



Instruction Manual
Standard Orbital Shaker
Advanced Orbital Shaker



TABLE OF CONTENTS

Package Contents	1
Warranty	1
Installation	2
Maintenance & Servicing	2
Intended Use	2
Environmental Conditions	3
Equipment Disposal	3
Safety Instructions	4
Standards & Regulations	4
Specifications	5-6
Operating Instructions	7-10
Troubleshooting	11
Replacement Parts	12-17
Accessories	18-22

PACKAGE CONTENTS

Orbital or Reciprocating Shaker
Non-skid rubber mat,
92" (234cm) detachable power cord
Instruction manual

WARRANTY

Manufacturer warrants this product to be free from defects in material and workmanship when used under normal conditions for five (5) years. Register your equipment or instrument online at www.vwr.com/warranty for US residents or www.vwrcanlab.com/warranty for Canadian residents. For your reference, make a note of the serial number, date of purchase and supplier here.

Serial Number: _____

Date of Purchase: _____

Supplier: _____

INSTALLATION

Upon receiving the VWR Orbital or Reciprocating Shaker, check to ensure that no damage has occurred during shipment. It is important that any damage that occurred in transport is detected at the time of unpacking. If you do find such damage the carrier must be notified immediately.

After unpacking, place the shaker on a level bench or table, away from explosive vapors. Ensure that the surface on which the unit is placed will withstand typical heat produced by the unit and place the unit a minimum of six (6) inches from vertical surfaces. Always place the unit on a sturdy work surface.

The Orbital or Reciprocating Shaker is supplied with a power cord that is inserted into the IEC connector on the back of the unit first, then it can be plugged into a properly grounded outlet. The 120V unit plugs into a 120 volt, 50/60 Hz source. The 230V unit plugs into a 230 volt, 50/60 Hz source.

MAINTENANCE & SERVICING

The Orbital or Reciprocating Shaker is built for long, trouble-free, dependable service. No lubrication or other technical user maintenance is required. It needs no user maintenance beyond keeping the surfaces clean. However at least every three (3) months you should:

- Unplug the unit.
- Remove any accumulated dirt from the base and tray.
- Check all accessible items to make sure they are properly tightened.

The unit should be given the care normally required for any electrical appliance. Avoid wetting or unnecessary exposure to fumes. **DO NOT** use a cleaning agent or solvent on the front panel which is abrasive or harmful to plastics, nor one which is flammable. Always ensure the power is disconnected from the unit prior to any cleaning. If the unit ever requires service, contact your VWR representative.

INTENDED USE

These Shakers are intended for general laboratory use.

Operating Conditions: Indoor use only.

ENVIRONMENTAL CONDITIONS - STANDARD

*For use in CO₂ environments, incubators, or cold rooms.

Temperature: 0 to 40°C (32 to 104°F)

Humidity: maximum 80% relative humidity, non-condensing

Altitude: 0 to 6,562 ft (2000 M) above sea level

Non-Operating Storage:

Temperature: -20 to 65°C (-4 to 149°F)

Humidity: maximum 80% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

ENVIRONMENTAL CONDITIONS - ADVANCED & RECIPROCATING

Operating Conditions: Indoor use only.

*For use in CO₂ environments, incubators, or cold rooms.

Temperature: -10 to 60°C (14 to 140°F)

Temperature: -10 to 40°C (14 to 104°F) (Model 1000 Advanced)

Humidity: maximum 80% relative humidity, non-condensing

Altitude: 0 to 6,562 ft (2000 M) above sea level

Mains supply voltage: Fluctuations are not to exceed 10 percent of the nominal supply voltage.

Non-Operating Storage:

Temperature: -20 to 65°C (-4 to 149°F)

Humidity: maximum 80% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

***Avoid cold starts:** Unit is not designed to start after being in a cold room environment.

Bring unit into cold room from a room temperature environment, operate and remove unit from cold room as soon as operation is complete.

EQUIPMENT DISPOSAL

This equipment must not be disposed of with unsorted waste. It is your responsibility to correctly dispose of the equipment at life-cycle-end by handing it over to an authorized facility for separate collection and recycling. It is also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect the persons involved in the disposal and recycling of the equipment from health hazards.



For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment. By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

SAFETY INSTRUCTIONS

Please read the entire instruction manual before operating the Orbital Shaker.



WARNING! DO NOT use the Orbital Shaker in a hazardous atmosphere or with hazardous materials for which the unit was not designed. Also, the user should be aware that the protection provided by the equipment may be impaired if used with accessories not provided or recommended by the manufacturer, or used in a manner not specified by the manufacturer.

Always operate unit on a level surface for best performance and maximum safety.

DO NOT lift the unit by the tray.



CAUTION! To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplugging from the wall outlet. Disconnect unit from the power supply prior to maintenance and servicing.

Spills should be removed promptly. **DO NOT** immerse the unit for cleaning.

DO NOT operate the unit if it shows signs of electrical or mechanical damage.



Earth Ground - Protective Conductor Terminal



Alternating Current



Pinch Point - Keep fingers clear during operation.

STANDARDS & REGULATIONS

VWR hereby declares under its sole responsibility that the construction of this product conforms in accordance with the following standards:

Safety standards:

EN 61010

EN 61010-2-051

CAN/CSA C22.2 No. 61010-1-04

UL 61010-1

EMC standards:

CISPR 11

IEC 61000-4-3

IEC 61326

IEC 61000-4-4

IEC 6100-3-2

IEC 61000-4-5

IEC 6100-3-3

IEC 61000-4-6

IEC 61000-4-2

IEC 61000-4-11

Associated EU guidelines:

EMC directive 2004/108/EC

LVD directive 2006/95/EC

ROHS directive 2015/863/EU

CONSIGNES DE SÉCURITÉ

S'il vous plaît lire l'intégralité du manuel d'instructions avant de faire fonctionner l'agitateur orbital.



AVERTISSEMENT! N'UTILISEZ PAS utiliser le secoueur orbital dans un milieu dangereux ou en présence de matières dangereuses non conformes à la conception de l'appareil. L'utilisateur doit également être conscient que la protection assurée par l'équipement peut être amoindrie en cas d'utilisation avec tout accessoire autre que ceux fournis ou recommandés par le fabricant ou en cas d'utilisation contraire aux spécifications du fabricant. Utilisez toujours le dispositif sur une surface à niveau pour optimiser non seulement la performance mais la sécurité.

Toujours utiliser l'appareil sur une surface nivelée pour assurer une performance optimale et un maximum de sécurité.

NE PAS soulever l'appareil en le tenant par le plateau.



MISE EN GARDE! Pour éviter les électrocutions, couper complètement l'alimentation électrique de l'appareil en débranchant le cordon d'alimentation de l'appareil ou de la prise murale. Déconnecter l'appareil de la source d'alimentation électrique avant de procéder à tout entretien ou réparation.

Essuyer immédiatement tout liquide renversé par accident.

NE PAS immerger l'appareil en vue de son nettoyage.

NE PAS utiliser l'appareil en présence de tout signe de dommage électrique ou mécanique.



Mise à la terre - Borne du conducteur de protection



Courant alternatif



Point de pincement – garder les doigts à l'écart de l'appareil pendant l'utilisation.

NORMES ET RÉGLEMENTATIONS

Troemner, LLC déclare par la présente sous sa seule responsabilité que la conception de ce produit répond aux exigences des normes suivantes:

Normes de sécurité:

EN 61010

EN 61010-2-051

CAN/CSA C22.2 No. 61010-1-04

UL 61010-1

Normes CEM:

CISPR 11 IEC 61000-4-3

IEC 61326 IEC 61000-4-4

IEC 6100-3-2 IEC 61000-4-5

IEC 6100-3-3 IEC 61000-4-6

IEC 61000-4-2 IEC 61000-4-11

de l'UE directives:

Directive EMC 2004/108/EC

Directive LVD 2006/95/EC

ROHS directive 2015/863/EU

SPECIFICATIONS

MODEL 1000

Overall dimensions LxWxH		11 x 17 x 4" (27.9 x 43.2 x 10.2cm)
Tray dimensions LxW		8.75 x 11.75" (22.2 x 29.8cm)
Electrical	120 volts:	5 amps, 25 watts
	230 volts:	2.5 amps, 25 watts
Fuses		5mm x 20mm, 5 amp quick acting
Speed Range		40 to 300 rpm
Speed Accuracy	Advanced:	
		±2% of set speed
		±2rpm
Above 100rpm		
Below 100rpm		
Orbit		0.6" (15 mm)
Capacity		8 lbs (3.6kg)
Controls	Standard:	See page 6
	Advanced:	See page 8
Ship Weight		25 lbs (11.3kg)

MODEL 3500

Overall dimensions LxWxH		16.25 x 14 x 5.75 " (41.3 x 35.6 x 14.6cm)
Tray dimensions LxW		13 x 11" (33 x 28cm)
Electrical	120 volts:	5 amps, 75 watts
	230 volts:	2.5 amps, 75 watts
Fuses		5mm x 20mm, 5 amp quick acting, 250V
Speed Range	Advanced:	15 to 500 rpm
	Standard:	25 to 500 rpm
Speed Accuracy	Advanced:	
		±1% of set speed
Above 100rpm		±1rpm
Below 100rpm		
Orbit		0.75" (19mm)
Capacity		~35 lbs (16kg) @ 75 rpm
		~5 lbs (2.3kg) @ 500 rpm
Timer	Advanced:	1 second to 160 hours
	Standard:	1 to 120 minutes
Controls	Advanced:	See page 8
	Standard:	See page 6
Ship Weight		49 lbs (22.2 kg)

MODEL 3750

Overall dimensions LxWxH		16.25 x 14 x 5.75" (41.3 x 35.6 x 14.6cm)
Tray dimensions LxW		13 x 11" (33 x 28cm)
Electrical	120 volts:	5 amps, 40 watts
	230 volts:	2.5 amps, 40 watts
Fuses		5mm x 20mm, 5 amp quick acting, 250V
Speed Range		20 to 300 rpm
Speed Accuracy		
Above 100rpm		±2% of set speed
Below 100rpm		±2rpm
Orbit		0.75" (19mm) Total Travel
Capacity		~15 lbs @ 300 rpm
Timer		1 second to 160 hours
Controls		See page 8
Ship Weight		49 lbs (22.2 kg)

MODEL 5000

Overall dimensions LxWxH		23.6 x 26.7 x 6.0" (59.9 x 67.8 x 15.2cm)
Tray dimensions LxW		18 x 24" (45.7 x 61cm)
Electrical	120 volts:	5 amps, 75 watts
	230 volts:	2.5 amps, 75 watts
Fuses		5mm x 20mm, 5 amp quick acting, 250V
Speed Range	Advanced:	20 to 500 rpm
	Standard:	25 to 500 rpm
Speed Accuracy	Advanced:	
		±1% of set speed
±1rpm		
Above 100rpm		
Below 100rpm		
Orbit		1" (25.4 mm)
Capacity		~50 lbs @ 125 rpm
	~10 lbs @ 500 rpm	
Timer	Advanced:	1 second to 160 hours
	Standard:	1 to 120 minutes
Controls	Advanced:	See page 8
	Standard:	See page 6
Ship Weight		109 lbs (49.4 kg)

SPECIFICATIONS CONT'D

MODEL 10000

Overall dimensions LxWxH	28.25 x 26.7 x 7.0" (71.8 x 67.8 x 17.8 cm)
Tray dimensions LxW	24 x 24" (61 x 61cm)
Electrical	120 volts: 5 amps, 80 watts
	230 volts: 2.5 amps, 80 watts
Fuses	5mm x 20mm, 5 amp quick acting, 250V
Speed Range	10000-1 = 15 to 500 rpm
	10000-2 = 15 to 300 rpm
Speed Accuracy	±1% of set speed
Above 100rpm	±1rpm
Below 100rpm	10000-1 = 1"
Orbit	10000-2 = 2"
Capacity	~100 lbs @ 100 rpm *
	~40 lbs @ 300 rpm
Timer	1 second to 160 hours
Controls	See page 8
Ship Weight	200 lbs (90.7 kg)

MODEL 15000

Overall dimensions LxWxH	28.25 x 26.7 x 7.0" (71.8 x 67.8 x 17.8 cm)
Tray dimensions LxW	24 x 36" (61 x 91.4cm)
Electrical	120 volts: 5 amps, 80 watts
	230 volts: 2.5 amps, 80 watts
Fuses	5mm x 20mm, 5 amp quick acting, 250V
Speed Range	15000-1 = 15 to 500 rpm
	15000-2 = 25 to 500 rpm
Speed Accuracy	±1% of set speed
Above 100rpm	±1rpm
Below 100rpm	15000-1 = 1"
Orbit	15000-2 = 2"
Capacity	~150 lbs @ 100 rpm *
	~40 lbs @ 300 rpm
Timer	1 second to 160 hours
Controls	See page 8
Ship Weight	230 lbs (104.3 kg)

STANDARD ORBITAL SHAKER

*With optional platform and flask clamp



STANDARD ORBITAL SHAKER OPERATING INSTRUCTIONS

The Standard Orbital Shaker is used for general laboratory shaking needs.

MODEL 1000

1. Getting ready:

- The speed knob should be at their extreme counter-clockwise position or at the #1 on the dial.
- Make sure the rocker switch is in the off position.
- Plug the cord into a properly grounded outlet.

2. Setting speed:

- To run push rocker to the on or position. Set speed knob to desired setting and adjust if necessary. Unit will run until you move the rocker switch to the off position. The microprocessor speed control slowly ramps to set speed to avoid splashing.

3. Turning unit off:

- To stop shaking function, turn the speed knob to the extreme counter-clockwise position and push the rocker switch to the standby position. The shaker should be kept in the standby position when not in use. To completely cut off power to the unit, disconnect the power cord from the unit or unplug from the wall outlet.

OPERATING TIPS

Centering your sample and even weight distribution on the tray helps with balance and stability.

The shaker will automatically restart after a power interruption.

MODEL 3500 AND 5000

1. Getting ready:

- The speed and time knobs have a built in on-off switch at their extreme counter-clockwise position. Turn both knobs to the off position.
- Make sure the rocker switch is in the standby position.
- Plug the cord into a properly grounded outlet.

2. Setting speed:

- To run in continuous mode, push rocker to the run position. Set speed knob to desired setting and adjust if necessary. Unit will run until you move the rocker switch to the standby position. The microprocessor speed control slowly ramps to set speed to avoid splashing.

3. Setting time:

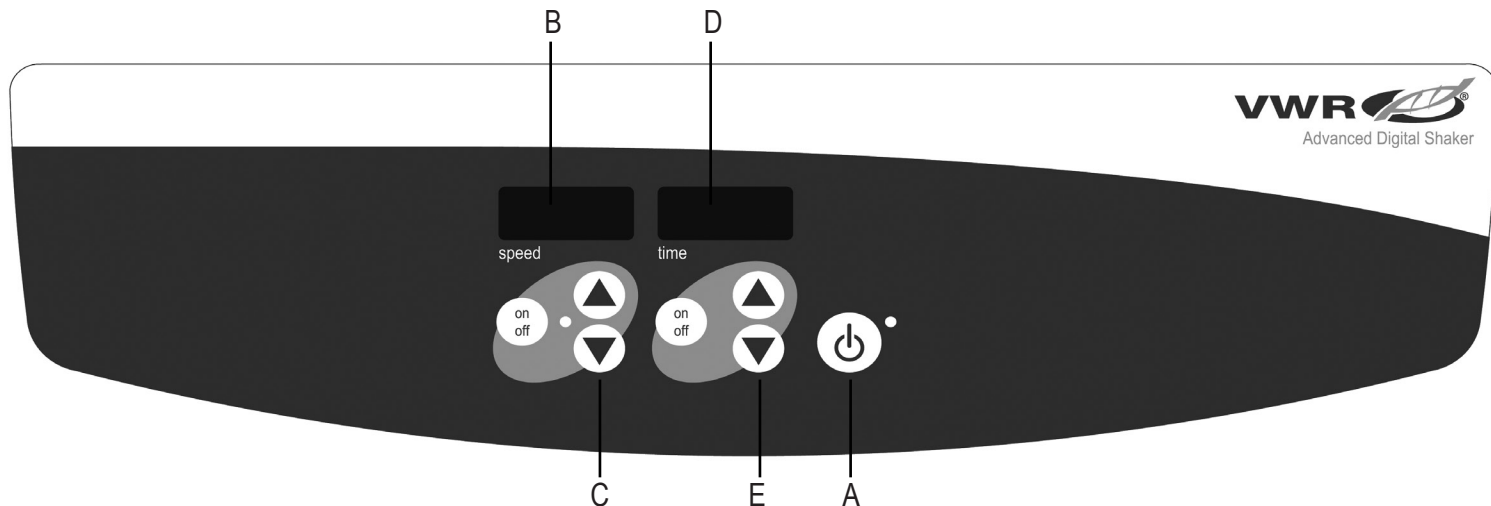
- To run in timed mode, set timer and the speed knob to the desired settings. Press the rocker switch to the time position and release. The shaker will now run for the set time. b. To exit the timed mode turn the time knob to the extreme counter-clockwise position.

4. Turning unit off:

- To stop shaking function, turn the speed knob to the extreme counter clockwise position and push the rocker switch to the standby position. The shaker should be kept in the standby position when not in use. To completely cut off power to the unit, disconnect the power cord from the unit or unplug from the wall outlet.

OPERATING TIPS

Centering your sample and even weight distribution on the tray helps with balance and stability. As a safety feature, a built-in program will shut power off to the motor if the tray is prevented from rotating, or the unit is overloaded beyond its recommended weight capacity. To reset the unit, press the rocker switch to standby and then press the rocker switch to the on position. The shaker will automatically restart after a power interruption. Built-in memory maintains the last used speed and time settings during a power interruption.



CONTROL PANEL - ADVANCED ORBITAL SHAKER

The front panel of the Advanced Orbital Shaker contains all the controls and displays needed to operate the unit.

A. Standby button/standby indicator light: The standby indicator light will illuminate when the unit is plugged in. The unit will be in standby mode. Press the standby button to start the speed and time functions. The standby indicator light will shut off. Press the standby button again and the unit will once again be in standby mode.

B. Speed display: Displays the speed of the shaker.

C. Up/down arrows: For set-point control. On/off button starts/stops shaking function.

D. Time display: Displays accumulated time (continuous mode) or how much time is remaining (timed mode). The display range is from 0 to 9,999 minutes in one (1) second increments. The display will indicate minutes and seconds until the timer reaches 99 minutes and 59 seconds (99:59), then the display will automatically display minutes up to 9,999.

E. Up/down arrows for setpoint control. On/off button starts/stops the timer function.

ADVANCED ORBITAL SHAKER OPERATING INSTRUCTIONS

The Advanced Orbital Shaker has been designed for the speed and time functions to work independently of one another. The speed can be re-set without re-setting the timer and the timer can be stopped and started without interrupting the shaking function.

1. Getting ready:

- a. Plug the cord into a properly grounded outlet. The standby indicator light will illuminate, verifying power to the shaker.
- b. Press the standby button to move the unit from standby mode. The standby indicator light will turn off and the speed and time displays will illuminate, displaying the previously used settings.

2. Setting speed:

- a. Press the up/down arrow below the speed display until you reach the desired speed. When you release the button, the display will blink off and then on indicating the new set speed has been accepted.
- b. Press the on/off button to start the shaking function. The indicator light below the speed display will illuminate and blink until the setpoint is reached. Once the set-point is reached the light will stop blinking and remain lit until shaking has ceased. The microprocessor controlled ramping feature slowly increases speed until the set-point is reached which helps to avoid splashing, and provides excellent low end control.
- c. Speed adjustments can be made without interrupting shaking by using the up/down arrows below the speed display. After the change has been made and you release the button, the display will blink off and then on indicating the new set speed has been accepted.
- d. To stop the shaking function press the on/off button below the speed display. The speed indicator light will turn off.

3. Setting time to zero (0:00) and continuous mode: Accumulated time.

- a. Press and hold the on/off button below the time display. After three (3) seconds, the display will indicate the previous set time.

- b. Simultaneously press both the up and the down arrows, the display will indicate zero (0:00). The unit time is now set to zero (0:00) minutes. Alternately, you can use the up/down arrows to get to zero (0:00).
- c. Press the on/off button below the time display. The display will indicate accumulated time. The up/down arrows will become inactive. To stop timer, press the on/off button again. **IMPORTANT:** This will **NOT** interrupt the shaking function. Press the on/off button below the speed display to interrupt the shaking function.
- d. To reset, press and hold the on/off button below the time display. After three (3) seconds the display will indicate the previous set time, which was zero (0:00).

4. Setting timed mode: Programmed time.

- a. Press the up/down arrows below the time display until you reach the desired time.
- b. Start this function by pressing the on/off button below the time display. The unit will run for the selected time, the up/down arrows will become inactive while the timer is running. The unit will stop shaking when time display reaches zero (0:00). Four (4) audible beeps will indicate the count down function is complete. The time display will default back to the set time. To repeat for the same time, simply depress the on/off button again.
- c. To interrupt an automatic timing cycle before it is completed, press the on/off button below the time display. The display will flash off and on to indicate the time function is on "hold". **IMPORTANT:** This will **NOT** interrupt the shaking function. Press the on/off button below the speed display to interrupt the shaking function. Restart the timer by pressing the on/off button below the time display. Unit will continue counting down to zero (0:00). When the display reaches zero (0:00), you will hear the four (4) audible beeps that indicate the count down function is complete and the shaking function will cease.

5. Turning unit off:

- a. To turn the unit off, press the standby button. The speed and time displays will be blank, the standby indicator light will illuminate. The Orbital Shaker should be kept in standby mode when not in use. To completely cut off power to the unit, disconnect the power cord from the unit or unplug from the wall outlet.

OPERATING TIPS

Centering your sample and even weight distribution on the tray helps with balance and stability. As a safety feature, a built-in program will shut power off to the motor if the tray is prevented from rotating, or the unit is overloaded beyond its recommended weight capacity. The shaker will automatically restart after a power interruption. Built-in memory maintains the last used speed and time settings during a power interruption.

LOAD SENSING FUNCTION (Advanced Orbital Shakers Model 3500 and up)

The Advanced Orbital Shaker is equipped with a load sensing function that can be activated by the user. This function provides protection against improper positioning of load and maximum load being exceeded. When activated, the unit will automatically sense improper load conditions and slow to a safe running speed, then display that speed followed by E04 on the speed display. The unit will also beep three (3) times every 60 seconds until the error is reset by pressing the speed on/off button. To activate the load sensing function use the following steps:

1. Place the unit in standby mode.
2. Press and hold the speed on/off button and press the standby button. The unit will beep two (2) times, confirming the function is enabled.
3. To restore normal operation, remove AC power to the unit for ten (10) seconds and then restore. If the E04 error occurs be sure the load is within the maximum specification and properly balanced (centered on tray) and/or reduce sample size/speed before restarting the unit. If the E04 occurs due to acceptable sample vibration or another vibration source, the vibration sensing function can be disabled as described above.

ADDITIONAL LOAD SENSING FEATURE

The Advanced Orbital Shaker Models 3750 and up, are equipped with an additional overload protection feature that lets the user know when the unit's set speed is higher than the achievable speed of the unit. The unit speed display will show an E7. The unit will also beep three (3) times every 60 seconds until the error is reset by pressing the speed on/off button.

To disable this feature perform the following steps:

1. Place the unit in standby mode by pressing the standby button.
2. Press and hold the speed up button and press on/off button. The unit will beep two (2) times, confirming the function is disabled.
3. To restore unit to normal operation, remove AC power to unit (unplug power cord from wall outlet) for ten (10) seconds and restart.

BEEPER PREFERENCE

To silence beeper operation (except for error codes), with the unit in standby mode, press and hold the time on/off button and press the standby button. To restore normal beeper operation, remove AC power to unit for ten (10) seconds and then restore.

CALIBRATION PROCEDURE (Advanced Orbital Shakers Model 3500 and up)

This procedure is used to self calibrate the Advanced Orbital Shaker. The tray should be free of any samples, vessels, and accessories prior to calibrating.

1. Turn unit on. Speed and time displays will be illuminated.
2. Press and hold the standby button and momentarily press the speed on/off button. The speed display should read "CAL".
3. The unit will run for approximately one (1) minute and automatically calibrate.

RS-232 SERIAL PORT (Advanced Orbital Shakers Model 3500 and up)

RS-232 serial port provides two-way communications for data logging and unit control. If you need additional details, please contact **Troemner** for technical support at: tech_support@troemner.com.

NOTE: To comply with EMI/EMC requirements, the length of the external cable shall not exceed 3 meters.

TROUBLESHOOTING - ADVANCED ORBITAL SHAKER

Problem	Cause	Solution
Unit will not run	Mechanical obstruction Motor obstruction	Add or replace fuse as necessary. If problem persists, please contact your VWR representative for repair.
Unit is excessively noisy	Sensor fan misaligned Motor misaligned	Ensure that tray is secured tightly. If problem persists, please contact your VWR representative for repair.
Unit not shaking at proper speed	-	Perform speed calibration test on page 10. If problem persists, please contact your VWR representative for repair.
E3	Mechanical obstruction Drive system failure Ceased bearing Drive belt broken	Remove mechanical obstruction. If problem persists, the reason may be the drive system and should not be addressed by the end user. Contact your VWR representative for repair.
E4	Improper positioning of load Maximum load exceeded	Ensure the load is evenly distributed and does not exceed the maximum load capacity for the unit. See "Load Sensing Function" on page 10. If problem persists, please contact your VWR representative for repair.
E7	Unable to reach set speed	Reduce the speed setting or weight. This function can be disabled by following the instructions listed under "Additional Load Sensing Feature" on page 10. (NOTE: This function is only available on models 3750 and up and is not available on Model 3500 shakers.)
E8	Electronics error	This error cannot be fixed by the end user. Please contact your VWR representative for repair.

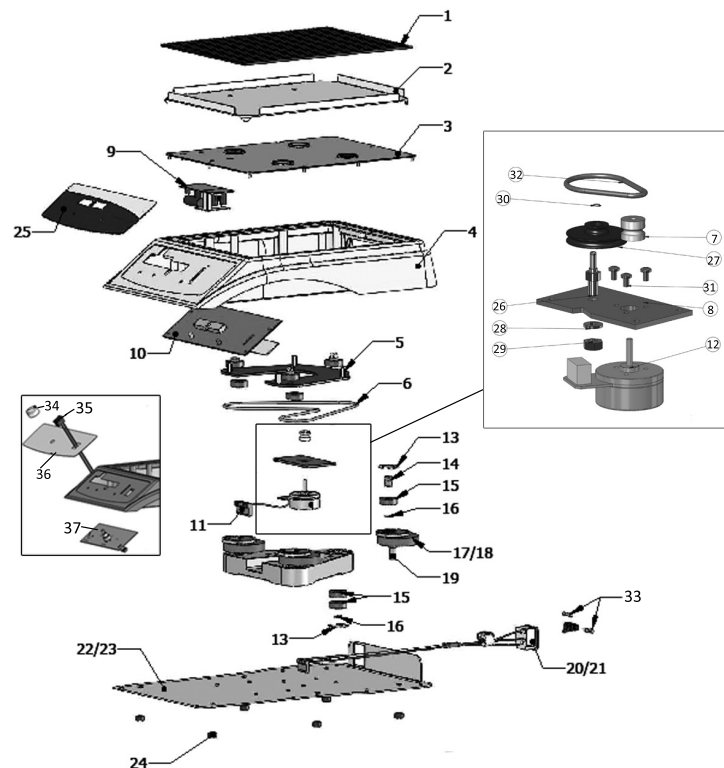
REPLACEMENT PARTS - STANDARD AND ADVANCED 1000

DESCRIPTION

1. Rubber Mat
2. Tray (STD)
- Tray (ADV)
3. Top Plate
4. Housing
5. Shaker Plate
6. Belt
7. Motor Pulley
8. Motor Plate
9. Power Supply
10. PC Board
11. Motor Connection Cable
12. Motor
13. Snap ring internal
14. Idler Stud
15. Bearing
16. Snap ring external
17. Eccentric counter weight
18. Eccentric pulley
19. Eccentric shaft
20. Wire assembly, 120V
21. Wire assembly, 230V
22. Base plate, 120V
23. Base plate, 230V
24. Foot
25. Front Panel Membrane Switch
26. Idler Shaft
27. Pulley Speed Reduction
28. Washer, .25" Split Lock
29. 1/4-20 Hex Nut
30. Snap Ring, External .156 Dia
31. Screw
32. Belt Speed reduction
33. Fuse
34. Knob
35. Switch Assembly
36. Overlay
37. PC Board

PART NUMBER

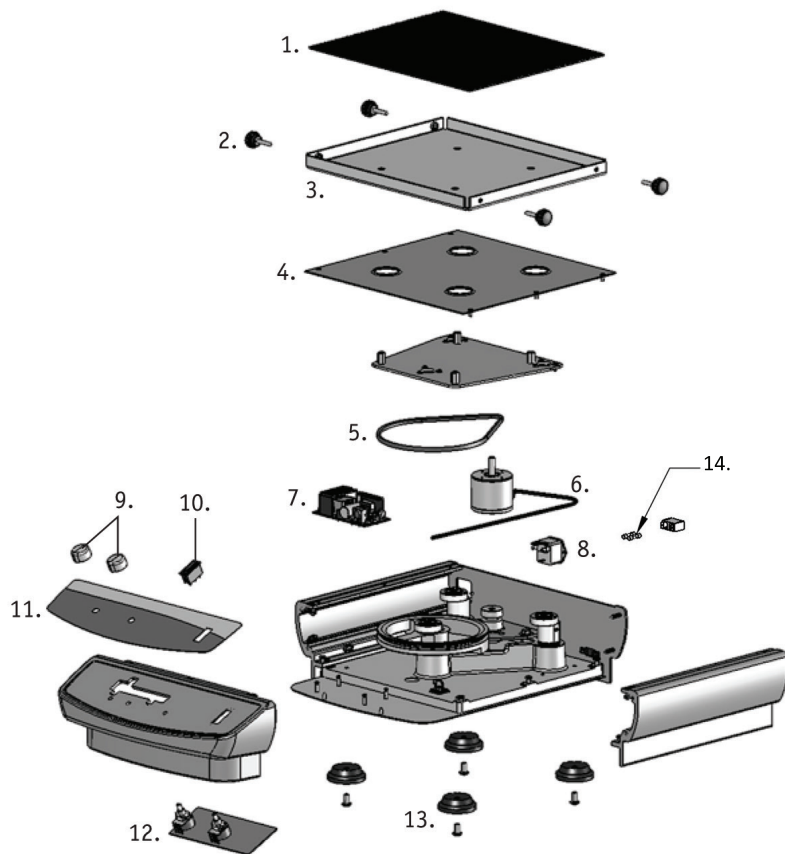
- 80857162
- 80854854
- 80857418
- 80854852
- 80854575
- 80854853
- 80854851
- 80854850
- 80854812
- 80856594
- 80856631
- 80856597
- 80856595
- 80853226
- 80854846
- 80853241
- 80853225
- 80854848
- 80854849
- 80854847
- 80856593
- 80856599
- 80854591
- 80854592
- 80857188
- 80856550
- 80854813
- 80854815
- 80853250
- 80853182
- 80853251
- 80853224
- 80854814
- 83040120
- 30532036
- 80856601
- 80856596
- 80856598



REPLACEMENT PARTS - STANDARD 3500

DESCRIPTION	PART NUMBER
1. Rubber mat	80857155
2. Thumbscrew	80857407
3. Tray	80854802
4. Top plate	80854805
5. V-belt	80857406
6. Motor	80854758
7. Power supply	30860792
8. IEC power inlet, 120V	80856486
IEC power inlet, 230V	80856477
9. Knob	30532036
10. Rocker switch	80856355
11. Front panel	80856632
12. Control circuit board	80856634
13. Feet	80857408
14. Fuse	83040120

Detachable 92" (234cm) power cord:	120V	80856139
	EURO	12120761
	UK	12120312
	SWISS	80856142



REPLACEMENT PARTS - ADVANCED 3500

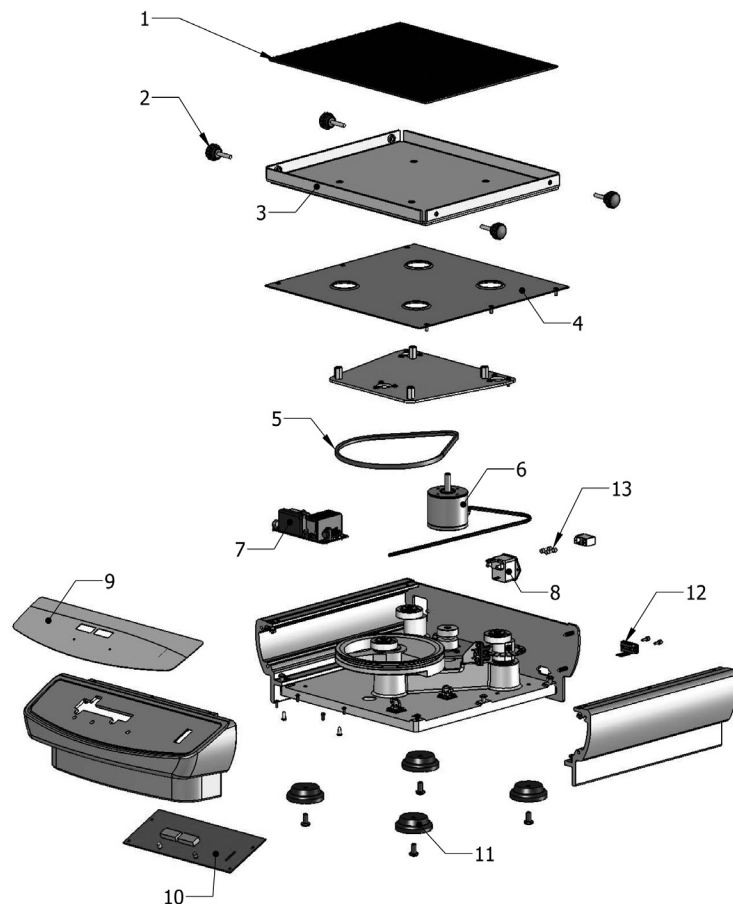
DESCRIPTION

PART NUMBER

1. Rubber mat
2. Thumbscrew
3. Tray
4. Top plate
5. V-belt
6. Motor
7. Power supply
8. IEC power inlet, 120V
IEC power inlet, 230V
9. Front panel
10. Control circuit board
11. Feet
12. Cable, RS 232, 25"
13. Fuse

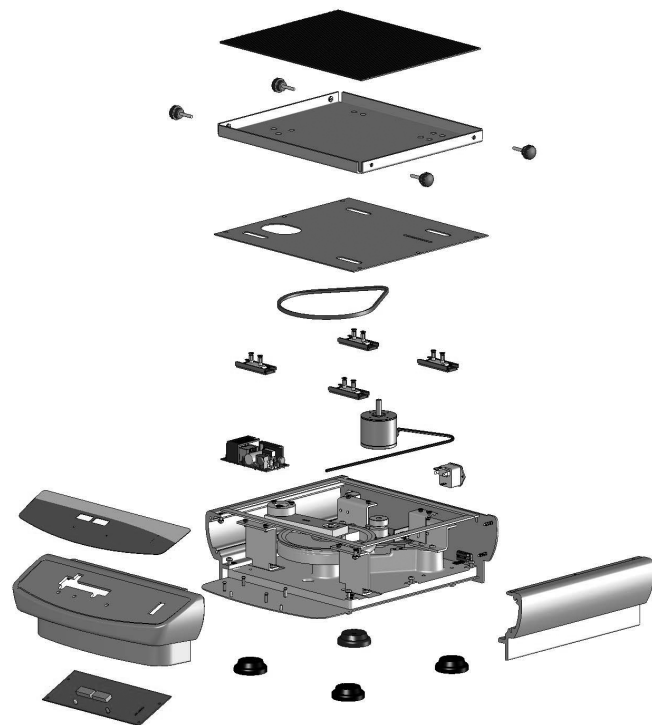
Detachable 92" (234cm) power cord:

120V	80856139
EURO	12120761
UK	12120312
SWISS	80856142



REPLACEMENT PARTS - ADVANCED 3750

DESCRIPTION	PART NUMBER
1. Rubber mat	80857155
2. Thumbscrew	80857407
3. Tray	80854717
4. Top plate	80854715
5. V-belt	80857406
6. Motor	80854758
7. Power supply	30860792
8. IEC power inlet, 120V	80856486
IEC power inlet, 230V	80856477
9. Front panel	80856628
10. Control circuit board	80856637
11. Feet	80857408
12. Slides	80853248
13. Fuse	83040120
14. Cable, RS 232, 25"	80853251
Detachable 92" (234cm) power cord:	
120V	80856139
EURO	12120761
UK	12120312
SWISS	80856142



REPLACEMENT PARTS - STANDARD & ADVANCED 5000

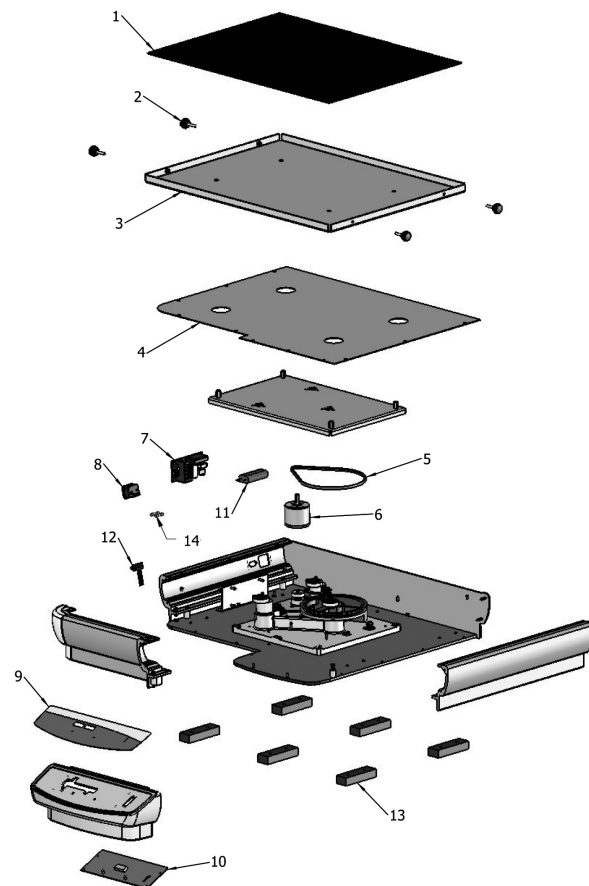
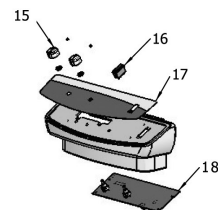
DESCRIPTION

PART NUMBER

1. Rubber mat
2. Thumbscrew
3. Tray
4. Top plate
5. V-belt
6. Motor
7. Power supply, 24V
8. Power entry module
9. Advanced digital membrane switch
10. Display circuit board
11. Line filter
12. Cable, RS-232, 33"
13. Feet
14. Fuse

STANDARD ONLY

15. Knob
16. Rocker switch
17. Front panel
18. Control circuit board

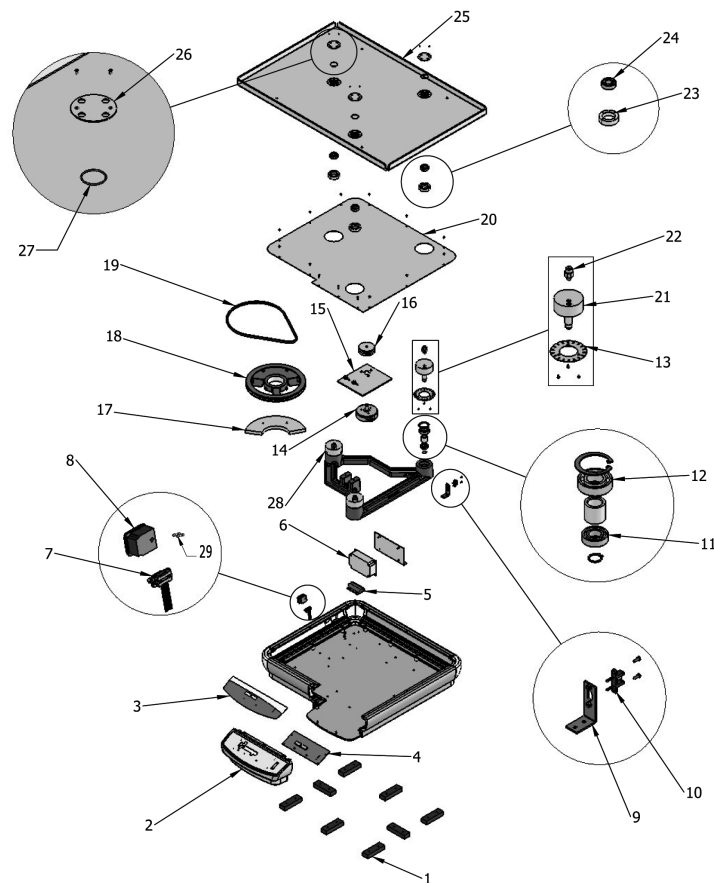


REPLACEMENT PARTS - ADVANCED 10000 - 150000

DESCRIPTION

PART NUMBER

1. Feet	80857410
2. Front bezel	80854693
3. Advanced digital membrane switch	80856628
4. Display circuit board	80856637
5. Line filter	80856896
6. Power supply,	80856809
7. Cable, RS-232, 33"	80856294
8. Power entry module	80856734
9. Photosensor mounting bracket	80854906
10. Photosensor	80856516
11. Bearing 6000-ZZ, large	80852455
12. Bearing, ball 6004-ZZ	80852454
13. Encoder disk	80854904
14. Motor	80856810
15. Motor mounting plate	80854903
16. Pulley 3.75:1	80854905
17. Counter weight	80854560
18. Counter pulley	80854555
19. V-belt	80857412
20. Top plate	80854902
21. Drive/idler shaft	80854901
22. Eccentric shaft insert	80857159
23. Bearing holder	80856960
24. Bearing, 1623DS	80852747
25. Tray - Model 15K	30785967
Mat - Model 15K	80857161
Tray - Model 10K	80854897
Mat - Model 10K	80857160
26. Bearing cap	80854558
27. O-ring	80853212
28. Drive/idler shaft	80854900
29. Fuse	83040120



PLATFORM USAGE CHART

Platform Size	Platform Type	Used on Shaker Model Number	Part Number
11 x 13"	Universal	Model 3500, Model 3750	89027-702
13 x 13"	Universal	Model 3500, Model 3750	97003-586
18 x 18"	Universal	Model 3500, Model 3750**	97003-588
18 x 24**	Universal	Model 3500, Model 3750, Model 5000**	97003-590
18 x 30**	Universal	Model 5000	97003-594
24 x 24"	Universal	Model 10000	97003-592
24 x 36"	Universal	Model 15000	97003-596
13 x 13" (125mL)	16 x 125mL	Model 3500, Model 3750	97003-616
13 x 13 (250mL)	12 x 250mL	Model 3500, Model 3750	97003-618
13 x 13 (500mL)	8 x 500mL	Model 3500, Model 3750	97003-620
13 x 13 (1L)	4 x 1L	Model 3500, Model 3750	97003-622
18 x 18" (125mL)*	27 x 125mL	Model 3500, Model 3750**	97003-624
18 x 18" (250mL)*	20 x 250mL	Model 3500, Model 3750**	97003-626
18 x 18" (500mL)*	13 x 500mL	Model 3500, Model 3750**	97003-628
18 x 18" (1L)*	9 x 1L	Model 3500, Model 3750**	97003-630
Two-Tier Braces			97003-646
18 x 18**	Culture Platform	Model 3500, Model 3750**	97003-598
18 x 24**	Culture Platform	Model 3500, Model 3750**, Model 5000**	97003-600
18 x 18"	Adjustable Platform	Model 3500	97003-602
18 x 24"	Adjustable Platform	Model 5000	97003-604
30 x 18"	Large Vessel Carrier	Model 5000	97003-606
24 x 24"	Large Vessel Carrier	Model 10000	97003-608
24 x 36"	Large Vessel Carrier	Model 15000	97003-610
18 x 18"	Serparatory Funnel Platform	Model 3500, Model 3750	97003-632

FLASK CLAMP PLATFORM CAPACITY

Stainless Steel Erlenmeyer Flask Clamps

Platform Size	Part Number	10mL 57018-775	25mL 57018-786	50mL 57018-797	125mL 57018-800	250mL 57018-811	500mL 57018-822	1L 14215-224	2L 14215-226	2.8L 14215-228	3L 10789-250	4L 14215-230	5L 75804-636	6L 14215-232
11 x 13	89027-702	60	25	13	10	9	7	4	N/A	N/A	N/A	N/A	N/A	N/A
13 x 13	97003-586	60	30	15	12	12	8	4	3	1	1	1	1	1
18 x 18	97003-588	113	64	32	20	20	13	8	5	2	2	4	4	2
18 x 24	97003-590	158	88	44	28	28	20	12	6	3	3	4	4	3
18 x 30	97003-594	203	112	56	36	36	26	15	8	3	3	6	6	4
24 x 24	97003-592	221	121	61	41	42	25	16	9	5	5	5	5	5
24 x 36	97003-596	336	160	94	61	64	40	24	14	7	7	9	7	7

PVC Erlenmeyer Flask Clamps

Platform Size	Part Number	125mL 97003-576	250mL 97003-578	500mL 97003-580	1L 97003-582	2L 97003-584
11 x 13	89027-702	10	8	5	2	N/A
13 x 13	97003-586	12	10	6	4	3
18 x 18	97003-588	20	18	12	8	4
18 x 24	97003-590	28	25	16	10	6
18 x 30	97003-594	36	33	20	14	8
24 x 24	97003-592	41	35	24	13	9
24 x 36	97003-596	61	55	38	22	13

Stainless Steel Media Bottle Clamps

Platform Size	Part Number	500mL 14215-236	1L 14215-238
11 x 13	89027-702	5	2
13 x 13	97003-586	6	5
18 x 18	97003-588	16	10
18 x 24	97003-590	20	13
18 x 30	97003-594	28	18
24 x 24	97003-592	25	18
24 x 36	97003-596	40	30

Microplate Clamp

Platform Size	Part Number	Microplate Clamp 980458
11 x 13	89027-702	4
13 x 13	97003-586	6
18 x 18	97003-588	12
18 x 24	97003-590	18
18 x 30	97003-594	21
24 x 24	97003-592	24
24 x 36	97003-596	36

TEST TUBE RACK PLATFORM CAPACITY

Half Size Stationary

Platform Size	Part Number	1.5 to 2mL Microtube Rack capacity = 70 12620-952	10 to 13mm Test Tube Rack capacity = 63 12620-956	14 to 16mm Test Tube Rack capacity = 48 12620-958	18 to 20mm Test Tube Rack capacity = 35 12620-960	22 to 25mm Test Tube Rack capacity = 24 12620-962	15mL Centrifuge Test Tube Rack capacity = 35 11301-134	50mL Centrifuge Test Tube Rack capacity = 12 11301-136
11 x 13	89027-702	2	2	2	2	2	2	2
13 x 13	97003-586	2	2	2	2	2	2	2
18 x 18	97003-588	4	4	4	4	4	4	4
18 x 24	97003-590	6	6	6	6	6	6	6
18 x 30	97003-594	8	8	8	8	8	8	8
24 x 24	97003-592	8	8	8	8	8	8	8
24 x 36	97003-596	7	7	7	7	7	7	7

Full Size Stationary

Platform Size	Part Number	10 to 14mm Test Tube Rack capacity = 48 14215-240	16 to 20mm Test Tube Rack capacity = 33 14215-242	21 to 25mm Test Tube Rack capacity = 21 14215-244	50mL Centrifuge Test Tube Rack capacity = 17 12985-052
11 x 13	89027-702	N/A	N/A	N/A	N/A
13 x 13	97003-586	N/A	N/A	N/A	N/A
18 x 18	97003-588	3	3	3	3
18 x 24	97003-590	5	5	5	5
18 x 30	97003-594	6	6	6	6
24 x 24	97003-592	7	7	7	7
24 x 36	97003-596	5	5	5	5

TEST TUBE RACK PLATFORM CAPACITY CONT'D

Platform Size	Part Number	13mm Test Tube Rack capacity = 90 97003-636	16mm Test Tube Rack capacity = 60 97003-638	20mm Test Tube Rack capacity = 40 97003-640	25mm Test Tube Rack capacity = 24 97003-642	30mm Test Tube Rack capacity = 21 97003-644
11 x 13	89027-702	1	1	1	1	1
13 x 13	97003-586	2	2	2	2	2
18 x 18	97003-588	2	2	2	2	2
18 x 24	97003-590	3	3	3	3	3
18 x 30	97003-594	4	4	4	4	4
24 x 24	97003-592	4	4	4	4	4
24 x 36	97003-596	6	6	6	6	6

Manufactured by: Troemner, LLC

201 Wolf Drive • PO Box 87 • Thorofare, NJ 08086-0087
Phone: 856-686-1600 • Fax: 856-686-1601 • E-mail: troemner@troemner.com
www.troemner.com
80858905 (REV E - 4/26)