

iCUBE/MICROLAB/RAMPOWER OWNER'S MANUAL

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



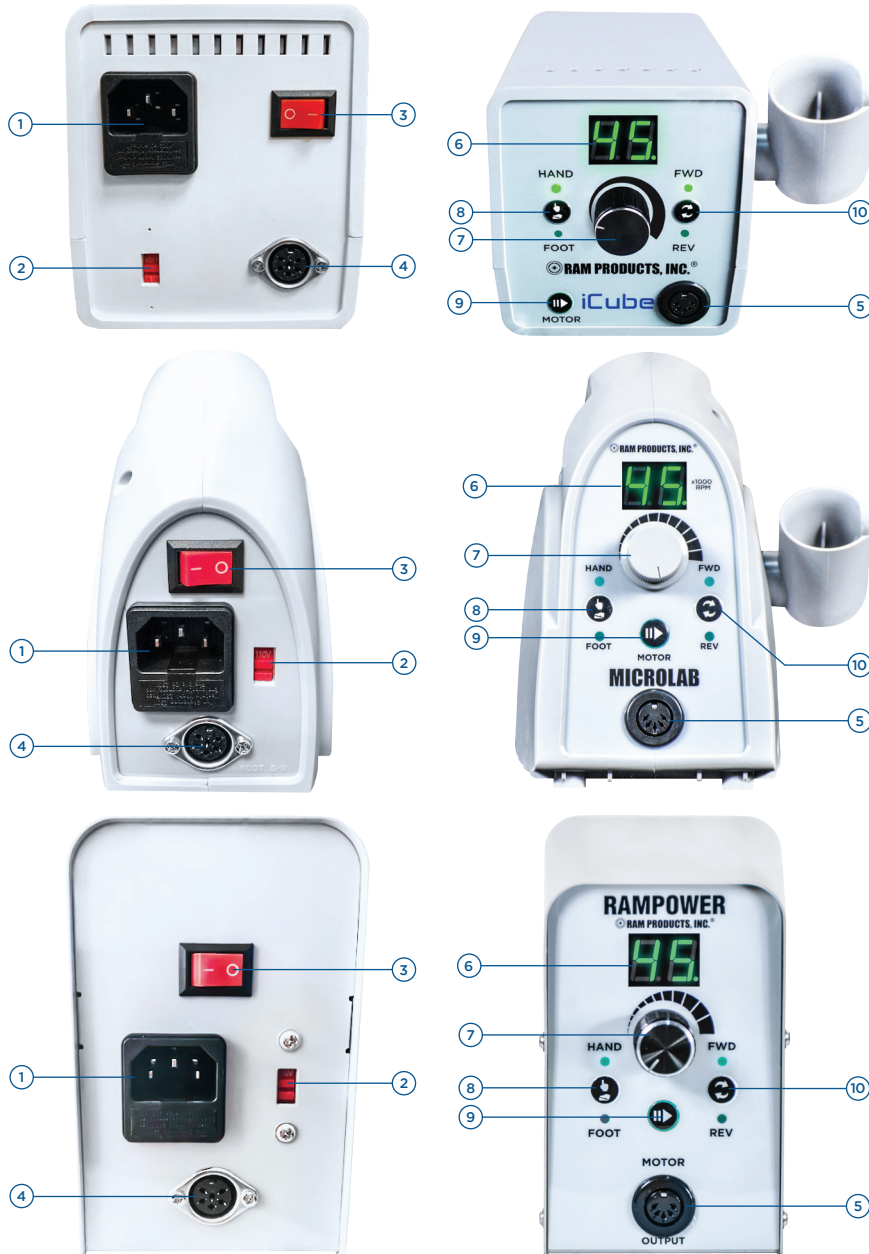
 **RAM PRODUCTS, INC.**®

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CONTROLLERS



1

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.

- 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 assembly #3.
- 110/230V:** Switch from 110 volts or 230 volts.
- Main Power Switch:** Turns the control box on and off. Switch should be in the "off" position when not in use.
- Foot Switch Control Outlet:** The foot pedal cord plugs in here, either the on/off or variable speed foot controller.
- Handpiece Cord Outlet:** The handpiece cord plugs in here.
- Operation Indicator:** LED speed display and error alerts.
- 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.
- 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.
- Motor Button:** Engages the handpiece for operation and use or can disengage for stopping or taking a rest from operation while remaining ready.
- Forward/Reverse Button:** Controls handpiece direction to forward or reverse.

Standard

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

- Handpiece cord plugs into the lower middle socket(#5).
- Foot Pedal plugs into the lower middle socket(#4).
- 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.
- Turn the power switch (#3) to "on" position. The LED display (#6) should appear.
- The handpiece is now ready for operation. Press Hand/Foot Button (#8)
 - HAND MODE** - Hand indicator light should glow. The speed of the motor is set by turning the control knob clockwise.
 - 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.

2



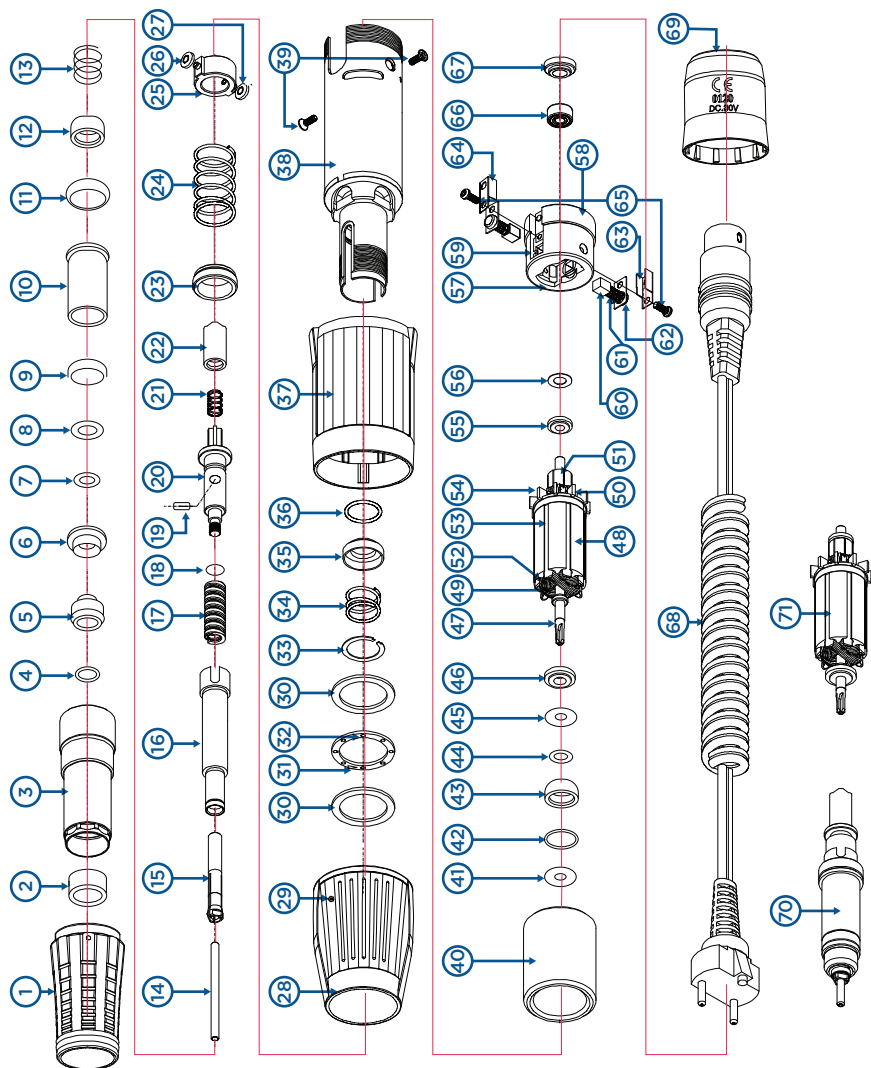
TECH2000/45000 HANDPIECE



TECH2000



45000



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



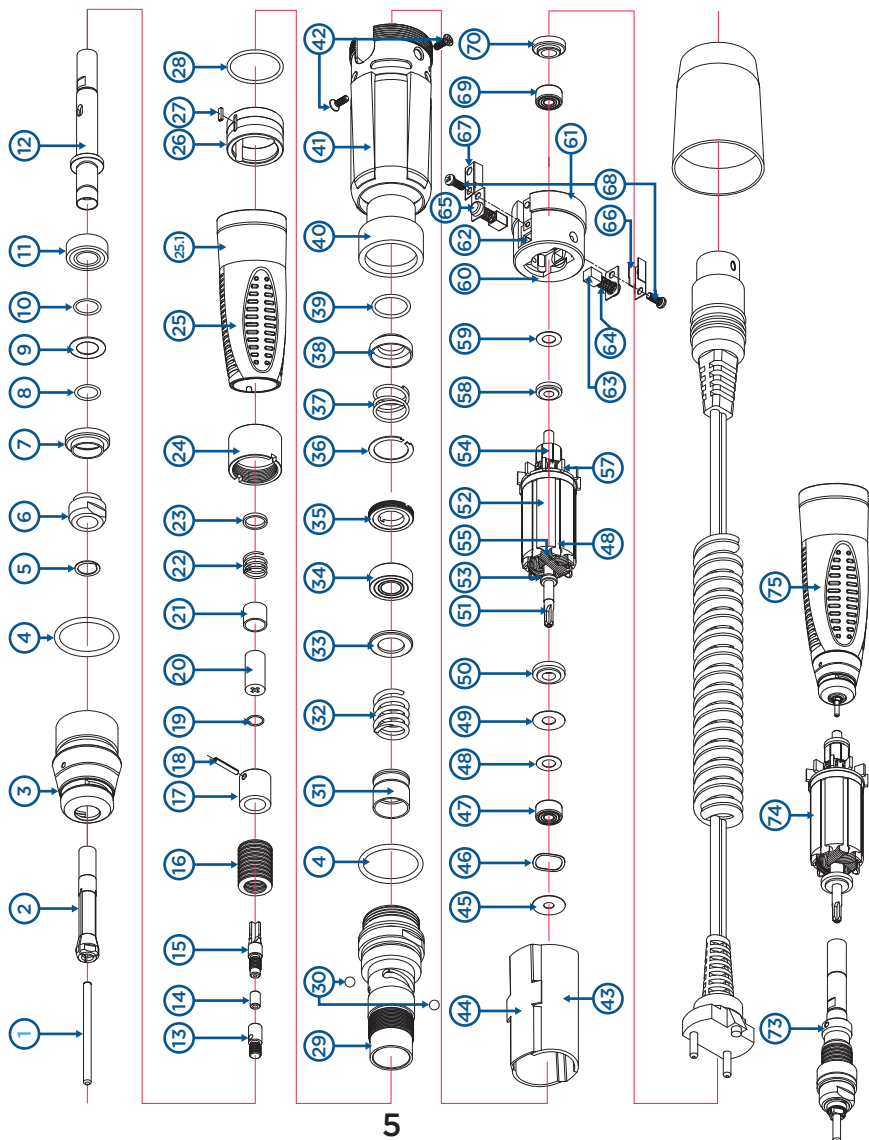
OPTIMUS 35/OPTIMUS 45 HANDPIECE



OPTIMUS 35



OPTIMUS 45



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



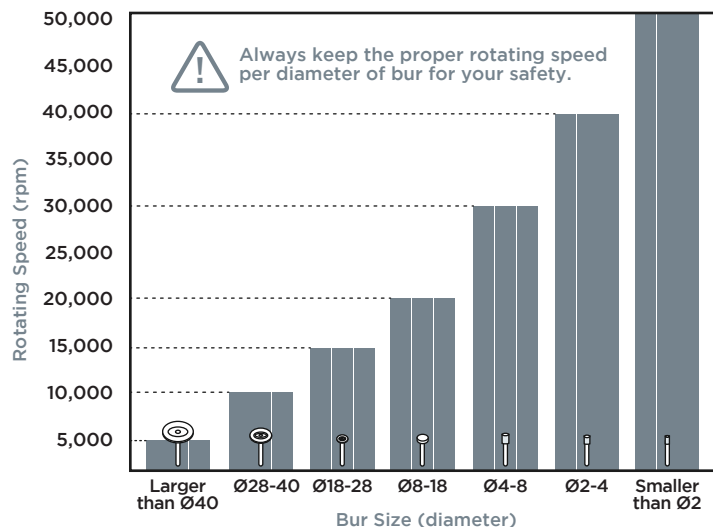
MAINTENANCE

Safety Precautions!

- Never use bent or damaged burs.
- 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 while slowly increasing speed and 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.
- Follow basic safe speed operation according to the chart below and also the safety speed ratings of 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 tools of the product after examining the following conditions:
- Grinding tool performance
 - Workpieces to be ground
 - Grinding method



- 4 When mounting any kind of bur to your handpiece, insert it properly to the final depth. Secure proper mounting of the bur with the correct amount of overhang.



- 2 Do not drop the product. Dropping the motor may damage the ball bearing or weaken the durability of the motor.



- 5 Use suitable speed that has not exceeded the maximum value. Exceeding the product motor's maximum speed may invite trouble including vibrations.



- 3 Inspect your product before use without fail. Before using your product, through visual inspection, make sure that your product has no flaw, crack or faulty adhesion.



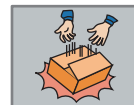
- 6 When using your product, wear safety goggles/glasses and dust respirators without fail. Flying chips may hurt you when grinding workpieces with hard materials. Use a coolant when grinding a workpiece at high or super high speed. Never touch tools with sharp edges directly.



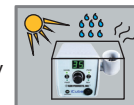
- 7 If any abnormal vibration begins during use, stop operating your tool and remove the cause.



- 10 Never use the product for any purpose other than the original one, nor remodel it.



- 8 When taking your product from the box, never let it tumble out or fall on the floor. Handle any product that is heavy or with sharp corners with special care.



- 11 Store the product in a dry place and shield from exposure to direct sunlight. Store your product in a place with the lowest possible humidity and moisture content. Never miss daily inspection and maintenance.



- 9 For using any of the products, observe the operating instructions given in each manual.



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



Ram Website



Rampower



Microlab



iCube



How to Change Collet Chucks



How to Disassemble and Change All Bearings



Customer Service Request Form



Warranty Card Registration



RAM PRODUCTS, INC.®

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.ramhp.com/t-warranty-4.aspx

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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