



**BURR KING MFG. CO., INC**

1220 Tamara Lane

Warsaw, MO 65355

www.burrking.com

(660)438-8998 • 800-621-2748

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# VIBRAKING MODEL 40 INSTRUCTION MANUAL



*Model 44200 Shown  
with optional FilterPak 8000*

# BURR KING VIBRAKING MODEL 40 VIBRATORY LARGE BOWL



**BURR KING MFG. CO., INC.**  
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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.

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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!**





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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.**

**Page 3 is last page**



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## **VibraKING® 40 operating instructions**

November 2006

### **General description**

The VibraKING® 40 vibratory chamber uses commonly available abrasive or burnishing media to de-burr, polish, de-scale, or otherwise surface condition parts made from various materials. The media and parts rotate and vibrate simultaneously being subjected to thrust vectors that apply working force to the combination.

M40 vibratory chamber is inherently well isolated from its environment because of HemiFLEX® suspension, tub design, and other design features. The effect of this isolation is a total noise generation generally well less than 85 dB. This value can vary significantly depending on various conditions. Where noise levels are of human concern wear ear protection

The M40 has two descriptive volumes, “4.0 cubic feet total volume” and “2.2 cubic feet working volume”. The total volume is that volume of liquid (or media and parts) that would fill the tub to its brim. Because there are many different part geometries with different weights, and materials meaningful ways to specify working capacity are “working volume” and “part load”. Working volume includes the volumes occupied by the media and the parts. Maximum part load is that part load weight (irrespective of part volume) for which the vibratory chamber can sustain working action. Factors such as part geometry can reduce or even increase the maximum permissible part load. The final measure of optimum working capacity then becomes the combined part and media load for which the desired results occur within an acceptable time frame.

As with all processes, continuously successful vibratory processing depends on process variables remaining relatively constant in order to achieve relatively constant results. Process variables include the incoming condition of the part(s), the part load size, the serviceability of the media, the amount of fluid used, the type and quality of fluid additives, the condition of the equipment, the cleanliness of the system and associated supplies, and of course the process time. Should any of the process variables move out of limits the quality of the process output may suffer. Therefore manage your vibratory process as you would any process from which you expect cost effective, consistent, and quality results.

The following information will help you establish your process and attain consistent results.

### **Initial machine setup and operation**

**WARNING:** This equipment is heavy. Observe safe practice when attempting to install, move, maintain, or otherwise work on it. For your convenience the M40 is shipped from the factory with forklift points bolted to the machine sides. Assure that the two forklift points are securely bolted to the M40 prior to using them. **DO NOT** attempt to lift the M40 with steel media or other similarly heavy media installed. The forklift points are designed to lift the M40 plus up to 250 pounds of media. Failure to observe this caution may create a safety hazard that can result in personal injury.

**CAUTION: Remove the forklift points prior to operating the machine.. The machine will operate with the lift points in place but the lift points may create a personal bump hazard.**

**It may not be necessary to bolt the M40 to the floor unless your floor is very smooth or slick.**

**WARNING: Machines not anchored to the floor may “walk” while operating. Walking may occur with a light total load, if one or more of the machine feet are not in firm contact with the floor regardless of the load, or if the floor is not clean and free of debris, oil, or other materials that hinder the ability of the rubber machine feet pads to grip the floor.**

- Locate the machine conveniently. The floor should be firm and structurally sound; concrete is an ideal surface.
- Assure that the six machine feet are in uniform contact with the floor. Do not use the machine feet to elevate the M40 as you may damage the machine feet, which have less than ½ inch of vertical adjustment.
- If you elect to bolt the machine to the floor, place a rubber washer (at least 1/8 inch thick) between the nut-washer and the machine base surface. Use an elastic nut or other locking type nut arrangement. Tighten the nuts to lightly engage the rubber washer. The machine when mounted on its machine feet must be free to move vertically. If you over tighten the anchor bolt arrangement the natural motion of the machine will dislodge the bolts. **Note that the bolts are used as “bump-stops” and not as hard tie-downs. Burr King Manufacturing can supply a bolt down kit for your model 40. Note also that there are three bolt down sites that are pre-drilled near lower base edge of the M40.**

### Occupational Noise Exposure

**Burr King vibratory bowls produce levels of noise consistent with their intended purposes. The level and spectral content of noise produced is dependent on the tub size, the degree that the bowl is maintained in proper operating condition, the abrasive/media and accessories used, the specific application, use or not of the optional lid, and the surrounding environment. Noise levels produced by various Burr King vibratory products, as measured at the Burr King factory, range from 73 to 93 decibels. Product operators and persons in the immediate product vicinity should be protected from excessive noise dose levels as prescribed in OSHA regulation 29, part 1910.95 titled “Occupational Noise Exposure”.**

**VibraKING® 40 units produce spectral noise typically below 85 dB. The actual noise level and spectral content generation is heavily dependant on the type and style of media as well as the part configuration and load used with the machine.**

### Electrical requirements:

**WARNING: Only qualified Electricians should perform electrical installation, adjustments, maintenance, or modifications to this equipment. Failure to observe this caution may create a lethal safety hazard.**

**WARNING: Install this equipment in accordance with local electrical codes and regulations. Failure to do so may create a lethal safety hazard.**

**NOTICE: Improper electrical installation may void the M40 warranty. Please contact your Burr King distributor or the Burr King factory for assistance.**

<u>Equipment</u>	<u>Suggested service rating</u>
<u>Single phase models</u>	
2.0 hp, 220 VAC	15 ampere
<u>Three phase models</u>	
2.0 hp, 208 to 260 VAC	10 ampere
2.0 hp, 416 to 480 VAC	5 ampere

**Liquid pumps are 120 volt or 220 volt, single phase and may require a separate 1-ampere supply.**

**Unless specified at purchase three phase models are not equipped with a magnetic starter or power cord. Three phase machines should be connected to the mains supply via a magnetic starter. Failure to use a magnetic starter may create a /fire hazard, and/or void the motor warranty.**

**NOTICE: All variable speed models are equipped with a controller that incorporates the protective properties of a magnetic starter.**

**NOTICE: All variable speed models use 3-phase motors regardless of incoming phase. In example a 220 volt, single-phase variable speed model uses a 2.0 horse power motor wired for 220 volts, 3 phase.**

**If you are unsure about the installation of your machine, or its electrical configuration please consult with the Burr King factory.**

#### **Loading media and parts into the machine**

If you purchased a media kit from Burr King, install the media and compounds into the chamber using the prescribed quantities and mixtures. Otherwise follow the instructions provided by your supplier. Do not exceed the media load prescribed for your machine. The M40 is capable of driving a combined media and part load of 350 pounds maximum. With ceramic and other lighter forms of media fill the chamber with media such that during operation the outer edge of the media wave rises to just below the separator tray (if equipped) or the inner rim located about half way down the chamber inner face.

**NOTE: Over loading or over speeding (variable speed) the machine may significantly reduce expected service life. If you use steel media note that steel media generally weights 200 to 350 pounds per cubic foot (non-steel media generally weights 20 to 125 pounds per cubic foot). To avoid possible machine damage and/or reduced machine life do not add media and parts to the machine such that the load exceeds 350 pounds.**

Assure that the screen installed in your M40 is suitable to separate your parts and media. The media should freely flow through the screen and return to the vibratory chamber. The parts should progress down the separator tray and exit the machine to your container of choice. Note: unless otherwise ordered your machine is equipped with a screen with 1-inch mesh holes for the media to pass through. 1/2 inch and 1 3/8 inch mesh screens are available from Burr King Manufacturing.

Place your parts into the tub. The part load prescribed is not a maximum but rather a nominal weight. The geometry, material, and weight of your parts will determine the part load you can achieve. The greater the total load, the harder the machine must work to sustain suitable wave and vibration energy delivery. Do not exceed a maximum total load of 350 pounds. To do so may shorten the life of your machine, damage your parts, and/or diminish process capability.

#### **Good media and part motion**

Vigorous media and part movement evidence good motion. A rotating wave with the highest portion of the wave rising up the under side of the separator tray signifies proper wave motion. Vibratory wave motion can be controlled by the speed of the machine (variable speed models), and/or adjusting the rotating mass by adding or subtracting weight in ½ pound increments, order weight kit part number 3504-1 from the factory.

**WARNING: Never apply electrical power to this equipment with the maintenance access panels removed, or if there is any indication of improper or unsafe operation. Failure to observe this caution will create a safety hazard.**

**NOTICE: The drain plug on your M40 is replaceable. If you run fine, dry media install a blanking plug part number 3508. Other liquid drain plugs are available. Please consult with the factory.**

#### **Operation of the M40**

**WARNING: Avoid fire and explosion hazards. The use of fluids other than water and Burr King specified soap in your VibraKING® chamber (or an associated fluid re-circulating system) may**

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Contact us at [info@burrking.com](mailto:info@burrking.com)

create a fire/explosion hazard that could result in personal injury, or death. Use only clean water with recommended soaps.

**WARNING: Avoid eye damage, flesh burns, and/or poisoning. Many vibratory processing soaps, compounds, and media are acidic or caustic. Wear appropriate flesh, ear, and eye protection gear when using vibratory soaps and compounds, and when working around and with your VibraKING chamber. Do not ingest these materials. MSDS sheets are available for all soaps, compounds, and media sold by Burr King Manufacturing. Obtain, read and apply the precautions specified in the MSDS sheets.**

Fixed speed single phase machines: Place control panel switch to **RUN** to start the machine in the counter clockwise direction to process your parts. Place the control to the **OFF** position wait 10 seconds and then place the control in the **SEP** position to reverse and unload the machine via the off loading ramp, and screen separation system if so equipped.

Fixed speed three phase machines: Place the control panel switch in the **OFF** position. Press the magnetic starter **START** button, proceed as with a single-phase machine.

Variable speed machines: Press the **START** button to process the parts. To off load the parts press the **FWD/REV** button, and then press **ENTER**.

**Note:** When separating parts you may find it helpful to run in the SEP (REV) mode for a few minutes and then in the RUN (FWD) mode for one minute, returning to the SEP (REV) mode. Jogging between these functions will help to maximize unloading of parts.

Programming variable speed machines for different parameters. Please read and follow the instructions provided with the controller for your particular machine. NOTE: to avoid shortening machine life, do not:

- Operate the machine above 2500 RPM (68% controller speed command)
- Accelerate/Decelerate times less than 5 seconds
- Use carrier frequencies above 12 kilo-hertz

Variable speed machines can be connected to PLC (programmable-logic-controllers) for remote or local control of machine speed, load/start/stop/reverse/off load functions, and sequence time periods. Please consult the instructions provided with the variable speed controller and the PLC to be used.

There are many compounds (soaps) that are available to use in vibratory machines. Your choice will depend on the materials, media, and results that you are using and desire. Fluids and compounds serve to improve finish, speed results, extend media life, and in some cases to retard oxide formation. The following is a partial list of guidelines:

1. When processing aluminum or other non-ferrous materials to a burr free state with matte finish select liquid soap such as **BKS60 or AR60** and mix it with water at a concentration of 3 to 5 ounces per gallon of water. Adjust the metering valve to deliver a steady trickle of fluid to the chamber. A reasonable mechanical gauge is to set the metering valve handle so that it is approximately at a 45-degree angle to the centerline of the valve. For finer fluid control you must install a flow meter, most users find this unnecessary. If you elect to install a flow meter set the fluid flow between 1 and 8 gallons per hour as a starting point. To improve your parts surface condition post processing always rinse your parts in clean water shortly after removing them from the chamber, then dry them to minimize spotting. Remember that many metals will oxide rapidly when machining, etc. expose fresh metal (as is the case with vibratory processing). If this is a problem there are various chemicals that are available that you may use to dip your parts in post vibratory process to minimize oxide formation. Consult with your metals supplier, or Burr King Manufacturing.

2. When processing steel and other ferrous materials to a burr free state with a matte finish select a liquid soap that also contains a rust inhibitor such as **AR60 or RUST X-100**. Mix the soap with water at a concentration of 3 to 5 ounces per gallon of water or as recommended by the soap manufacturer. Adjust the M40 metering valve to deliver a steady trickle of fluid to the chamber. A reasonable mechanical gauge is to set the metering valve so that it is approximately at a 45-degree angle to the centerline of the valve.

For finer fluid control you must install a flow meter, most users find this unnecessary. If you elect to install a flow meter set the fluid flow between 1 and 8 gallons per hour as a starting point. To improve your parts surface condition post processing always rinse your parts in clean water shortly after removing them from the chamber, then dry them to minimize rusting. Remember that ferrous metals will oxide rapidly when machining, etc. expose fresh metal (as is the case with vibratory processing). **AR60 or RUST X-100** will provide temporary retardation of rust formation. Depending on humidity, temperature, and other conditions the temporary rust inhibition will be from a few hours to several days. If your materials require longer protection, concentrated rust inhibitors are available that you may use to dip your parts in post vibratory process to inhibit rust formation for several days to several months. Consult with your metals supplier, or Burr King Manufacturing.

3. When de-scaling steel (i.e.) use a de-scaling agent such as **BKD80**. This compound is used in place of other soaps and mixed in ratios from 3 to 6 ounces/gallon of water. Following processing neutralize the parts by dipping them in a rich solution of **AR60** soap (6-ounces/gallon water) and then dry the parts.

4. Many materials may be brought to a fine, lustrous, low RMS finish by using non-abrasive porcelain polishing media together with a burnishing compound such as **BKB40** metered with the water. Follow the burnishing compound manufacturer's instructions as to concentration, etc.. Clean and dry your parts as described above immediately after processing.

5. Many materials may be polished to a high luster using special media such as walnut shell, corncob, etc. Typically, these types of media are used dry, without the use of fluids. If you wish to use dry process media do not use the liquid delivery system. It will also be necessary to plug the outlet drain of your VibraKING chamber to prevent the media from escaping out the outlet. Secure a drain plug (P/N 3508) from Burr King Manufacturing for this purpose. **NOTICE: Never operate the liquid pump dry. Doing so may damage the pump.**

#### **A note about the center hub cover panel**

The center hub of the machine is provided with a cover attached with 4 screws. This panel has two purposes:

1. As a air flow conduit to assure adequate drive system cooling.
2. As a safety shield to prevent inadvertent personnel contact with the internal rotating parts.

**DO NOT allow fluids, debris, parts, or other foreign materials to enter the center hub of the machine. Doing so may cause the machine to mal-function and will shorten bearing service life. The holes in the panel are necessary for proper cooling.**

#### **A special note about fluids**

Use fluids fluid as recommended by Burr King Manufacturing or other thrust worthy source. The liner used in the VibraKING (urethane) is very tough and resistant to abrasion. Certain chemicals may however, attack it. In example, mineral spirits will leach the agents from the urethane and reduce its service life. If in doubt consult with Burr King or a chemist who is knowledgeable about urethane. Likewise, many chemicals can damage the pump and associated apparatus.

#### **Precautions you must take with fluids and other materials**

Only use fluid as recommended by Burr King Manufacturing. The liner used in the VibraKING (urethane) is very tough and resistant to abrasion. Certain chemicals may however, attack it. In example, mineral spirits may leach agents from the urethane and reduce its service life. If in doubt consult with Burr King or a chemist who is knowledgeable about urethane. Remember; never use flammable chemicals in your VibraKING chamber. Likewise, many chemicals can damage the pump and associated apparatus.

Additionally, there are many different chemicals in use as coolants, cutting fluids, and for other purposes commonly found in facilities such as machine shops. Burr King cannot guarantee the compatibility of the various soaps and fluids that we sell with the chemicals and fluids you may use. You as the consumer must assure that the fluids and chemicals that you elect to use are compatible with each other and with other materials. **It is possible that chemical reactions between fluids and/or materials that you use could be a treat to human health and safety; and/or create conditions that are deleterious to the VibraKING system, peripheral equipment, and/or your parts.**

See our catalog at [www.burrking.com](http://www.burrking.com)

Contact us at [info@burrking.com](mailto:info@burrking.com)

**WARNING: Do not use flammable fluids or other materials in or near the Model 40 vibratory chamber. To do so may create danger to personnel, plant, and equipment due to fire or explosion.**

**NOTICE: Unless specially ordered from the Burr King factory the VibraKING® 40 is not NEMA 4/4X rated for wet or wash-down operation. Authorized fluids required within the vibratory chamber enclosure for ordinary operation, and associated apparatus are not considered “wet or wash-down” application.**

### **Tips for optimizing your vibratory process results**

It is impossible to anticipate all possible combinations of materials, shapes, media, and compounds that customers may use in this equipment. It is therefore, not possible to provide specific directions for media selection, compounds, process times, etc. There are, however, general guidelines that will help to target the optimum process. These include:

1. Select your media and compounds after consulting with the Burr King factory, a qualified media supply house, or your Burr King distributor. See the previous section on using fluids and compounds.
2. Clean your equipment regularly. This will help in keeping your processed parts free of stains, dust, etc.
3. Use fresh fluids and change them often.
4. Clean and rinse parts quickly after processing. Non ferrous parts may stain if not cleaned and dried properly. Ferrous parts may rust. There are compound additives that will help prevent rust formation, and/or to extend post process shelf life without rust formation.
5. Media wears out in time. The longer media is used the less is its cutting power. This “wearing out” is akin to the exhaustion of life encountered with an abrasive belt, or wheel. Softer materials such as aluminum tend to clog the media, harder materials tend to wear the surface of the media. The use of fluids will help to optimize your results. Burr King recommends that you establish a regular schedule for changing and discarding your media. You will gain knowledge regarding process times, media life, etc.. Keeping records of your process variables will help you optimize your process.
6. Vibratory processing creates sludge in the liquid supply system. This sludge is a natural result of the mechanical abrasion that occurs. The sludge may contain abrasive residue, part material residue, soap, or other materials that you may introduce into the process. This sludge should be processed and discarded in a manner that is acceptable to your local, and/or state environmental protection agencies. Since Burr King can not know what materials a customer may introduce into the process, it cannot provide specific instructions regarding this topic. Of course Burr King can provide MSDS sheets for all media and chemical products that we sell.
7. Use a filtration system such as the Burr King FilterPAK® 4000 to keep your fluids cleaner and to greatly minimize difficulty in sludge disposal. The FilterPAK 4000 incorporates inexpensive, disposable filter bags that trap sludge for ready disposal. Of course the fluid that is returned to your vibratory chamber is much cleaner. Cleaner fluids mean cleaner parts, better finishes, faster processing time, and naturally less mess in your shop, and responsible waste management. Many users who process aluminum, steel, iron, copper, and other non toxic metals find that the FilterPAK 4000 filter bags may be sent to public land fills as normal refuse. **Always consult with your local authorities if you are in doubt about proper waste disposal.**

### **Controlling rancid fluids**

Vibratory fluids will accumulate organic contaminants from operators, parts, etc. The fluids may become rancid, producing a foul smell. You can easily control rancidity by keeping your chamber, filter system, etc. clean. In the event of rancidity add a small amount of “Lysol” disinfectant to the media while the machine is operating. Ordinarily, a couple of tablespoons full will work very well and not adversely effect your vibratory processing. In fact, many metals react favorably with “Lysol” by finishing to a brighter level.

### **Discharging media**

The media discharge chute is located on the lower portion of the machine right side. The chute plug may be removed by pulling it free of the tub after loosening the retaining clamp. With the machine operating, the media and parts (if smaller than the tube diameter) will cascade from the tube to a container of your choice.

### **Maintenance of your Burr King Model 40 vibratory chamber**

**Warning: NEVER open the machine service access panels without first removing electrical power. We recommend that your main electrical service to the unit be equipped with an OSHA approved lockout-tagout switch.**

Maintenance includes:

- a. Cleaning the unit, and assuring mechanical fasteners are secure.
- b. **Applying grease to the main shaft bearings. 1 oz of grease should be applied to each main shaft bearing every 200 hours of operation. Use a lithium soap (NLGI-2) base, extreme pressure rated grease. Failure to use the prescribed grease will result in premature bearing failure.**  
**A tube of the recommended grease is included with each machine. Do not mix grease types and manufacturers. Burr King recommends Sta-Lube P/N SL3160.**
- c. If drive belt adjustment or replacement is necessary. Do not over tighten the drive belt. **Proper operation of the M40 demands that the drive belt be operated much more loosely than ordinary motor belt drive systems.** A properly installed v-belt can be easily compressed side to side with light pressure. Numerically, a properly set belt will require about 5 pounds compression to squeeze the belt sides to within 3.5 inches of each other.
- d. If the motor is equipped with a zerk fitting, grease on the same schedule as the main bearings.

### **Warranty service and replacement parts**

Should you require warranty service, or replacement parts, please contact your Burr King distributor. The Burr King factory may be reached at **1-800-621-2748**. The motor manufacturer warrants the main drive electric motor; to obtain motor warranty service contact the motor manufacturer's service center in your area. **NOTICE: when inquiring about warranty service or replacement parts please be prepared to provide the actual machine part number, and its serial number.**

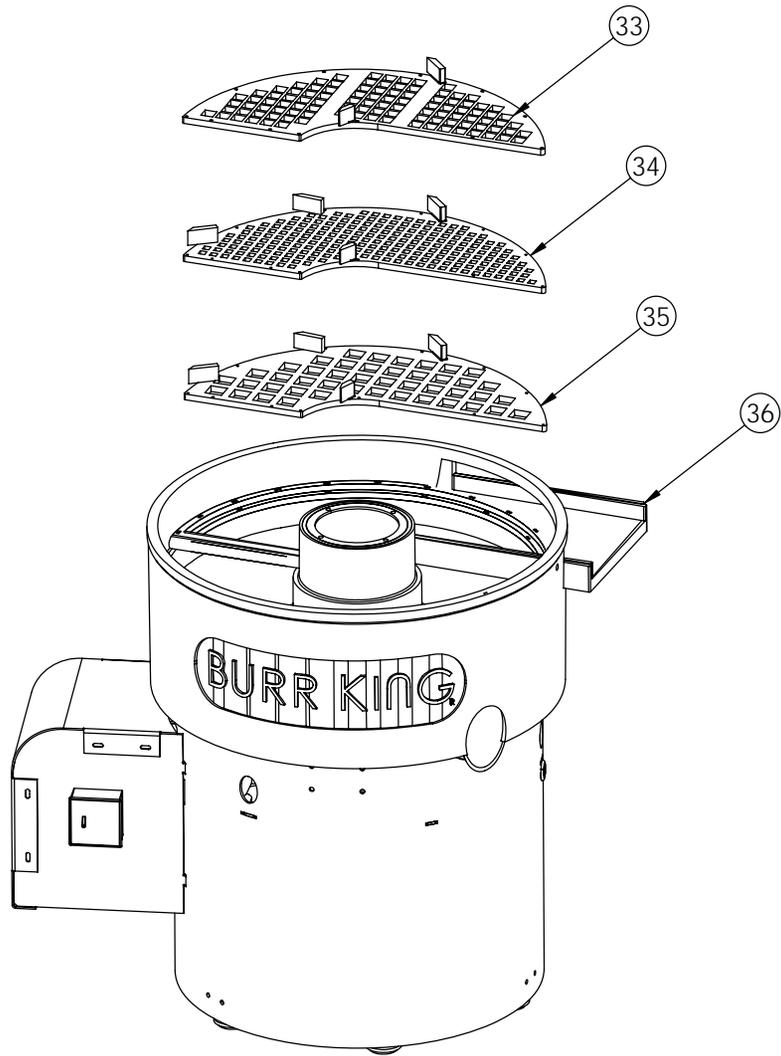
### **Modifications to your vibratory chamber**

**Modification of the machine from its as shipped condition from the factory may create a safety hazard, and may void the factory warranty. If you have any questions in this regard please consult the factory before making any modifications.**

**Thank you for purchasing your VibraKING 40 chamber. We are confident that it will serve you well for years.**

**Burr King Manufacturing**

ITEM NO.	QTY.	PART NO.	DESCRIPTION
33	1	3518	SCREEN, SEPERATOR - 1"
34	1	3518-1	SCREEN, SEPERATOR - 1/2"
35	1	3518-2	SCREEN, SEPERATOR - 1 3/8"
36	2	3517	TRAY, M40



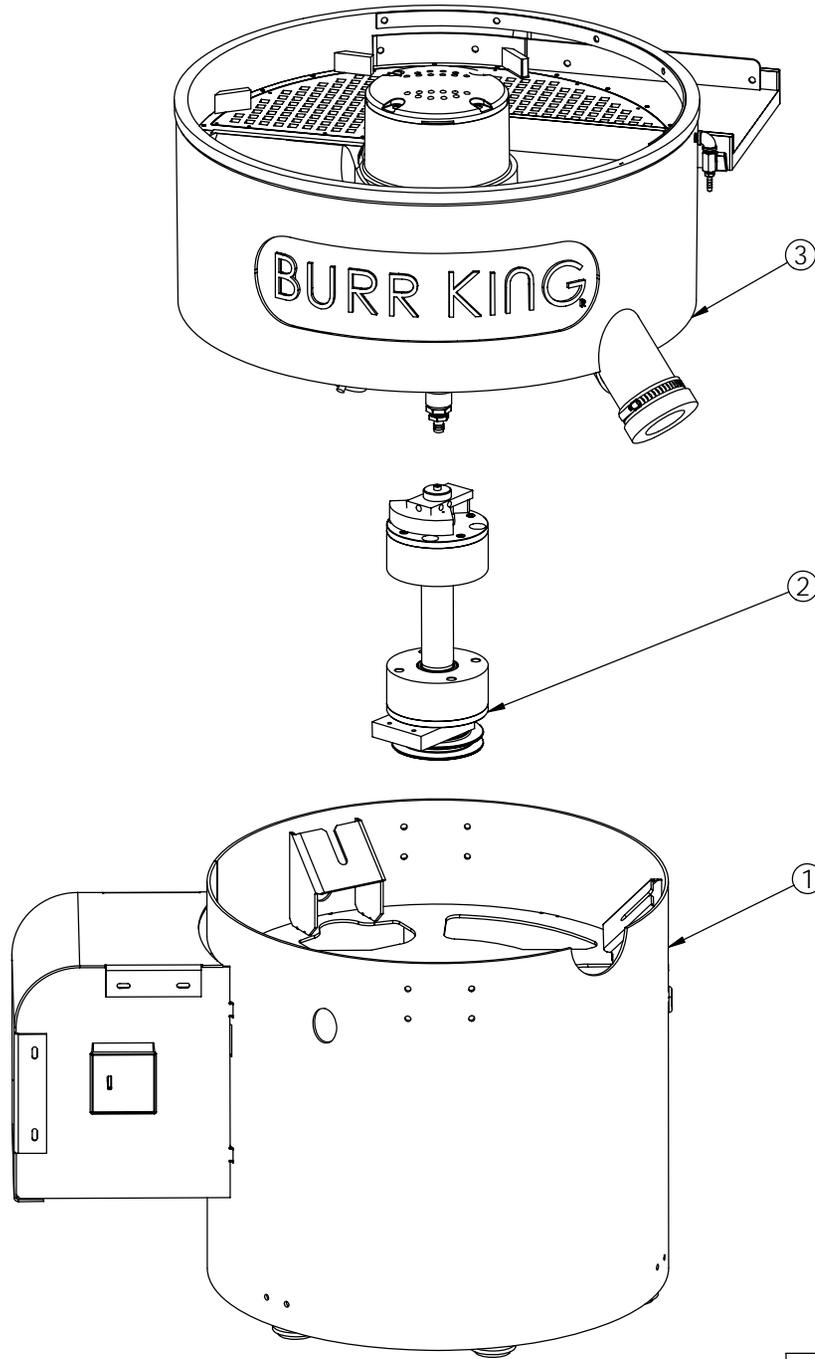
**BURR KING**

3 TAMARA LANE  
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 800-621-2748  
 FAX: 660-438-8991  
 E-MAIL: burrking@land.net

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REV	DESCRIPTION	REV DATE
A	PRELIMINARY, NOT FOR PRODUCTION	

STANDARD TOLERANCES		TITLE:	M40 MEDIA SCREENS	SHEET	1 OF 1
X.X = ±0.1		PART NO.	M40 OPTIONS	REV.	A
X.X X = ±0.01		DRAWN BY:		DATE DRAWN:	10-4-02
X.X X X = ±0.002					
ANGLE = ±1/2°					



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	PLATFORM	PLATFORM ASSEMBLY
2	1	DRIVE	DRIVE ASSEMBLY
3	1	chamber	CHAMBER ASSEMBLY

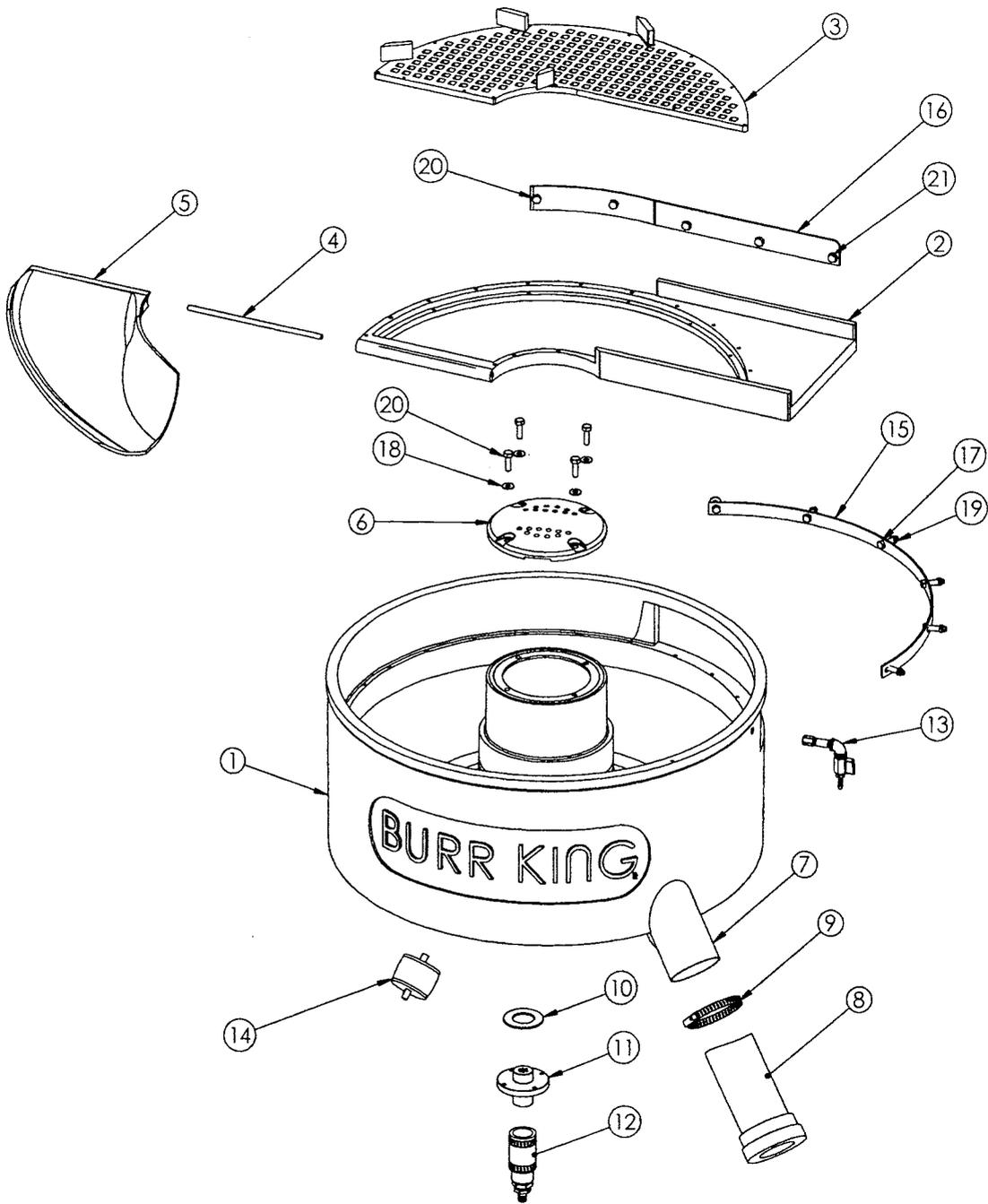
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STANDARD TOLERANCES	TITLE:	M40 ASSEMBLY	SHEET
X X = ±0.1			1 OF 1
X X X = ±0.01	PART NO.	M40	REV.
X X X X = ±0.002			B
ANGLE = ±1/2°	DRAWN BY: RJK	DATE DRAWN: 5-01-01	

REV	DESCRIPTION	REV DATE
B	REVISED TO SHOW OUTBOARD	10-04-02
A	PRELIMINARY, NOT FOR PRODUCTION	05-01-01

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ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	4010	TUB, VIBRA KING 40
2	1	3517	TRAY, M40
3	1	3518-1	SCREEN, SEPERATOR - 1/2"
4	1	3531	ROD, RAMP PIVOT
5	1	3517-1	RAMP, TRAY
6	1	3519	CAP, CENTER
7	1	3506	TUBE, CHUTE
8	1	3507	PLUG, CHUTE
9	1	3318	CLAMP, HOSE 3" TO 5" SCREW DRIVE
10	1	3532	GASKET, DRAIN 1/8 RED RUBBER
11	1	3508-1	1/8 DRAIN
12	1	DRAIN HOSE	DRAIN HOSE ASSEMBLY
13	1	WATER INLET	WATER INLET ASSEMBLY
14	3	3313	ISOLATOR, NEOPRENE, 75x55mm
15	1	3540	SUPPORT, WINDOW RING
16	1	3538	SUPPORT, TRAY OUTSIDE
17	6	1-0006	BOLT, 3/8-16 x 1 1/2, HEX
18	5	40	WASHER, SAE, 3/8
19	6	4-0005	NUT, 3/8-16, JAM, ELASTIC LOCK
20	6	1-0003	3/8-16 x 1 1/4 HEX HEAD BOLT
21	3	1-0001	3/8-16 x 1 HEX HEAD BOLT



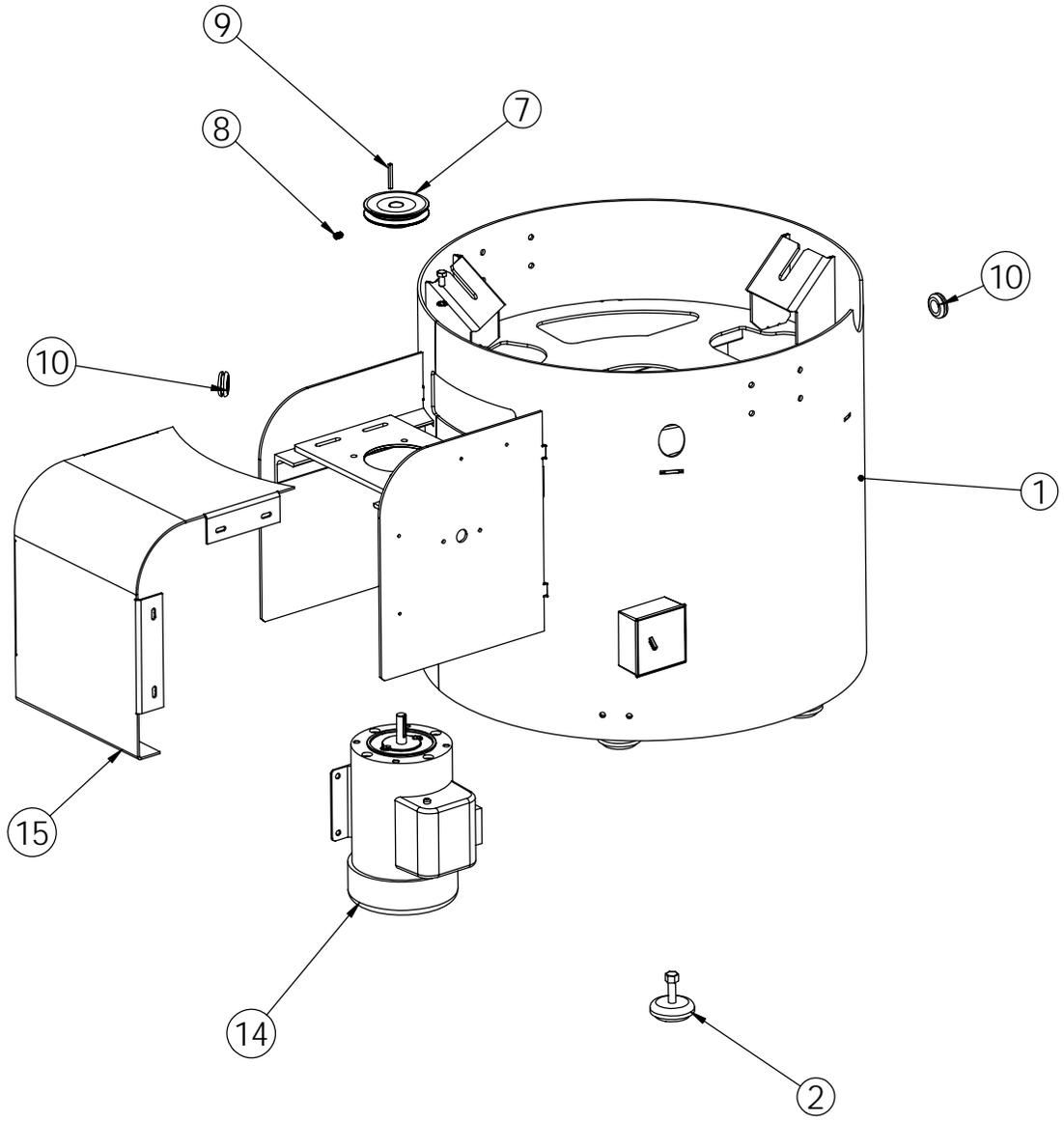
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STANDARD TOLERANCES	TITLE: CHAMBER ASSEMBLY	SHEET 1 OF 1
XX = ±0.1	PART NO. CHAMBER	REV.
XXX = ±0.01	DRAWN BY: RJK	DATE DRAWN: 5-25-01
XXX X = ±0.002		
ANGLE = ±1/2°		

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ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	4012-1	BASE, VIBRA KING 40
2	6	3314	FOOT, MACH. ISOLATOR, 68 SHORE
5	1	1-0005	BOLT, 3/8-16 x 3/4, HEX
6	1	5-0014	WASHER, LOCK 3/8, INTERNAL STAR
7	1	3527	PULLEY, 4.25 x 7/8 FIXED BORE
8	1	3-0001	SCREW, SET 3/8-16 x 1/2, BRASS TIP
9	1	1875-Key	3/16 SQ x 1 3/4 LG KEY
10	2	3511	GROMMET, RUBBER 7/8 ID x 3/16
14	1	MOTOR	VARIOUS
15	1	shroud lid	



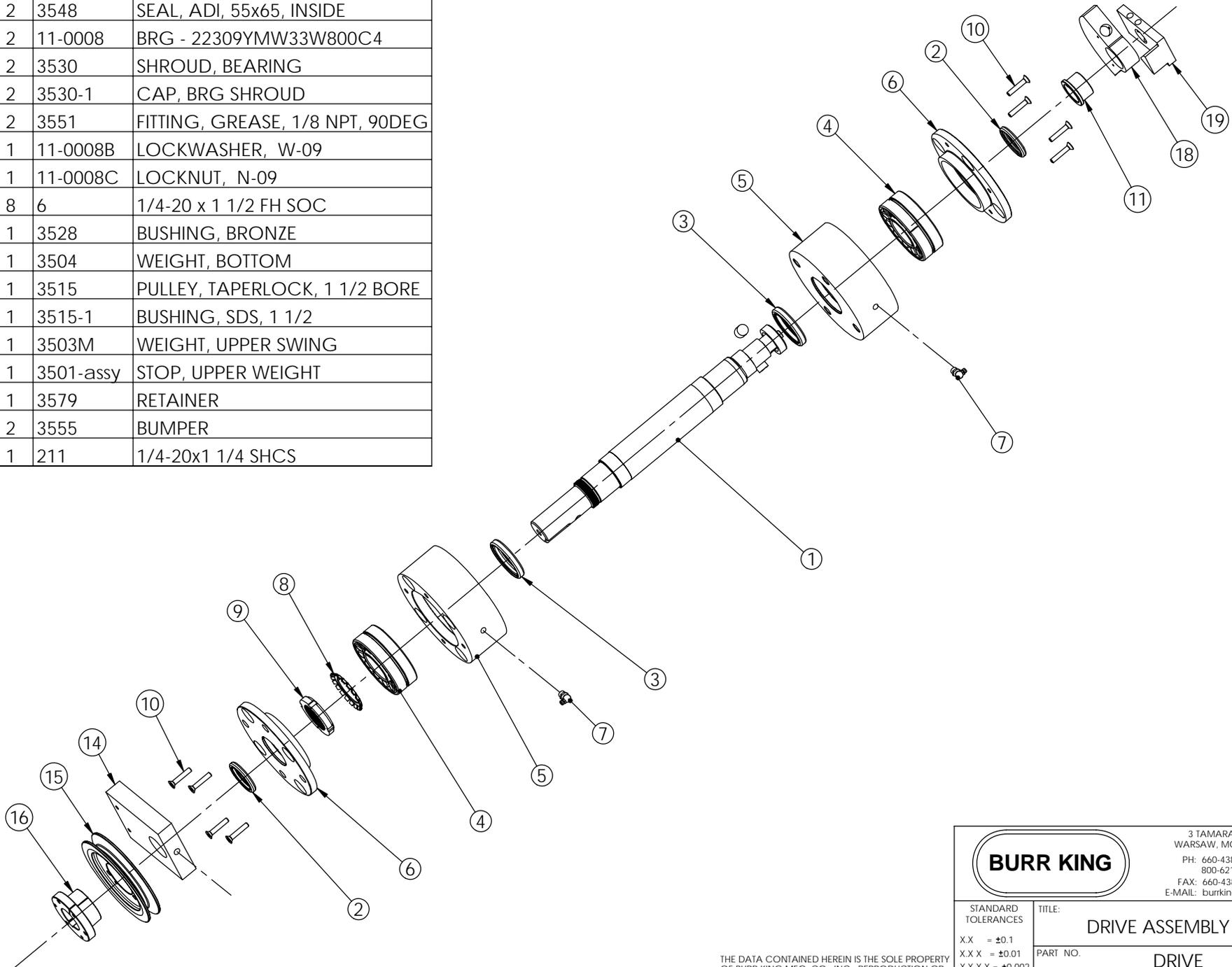
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STANDARD TOLERANCES	TITLE: PLATFORM ASSEMBLY	SHEET 1 OF 1
X.X = ±0.1	PART NO. PLATFORM	REV.
X.X X = ±0.01		
X.X X X = ±0.002	DRAWN BY: RJK	DATE DRAWN: 10-4-02
ANGLE = ±1/2°		

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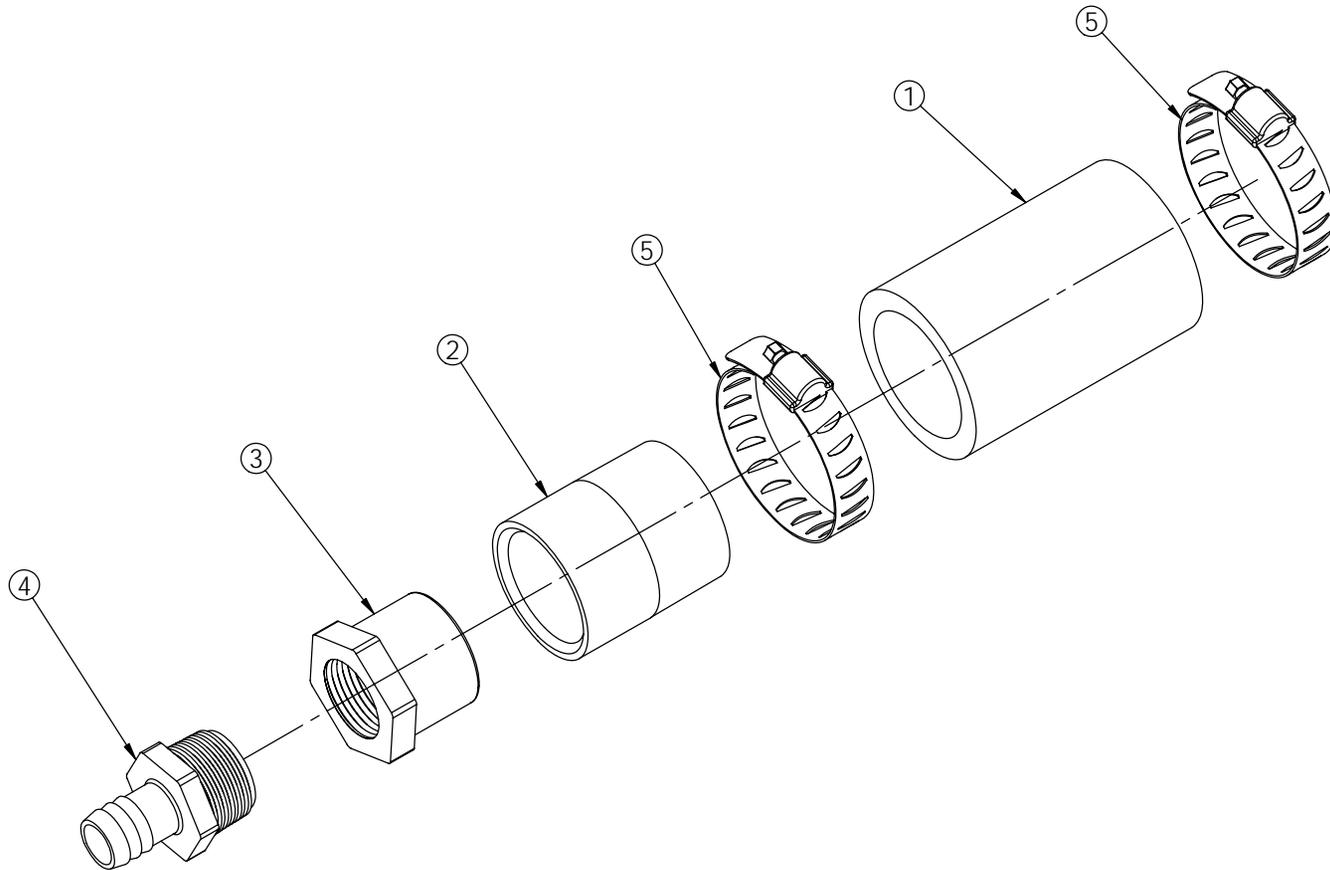
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	3500	SHAFT, DRIVE
2	2	3547	SEAL, ADL, 38x52, OUTSIDE
3	2	3548	SEAL, ADI, 55x65, INSIDE
4	2	11-0008	BRG - 22309YMW33W800C4
5	2	3530	SHROUD, BEARING
6	2	3530-1	CAP, BRG SHROUD
7	2	3551	FITTING, GREASE, 1/8 NPT, 90DEG
8	1	11-0008B	LOCKWASHER, W-09
9	1	11-0008C	LOCKNUT, N-09
10	8	6	1/4-20 x 1 1/2 FH SOC
11	1	3528	BUSHING, BRONZE
14	1	3504	WEIGHT, BOTTOM
15	1	3515	PULLEY, TAPERLOCK, 1 1/2 BORE
16	1	3515-1	BUSHING, SDS, 1 1/2
18	1	3503M	WEIGHT, UPPER SWING
19	1	3501-assy	STOP, UPPER WEIGHT
20	1	3579	RETAINER
21	2	3555	BUMPER
22	1	211	1/4-20x1 1/4 SHCS



		3 TAMARA LANE WARSAW, MO. 65355 PH: 660-438-8998 800-621-2748 FAX: 660-438-8991 E-MAIL: burrking@land.net	
		STANDARD TOLERANCES	TITLE: DRIVE ASSEMBLY
X.X = ±0.1	X.X X = ±0.01	PART NO. DRIVE	REV.
X.X X X = ±0.002	ANGLE = ±1/2°	DRAWN BY: RJK	DATE DRAWN: 5-25-01

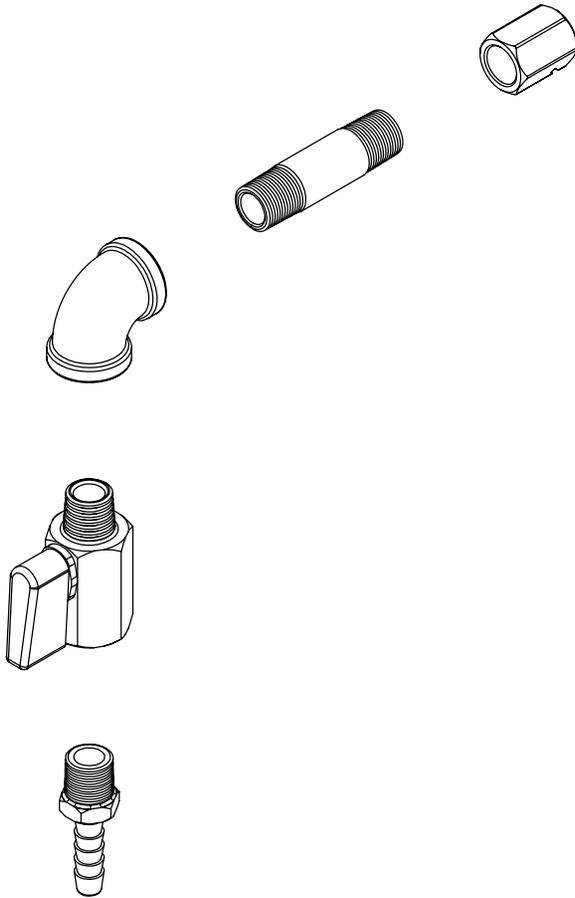
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ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	3509	HOSE, LOW PRESS. 1 1/2 ID
2	1	3535	COUPLING, 1", SCH40 PVC
3	1	3536	BUSHING, 1x3/4 NPT, SCH40 PVC
4	1	3404	FITTING, BARBED, 3/4 NPT, NYLON
5	2	3510	CLAMP, HOSE 1" TO 3" SCREW DRIVE



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STANDARD TOLERANCES	TITLE:	DRAIN HOSE ASSEMBLY	
X X = ±0.1	PART NO.	DRAIN HOSE	
X X X = ±0.01	DRAWN BY:	RJK	DATE DRAWN: 5-25-01
X X X X = ±0.002	SHEET 1 OF 1		
ANGLE = ±1/2°	REV.		

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**M40 WATER INLET**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	3337	VALVE, BALL, 1/4 NPT	1
2	3338	ELBOW, 1/4 NPT, GALV	1
3	3339	FITTING, BARBED HOSE, 1/4 NPT	1
4	3549	NIPPLE, PIPE-GALV, 2 x 1/4 NPT	1
5	3522	NOZZLE, SPRAY - 1/4NPT, FEMALE	1



**BURR KING®**

# PLASTIC & SYNTHETIC MEDIA

## PLASTIC MEDIA

## SYNTHETIC MEDIA

Formula	Color	Purpose	Formula	Color	Purpose
V	Light Green	Light Deburr Preplate finish	SP	Tan	Polish Edgebreak
X	Dark Green	General Deburr Preplate Finish	SV	Light Green	Light Deburr Preplate Finish
XV	Blue	Fast Deburr Preplate Finish	SX	Pink	General Deburr Preplate Finish
Z1	Tan	Fast Deburr Preplate Finish	SJ	Tangerine	Fast Deburr Preplate Finish

### STANDARD SHAPES & SIZES

● No Minimum Required  
Δ Minimum 500 lb. Order

		Formulations								
		PLASTIC				SYNTHETIC				
	<b>Cones</b>		V	X	XV	Z1	SP	SV	SX	SJ
	A	B	Δ	●	●	●	Δ	●	●	●
	3/8"	3/8"	●	●	Δ	●	Δ	●	●	●
	1/2"	9/16"	●	●	Δ	●	Δ	●	●	●
	5/8"	7/8"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	●
	3/4"	3/4"	●	●	●	●	Δ	●	●	●
	1"	1"	Δ	●	Δ	Δ	Δ	Δ	Δ	Δ
	1 1/4"	1 1/4"	●	●	Δ	●	Δ	●	Δ	Δ
	1 1/2"	1 1/2"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
	1 3/4"	1 3/4"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
2 1/2"	3"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	<b>Cylindrical Wedges</b>		V	X	XV	Z1	SP	SV	SX	SJ
	A	B	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
	5/8"	1/2"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
	3/4"	3/4"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
	1 1/8"	1"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
1 1/2"	1 1/2"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	●	
	<b>Tetrahedrons</b>		V	X	XV	Z1	SP	SV	SX	SJ
	A	B	Δ	●	●	Δ	Δ	Δ	Δ	Δ
	3/4"	3/4"	Δ	●	●	Δ	Δ	Δ	Δ	●
	1 1/8"	1 1/8"	Δ	●	Δ	Δ	Δ	●	Δ	Δ
	1 1/2"	1 1/2"	Δ	●	Δ	Δ	Δ	Δ	Δ	Δ
	<b>Pyramids</b>		V	X	XV	Z1	SP	SV	SX	SJ
	A	B	C	●	●	Δ	●	Δ	Δ	Δ
	1/4"	1/4"	1/4"	●	●	Δ	●	Δ	Δ	Δ
	3/8"	3/8"	3/8"	●	●	Δ	●	Δ	Δ	Δ
	3/8"	5/8"	3/8"	Δ	●	Δ	Δ	Δ	●	Δ
	1 5/8"	1"	1"	Δ	●	●	●	Δ	Δ	●
2"	1 1/2"	1"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	<b>Triangles</b>		V	X	XV	Z1	SP	SV	SX	SJ
	A	B	C	Δ	Δ	Δ	Δ	Δ	Δ	Δ
	5/8"	3/8"	1/2"	●	●	Δ	Δ	Δ	●	Δ
1 1/4"	7/8"	5/8"								
	<b>TriStars</b>		V	X	XV	Z1	SP	SV	SX	SJ
	A	B	Δ	●	Δ	Δ	Δ	Δ	Δ	Δ
1 3/4"	3/4"									
2"	1"									
	<b>Wedges</b>		V	X	XV	Z1	SP	SV	SX	SJ
	A	B	Δ	●	Δ	●	Δ	Δ	Δ	Δ
	1"	3/4"	Δ	●	Δ	●	Δ	Δ	Δ	●
	1 1/2"	1"	Δ	●	Δ	Δ	Δ	Δ	Δ	●
	2"	1 1/4"	Δ	●	Δ	Δ	Δ	Δ	Δ	●
2 1/2"	1 1/2"	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	

- \* Plastic media with low foam additive.
- \* Synthetic media is UF resin and sand mixture.
- \* Plastic media is polyester and sand mixture.
- \* Packaged in 50LB boxes.

# Formulations

## Polish

Made of high alumina and contains no abrasives. Use with burnishing compounds to burnish metals or with loose abrasives or compounds for deburring. These pins produce a high luster finish and are suitable for use in all types of finishing equipment.

## Fast Cut

Made for fast cutting and deburring applications in all types of finishing equipment

Formula	Color	Purpose	Media wear	Surface Finish	CU. FT. Bulk Rate
Polish	White	Polish/ Light deburr	Excellent	Bright	115-120
Fast Cut	Grey	Fast Cut	Good	Good	100-110

## Shapes/Sizes

Stock \* Non Stock \*\*

Shapes	Standard Sizes (in mm)		Shapes	Standard Sizes (in mm)	
Straight Cut Polishing Cylinders	Diameter	Length	Fast Cut Cylinders	Diameter	Length
	1.3 **	3.0		1.5 *	5.0
	1.7 **	5.0		2.0 **	4.0
	2.5 *	8.0		2.0 **	7.0
	3.0 *	10		2.5 *	8.0
	4.5 *	14		3.0 **	6.0
	5.5 **	17		4.5 **	8.0
7.0 **	23				
Polishing Triangle	Diameter	Length	Fast Cutting Triangle	Diameter	Length
	2.0 *	2.0		2.0 *	2.0
	3.0 **	3.0		3.0 *	3.0
	4.0 *	4.0		3.0 **	6.0
	6.0 *	6.0		4.0 **	8.0
			6.0 *	6.0	
Polishing Spheres	Diameter		Fast Cutting Spheres	Diameter	
	2.0 *			2.0 **	
	3.0 *			3.0 *	
	4.0 *			4.0 *	
	5.0 **			5.0 **	
	6.0 *			6.0 **	
	8.0 *			9.0 *	
10.0 **		10.0 **			

Note: The polishing pins and polishing spheres are stocked in both OH, and CA warehouses. Delivery on the other products listed - stock to eight weeks. Other sizes and non-standard items are available on special order, call for pricing and delivery. No stock 800lbs. minimum.



# Preformed Tumbling & Vibratory Ceramic Abrasives

## Compositions

P-60 = Light cut, superior finish, leaves clean surface, good for aluminum parts. (78-80lbs.)

P-40 = Good cut and wear life, excellent finish, ideal for general purpose use, economical (89 to 90 lbs. per cubic foot)

P-20 = Fastest cut, for heavy deburring, matte finish. (85 to 90 lbs. per cubic foot)

## General Information

Successful parts processing depends not only on the capability of equipment used, but also on the type, shape and size of the media used.

Users whose work requires preforms will find that an understanding of the types available will influence the quality of their work as well as time cycles and operating procedure.

We are totally capable of rendering assistance in your selection of specific media and equipment for your particular problem in deburring and finishing.

We base our recommendations and technical information on testing we consider reliable, but they are based on information we assume is correct from our dealers, agents and customers.

## Soap Solutions

**AR-60** - Anti Rust solution is the neutral liquid used for prevention of oxidation and rust formation. Excellent for rinse after tumbling to prevent spotting and streaking of aluminum and magnesium. Can be mixed hot or cold. When used as a dip will impart a dry, oily microscopic film which does not require removal for subsequent operations. Anti rust is mildly sudsy.

**BKS-60** soap solution has a slightly alkaline liquid that is especially designed for vibratory equipment as it is a low sudser. Contains some petroleum additives.