless steel or galvanized steel with adjustable cast aluminum brackets at each corner of each shelf. Shelf height is quickly changed by recessed set screws (two per bracket for extra security). The design of this rack also permits the addition or removal of shelves.

The rack is mounted on 5″ swiveled casters for convenient mobility, and is available in two convenient sizes: 60″ long × 66″ high × 24 deep equipped with five adjustable shelves; or 70″ long × 66″ high × 20″ deep with five adjustable shelves.

60″W×66″H×24″D

Catalog No. 38121 — Galvanized steel

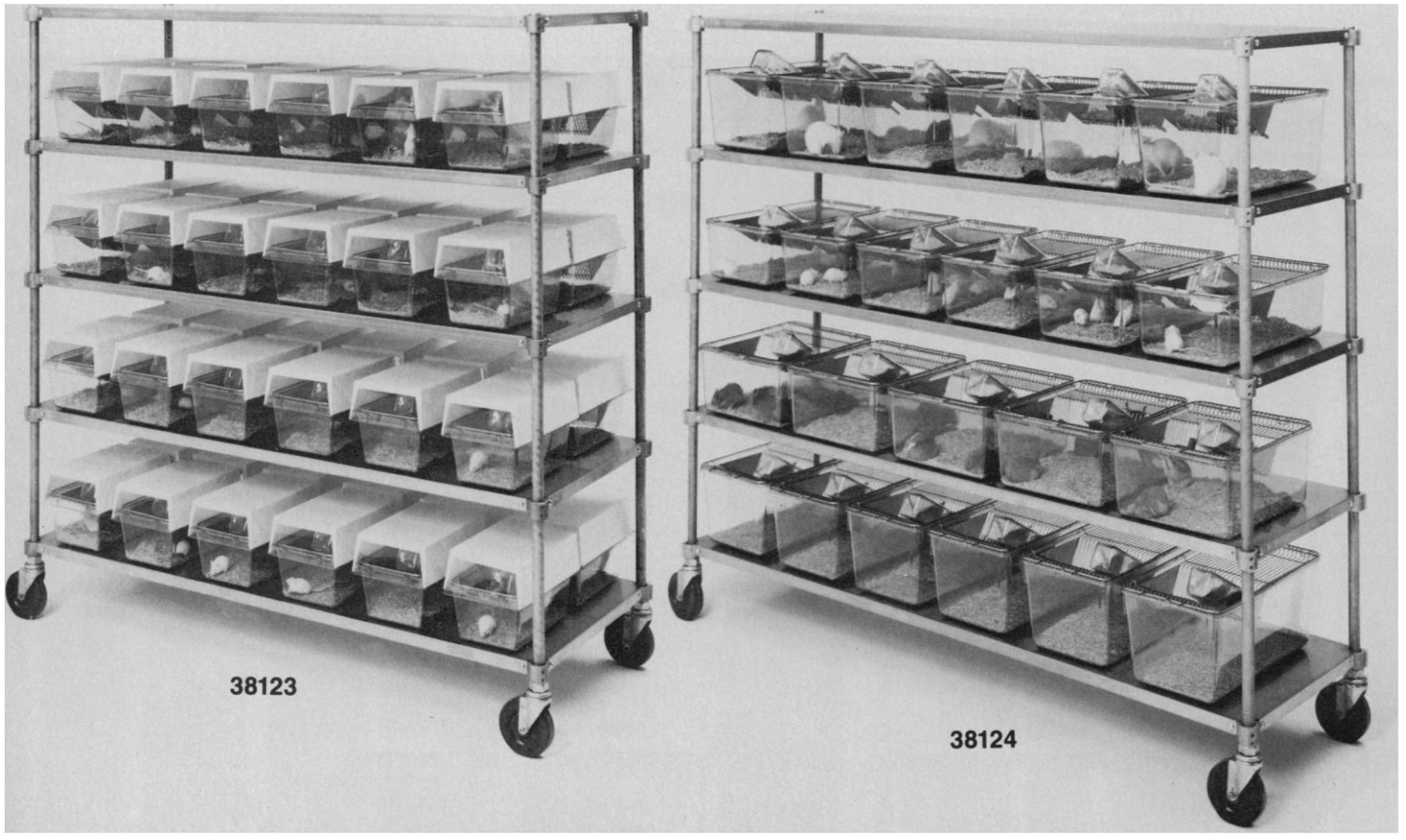
Catalog No. 38123 — Stainless steel

70″W×66″H×20″D

Catalog No. 38122 — Galvanized steel

Catalog No. 38124 — Stainless steel

Note: For additional shelving, please contact Lab Products.



ab-sorb-dri™

Ab-sorb-dri, Inc. offers two carefully refined bedding products, ab-sorb-dri derived from Beech, Birch and Maple hardwoods, and pine-dri refined from Northern White Pine. Both quality products are manufactured in a strictly controlled, patented process resulting in low moisture content, high sterilization, and uniform particle size containing a very low dust content.

Both ab-sorb-dri and pine-dri are derived from bark-free wood collected at logging mills. The wood is blown directly from the sawing operation into closed aluminum trailers exclusively used for transportation of hardwood or pine—the hardwood trailer is never employed to transport pine, and vice versa, and the trailer is never employed to transport any other product or material.

When the material arrives at the Ab-sorb-dri, Inc. processing plant, it is blown from the trailer into a 40 ft. rotary kiln. The material is processed at 500°F for 40 minutes which reduces its moisture content to 9% ± 2%. This intensive heat treatment virtually eliminates most inherent contamination. Next, the material is aspirated to remove dust, then it is screened to a final particle size between #6 and #16 mesh. Please note, through all stages of Ab-sorb-dri, Inc. processing, that bedding materials are never touched by humans or animals. The finished bedding is augered into 3-ply kraft paper bags, vibrated for proper settling, and heat sealed to prevent contamination. These bags of bedding can be subsequently autoclaved with contents prior to use. Independent test results have indicated negligible amounts (less than 5 parts per billion) of insecticide and pesticide residuals. (These test results are available upon request.)

This patented bedding is manufactured from Beech, Birch and Maple hardwoods originating in northeastern forests which are virtually free of pesticide contamination. Various interrelated factors give ab-sorb-dri its unique ability to absorb moisture, retard the growth of bacteria and inhibit odor for long periods. Additionally, efficient capillary action and movement of animals helps diffuse moisture from animal wastes.

ab-sorb-dri contains no resins or chemicals which can stain animal coats or irritate mucous membranes. ab-sorb-dri absorbs 1.5 times its own weight in liquid. ab-sorb-dri is available in 40 lb., 3-ply autoclavable, heat sealed bags containing three cubic feet of bedding.

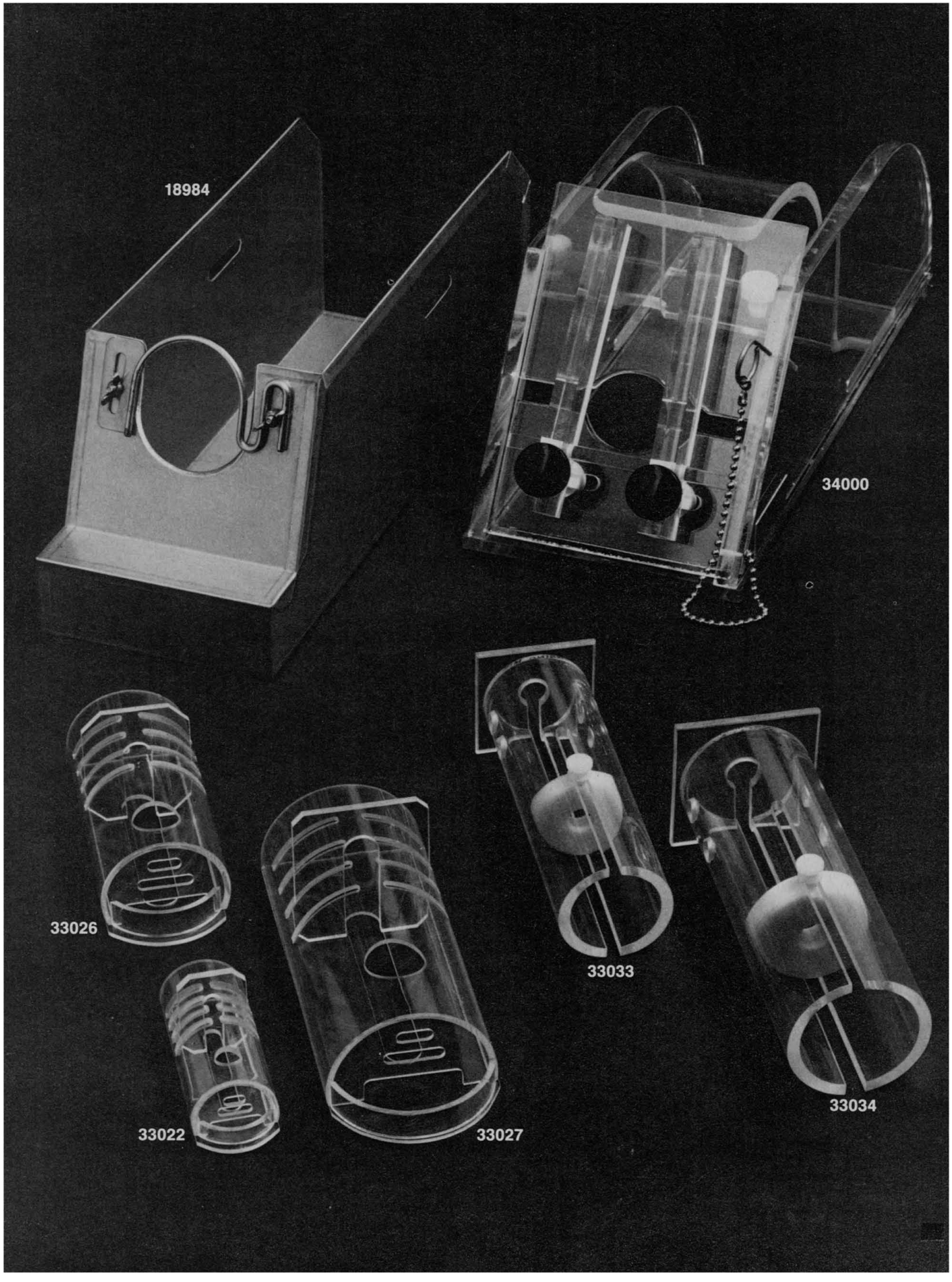
pine-dri™

This lightweight bedding is derived from Northern White Pine and is similar in its characteristics to ab-sorb-dri. Because Northern White Pine is less dense than hardwoods, pine-dri is 30% lighter than ab-sorb-dri and absorbs 2.5 times its own weight in liquid. pine-dri is packaged in 27 lb., 3-ply autoclavable heat sealed bags, containing three cubic feet of bedding each.

Both ab-sorb-dri and pine-dri are available from Ab-sorb-dri, Inc. distributors. For the name of your local distributor, please contact Ab-sorb-dri, Inc., 365 West Passaic Street, Rochelle Park, New Jersey 07662 (phone: 201/843-4600).

Restraining Cages

Cat. No.	Cage Material	Species	Weight Range	Restraining Area		Comments
				Max.	Min.	
33022	Clear Acrylic Plastic	Mouse	12-40 Grams	3½"L x 1¼"W	2"L x 1¼"W	Food hopper in front.
33026	Clear Acrylic Plastic	Rat/ Hamster	150-275 Grams	6"L x 2½"W	4½"L x 2½"W	Food hopper in front.
33027	Clear Acrylic Plastic	Rat/ Guinea Pig	275-600 Grams	7"L x 3"W	5"L x 3"W	Food hopper in front.
18984	Stainless Steel	Rabbit		17½"L x 6"W		Neck is restrained with adjustable yoke; cage is equipped with body strap slots.
33032	Clear Plastic	Mouse	15-30 Grams			Cylindrical, Broome style cages. Solves problem of restraining squirming animals. Animal placed in cage by its tail along an open groove and through the hole in the back. Nose piece then glides back into the cage, placed up to the nose of the animals and secured. Access to animals is through slots plus 4 holes. May be sanitized in a cage washer (up to 180°F) or sterilized chemically.
33033	Clear Plastic	Mouse	30-125 Grams			
33034	Clear Plastic	Rat	125-250 Grams			
33035	Clear Plastic	Rat	250-500 Grams			
34000	Clear Plastic	Rabbit Single Stall				Complete flexibility plus maximum security. Fine adjustment for neck diameter. Curved back/butt plate minimizes possibility of broken spines. Floor equipped with non-slip foam covering. Cage can be sanitized in a cage washer (up to 180°F) or chemically sterilized.
34002	Clear Plastic	Rabbit 2 Stalls				
34004	Clear Plastic	Rabbit 4 Stalls				
34006	Clear Plastic	Rabbit 6 Stalls				
34008	Clear Plastic	Rabbit 8 Stalls				
44992	Stainless Steel	Rabbit 8 Stalls				


18984
34000
33026
33022
33027
33033
33034

Individual Metabolism Cages*

Stainless steel rat/mouse metabolism cage for collection of urine and feces

Houses single rat or mouse for metabolism studies. Comes complete; can be disassembled for cleaning.
Catalog No. 40619

Replacement Components:

Description	Catalog No.
Stainless steel rack	**43912**
Stainless steel cage	**41604**
Feces screen	**44921**
Food hopper	**44002**
Water bottle holder	**44105**
Calibrated water bottle	**44104**
Bottle stopper	**30006**
Sipper tube	**30120**
Funnel bottom	**44201**

Polycarbonate rat/mouse metabolism cage for collection of urine and feces

The feces-urine separation system avoids cross-contamination. Top portion removable for sample collection without disturbing animal. Urine receptacle removable to simplify cleaning.

They can be used on any laboratory bench without special support or special stands. Standing 12-in. high they are only 8-5/16 inches in diameter.

The feed hopper (but not the water bottle) is a standard component. An aluminum insert (tunnel) provides access to the feed hopper, which is designed to increase analytical accuracy by minimizing feed-loss due to scatter.

A critical element in the design is the deflection system. A unique outside shelving ring deflects food and water. This assures that anything escaping from the hopper or water tube is drained off *outside* the urine collection system.

The model does not impose severe size limitations on the animals to be studied. The standard model accepts all types of animals, including mice, small rats. A special stainless steel insert-adapter can be easily installed in the food hopper access unit to make it suitable for the smaller animals.

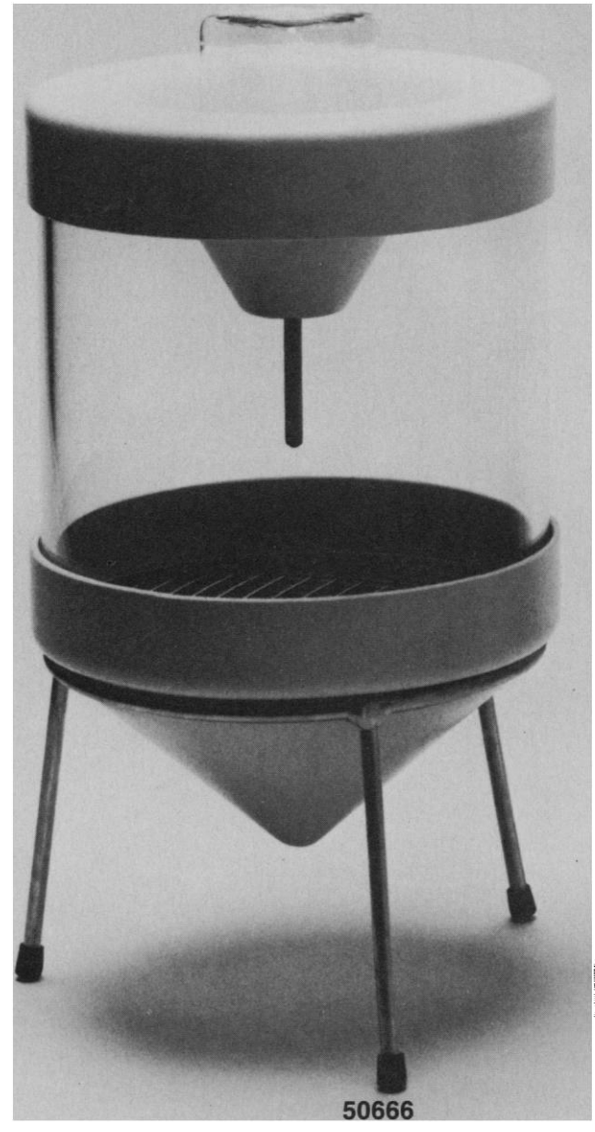
A Metal Extender Kit converts the metabolism cage into a cage suitable for large rats.

Polycarbonate construction resists breakage, denting, most chemicals and wastes. Can be autoclaved up to 250°F. Completely transparent.
Catalog No. 50555 Extender Kit No. 50560

Plastic rat/mouse metabolism cage for collection of urine, feces, and Co_2

Houses single rat or mouse. Useful for inhalation studies or any research requiring animal isolation.
Catalog No. 50666

*See metal cage section of catalog for additional metabolism cages.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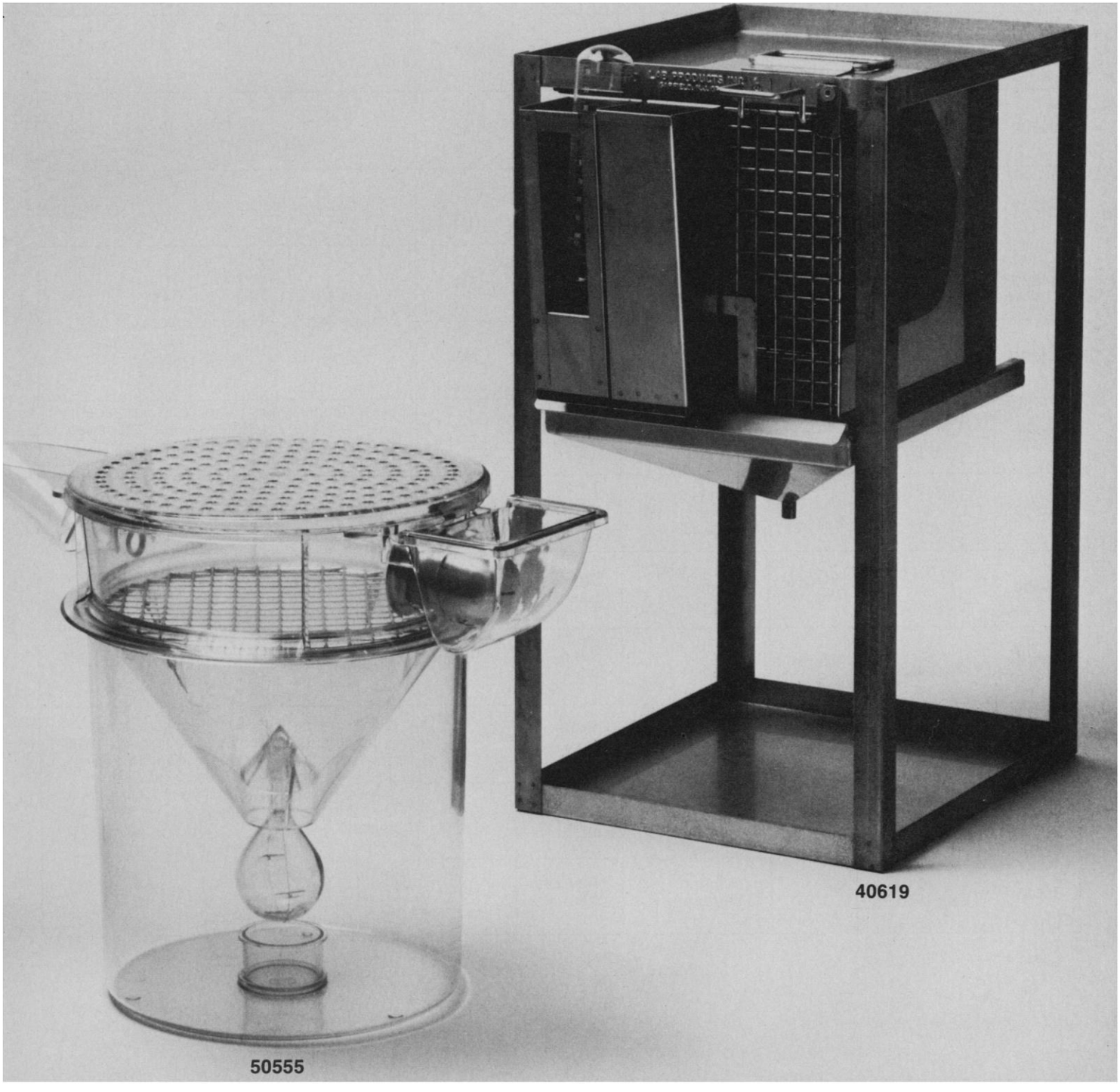
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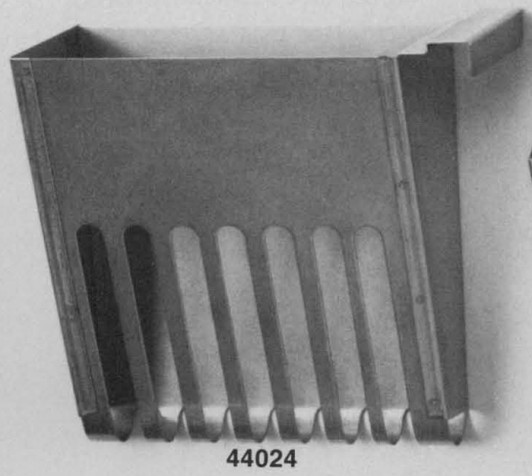
Feeders

Cat. No.	Size	Animal Species	Type	Material	Slot Spacing	Comments
30100	2½"x2" x 3½"D	Mouse	Hangs from inside cage lip	Stainless Steel	3/8"	
30200	2"x4½" x 3½"D	Mouse Rat	Hangs from inside cage lip	Stainless Steel	3/8"	
30300	2½"x6" x 4"D	Rat	Hangs from inside cage lip	Stainless Steel	3/8"	
30400	4½"x7" x 3"D	Rat	Pendulum powder feeder hangs from inside lip	Stainless Steel	—	For powdered food studies.
44023	3½"W x 5⅜"D	Mouse	Hangs from inside cage lip	Stainless Steel	3/8"	For use with See Through systems. (I & II)
44024	6"W x 35⅜"D	Rat	Hangs from inside cage lip	Stainless Steel	3/8"	
44025	3"Wx2¼"D x 5"H	Guinea Pig	Mounted outside cage	Stainless Steel	—	Slides onto stainless steel plate permanently attached to any standard guinea pig cage. Can be factory installed or fitted to existing cages. Card holder included.
44028	3"Wx2¼"D x 5"D	Guinea Pig	Hangs from inside cage lip	Stainless Steel	—	Card holder included.
30500	6¼"x2⅞" x 2½"D	Guinea Pig	Hangs from inside cage lip	Stainless Steel	—	J-Type. Lip across hopper opening minimizes food waste.
30603	3 Compartment	Mouse	Powder Feeders	Stainless Steel	—	Not shown
30604	4 Compartment	Mouse	Powder Feeders	Stainless Steel	—	Small compartments prevent mice from entering and nesting used as follows: Lower tray is filled with powdered feed and upper unit is inserted directly onto food. Stainless steel screen on bottom of upper unit rests on feed and provides access to feed without spillage.
30608	8 Compartment	Mouse	Powder Feeders	Stainless Steel	—	
30610	10 Compartment	Mouse	Powder Feeders	Stainless Steel	—	



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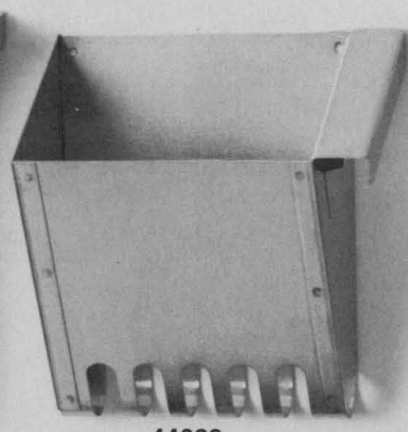

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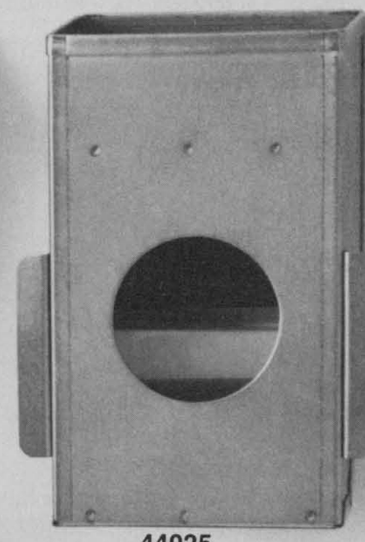

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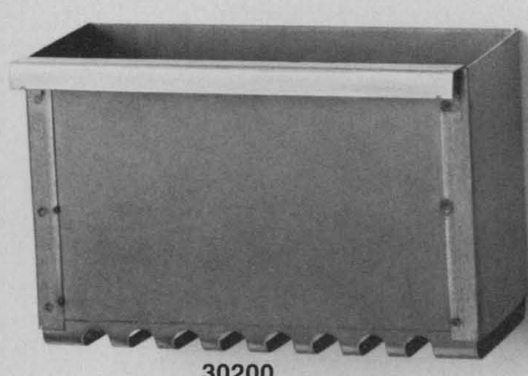

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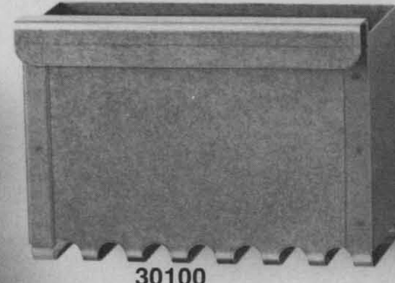

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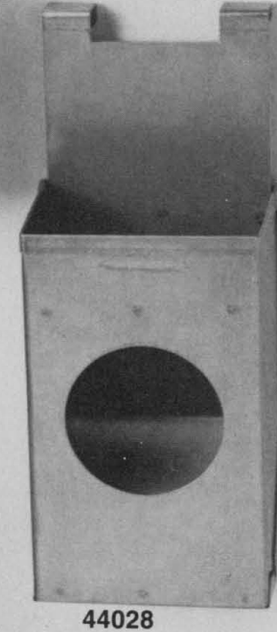

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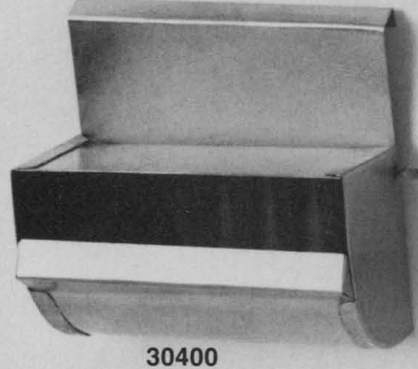

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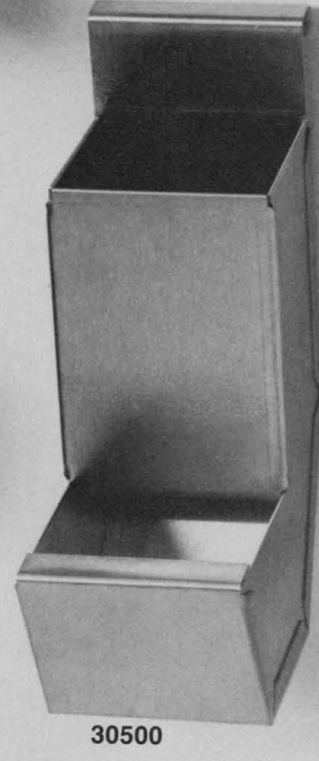

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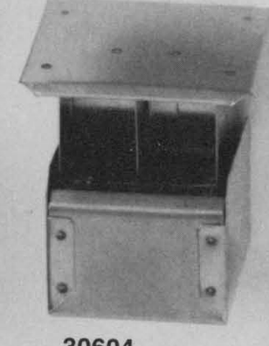


30604

Water Bottles and accessories

Water Bottle Cat. No.	Size	Dimensions	Material	Stopper Size	Stopper Cat. No.
30005	8 oz./250 cc.	4⅛"H ×2¼"	Polycarbonate	#10	**30010**
30020	16 oz./500 cc.	7"H ×2¼"	Polycarbonate	#10	**30010**
30800	8 oz./250 cc.	5½"H ×2-1/16"	Glass	# 7	**30007**
30160	16 oz./500 cc.	7"H ×2-7/16"	Glass	# 8	**30008**
30320	32 oz./1000 cc.	8½"H ×3"	Glass	# 9½	**30009**

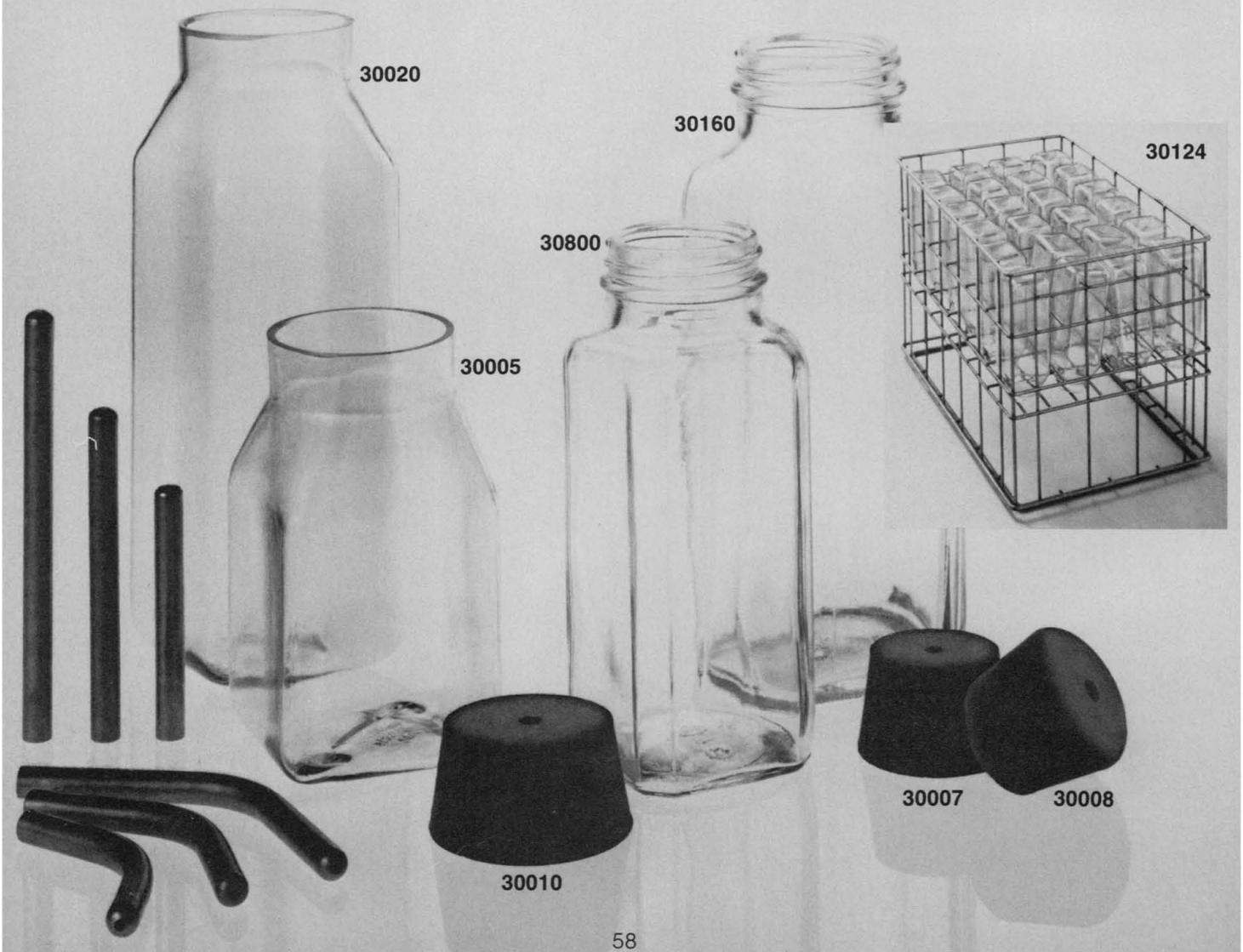
Water bottle rack
Convenient rack simplifies transport and washing of 24 bottles 2¾" ×2¾" ×7" (Lab Products bottles: No. 30800, 30160 & 30020). Stainless steel, 12½" ×18½" ×13¼" H.
Catalog No. 30124

Water bottle saddle
For *perforated* covers used on plastic cages to provide the proper angle for water flow. Saddles are of stainless steel.
Catalog No. 20245

Sipper tubes (stainless steel)
Cat. No.

30125 — 2½" straight
30130 — 3" straight
30135 — 3½" straight
30140 — 4" straight
30145 — 4½" straight
30150 — 5" straight

30225 — 2½" bent 120°
30230 — 3" bent 120°
30235 — 3½" bent 120°
30240 — 4" bent 120°
30245 — 4½" bent 120°
30250 — 5" bent 120°



Miscellaneous

Raised wire floors

These stainless steel wire-bar raised floors separate animals from their excrement. Mouse cage floor **30222** fits Lab Products mouse cage **10027.**

Rat cage floor **30422** fits Lab Products rat cages **10047** and **18780.**

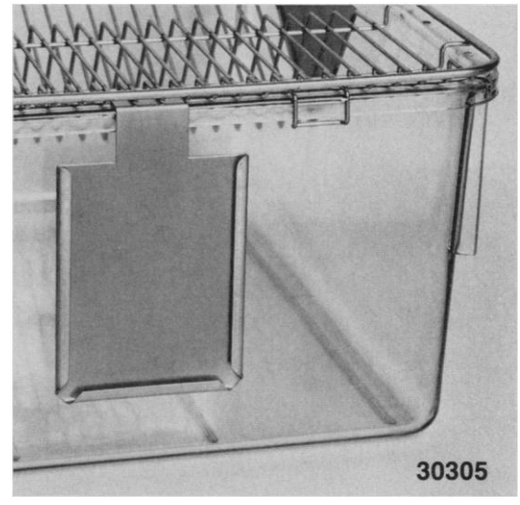
Cardholders (hanging)

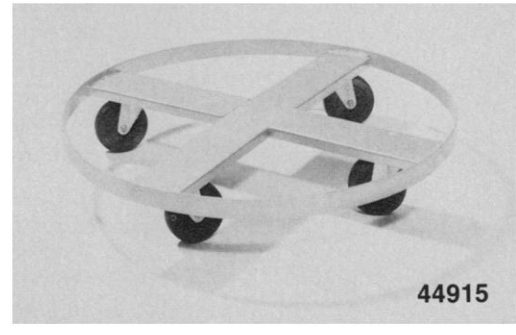
Cardholders accommodate 3″x 5″ cards.
Cat. No. 20001 — for the Lab products Isocage (aluminum).
Cat. No. 30305 — vertical (3″w x 5″h) cardholder (stainless steel).
Cat. No. 30305 H — Horizontal (5″w x 3″h) cardholder (stainless steel).

Can Dolly
All welded construction and hot galvanized, this heavy duty dolly can be used with barrels and garbage cans. The dolly is mounted on 3″ diameter rubber wheeled casters. Dolly will accommodate cans up to 20½″ in diameter.
Catalog No. 44915

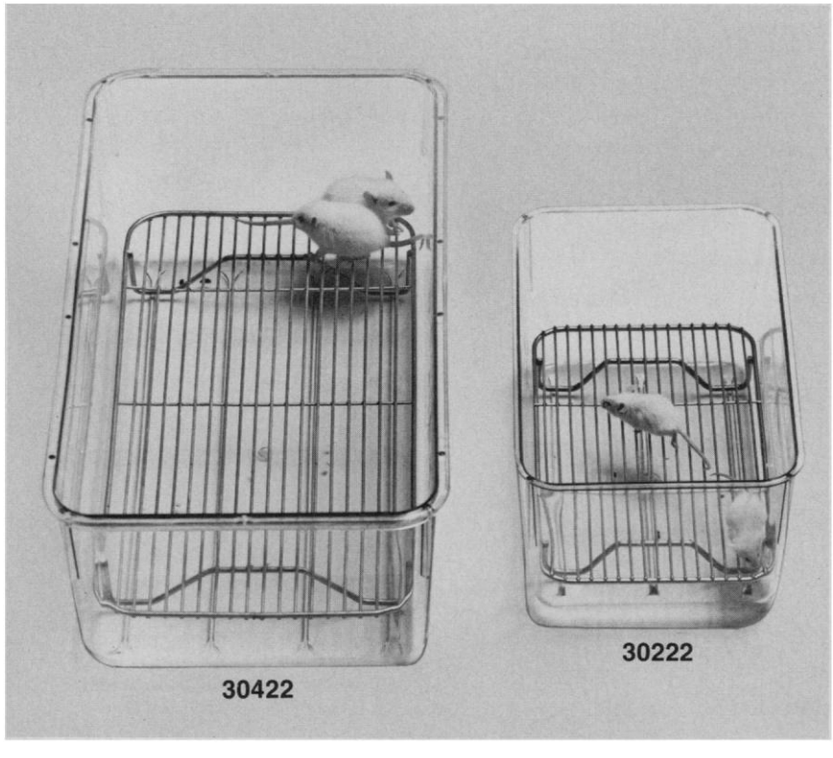
Cart

Stainless steel utility table 36″ L× 20″ W× 36″ H. Flat top with one lower shelf. Mounted on 5″ casters.
Catalog No. 44991


30305


44915


44991


30422

30222

general information

Orders

Please address all purchase orders to Lab Products, Inc., 365 W. Passaic St., Rochelle Park, New Jersey 07662. Call—collect—for rush orders or for additional information to (201) 843-4600.

Prices

All prices are subject to change without notice. Terms are net 30 days, collect f.o.b. our plant. There will be an additional charge on all prepaid freight charges. Any special packaging will carry a small service charge; the total charge will be based upon the customer's requirements and quantity.

For current price list write or call.

Important Note About Transit Damage!!!

Protect yourself from loss: Examine accepted shipments and report transit damage to carrier *and* Lab Products within 10 days of receipt!

A. If damage is obvious at time of delivery, accept shipment!
Just indicate on "bill of lading" that damage is visible . . . and describe it.

B. Call carrier to make inspection report.
Then, to protect *yourself,* unpack and examine contents carefully for transit damage. You have only 10 days to inform carrier of such damage . . . this *must* be done by the customer within 10 days for a valid claim to be made.

This is basic: notify carrier within 10 days of receipt of transit damage . . . notify Lab Products at the same time.

Representatives

Lab products has many full-time sales personnel in the field to serve customers. Please call or write for the name of your local representative.

For additional catalogs, price lists, technical information, or quotations

Lab Products Inc.
365 West Passaic St., Rochelle Park, N.J. 07662

☐ I would like a quotation on:_____

_____

_____

_____

☐ I would appreciate additional information about:_____

_____

_____

☐ Please send _____ copies of your current price list.

☐ Please send _____ copies of your current catalog.

☐ Please put my name on your mailing list.

☐ Please have a representative contact me.

Name and title_____

Dept._____

Organization_____

City_____ State_____ zip

Phone_____
area number ext.

Use back for additional requests, comments, etc.

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City_____ State_____ zip

Phone_____
area number ext.

Use back for additional requests, comments, etc.

For additional requests, comments, etc.

For additional requests, comments, etc.

US/metric conversion table

To Convert:	Multiply By:	To Obtain:
celsius (degrees)	(°C × 9/5) + 32	fahrenheit (degrees)
celsius (degrees)	°C + 273.18	kelvin (degrees)
centimeters	3.281×10^{-2}	feet
centimeters	3.937×10^{-1}	inches
cubic centimeters	6.102×10^{-2}	cubic in.
cubic inches	1.639×10^{1}	cu. cms.
feet	3.048×10^{1}	centimeters
feet	3.048×10^{-4}	kilometers
feet	3.048×10^{-1}	meters
feet	3.048×10^{2}	millimeters
gallons	3.785×10^{3}	cu. cms.
gallons	3.785	liters
grams	3.527×10^{-2}	ounces (avdp.)
grams	3.215×10^{-2}	ounces (troy)
grams	2.205×10^{-3}	pounds
inches	2.540	centimeters
inches	2.54×10^{1}	millimeters
kilograms	2.2046	pounds
kilograms	3.5274×10^{1}	ounces (avdp.)
liters	1.0×10^{3}	cu. cm.
liters	1.057	quarts (U.S. liquid)
meters	3.281	feet
meters	3.937×10^{1}	inches
miles (nautical)	1.852	kilometers
miles (nautical)	1.852×10^{3}	meters
millimeters	3.281×10^{-3}	feet
millimeters	3.937×10^{-2}	inches
ounces	2.8349×10^{1}	grams
pints (liquid)	4.732×10^{2}	cubic cms.
pounds	4.5359×10^{2}	grams
quarts (liquid)	9.464×10^{2}	cubic cms.
quarts (liquid)	9.463×10^{-1}	liters
temperature (°C.) +17.78	1.8	temperature (°F.)
temperature (°F.) −32°	5/9	temperature (°C.)

lab products
inc a bioMedic company

365 W. Passaic St.,
Rochelle Park, N.J. 07662
(phone: 201/843-4600)

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