

iCUBE/MICROLAB/RAMPOWER OWNERS' MANUAL

 Please take a moment to read this manual prior to operation!



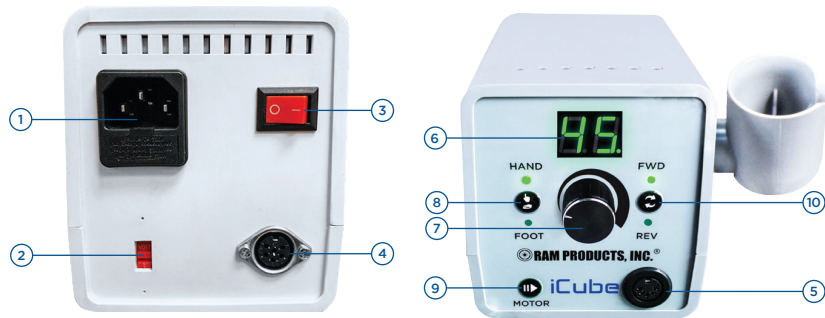
 **RAM PRODUCTS, INC.**[®]

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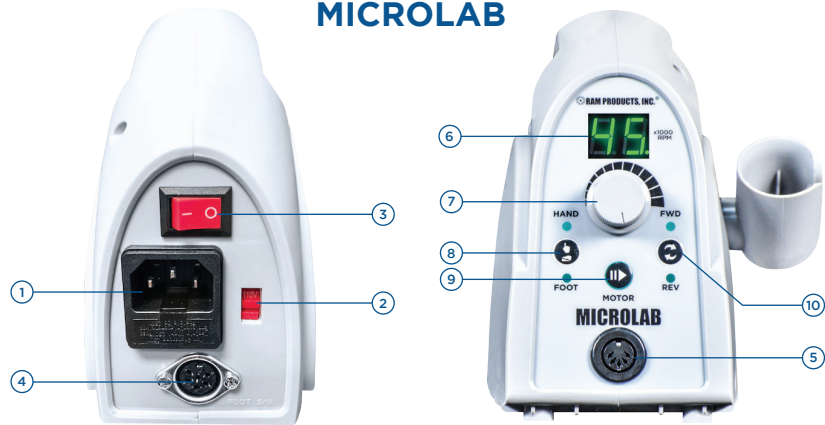
 Phone: 732.651.5500  ram@ramhp.com  www.ramhp.com

CONTROLLERS

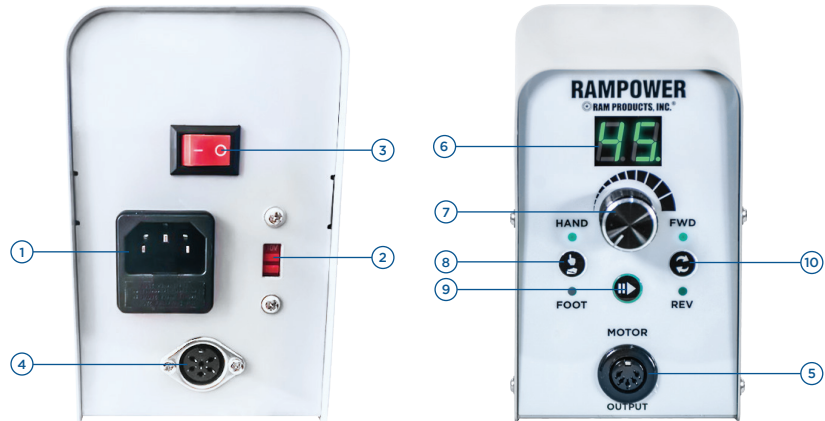
iCUBE



MICROLAB



RAMPOWER



Set-Up

- Place in a convenient location avoiding any moisture or chemicals.
- All components should be connected prior to turning on the main power switch (#3).
- Make sure the power cord is securely attached in the rear (#1).
- Controllers utilize a state of the art microprocessor chip for programming of speed control, overload and safety and much more. This includes a memory feature to remember the last user settings before the main power is turned off.
- Turn off the main power switch when not in use to avoid power and electric current to the controller.
- Always check the handpiece carefully for smooth operation prior to each use.
- Do not use with any other brands of equipment as brushless units are not compatible with other brands.

- 1 **Power Outlet:** Main power cord receptacle. The power cord is plugged here. Warning: The control box is designed for one Input AC voltage only. Make sure that the available electrical power is compatible with the voltage input requirement of the control box. Refer to #2 as required.
- 2 **110/230V:** Factory preset switch is 110 volts but can accommodate 230 volts.
- 3 **Main Power Switch:** Turns the control box on and off. Switch should be in the "off" position when not in use.
- 4 **Foot Switch Control Outlet:** The foot pedal plugs in here, either the on/off or variable speed foot pedal.
- 5 **Handpiece Connector:** The handpiece cord plugs in here.
- 6 **Speed Display:** LED speed display and error alerts.
- 7 **Speed Control Dial:** 0-35,000rpm or 0-45,000rpm. Used to adjust or vary the desired speed. In hand mode, turn the dial clockwise to increase the speed and counterclockwise to reduce the speed. While using in foot pedal mode, the speed dial setting can also limit the top or maximum speed for greater control and safety.
- 8 **Hand/Foot Button:** When set in the hand position, the hand indicator light will turn on, the speed is completely controlled by the speed dial knob. when set in the foot pedal mode, the foot indicator light will turn on, the speed is controlled by the settings of the knob when using the on/off pedal and the speed is completely variable when using the variable foot pedal standby when flashing or blinking.
- 9 **Motor Button:** Engages the handpiece for operation and use or can disengage for stopping or taking a rest from operation while remaining ready.
- 10 **Forward/Reverse Button:** Controls handpiece direction to forward or reverse.

Specifications

Model	Input	Output	MaxAmp	Rotate Speed	Power	L	W	H	Wt.
iCUBE	AC110V/230V 50HZ-60HZ	DC0-32V	2A	0-35,000rpm/ 0-45,000rpm	50W	5"	4"	4 1/2"	3.8lbs
MICROLAB	AC110V/230V 50HZ-60HZ	DC0-32V	2A	0-35,000rpm/ 0-45,000rpm	60W	8"	4"	6"	4.4lbs
RAMPOWER	AC110V/230V 50HZ-60HZ	DC0-32V	2A	0-35,000rpm/ 0-45,000rpm	60W	6"	3 1/4"	5 1/4"	4.4lbs

Assembly

1. Handpiece cord plugs into the lower middle socket(#5).
2. Foot Pedal plugs into the lower middle socket(#4).
3. Plug the power cord to an electrical outlet. Make sure that the outlet is properly grounded and compatible to the voltage input requirement:
NOTE: Please make sure that the power switch is in "off" position before plugging the power cord to an electrical outlet. The speed control must be set to minimum and check the voltage switch selection to be sure it is set at the proper voltage either 110 or 230 volts.
4. Turn the power switch (#3) to "on" position. The LED display (#6) should appear.
5. The handpiece is now ready for operation. Press Hand/Foot Button (#8)
 - a. HAND MODE - Hand indicator light should glow. The speed of the motor is set by turning the control knob clockwise.
 - b. FOOT CONTROL MODE - Foot indicator light should glow.
 - With the On/Off foot pedal, step on the foot pedal and gradually turn the speed control knob clockwise until the desired speed is attained.
 - With the variable foot pedal, gradually step on the pedal until the desired speed is attained.

TECH2000/45000 HANDPIECE

- | | | |
|--|------------------------------|-------------------------|
| 1. H37L1 Hand Cap Cover | 25. Roller Body | 49. Front Shaft Bush |
| 2. H37L1 Hand Cap Spacer | 26. Roller Body Pin | 50. Rear Shaft Bush |
| 3. Hand Cap Body | 27. Roller Guide | 51. Commutator |
| 4. Chuck Housing C-Ring | 28. Set Ring | 52. Coil |
| 5. Collar | 29. Cam | 53. Wedge |
| 6. Bearing Fix Washer | 30. Slide Washer | 54. Fan |
| 7. 1260 Wave Washer | 31. Slide Body | 55. 830 Spacer |
| 8. 11260 Washer | 32. Ball | 56. Teflon Washer |
| 9. Ball Bearing 1260ZZ | 33. Motor Case C-Ring | 57. Bearing Housing |
| 10. Bush | 34. Motor Case Coil Spring | 58. Back Bearing Sit |
| 11. Ball Bearing 1480ZZ | 35. Motor Case Spring Sheet | 59. Brush Holder |
| 12. Spring Sheet | 36. 1030 Fix O-Ring | 60. Carbon Brush |
| 13. Coil Spring | 37. Motor Case Cover | 61. Brush Spring |
| 14. Test Bur | 38. Motor Case | 62. Brush Cap |
| 15. Collet Chuck 2.35 | 39. Motor Case Bolt | 63. Terminal(L) |
| 16. Chuck Housing | 40. Magnet | 64. Terminal(R) |
| 17. Chuck Spring | 41. Copper Washer | 65. Carbon Brush Bolt |
| 18. H37L Sealing O-Ring | 42. 1030 Wave Washer | 66. Ball Bearing 1030ZZ |
| 19. Joint Shaft Pin | 43. H37L Ball Bearing 1040ZZ | 67. BR Brush Bolt |
| 20. Joint Shaft | 44. 1030 Copper Washer | 68. Motor Cord |
| 21. Connector Coil Spring | 45. 1030 Teflon Washer | 69. Carbon Housing |
| 22. Connector | 46. 1030 Spacer | 70. Spindle Ass'y |
| 23. Bearing Bush Collar | 47. Shaft | 71. Armature Ass'y |
| 24. Bearing Bush Collar
Coil Spring | 48. Core | |

OPTIMUS 35/OPTIMUS 45 HANDPIECE

- | | | |
|--------------------------|-----------------------------|-------------------------|
| 1. Test Bur | 26. Set Ring | 51. Shaft Ø4 |
| 2. Collet chuck 2.35 | 27. Set Key | 52. Core |
| 3. Nose Cap | 28. Cam O-Ring | 53. Front Shaft Bush Ø4 |
| 4. Nose Cap O-Ring | 29. Cam | 54. Commutator |
| 5. Chuck Housing C-Ring | 30. Ball | 55. Coil |
| 6. Collar | 31. Moving Housing | 56. Wedge |
| 7. B/R Stop Collar | 32. Coil Spring 2 | 57. Fan |
| 8. 814 Wave Washer | 33. B/R Collar | 58. 830 Spacer |
| 9. 814 Washer 2 | 34. Ball Bearing(1360ZZ) | 59. Teflon Washer |
| 10. 814 Washer 1 | 35. B/R Stop Bolt | 60. Bearing Housing |
| 11. Ball Bearing (814ZZ) | 36. Motor Case C-Ring | 61. Back Bearing Sit |
| 12. Chuck Housing | 37. Motor Case Coil Spring | 62. Brush Holder |
| 13. Connection Pin | 38. Motor Case Spring Sheet | 63. Carbon Brush |
| 14. Spacer | 39. 1030 Fix O-Ring | 64. Carbon Brush Spring |
| 15. Joint Shaft | 40. Motor Case | 65. Carbon Brush Cap |
| 16. Disc Spring | 41. Motor Case Cover (Blue) | 66. Terminal (L) |
| 17. Spring Stopper | 42. Motor Case Bolt | 67. Terminal (R) |
| 18. Spring Pin | 43. Magnet | 68. Carbon Brush Bolt |
| 19. O-Ring | 44. Magnet Guide | 69. Ball Bearing 1030ZZ |
| 20. Connector | 45. Copper Washer | 70. Bearing Brush Bolt |
| 21. Spring Spacer | 46. 1030 Wave Washer | 71. Motor Cord |
| 22. Coil Spring1 | 47. Ball Bearing 1040ZZ | 72. Carbon Housing |
| 23. Spring Sheet | 48. 1040 Copper Washer | 73. Spindle Ass'y |
| 24. Hand Cap Stopper | 49. 1040 Teflon Washer | 74. Armature Ass'y |
| 25. Hand Cap (Blue) | 50. 1040 Spacer | 75. BHS1 Ass'y |

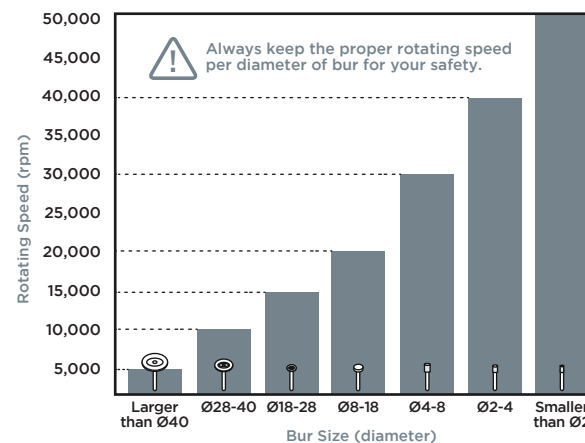
MAINTENANCE

Safety Precautions!

- Do not force any burs into the collet chuck and always check after insertion if the bur is securely locked by pulling the bur.
- Always operate at a safe speed for the size and weight of the bur. Start at 0 rpm while slowly increasing the speed while securely gripping the handpiece. Operating at higher speeds often does not cut any better or faster and can increase wear on the bearings in the handpiece as well as the cutting tool.
- Never use bent, rusted or damaged burs.
- Follow basic safe speed operation according to the chart below and also the safety speed ratings of the manufacturer of the burs.
- Never operate without a bur properly locked in the handpiece.
- After usage, remove any excess dust or debris.
- Do not operate near water or moisture.
- Avoid any chemicals and disinfectants.

Safety Speed Table Guidelines

This chart for allowable rotation speed can be slightly different depending on bur materials or bur type.



- 1 Select the proper tools and speed for the job.



- 2 Do not drop the handpiece or controller. Dropping the motor may damage the ball bearing.



- 3 Visually inspect before use. Ensure the handpiece operates smoothly and without noise or vibration. DO NOT USE IF THERE IS ANY UNUSUAL NOISES OR VIBRATION! If the handpiece is in need of service, contact Ram Products.



- 4 When installing any kind of bur to your handpiece, insert it properly to the final depth. Proper mounting or installation should avoid any extended distance from the chuck to reduce vibration but be sure the bur is not touching the nose tip of the handpiece with distance to spin freely.



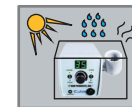
- 5 Use proper speed that has not exceeded the maximum safety speed. Exceeding the maximum safety speed can be dangerous or can damage the handpiece.



- 6 When using the handpiece, wear safety goggles/glasses.



- 7 Never use the product for any purpose other than the original intended use.



- 8 We suggest to store in a cool and dry place when not being used and to avoid humidity and moisture if possible.



- 9 Never leave your handpiece with the power switch turned on, an accident may occur if it is over-heated.

WARRANTY PERIOD

Warranty is valid within the United States only.

ELECTRICAL EQUIPMENT - These products are under warranty for a period of ONE YEAR from the date of original installation by the purchaser.

HANDPIECES - These products are under warranty for a period of SIX MONTHS from the date of original installation by the purchaser. IT DOES NOT COVER MISUSE, NORMAL BEARING, OR CARBON BRUSH WEAR.

IN HOUSE OR FACTORY REPAIR - Repairs made under warranty will be honored until the completion of the original product warranty period. SHIPPING AND HANDLING CHARGES ARE NOT COVERED WITHIN THE WARRANTY.

PRODUCT WARRANTY

All returned items shall be free from defects/alterations in material, workmanship and original product design.

- The product shall have been used under the conditions for which it has been intended, and in a manner for which it has been designed.
- The product shall have been operated in a manner for which it was intended and in the proper environmental conditions.
- The customer must maintain the product as specified within the individual product instruction booklet.

Electrical and mechanical equipments and accessories which are mishandled, used incorrectly, and/or used for a purpose other than that for which they were designed and intended, will void the product warranty.

WARRANTY CLAIMS

Should your product require service attention within the warranty period, we will elect to make the necessary repair or replacement at no charge and providing the product is delivered prepaid to the proper address. However it is recommended that returns be adequately insured against carrier loss or damage.

All claims should describe the specific problem for accurate analysis and evaluation, the return date of the warranty card along with the supply house and/or dealer name.

No product replacement is permitted without prior authorization.

PRODUCT: _____
SERIAL NO.: _____
PURCHASE FROM: _____
PURCHASE DATE: _____
INSTALLATION DATE: _____

WARRANTY REGISTRATION

REGISTER ONLINE at www.ramprodinc.com/warranty

In order to validate your warranty, this card must be filled out completely and mailed within 10 days of purchase/installation.

PLEASE PRINT OR TYPE

NAME: _____
ADDRESS: _____

CITY: _____
STATE: _____ ZIP CODE: _____

PRODUCT: _____
CITY: _____
SERIAL NO(S): _____
PURCHASE DATE: _____
INSTALLATION DATE: _____

DEALER OR SUPPLY HOUSE NAME AND ADDRESS:

The short survey below is designed to improve the service and quality of product supplied to our customers. Please take a few minutes to complete the survey.

Did the item arrive in a satisfactory condition? YES or NO?
If NO please explain:

Did the instruction manual provide all details clearly for proper installation and operation? YES or NO? If NO please explain:

What factor(s) were involved in your decision to purchase this product:
 Advertisement Previous Purchase of a Ram Product
 Distributor Recommendation Recommendation by Colleague

Any feedback, comments or suggestions:

Thank you for your feedback.



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