

Introducing SmartRack II “Weld-Less” Rack & DigiFlow II with LabComp

UNIQUE BENEFITS

- “Weld-Less” construction allows for low cost shipping of flat pack equipment and simple on-site assembly.
- Easy disassembly – allows you to sterilise your racks in a small autoclave saving on capital expenditure.
- Easy access to exhaust for your most cost-effective microbiological monitoring programme.
- "State-of-the-Art" computer interface allows remote wireless monitoring from your chosen location – home, office or on the move.
- Monitor your animals' environments 24/7 with tailored reports ready for your live presentations.
- Compatible with your USB port equipment including bar code readers, printers, sensors, etc.

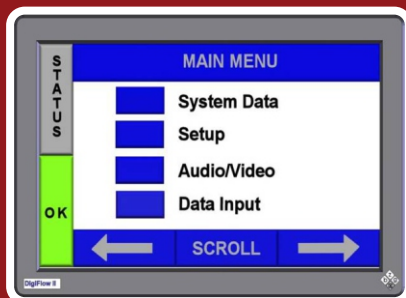
NEW INNOVATIVE FEATURES

DigiFlow II with LabComp

- Windows CE Operating System
- Ethernet or Wifi Connection to Facility Network and Internet
- Wireless Mouse & Keyboard
- Environmental Monitoring
 - CO₂ – Carbon Dioxide
 - NH₃ – Ammonia
 - °C or °F – Temperature
 - RH % – Relative Humidity
- Audio, Video for Presentations and Training in the Animal Room on the LabComp Screen with Built in Speakers. Source of Videos can be by USB or Network Connection.
- Large Colour Monitor
- Decreased Power Requirements
- Licensed Spreadsheet, Document Writing and Presentation Software Available
- 4 USB Ports for Bar-Code Readers, Printers, Sensors etc.
- Air Handler Constructed of Light-Weight PVC Foam Sheet
- Certified Leak-Free, Sealed HEPA Installation

SmartRack II “Weld-Less” Rack

- “Weld-Less” Construction for Flexibility
- Easy Access to Interior of Air Flow Manifolds via Removable Silicone Plugs for:
 - Obtaining Samples for PCR
 - Cleaning
 - Inspection
- Easy Dis-Assembly (20 min) for
 - Autoclaving
 - Storage
- Manifold Connections of High Temperature, Autoclavable Silicone
- Exhaust Manifolds Separately Removable for Sterilization and Autoclaving
- SmartRack II “Weld-Less” Racks Available for 2 to 200 cages
- SmartRack II “Weld-Less” Racks Available for Mice, Rats, Hamsters and Guinea Pig in Six Cage Sizes Meeting International Caging Requirements
- Air Handler Located Under Rack or External Free-Standing – Both Provide Vibration free Animal Environment.
- Compact Rack Design Provides More cages in a given Floor Space than other IVCs.



BioZone's Long-Standing Tradition in Innovative IVC Design

INNOVATIONS & PROPRIETARY DESIGN BENEFITS OVER MORE THAN 20 YEARS

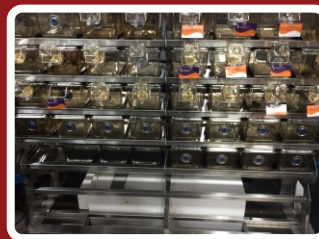
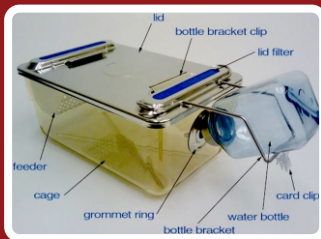
- Our low-profile lid offers you greater capacity within the same room space
- Large air diffusers guarantee high air change rates with low velocity air movement -greater comfort for your animals
- Unique BSL3 design, based on controlling air pressure, avoids the problems of "sealed cages" while containing & protecting your animals
- External bottle (optional) allows easy efficient observation and avoids risk of dehydration

BioZone's Traditional Features

- Established in 1993, BioZone developed its 1st IVC ("VentiRack") in 1995 using classical BSL3 design criteria for Differential Pressure and Air Velocity, treating each cage as if it were a room in a BSL 3 Facility.
- Today, BioZone remains the only IVC Producer using this superior design approach. All other IVC producers continue to treat the cage as if it were a "Gas Chamber", submitting the animals to very high and uncomfortable air velocities and noise levels.

BioZone's Classical & Proprietary Design Features

- Air is supplied to each cage through a Large Diffuser sized so that the Air Velocity entering the cage does not exceed 10 cm/s while delivering up to 120 ACH.
- BioZone's low-profile, long-life Stainless Steel lid has the same large Diffuser at both ends for Supply and Exhaust and has filters installed in each Diffuser.
- The low-profile Stainless Steel lid allows one extra row of cages compared with other IVCs within the same maximum working height



Over 20 Years of Innovation in IVCs

Now newly developed

DigiFlow II & SmartRack II

re-defining the

"State-of-the-Art"

- BioZone produced the first IVC with water bottle outside the cage - easier for observation and proper animal care.
- Development of "U-Shaped" Rack Base to allow Air Handler to rest on floor under rack - minimises vibration effects.
- First IVC with Switched, Pre-Balanced selection of Cage Pressure Mode (+ or -)
- First IVC with Continuous Computer Monitoring and Control of Cage Pressure and Air Flow (ACH).
- Development of DigiFlow I, Touch Screen Controller for Air Flow, Cage Pressure, Temperature and Humidity.
- Development of DuoZone for control of two adjacent zones of pressure – One Zone within the Cages and a 2nd Zone surrounding the Cages.
- Development of MiniRack - highly flexible and portable
- Air Handler Rests on floor under rack occupying no additional floor space and providing vibration-free animal environment. Secure (Pin required), DigiFlow computer controlled change of Cage Pressure (+ to -) or (- to +).
- Continuous monitoring of Cage Pressure and ACH & control of Supply and Exhaust Fans to maintain Cage Pressure and ACH at set-points.
- User selectable Set-Points for Cage Pressure and ACH.
- Use SmartRack II in conjunction with RowZone or MiniRooms and benefit from both Positive Pressure Bio-Protection AND Negative Pressure Bio Containment in the same study.
- Development of Emergency Air Handler

Rack & Air Handler Specifications

- DigiFlow II with LabComp
- SmartRack II "Weld-Less" Rack

STANDARD RACKS

Cage	Model No. Note (1)	No. of Cages	Single/ Dbl Sided	Size (cm)			Air Handler	Mounting
				Width	Depth	Height		
Mouse Type 22/25	MR1122/250402SI	8	Single	98	44	40	Under Rack	Table Top
Mouse Type 22/25	MR1122/250402DI	16	Double	98	84	40	Under Rack	Table Top
Mouse Type 22/25	MR1122/250403SI	12	Single	98	44	58	Under Rack	Table Top
Mouse Type 22/25	MR1122/250403DI	24	Double	98	84	58	Under Rack	Table Top
Mouse Type 22/25	MR1122/250404SI	16	Single	98	44	75	Under Rack	Table Top
Mouse Type 22/25	MR1122/250404DI	32	Double	98	84	75	Under Rack	Table Top
Mouse Type 22/25	SX1122/250806SI	48	Single	185	73	147	Under Rack	Castors
Mouse Type 22/25	SX1122/250806DI	96	Double	185	90	147	Under Rack	Castors
Mouse Type 22/25	SX1122/250806SE	48	Single	185	73	129	External to Rack	Castors
Mouse Type 22/25	SX1122/250806DE	96	Double	185	90	129	External to Rack	Castors
Mouse Type 22/25	SX1122/250808SI	64	Single	185	73	182	Under Rack	Castors
Mouse Type 22/25	SX1122/250808DI	128	Double	185	90	182	Under Rack	Castors
Mouse Type 22/25	SX1122/250808SE	64	Single	185	73	164	External to Rack	Castors
Mouse Type 22/25	SX1122/250808DE	128	Double	185	90	164	External to Rack	Castors
Mouse Type 22/25	SX1122/250809SE	72	Single	185	73	182	External to Rack	Castors
Mouse Type 22/25	SX1122/250809DE	144	Double	185	90	182	External to Rack	Castors
Rat T32 / Mouse T36 & T34 (2)	MR1132/360301SI	3	Single	98	63	31	Under Rack	Table Top
Rat T32 / Mouse T36 & T34 (2)	MR1132/360302SI	6	Single	98	63	57	Under Rack	Table Top
Rat T32 / Mouse T36 & T34 (2)	MR1132/360303SI	9	Single	98	63	83	Under Rack	Table Top
Rat T32 / Mouse T36 & T34 (2)	SX1132/360604SI	24	Single	185	73	143	Under Rack	Castors
Rat T32 / Mouse T36 & T34 (2)	SX1132/360604SE	24	Single	185	73	125	External to Rack	Castors
Rat T32 / Mouse T36 & T34 (2)	SX1132/360605SI	30	Single	185	73	169	Under Rack	Castors
Rat T32 / Mouse T36 & T34 (2)	SX1132/360605SE	30	Single	185	73	151	External to Rack	Castors
Rat T32 / Mouse T36 & T34 (2)	SX1132/360606SI	36	Single	185	73	195	Under Rack	Castors
Rat T32 / Mouse T36 & T34 (2)	SX1132/360606SE	36	Single	185	73	177	External to Rack	Castors
Rat/Guinea Pig Type 41	MR11410201SI	2	Single	98	63	31	Under Rack	Table Top
Rat/Guinea Pig Type 41	MR11410202SI	4	Single	98	63	57	Under Rack	Table Top
Rat/Guinea Pig Type 41	MR11410203SI	6	Single	98	63	83	Under Rack	Table Top
Rat/Guinea Pig Type 41	SX11410405SI	20	Single	185	73	172	Under Rack	Castors
Rat/Guinea Pig Type 41	SX11410405SE	20	Single	185	73	154	External to Rack	Castors
Rat/Guinea Pig Type 41	SX11410406SI	24	Single	185	73	198	Under Rack	Castors
Rat/Guinea Pig Type 41	SX11410406SE	24	Single	185	73	180	External to Rack	Castors
Note 1: Rack Model No. Nomenclature	MR11 - "Weld-Less" MiniRack or SX11 - "Weld-Less" SmartRack		Cage Type : 22, 25, 32, 34, 36 or 41	xx - No. of Col	yy - No. of Col		S - Single Sided D - Double Sided	I - Integral Air Handler E - External Air handler

Note 2: For Type 34 Cage Utilization by Species, see "Cage Size and Capacity Chart" on next page.

STANDARD AIR HANDLERS

Air Handler	Model No. Note (3)	No. of Racks	Supply/Exhaust Duct Sizes (inch) Note (4)	Size (cm)			Air Handler Orientation	Air Handler Mounting
				Width	Depth	Height		
MiniRack Air Handler	AHX11MVAF-MR-D	1	2 inch	104	49	22	Horizontal	Table Top
Integral Air Handler	AHX11MVAF-SI-D	1	3 or 4 inches	104	49	32	Horizontal	Floor
External Air Handler, Fixed	AHX11MVAF-EW-D	1	3 or 4 inches	104	32	49	Vertical or Horizontal	Wall
External Air Handler, Mobile	AHX11MVAF-EF-D	1	3 or 4 inches	49	32	156	Vertical	Castors on Floor
Shared Ext. Air Handler, Fixed	AHX11MVAF-EW-n x D	2 - 4	Multiple 3 & 4 in	104	32	49	Vertical or Horizontal	Wall
Shared Ext. Air Handler, Mobile	AHX11MVAF-EF-n x D	2 - 4	Multiple 3 & 4 in	49	32	156	Vertical	Castors on Floor
Note 3: Air Handler Model No. Nomenclature	AHX11 - DigiFlow II Air Handler		M = Cage Differential MODE, "P" - Positive "N" Negative or "B" - Both (User Selectable)	VAF - M ³ / H of Air Flow at 80 ACH			"MR" - Table Top MiniRack, "SI" - Integral Under Rack, "EW" External Wall Mount, "EF" External floor Mount	"n x" = No of Racks, "D" = Dia (inch) of Air Flow Ducts

Note 4: Duct Diameter Varies with Volume of Cages Serviced on Each Rack

Air Handler - DigiFlow II with LabComp

SmartRack II "Weld-Less" Rack

Material Specifications

- All materials Compatible with Fumigation & H₂O₂ Sterilization
- Structure & Air Flow Plenums are Light-Weight, Sealed PVC Foam Sheet
- Certified HEPA Filter, 99.99% DOP Test (μ 0.3) in Aluminum Frame, Minimum Face Area of 1130 cm² (710 cm² for MiniRack) Speed Controllable DC 24 Volt Fans, Low Energy Consumption, only 20 watt power requirement.
- Electronic Environmental Sensors for Air Flow, Cage Pressure, Temperature, Humidity, Ammonia and Carbon Dioxide.
- Windows CE based On-Board Computer Monitors and Controls Animal
- Environment and can be Accessed Locally or Remotely by Wifi or Ethernet.

Material Specifications

- All materials are Autoclavable and are Compatible with Fumigation and H₂O₂ Sterilization
- Structure, Air Flow Manifolds, Castors, Fixings and Fasteners are 304 Stainless Steel. Optional Water Manifolds are 316 Stainless Steel.
- Air Flow Diffusers are High Temperature, Autoclavable Nylon
- Air Flow Manifold Seals are High Temperature, Autoclavable Silicone.
- Castor Wheels are Polyurethane, Nylon or Autoclavable Synoflex.
- Air Flow Manifold Access Plugs are High Temperature, Autoclavable Silicone and are located for ease in obtaining PCR Exhaust Samples.

Design Specifications

- Design is Compatible with Fumigation and H₂O₂ Sterilization
- Design Allows for Completely Sealing Air Flow Ducts and Access Plugs are Provided to Certify "In-Situ" Leak-Free HEPA Installation.
- Secure Access to On-Board Computer by User's PIN. Computer Controlled by
 - 1) Touch Screen,
 - 2) Wireless Mouse & KeyBoard and
 - 3) Network or Internet Access by Wifi or Ethernet.
- Computer Software Available for Spread Sheets, Documents & Presentations.
- Four USB Ports Provided for Peripherals (i.e. Printers, BarCode Readers etc) and Files Transfers.

Design Specifications

- Design Allows for Autoclaving, Fumigating or H₂O₂ Sterilizing Totally Assembled or Dis-Assembled and Flat-Packed.
- Design Allows for Complete Dis-Assembly and Flat-Packing for Storage or Autoclaving in only 20 Minutes.
- Design Allows Partial Dis-Assembly and Flat-Packing of Exhaust manifolds for Selective Sterilization and Autoclaving.

BioZone's Unique Cage Unit Specifications

- Proprietary Cage Units
- Large Supply and Exhaust Diffusers
- Low Profile Stainless Steel Lid

Cage Unit	Model No.	Floor Area (cm ²)	Animal Height (cm)	Size (cm)			Plastic Material	Cage Grams	Metal Material	Lid Grams
				Width	Depth	Height				
Mouse Type 22	CU-22-P	440	12.5	19	29	13	Polysulfone	520	304 & 316 SS	450
Mouse Type 25	CU-25-P	510	12.5	19	36	13	Polysulfone	610	304 & 316 SS	530
Mouse Type 36	CU-36-P	990	15	26	47	15	Polysulfone	1100	304 & 316 SS	1030
Rat Type 32	CU-32-P	920	20	26	47	20	Polysulfone	1300	304 & 316 SS	1030
Mouse/Rat/Guinea Pig Type 34	CU-34-P	615	19	23	36	19	Polysulfone	890	304 & 316 SS	530
Rat/Guinea Pig Type 41	CU-41-P	1380	21	38	50	21	Polysulfone	1760	304 & 316 SS	1600

MATERIALS

Plastic Materials

- All materials are Autoclavable and are Compatible with Fumigation and H₂O₂ Sterilization
- Dura Udel Polysulfone cage material with heavier sidewalls and reinforced corners. Cage has over 30% more resin than most standard mouse cages. Autoclavable to 300 degrees Fahrenheit (150 C), strong chemical resistance.
- Polysulfone water bottle material, Autoclavable to 300 degrees Fahrenheit (150 C), strong chemical resistance.

Metal Materials

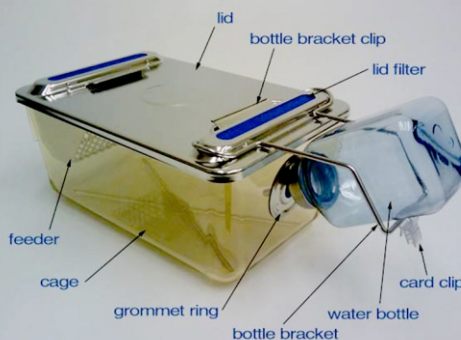
- All materials are Autoclavable and are Compatible with Fumigation and H₂O₂ Sterilization
- Cage Lid with Bottle Bracket Clip, Bottle Bracket, Flanged Feeder, and Grommet Rings are all 304 Stainless Steel. Sipper Caps and Optional Water Pipes, Valves are 316 Stainless Steel.
- All Stainless Steel parts in the Cage Unit are Electro-Polished Providing a brighter, Smoother Surface for Improved Cleanability and Sterilization.

Filter & Seal Materials

- All materials are Autoclavable and are Compatible with Fumigation and H₂O₂ Sterilization
- Polyurethane Polyether Reticulated Foam, 8mm thick, 60 ppi Pore Size, Autoclavable, Excellent Resistance to Water, Soap, Oils and Lubricants and with resistant to hydrolysis.
- Water Grommet Seals are High Temperature, Autoclavable Silicone.

DESIGN SPECIFICATIONS

- The Supply and Exhaust Diffusers shall be Large, Adjustable, Filtered and Accessible to Allow Compliance with the Below stated Air Velocity Limit, and Allow Balancing of the Air Flow to each Cage Location on the Rack.
- Up to 120 Air Changes per Hour Shall Enter and Exit the Animal Space without exceeding ANSI/ASHRAE Std. 55 Human Comfort Air Velocity Limit of 10 cm/sec.
- The Corners of the Plastic Cage shall Reinforced to a minimum thickness of 4 mm and the thickness of the plastic shall be sufficient such that the weight of the cage is no Less than the Grams shown in the table above.
- BioZone's Design Provides Water Bottle Installation Outside of the Cage Allowing Bottle Top-Up Without Disturbing the Animal Environment and Provides More Animal Space Inside of the Cage.
- The Lid of the Cage Unit when Installed on the Cage shall not occupy any space more than 1cm above the top of the Cage, to Provide Maximum Density of Cages within the Available, Operating Height in the Laboratory.
- The Lid fits to the Cage without Attempting to Seal this interface with a gasket. Such Gaskets wear quickly with use and bio-containment and bio-protection within the cage cannot reliably be provided with gaskets. BioZone's system is designed, just like rooms in a BSL 3 facility, to provide a reliable differential pressure between the cage and the surrounding room by controlling the air flow and not by using unreliable gaskets.
- BioZone's Design Allows for Installation of three Optional Automatic Watering Systems:
1) Fixed Valve on Manifold 2) Quick-Disconnect Valve on Manifold or 3) Quick-Disconnect Valve-in-Cage System



Cage Size & Capacity Chart

- Per International Regulations for Animals in Stock and During Procedures

Number of MICE in BioZoneGlobal cages according to different regulations

Cage model	Floor area (sq in)	Cage height (in)	Floor area (sq cm)	Cage height (cm)	Cage width (cm)	Cage depth (cm)
CA-22	68	5.1	440	12.5	18.8	29.3
CA-25	79	5.1	510	12.5	18.8	36.1
CA-34	95	7.5	615	19	23.3	36.1
CA-36	154	6.1	990	15	25.7	47

Cage model	EU Directive 2010/63/EU				UK				US			
	<20 g	21-25 g	26-30 g	>30 g	<20 g	21-25 g	26-30 g	>30 g	<10 g	15 g	25g	>25 g
CA-22	7	6	5	4	7	6	5	4	7	6	5	4
CA-25	8	7	6	5	8	7	6	5	8	7	6	5
CA-34	10	8	7	6	10	8	7	6	10	8	7	6
CA-36	16	14	12	9	16	14	12	9	16	14	12	9

Number of RATS in BioZoneGlobal cages according to different regulations

Cage model	Floor area (sq in)	Cage height (in)	Floor area (sq cm)	Cage height (cm)	Cage width (cm)	Cage depth (cm)
CA-32	143	8.3	920	20	25.7	47
CA-34	95	7.5	615	19	23.3	36.1
CA-41	214	8.4	1380	21	37.6	49.5

Cage model	EU Directive 2010/63/EU					UK					US					
	<200 g	200-300 g	300-400 g	400-600 g	>600 g	<200 g	200-300 g	300-400 g	400-600 g	>600 g	<100 g	Up to 200 g	Up to 300 g	Up to 400g	Up to 500g	>500g
CA-32	4	3	2	2	(*)	4	3	2	2	(*)	8	6	4	3	2	2
CA-34	-	-	-	-	-	-	-	-	-	-	5	4	3	2	1	1
CA-41	6	5	3	3	(*)	6	5	3	3	(*)	12	9	7	5	3	3

(*) In long-term studies, if space allowances per individual animal fall below those indicated in Table 1.2 of the Directive toward the end of such studies, priority shall be given to maintaining stable social structures. (Reference: Directive 2010/63/EU, Annex III, Section B, Table 1.2)

Number of HAMSTERS in BioZoneGlobal cages according to different regulations

Cage model	Floor area (sq in)	Cage height (in)	Floor area (sq cm)	Cage height (cm)	Cage width (cm)	Cage depth (cm)
CA-34	95	7.5	615	19	25.7	36.1
CA-36	154	6.1	990	15	23.3	47
CA-41	214	8.4	1380	21	37.6	49.5

Cage model	EU Directive 2010/63/EU			UK			US			
	<60 g	60-100 g	>100g	<60 g	60-100 g	>100g	<60 g	<80 g	<100 g	>100g
CA-34	-	-	-	-	-	-	9	7	5	5
CA-36	6	4	3	6	4	3	15	11	9	8
CA-41	9	6	5	9	6	5	21	16	13	11

Number of GUINEA PIGS in BioZoneGlobal cages according to different regulations

Cage model	Floor area (sq in)	Cage height (in)	Floor area (sq cm)	Cage height (cm)	Cage width (cm)	Cage depth (cm)
CA-34	95	7.5	615	19	23.3	36.1
CA-41	214	8.4	1380	21	37.6	49.5

Cage model	EU Directive 2010/63/EU					UK					US	
	<200 g	200-300 g	300 -450 g	450 -700 g	>700 g	<200 g	200-300 g	300 -450 g	450 -700 g	>700 g	<350 g	>350 g
CA-34	-	-	-	-	-	-	-	-	-	-	1	-
CA-41	-	-	-	-	-	-	-	-	-	-	3	2



World Leader in IVC Design and Innovation
www.biozoneglobal.com



BZ Sales & Support - Licensed Agent, USA
www.bzsalesandsupport.com | sjbridgesbzss@gmail.com