

Ovens

Vacuum, Horizontal, Forced Air,
Gravity, Hybridization

SHEL  **LAB**



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Sheldon Manufacturing, Inc. is an ISO 9001:2008 certified manufacturer of high quality and innovative constant temperature equipment to the global market. Major product lines include incubators, humidity test chambers, ovens, water and bead baths, and anaerobic chambers for the life science, pharmaceutical, biomedical, environmental and industrial markets. Founded in 1970, Sheldon utilizes over 40 years of manufacturing expertise to aggressively pursue new product opportunities that add value to our customers' portfolio. Sheldon markets a complete line of products under the SHEL LAB and Lab Armor brands, which compliment our OEM manufacturing capabilities.

Contact us: US toll free - 1 (888) 227-1410 or (503) 640-3000

Visit our websites at www.shellab.com and www.labarmor.com.

Vacuum Ovens



SHEL LAB vacuum ovens provide exceptional capabilities for fast and gentle drying of heat sensitive materials. They prevent residue accumulation on products and also allow safe drying of materials at lower temperatures than typically required when using convection ovens.

All SHEL LAB vacuum ovens are built with a stainless steel chamber for exceptional durability. The SVAC1, SVAC2 and SVAC4 have a double plenum design that meets UL, CSA and EU safety requirements resulting in a cool outer surface. The tempered glass viewing window allows for safe, continuous monitoring of samples.

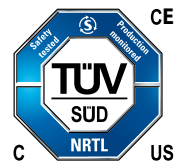
FEATURES

- Fully Programmable Watlow Temperature Control
- Independent Overtemperature Safety
- Digital Vacuum Gauge
- RS485 Communication

These units feature a versatile Watlow temperature controller that is capable of forty ramp and soak profiles, or four files with ten steps per file. To achieve required vacuum levels, users can choose from a 3/8 inch orifice or a KF25 fitting to withstand heavy use and minimize draw-down time. Maximum permitted end vacuum is 10 μ . Leak rate is 10 mTorr per hour.

Precise Temperature Control -

- Temperature Uniformity +/- 6% of Set Point
- Heat-up Time 90 minutes to 150°C
- Temperature Range Ambient + 10°C to 220°C



Vacuum Ovens	Model Number			
		SVAC1	SVAC2	SVAC4
	110-120V 220-230V	89409-480 89409-482	89409-484 89409-486	89409-488 89409-490
Exterior Dimensions (wxdxh)	Inches	17.5 x 22.8 x 23.5	20.5 x 29.5 x 26.3	26.5 x 34.5 x 32.3
	cm	44.5 x 57.8 x 59.7	52.0 x 75.0 x 66.7	67.3 x 87.6 x 81.9
Chamber Dimensions (wxdxh)	Inches	9.0 x 12.0 x 9.0	12.0 x 20.0 x 12.0	18.0 x 24.0 x 18.0
	cm	22.8 x 30.4 x 22.8	30.4 x 50.8 x 30.4	45.7 x 60.9 x 45.7
Oven Chamber Capacity	cu ft	0.6	1.7	4.5
	L	16	47	127
Number of Shelves	Included	3	3	3

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology.

Vacuum Ovens

Economy



The SHEL LAB Economy Vacuum Ovens share the same rugged design of our standard vacuum oven models, but include an analog temperature controller and dial vacuum gauge for measuring chamber operating pressure.

All SHEL LAB vacuum ovens feature doors with positive latch handles and spring-loaded glass to facilitate a good vacuum seal without hinge binds that shorten the gasket life.

All SHEL LAB vacuum ovens are equipped with silicone gaskets. While these gaskets resist a wide variety of temperatures and pressures, they can breakdown in the presence of solvents and acids. For solvent applications, we recommend using Buna gaskets. For acidic applications, we recommend using Fluorosilicone or Viton® gaskets.

Analog Temperature Control -

- Temperature Uniformity
 - +/- 3.0°C at 60°C
 - +/- 9.0°C at 120°C
 - +/- 13.0°C at 200°C
- Heat-Up Time 90 minutes to 150°C
- Temperature Range Ambient +15°C to 210°C

Vacuum Ovens	Model Number		
		SVAC1E	SVAC2E
	110-120V	89409-494	89409-498
	220-230V	89409-496	89409-500
Exterior Dimensions (wxdxh)	Inches	15.5 x 19.0 x 22.5	18.5 x 27.8 x 25.3
	cm	39.4 x 48.3 x 57.2	47.0 x 70.5 x 64.2
Chamber Dimensions (wxdxh)	Inches	9.0 x 12.0 x 9.0	12.0 x 20.0 x 12.0
	cm	22.8 x 30.4 x 22.8	30.4 x 50.8 x 30.4
Oven Chamber Capacity	cu ft	0.6	1.7
	L	17	48
Number of Shelves	Included	3	2

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology.

Vacuum Ovens

Large Capacity



The SHEL LAB Model SVAC9-2 is one of the largest vacuum ovens on the market, with 9.3 cubic feet of capacity. This unit also features a fully programmable Watlow temperature controller and a cool touch surface.

The oven is secured to a ruggedly constructed mobile stand, making it easy to mount a vacuum pump in the base. Although the oven is not supplied with a vacuum pump, all vacuum plumbing and KF25 connections are provided.

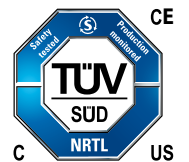
SHEL LAB stocks vacuum pumps and related accessories that are compatible with most applications. Our technical support team is available to advise on the perfect solution for your complete vacuum oven system.

Precise Temperature Control -

- Temperature Uniformity +/- 7.0°C at 150°C
- Heat-up Time 90 minutes to 150°C
- Temperature Range Ambient + 5.0°C to 220°C

FEATURES

- Fully Programmable Watlow Temperature Control
- Independent Overtemperature Safety
- Digital Vacuum Gauge
- RS485 Communication



Large Capacity Vacuum Oven	Model Number	
	220-230V	SVAC9-2 89409-492
Exterior Dimensions (wxdxh)	Inches	36.0 x 46.5 x 62.0
	cm	91.5 x 118.2 x 157.5
Chamber Dimensions (wxdxh)	Inches	28.0 x 24.0 x 24.0
	cm	71.1 x 60.9 x 60.9
Oven Chamber Capacity	cu ft	9.3
	L	264
Number of Shelves	Included	3

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology. We reserve the right to alter technical specifications at any time.

Hybridization Oven



Hybridization ovens are the preferred technique for hybridization in today's laboratory. Incubation takes place inside the oven, under constant rotation, ensuring even distribution of probe solution over the membrane. While there are other solutions available for hybridization applications, hybridization ovens offer better agitation and higher throughput. They also require less volume per membrane area, resulting in savings for labs.

SHEL LAB SH01 Hybridization Oven's unique fan assisted airflow system circulates air evenly and continuously, delivering excellent temperature uniformity throughout the oven chamber. This system ensures fast recovery of chamber temperature after a door opening.

The digital temperature controller maximizes rapid heat-up of the oven. An over temperature safety control is automatically set by the microprocessor at 1.0°C above the setpoint. In the unlikely event of a microprocessor failure, a thermal cutoff will shut off the power to the heating elements.

The 2-20 RPM rotation speed range permits hybridization and washing at different speeds at the touch of a dial. A separate jogging switch has been included to allow incremental rotation of the carousel for easy loading and unloading. This unit has a 12 bottle capacity and is supplied with a drip pan with adjustable feet, a locking pin, and a power cord.

Precise Temperature Control - Superior Uniformity

- Temperature Range Ambient +5°C to 70°C
- Temperature Adjustable by 0.1°C

Hybridization Oven	Model Number	
	SH01	
	110-120V	89409-520
Exterior Dimensions (wxdxh)	Inches	17.5 x 20.0 x 21.8
	cm	44.5 x 50.8 x 55.3
Chamber Dimensions (wxdxh)	Inches	12.5 x 12.0 x 14.5
	cm	31.7 x 30.4 x 36.8
Rotator Capacity	Bottles	12

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology.

Horizontal Airflow Ovens

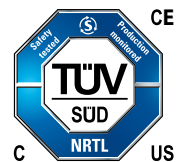


SHEL LAB High Performance Ovens are engineered to meet the most critical temperature requirements. They are designed for continuous drying operations at temperatures up to 260°C.

These units feature a versatile Watlow temperature controller that is capable of forty ramp and soak profiles, or four files with ten steps per file.

Horizontal air flow provides fast heat-up and recovery and ensures rapid drying. Heated air is continuously circulated by twin turbo blowers. Three adjustable air intake and exhaust ports can be opened for fast drying of high-moisture content samples.

A high temperature gasket door seal eliminates air leakage and ensures longer gasket life while being subjected to extreme operational temperatures. This unit includes long-lasting, low-watt density heating elements. It also has adjustable heavy-duty hinges and a door latch that are designed for lifetime service. These ovens have a double-walled, corrosion-resistant stainless steel interior and a durable powder-coated exterior.



Horizontal Airflow Ovens

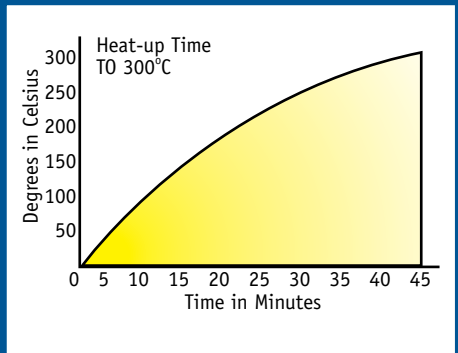
High Performance



Precise Temperature Control -
Superior Uniformity

- Temperature Uniformity > +/- 2.0°C at 110°C
- Temperature Range Ambient + 15°C to 260°C

Model SM05HP-2



		Model Number				
Horizontal Airflow High Performance	220-230V	SM05HP-2 89409-470	SM010HP-2 89409-472	SM014HP-2 89409-474	SM034HP-2 89409-476	SM038HP-2 89409-478
		Details	Bench Top	Large Capacity		
Exterior Dimensions (wxdxh)	Inches	35.0 x 30.5 x 37.5	44.0 x 28.3 x 55.1	59.0 x 29.0 x 57.0	43.0 x 34.3 x 85.5	68.5 x 33.8 x 78.5
	cm	88.9 x 77.5 x 95.3	112.0 x 72.0 x 142.0	150.0 x 73.7 x 144.8	109.3 x 87.0 x 217.2	174.0 x 85.8 x 199.4
Chamber Dimensions (wxdxh)	Inches	20.5 x 20.7 x 20.0	30.0 x 19.7 x 30.1	44.0 x 20.5 x 36.0	37.5 x 26.0 x 60.5	48.0 x 25.5 x 54.0
	cm	52.0 x 52.7 x 50.8	76.0 x 50.0 x 77.0	111.0 x 52.0 x 91.0	95.2 x 66.0 x 153.6	121.9 x 64.7 x 137.1
Incubator Chamber Capacity	cu ft	4.9	10	13.8	34	38
	L	139	306	392	966	1083
Temperature Uniformity	Celcius	+/- 1.0°C at 110°C	+/- 0.75°C at 110°C	+/- 1.5°C at 110°C	+/- 1.5°C at 110°C	+/- 2.0°C at 110°C
Recovery Time	Minutes	4 to 110°C	6 to 110°C	6 to 110°C	4 to 100°C	12 to 110°C
Number of Shelves	Included	2	3	6	6	12
	Maximum	8	6	12	12	24

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology.

Forced Air Ovens



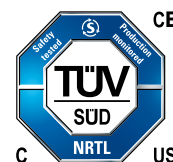
The SMO Oven Series incorporates triple wall construction, so at operating temperatures of 225°C, the outer skin of this unit meets all CE requirements and workspaces remain cool. In addition, users can adjust the air exhaust from the chamber without being near the heat source.

The forced, blower-assisted airflow design offers excellent temperature uniformity and fast recovery. The SHEL LAB forced air ovens are built with stainless steel chambers that are easy to clean and have exceptional durability.

Whatever the application, these general purpose ovens deliver precise uniformity, air distribution and the peace of mind expected from the SHEL LAB brand. All of the SHEL LAB SMO series ovens are CE approved.

FEATURES

- Digital Controls
- Independent Overtemperature Safety
- Cool Touch Damper



SMO Series Ovens	Model Number				
		SM03	SM05	SM014-2	SM028-2
	110-120V	89409-448	89409-456	89409-464	89409-466
	220-230V	89409-450	89409-458		
Exterior Dimensions (wxdxh)	Inches	26.0 x 27.0 x 35.5	30.5 x 27.5 x 40.0	36.5 x 34.5 x 47.5	37.5 x 35.0 x 78.3
	cm	66.0 x 68.6 x 90.2	77.5 x 69.9 x 101.6	92.7 x 87.6 x 120.7	95.3 x 88.9 x 198.8
Chamber Dimensions (wxdxh)	Inches	16.5 x 19.2 x 16.5	21.0 x 19.2 x 21.0	30.7 x 24.7 x 31.0	30.7 x 25.0 x 62.0
	cm	41.9 x 48.9 x 41.9	53.3 x 48.9 x 53.4	78.1 x 62.8 x 78.7	78.1 x 63.5 x 157.4
Incubator Chamber Capacity	cu ft	3	5	13.7	27.6
	L	86	139	387	781
Temperature Range	Celsius	Ambient + 15°C to 230°C	Ambient + 15°C to 225°C	Ambient + 15°C to 260°C	Ambient + 15°C to 260°C
Temperature Uniformity	minutes	+/- 2°C at 150°C	+/- 2.5°C at 150°C	+/- 3°C at 110°C	+/- 3°C at 110°C
Temperature Recovery	minutes	5 minutes at 150°C	8 minutes at 150°C	8 minutes at 150°C	10 minutes at 150°C
Heat-up Time	minutes	36 minutes to 150°C	30 minutes to 150°C	24 minutes to 150°C	35 minutes to 150°C
Number of Shelves	Included	2	2	3	6
	Maximum	8	8	8	16

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology.



These ovens feature SHEL LAB's forced, blower-assisted airflow design at an economical price. The turbo blower and heavy-duty motor combine to direct air over the shelves and samples for even, consistent drying, curing and baking.

The independent overtemperature safety feature is user adjustable and provides added safety for the user.

Precise Temperature Control - Superior Uniformity

- Temperature Uniformity +/-3.5°C at 100°C
- Temperature Range 40°C to 200°C
- Heat-up Time 22 minutes to 100°C

Forced Air Ovens	Model Number			
	110-120V 220-230V	SM01E 89409-396 89409-398	SM03E 89409-400 89409-402	SM05E 89409-408 89409-410
	Details	Small	Medium	Large
Exterior Dimensions (wxdxh)	Inches	21.8 x 19.0 x 24.0	20.5 x 26.0 x 31.7	24.0 x 36.3 x 38.3
	cm	55.3 x 48.3 x 61.0	52.1 x 66.0 x 80.7	61.0 x 92.1 x 97.2
Chamber Dimensions (wxdxh)	Inches	17.0 x 10.5 x 16.7	17.5 x 15.7 x 22.0	20.0 x 17.5 x 28.0
	cm	43.1 x 26.6 x 42.5	44.4 x 40.0 x 55.8	50.8 x 44.4 x 71.1
Incubator Chamber Capacity	cu ft	1.7	3.5	5.6
	L	49	99	160
Number of Shelves	Included	1	2	2

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology.

Cleanroom Ovens



SHEL LAB clean air oven incorporates all the special features needed for high temperature cleanroom work: a fully welded stainless steel interior, two adjustable perforated stainless steel shelves, and rapid heat recovery.

This model features a versatile Watlow temperature controller that is capable of forty ramp and soak profiles, or four files with ten steps per file.

The three adjustable air intake and exhaust ducts can be easily removed for cleaning and allow the use of either room or recirculated air. A nitrogen inlet port for purging is standard to prevent contamination.

The oven is supplied with a high-temperature silicone door gasket and a Class E11 HEPA filter. This filter provides 95% retention of particles as small as 0.3 microns.

Cleanroom Oven	Model Number	
	220-230V	SM05CR-2 89409-468
Exterior Dimensions (wxdxh)	Inches	35.0 x 29.0 x 38.0
	cm	89.0 x 73.7 x 96.5
Chamber Dimensions (wxdxh)	Inches	17.0 x 20.0 x 20.1
	cm	43.2 x 50.8 x 51.0
Incubator Chamber Capacity	cu ft	3.9
	L	110
Temperature Uniformity	Celcius	+/- 1.0°C at 110°C
Temperature Range	Celcius	Ambient + 15°C to 200°C
Heat-up Time	Minutes	10 to 110°C (35 to 180°C)
Recovery Time	Minutes	4 to 110°C
Number of Shelves	Included	2
	Maximum	8
Stand	Optional	Part # 9000559

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (120V/230V). Temperature specifications follow DIN 12880 methodology. We reserve the right to change specifications at any time. EU/CE/SCC/CSA/OHSA/UL Compliant



Gravity ovens are ideal for applications with lightweight samples such as powders, films and granular materials.

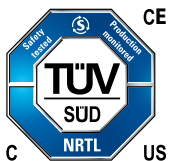
The SGO Oven Series incorporates triple wall construction, so at operating temperatures of 225°C, the outer skin of this unit meets all CE requirements and workspaces remain cool.

The 99 hour and 59 minute digital timer has an independent control so its use is optional. Once the timer expires the power is cut to only the heating elements.

FEATURES

- Digital Controls
- Superb Temperature Control
- Cool Touch Damper
- Digital Timer to 99 hr and 59 min

Whatever the application, these general purpose ovens deliver precise uniformity, air distribution and the peace of mind expected from the SHEL LAB brand. All of the SHEL LAB SGO series ovens are CE approved.



CE Series Ovens	Model Number		
		SG03	SG05
	110-120V	89409-452	89409-460
	220-230V	89409-454	89409-462
Exterior Dimensions (wxdxh)	Inches	26.0 x 27.5 x 35.5	25.5 x 27.3 x 38.0
	cm	66.0 x 69.9 x 90.2	64.8 x 69.3 x 96.6
Chamber Dimensions (wxdxh)	Inches	16.5 x 19.2 x 18.7	19.2 x 20.0 x 25.7
	cm	41.9 x 48.9 x 47.6	48.9 x 50.8 x 65.4
Incubator Chamber Capacity	cu ft	3.4	5.4
	L	97	150
Temperature Range	Celsius	Ambient + 15°C to 225°C	Ambient + 15°C to 225°C
Temperature Uniformity	minutes	+/- 4.5°C at 150°C	+/- 2.0°C at 150°C
Temperature Recovery	minutes	11 minutes at 150°C	11 minutes at 150°C
Heat-up Time	minutes	36 minutes to 150°C	36 minutes to 150°C
Number of Shelves	Included	2	2
	Maximum	8	8

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology.

Gravity Ovens

Economy



The SHEL LAB economy gravity convection are designed for efficient heating at an economical price. The double wall insulation helps to minimize heat loss. The low watt density heater keeps temperatures uniform and energy consumption low.

Precise Temperature Control - Superior Uniformity

- Temperature Uniformity
+/- 4.0°C at 100°C
- Temperature Range Ambient
+ 5.0°C to 200°C

Gravity Ovens Value Plus	Model Number				
		SG01E	SG02E	SG04E	SG06E
	110-120V	89409-436	89409-440	89409-444	89409-404
220-230V	89409-438	89409-442	89409-446	89409-406	
	Details	Small	Medium	Large	Extra Large
Exterior Dimensions (wxdxh)	Inches	16.0 x 17.5 x 18.5	21.0 x 17.5 x 23.5	23.3 x 20.0 x 31.0	25.0 x 24.5 x 37.8
	cm	40.6 x 44.5 x 47.0	53.0 x 44.5 x 60.0	59.0 x 51.0 x 79.0	63.5 x 62.3 x 95.9
Chamber Dimensions (wxdxh)	Inches	12.0 x 12.0 x 12.0	17.0 x 12.0 x 17.0	17.0 x 17.5 x 22.0	20.0 x 17.5 x 28.0
	cm	30.5 x 30.5 x 30.5	43.0 x 30.5 x 43.0	43.0 x 44.5 x 56.0	50.8 x 44.4 x 71.1
Incubator Chamber Capacity	cu ft	1	2	4	6.2
	L	28	56	113	174
Number of Shelves	Included	1	2	2	2
	Max	4	4	6	8

*All specifications are determined by using average values on standard equipment at an ambient temperature of 25°C (77°F) and line voltages within +/-10% of unit type (115V/230V). Temperature specifications follow DIN 12880 methodology.

Vacuum Cross-Flow Ventilation



All SHEL LAB vacuum ovens feature a unique cross-flow ventilation design to ensure superior performance. The vacuum port and the vent port are located on opposite sides of the chamber to create cross flow patterns. During vacuum operation, heavy particles and condensation from the oven interior are not pulled into the vacuum pump. More importantly, Nitrogen or other inert gases are forced across the greatest distance inside the oven chamber, passing over your samples and purging the chamber. Corrosion resistant stainless steel tubing is used for the gas purge system.



Horizontal Air Flow Diagram

The SHEL LAB high volume blower system circulates air through stainless steel air ducts, providing horizontal one pass airflow. This horizontal airflow provides superior temperature uniformity and fast heat-up capabilities. The unique air ducts move heated air and direct it to the right side of the chamber. Our precise horizontal airflow delivers performance even under maximum capacity oven loads.

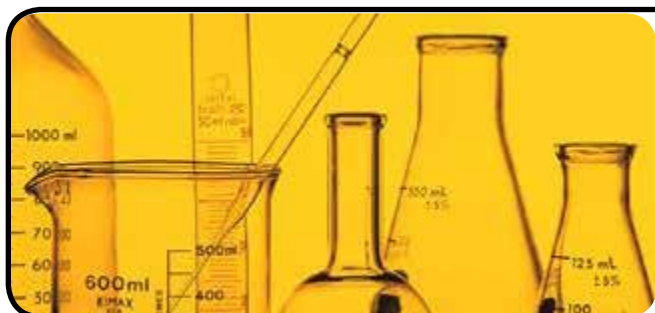


Gravity Convection Air Flow Diagram

SHEL LAB gravity ovens rely on the natural thermal properties of heating - warm air rises. We utilize this airflow and combine it with our unique air duct system to allow heated air to move up through these ducts improving uniformity. Gravity ovens are commonly used in applications when natural heating is required without the assistance of fans or blowers. This technology is ideal for applications which include samples that are sensitive to air movement.

Vacuum Oven Applications

- Moisture Determination
- Out Gassing Solids
- Aging Tests
- Plating
- Chemical Resistance Studies
- Drying of Paper
- Rubber and Textiles
- Desiccating
- Dry Sterilization
- Out Gassing Liquids
- Vacuum Storage
- Electronic Process Control



Oven Applications

- Batch Testing
- Aging Tests
- Sterilizing
- Electronic burn-in
- Preheating Process
- Components Processing
- Stability Testing
- Glassware Drying
- Asphalt Testing
- Moisture Analysis

SHEL LAB Oven Warranty

All SHEL LAB Ovens have a two year limited warranty. Sheldon Manufacturing, Inc., ("Manufacturer") warrants for the original user of this product in the U.S.A. only that this product (parts only if outside of the U.S.A.) will be free from defects in material and workmanship for a period of two years from the date of delivery of this product to the original user (the "Warranty Period"). During the Warranty Period, Manufacturer, at its election and expense, will repair or replace the product or parts that are proven to Manufacturer's satisfaction to be defective, or, at Manufacturer's option, refund the price or credit (against the price of future purchases of the product) the price of any products that are proven to Manufacturer's satisfaction to be defective. This warranty does not include any labor charges if outside of the U.S.A. This warranty does not cover any damage due to accident, misuse, negligence, or abnormal use.

