



BURR KING MFG. CO., INC

1220 Tamara Lane

Warsaw, MO 65355

www.burking.com

(660)438-8998 • 800-621-2748

Fax (660)438-8991

MODEL 20 INSTRUCTION MANUAL



MADE IN U.S.A.



BURR KING.

- GRINDERS
- BUFFERS
- VIBRATORY
- DISC GRINDERS

BURR KING MODEL 20 DISC GRINDER



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June, 2007

Burr King Manufacturing Company, Inc. warrants the below product to be free in material and workmanship. The period of warranty is 1 year (90 days for vibratory bowls of 20 quart and lesser volume) from the date of purchase. No warranty is provided for products that have been modified, abused, handled carelessly, where repairs have been made or attempted by others, or for freight damage. No warranty is provided for three phase electric motors, controllers, etc. when the motors, controllers are not protected by magnetic starters that were supplied and installed by Burr King Manufacturing Company, Inc. No other warranty, written or verbal is authorized by Burr King Manufacturing Company, Inc.

During the warranty period Burr King Manufacturing Company, Inc (or its authorized suppliers or agents) will replace or repair the below product without charge if the product is found by Burr King Manufacturing Company, Inc. to be defective. To receive warranty services you must contact Burr King Manufacturing Company, Inc. and receive authorization fir warranty service. Unless otherwise authorized by Burr King Manufacturing Company, Inc. Products (see * below) must be returned to the factory to receive warranty service.

*Motors, speed controllers, and certain other accessories are warranted by their respective manufactures. To receive warranty service on these items you must contact a brand label service center that supports the product in need of service. Burr King Manufacturing Company; Inc. will assist you in locating a service center.

For the first thirty days after purchase, and when Burr King Manufacturing Company, Inc. authorizes warranty service, we will pay normal and necessary surface freight charges both ways (except for items in *). After thirty days the customer is responsible for all freight charges. Where possible Burr King Manufacturing Company, Inc. may elect to make on site service and/or repairs necessary to return the product to serviceable condition.

To assure prompt warranty service it is necessary that you complete and return the below warranty information to Burr King Manufacturing Company, Inc. please **FAX** or **MAIL** at your convenience.

Product model: _____ Serial number: _____
Date Purchased: _____ Purchased from: _____
Address: _____ City: _____ State/Prov: _____ Postal code _____

Your company name: _____
Address: _____ City: _____ State/Prov: _____ Postal code _____
Phone: _____ Fax: _____ Email: _____
Your name: _____ Title: _____

How did you learn about Burr King products?

Trade show ___ Web ___ Industrial Distributor ___ Advertisement ___ Other _____ Which one: _____

What is the intended use of this product? _____

Please indicate the general work types performed at your company. check all that apply:

Fabrication ___ Machining ___ Casting ___ Molding ___ Welding ___ Finishing ___ Assembly ___ Research ___ Other ___

Please indicate the primary product focus of your company; check all that apply.

Aircraft/Missile ___ Automotive ___ Contract machine ___ Contract Fabrication ___ Agricultural ___ Maintenance ___ Recreational ___
Job shop ___ Foundry ___ Construction ___ Arts ___ Orthopedic ___ Dental ___ Medical ___ Other _____

Please tell us what we can do to improve our products:

May we contact you? Yes ___ No ___

Thank you for purchasing Burr King products!

**REGISTER ONLINE @
WWW.BURRKING.COM**



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August 29, 2007

LETTER OF AUTHENTICITY

This letter is to certify that all Burr King Belt grinders, Disc grinders, Polishing machines Vibra King Chambers and Bowls are manufactured and assembled in the United States of America.

(Tariff number 847990 criterion A)

A handwritten signature in black ink, appearing to read "Don Mac Carthy".

Don Mac Carthy
President

See our catalog at www.burrking.com

contact us at info@burrking.com



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February 2005

OPERATOR, and OPERATING AREA SAFETY

Subject equipment includes Grinders, buffers, polishers, and other rotating equipment. Serious injury or death may occur if minimum safety precautions are not understood, and obeyed by operators and those other persons who may be in the immediate vicinity of the subject equipment. Persons who operate, or are in the immediate vicinity of the subject equipment must be properly trained in, and use, minimum safety precautions and procedures for such machinery.

Minimum safety requirements to operate, or work in the immediate vicinity subject equipment:

1. Read and understand all operating instructions, manuals, labels, and other information provided with the equipment.
2. Install the equipment according to manufacturer's instructions.
3. Securely bolt the equipment to a rigid, structurally sound mounting surface.
4. Use and wear proper eye and face protection.
5. Use and wear proper protection for the body, hands, fingers, feet, and legs.
6. Review and understand all machine guards, adjustments, and points of exposure to potential injury.
7. Do not remove, tamper with, or otherwise alter, equipment guards, and other safety features.
8. Insure the machine is adjusted, and remains adjusted according to manufacture's requirements.
9. Maintain the equipment in good operating condition.
10. Have another person who is knowledgeable in proper and safe operation of the subject equipment demonstrate proper and safe operation to all operators, and to those persons who might be in the immediate vicinity of the subject equipment.
11. Use work piece holding devices when ever possible that diminish the possibility that persons will come in contact with moving machine pieces, or spark/debris output from the machine.
12. Use spark and debris arresting apparatus. Such apparatus should be connected to the machine so as to contain dust and debris that is generated, and to suppress sparks thereby limiting human inhalation risk, and the risk of fire or explosion.
13. Use appropriate inhalation apparatus to protect person from ingestion and/or inhalation of sparks, debris, smoke, particulates, etc.
14. Avoid mixing different metals, alloys, and materials. To mix such materials might create a fire or explosion hazard.
15. Protect persons from work pieces, particulates, etc. that could be forcibly ejected from the machine. For example, a buffing wheel or grinding belt can "grab" a work piece while the work piece is being buffed, polished, ground, or otherwise conditioned, resulting in forcible ejection toward the operator or those in the vicinity of the machine. The use of leather aprons, gloves, and eye shields are examples of protective gear that may be effective. In general do not grind, buff, or otherwise engage the traveling belt, wheel, or disc surface with the work piece pointing into the direction from which the belt, wheel, or disc is traveling. However, if you choose to do so be aware the work piece may lodge in the traveling belt, wheel, or disc and be forcibly, and dangerously ejected.
16. Do not operate this machine if the gap (nip point) between a moving belt, wheel or disc and the work support surface exceeds 1/8 inch.
17. Do not operate this machine if the gap between the moving abrasive belt, disc or wheel and the adjacent face

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of the work rest (or table) will permit passage of the work piece through the gap (nip point). Note, however, that certain alloys such as titanium may create conditions where grinding debris can accumulate in a tight gap creating a potential fire hazard. **When in doubt consult with your safety officer.** Failure to observe this warning may result in the work piece or other item being caught in this gap, and/or being forcibly ejected. Failure to heed this warning may cause serious bodily harm to the operator and/or bystanders. **NEVER USE THIS EQUIPMENT IF YOU ARE NOT PROPERLY TRAINED IN ITS OPERATION and/or SAFE USE! IF IN DOUBT STOP and ASK FOR GUIDANCE!**

18. Never position the work rest table at an acute angle between the top of the work rest table and the moving belt or wheel. Doing so will create “nip point” that can cause serious injury should an operator body part become entangled (pulled into) the nip point created by this acute angle.

19. Do not operate the equipment, or allow others to operate the equipment without proper training in these and other rotating machinery safety requirements.

20. Do not perform maintenance on the equipment unless you are fully qualified to do so, and understand all necessary safety and operating requirements.

21. Do not leave the machine unattended while it is running.

22. Correct equipment or safety problems immediately. Do not operate the equipment when it requires maintenance, or correction.

23. Install and use high quality abrasive belts, wheels, discs, media, etc., as appropriate to your machine. Understand and follow the operating requirements provided by the manufacturer of these materials.

Rotational Speed Warning, Contact Wheels

Scope: Contact wheels manufactured by Burr King Manufacturing Company, Inc., which have rubber or urethane tires. Examples include but are not limited to stock codes 202, 302, 402, 502, 702, 802, 902, 1002, 1202 and variants. Variants have stock codes that begin with the base number; i.e. 802-S-55 is an 802 variant.

Users are warned not to exceed the below listed revolutions per minute (RPM) on the subject wheels. Failure to heed this warning may lead to tire de-bonding, fragmentation, or other mechanical failure. Such failures may cause serious personal injury to operators or bystanders, and/or cause property damage. All Burr King products are warranted for various time periods to be free of material and/or workmanship defects. Burr King Manufacturing Companies standard warranty policy is summarized as follows for contact wheels. 1 year from date of purchase if mounted on a Burr King machine purchased on the same date or 90 days if purchased as a spare or replacement part. Our warranty does not apply to wheels that are mounted on products not manufactured by Burr King Manufacturing Company, Inc. Users who mount Burr King manufactured contact wheels on product not manufactured by Burr King Manufacturing Company, Inc. do so at their own risk and assume all liability for having so mounted the contact wheel(s).

Remember good safety practice demands guarding to protect operators and bystanders from wheel failure and/or debris. Never use the subject contact wheels without proper guarding that meets commonly accepted safe practice. See OSHA, U/L, CSA, CE, ISO and other respected safety standards.

<u>Stock code</u>	<u>Maximum Safe RPM</u>
202, 302	10000
402, 502, 702 802	4400
902, 1002	2200
1202	1600

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Occupational Noise Exposure

Burr King products produce levels of noise consistent with their intended purposes. The level and spectral content of noise produced is dependent on the product type, the degree that the product is maintained in proper operating condition, the abrasive/media and accessories used, the specific application, and the surrounding environment. Noise levels produced by various Burr King grinders and polishers, as measured at the Burr King factory, range from 80 to 93 decibels. Product operators and persons in the immediate product vicinity should be protected from excessive noise does levels as prescribed in OSHA regulation 29, piece 1910.95 titled "Occupational Noise Exposure".

ROTATING EQUIPMENT CAN BE DANGEROUS TO OPERATORS AND THOSE WHO MAY BE IN ITS IMMEDIATE OPERATING VICINITY. IT IS THE ABSOLUTE AND DIRECT RESPONSIBILITY OF PURCHASERS, MANAGERS, AND OPERATORS OF THIS EQUIPMENT TO UNDERSTAND AND OBEY THE FOREGOING MINIMUM OPERATING SAFETY REQUIREMENTS. IF YOU HAVE QUESTIONS OR SAFETY CONCERNS REGARDING OPERATING THE SUBJECT EQUIPMENT PLEASE CALL YOUR AUTHORIZED BURR KING DISTRIBUTOR, OR BURR KING MANUFACTURING AT 1-800-621-2748. YOUR SAFETY IS OUR FOREMOST CONCERN!

Burr King Manufacturing disclaims any and all responsibility for injuries, damage, loss of income, or other adverse consequence as might be incurred by purchasers, managers, and operators of this equipment.

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March 2005

Installation/Operating instructions for the model 20 disc grinder

The model 20 disc grinder is a three horse power heavy duty disc grinder intended for de-burring, shaping, beveling, metals, plastics, woods, and other materials using a 20 inch PSA abrasive disc that rotates at up to 1750 RPM. Various models are available that include fixed disc speed, fixed disc speed with disc brake, and electronic variable speed with integrated disc braking.

Models with disc brakes are recommended. The heavy rotating disc and connected motor armature will rotate for several minutes after power is removed. Should an unsuspecting person touch the rotating disc serious injury may occur. Do not use this machine if it does not include a disc brake and your operating needs are such that personnel could be exposed to this hazard.

Prior to operating the model 20 please take time to do the following:

1. Insure that you have received all of the items that you ordered. Compare the packing slip with your purchase order, and of course with the physical items received.
2. Verify that there is no obvious shipping damage. If shipping damage is discovered notify the freight carrier of your intention to file a freight damage claim. They will assist you.
3. Verify that the AC power that is identified on the machine as received matches the AC power that you intend to operate the machine with. Do not modify the machine's wiring without first contacting your distributor and/or Burr King Manufacturing.
4. Do not modify or defeat any AC wiring safety feature.
5. Verify that you have received a warranty card, parts lists, catalog, and Operator, and Operating Area Safety Instructions.
6. Complete the warranty card and return it to Burr King Manufacturing.
7. Verify that all guards are in place and functional.
8. Insure that the grinder is located in an area that provides clear access to the machine such that operators have safe and unobstructed access to the machine. The work place should be free from floor obstructions, trip points, and other faults that may reduce operator safety.
9. Burr King recommends that all three-phase installations include a magnetic starter. Magnetic starters protect motors from "single phasing", overheating, etc. thereby reducing the risk of damage to the equipment and/or fire hazard to your facility. Note that models with variable speed control supplied by Burr King include the foregoing safety features without the addition of a magnetic starter.
10. Insure that the model 20 AC power source is properly sized, and properly fused. In general, the three horse power motor that is standard will draw 8 or 4 amperes with a 220v or 440v three phase supply. You should consult a competent electrician for the correct electrical feed arrangements, or you may call Burr King Manufacturing for guidance.

Functional operating instructions for the model 20 belt grinder

The model 20 was fully tested and verified to comply with requirements prior to shipping from the factory. No adjustments should be necessary. You should perform the following steps:

1. Securely bolt the machine to the floor. Note that the pedestal base has four holes that are sufficient for ½ inch anchor bolts. Do not use anchor bolts that are less than 3/8 inch in diameter and/or that do not provide for at least 2 ½ inches of depth grip in secure concrete.

2. Verify that the disc spins freely. Note that on models with motor brakes the disc will be locked. At the rear of the motor you will find a control that when rotated will free the brake to rotate. This control should be left in the locked position for normal operation of the machine.
3. Verify that the gap (nip point) between the PSA abrasive disc and the table edge next to the front of the disc is less than 1/8 inch. This gap is set at the factory to comply with this requirement. The gap should not change unless table erosion occurs, maintenance to the machine is attempted, or damage has occurred.
4. To install or remove an abrasive disc push the disc guard to its rear most position. Install the PSA disc taking care to position it concentric to the aluminum backing disc.

Note: To remove or replace a PSA disc it is necessary to lower the disc grinder table clear of the aluminum backing disc. To do this first unlock the table by loosening the table clamp at the rear of the machine. Lower or raise the table by rotating the large hand wheel to the right of the table.

Note: PSA abrasive discs can leave a residue on the aluminum backing disc. Normally this can be cleaned with isopropyl alcohol and a soft rag.

Note: Do not spin or otherwise force the table mechanism to the end of travel up or down. To do so may shear keepers, shafts, or gears inside the table gear box. Always secure the table with the table locking clamp before using the model 20 grinder.

5. As before assure that the disc spins freely.
6. Loosen the table locking knob to the left of the table. Using the small hand wheel to the right of the table verify that the table can be angled in respect to the disc. Always re-lock the table.

Grinding modes

1. The direction of disc rotation determines the point of grinding.

Never grind on the side of the disc where the movement of the abrasive disc is upward from the table. Doing so may create an operator hazard from debris, and or ejected work pieces.

2. Supported work: Always use work piece holding devices to minimize the risk of operator contact with the rotating abrasive disc.
3. For controlled angle grinding tilt the table down to any angle from 0 to 45 degrees. Read the angle on the indicator found on the small hand wheel. Note: Use of a precision protractor is recommended where angles of plus/minus 2 degrees are required.
4. Use the available miter attachment for grinding compound or other angles.
5. Use reduced disc speed (variable speed models) for many materials where abrasive speed is critical. The abrasive speed at the outer disc perimeter is approximately 9000 SFPM at 1750 RPM.

Note: Never grind with the table tilted in an acute angle (up) in respect to the disc while holding the work piece by hand. The disc may seize the part stall the machine, and or injure the operator. This operating mode should only be used where the work part is firmly secured to the table as in bolting, clamping, etc. and the operator is well protected from potential injury.

Note: Never position work pieces at an acute up angle with disc with the table at any angle. Doing so may lead to serious operator or bystander injury.

Note: Never grind material that is less than 1/4 inch thick in its smallest dimension without the use of work piece holding devices that protect the operator and bystanders. Doing so may lead to serious operator or bystander injury.

Beware that thin (less than 1/4 inch) material can lodge in the gap between the table and the disc creating a potential for serious injury, and/or property damage.

Maintenance for the model 20

ALWAYS DISCONNECT THE MACHINE FROM ITS AC POWER SOURCE PRIOR TO CHANGING THE PSA DISC OR PERFORMING MACHINE MAINTENANCE.

1. Vacuum or otherwise remove dust and debris build-up from the machine.

2. Lightly grease the gears inside the table rotator and table gear box every 6 months or when ever movement seems restricted.
3. Apply a light coat of thin machine oil to the central column every 30 days.
4. Keep the dust channel under the disc and any connected dust conduits free from dust build up.
5. Use spark arrest devices to minimize the risk of fire or explosion.
- 6.

Remember for operator safety and the continued effectiveness of your model 20:

Read and understand these instructions and the included “Operator and Operating Area Safety” instructions.

Do not operate the model 20 until you are fully trained to do so safely.

Do not defeat the safety guards and other safety provisions of the model 20.

Do not operate the model 20 with safety guards removed, or counter to these instructions.

Do not reach inside the safety guards while the machine is running.

Do not use fluids in your grinding process unless your model 20 is designed for liquid operation (NEMA 4, 4X). To do so may create an electrical safety hazard. Only specially ordered model 20 grinders are “liquid safe”.

Do not use your model 20 to grind/polish explosive materials unless it is equipped with explosion proof electrical devices and motor.

Do not mix alloys in your grinding. To do so may create an explosion/fire hazard.

Do not modify the model 20 other than securing holding devices to the work table.

Do use eye, hand, face, arm, leg, feet and body protection that is adequate to protect against flying debris, forcibly ejected work pieces, etc. Note: Consult with your safety officer in regard to your facilities policy regarding attire such as gloves when using rotating equipment.

Do train operators and others in safe operating practices.

Post these or equivalent instructions such that they are available for ready operator reference.

Burr King Manufacturing can help you with problem solutions, and/or answers to your questions. Please call your Burr King distributor first. If you can not reach satisfactory conclusion please call the Burr King factory, telephone 1-660-438-8998.

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