

Turbo Carver®

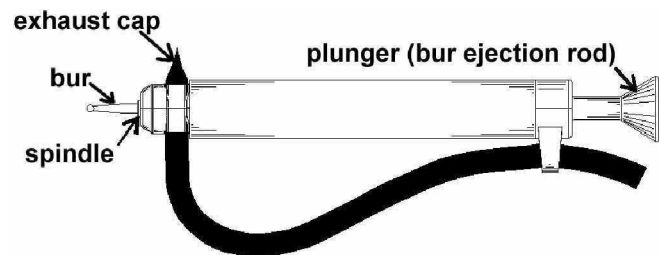


OPERATOR'S MANUAL

Congratulations on purchasing your new Turbo Carver®! You now own the fastest and lightest carving tool made. With little or no vibration, our high speed rotary tool will allow you to carve, engrave, or etch with precision and exacting detail. The light weight makes it easy to use the Turbo Carver® with comfort and ease. To keep this powerful tool working for many enjoyable hours read and follow the recommendations and instructions in this manual.

Burs must be fully inserted into spindle. Refer to the section on INSERTING A BUR. When the bur is fully inserted into the handpiece, there should be no more than a 1/8-inch free play in the bur ejection rod. **DO NOT EXTEND THE BUR TO INCREASE ITS REACH.** If you need a longer bur, please note the carbide #4, 161-016, and #56 come in surgical lengths which are a quarter inch longer than standard burs.

WARNING - While working with the Turbo Carver®, be sure to avoid deforming the exhaust cap either with your finger or by pressing it against your work surface. This exhaust cap is extremely important for keeping dirt out of the handpiece bearings. Any dirt that gets into the bearings will ruin the tool. Try to keep the exhaust cap pointed away from the dust or shavings. An additional precaution would be to pull the tool out of the work area before stopping the tool.



Try not to let the tool spin without being in contact with the material you are working on for more than 15 seconds. This causes it to over-rev and may harm your tool. Be sure to pay attention to your air pressure gauge. The Turbo Carver® works within the range of 30 to 45 PSI (pounds per square inch). A 35-PSI setting will be sufficient for engraving and light carving. A setting of 45 PSI is best for heavy carving. Operating the handpiece under low or no loads at anything over 45 PSI will cause the turbine to spin too fast, thus reducing the life of the bearings. Set the air pressure at the lowest setting that will accommodate the work you are doing.

HEAT AND COLD OPERATION- Try not to operate in temperatures above 100 degrees. High temperatures can cause the foot control tubing to become soft and fail. Conversely, avoid operation in temperatures below 30 degrees. The foot control tubing will become stiff and make it difficult to control the air flow to the handpiece. This will put a new piece of tubing within the foot control and the problem will be solved. If the handpiece will not shut down, it is because the tubing that goes through the foot control is getting too cold and stiff. This prevents the foot control valve from squeezing the tubing closed. To prevent this: The tubing needs to be used in a warmer area.

CLEANING

The only way dirt can contaminate the bearings in this handpiece is through the exhaust valve or while installing a new bur. Use a soft toothbrush and avoid brushing dirt into the exhaust cap to clean. Before changing burs, brush the front of the handpiece, especially around the area where the bur is inserted then step on the foot control for a second or so. Be sure there is no dirt on the replacement bur. **DO NOT CLEAN THE HANDPIECE BY BLOWING COMPRESSED AIR ON IT.**

REMOVING A BUR

Wait for the handpiece to come to a complete stop before you attempt to eject the bur. To remove a bur, simply push the bur ejection rod on the back of the handpiece as illustrated.

The first time you remove the bur it may be quite difficult. With a new handpiece, the best way to eject a bur is to hold the handpiece upside down in the hand and push the ejection rod against the tabletop as illustrated. Be careful not to damage the exhaust valve. You may have to push hard. As long as the handpiece is straight or perpendicular to the hard surface, table, or workbench it will not break if you push straight down firmly. You may have to use both hands. Do not bang or hammer the handpiece. Simply give one firm, sharp, and quick push with the tool not on an angle.

INSERTING A BUR



Begin by inserting the bur by hand and then fully insert it by pushing the bur against a hard surface. Be sure that the bur goes in straight and in line with the handpiece. It is important that the bur is fully inserted otherwise you could damage the handpiece. When the bur is fully installed, there should be no more than 1/8 inch of free play in the bur ejection rod. It is a good idea to check how far the bur is inserted into the handpiece when you receive the handpiece by checking the amount of spring pressure travel in the bur ejection rod. For fine pointed burs it suggested that you use hemostats or needle nosed pliers to push the bur in. Pushing against the fine point could break it. Turbo Carver® only uses 1/16-inch diameter cutting bits called Friction Grip Dental burs. These burs are available in Carbide, Diamond, Stone and Rubber. We stock about 30 of the most appropriate burs used for the widest variety of work you can do with this instrument.

THE TOOL

Turbo Carver® gives you the power to create beautifully detailed engravings and relief carvings in Wood, Glass, Bone, Stone, Paper, Leather, Hard Metals, Eggs, Antler, Gems, and the like. If you can trace a line, using our stencil systems, training video, and the Turbo Carver® handpiece, you can create beautiful engravings and carvings with your first try.

The high speed tool operates at an extremely high rotational speed, 450,000 RPM, but with very little torque. That is why Turbo Carvers® is so easy to control even on the hardest of materials. You can carve across the grain, with the grain, through a knothole, and even into the end grain of a piece of wood, without reacting to, or following the grain. You can engrave or carve with the ease of a pencil on the hardest of materials. You can engrave a piece of blown glass, then drill a hole through it without breaking the glass. You can use it like you would use a knife to cut intricately fine filigree patterns in paper, leather, gasket and other materials. It runs incredibly smoothly and is as easy to use as a pencil.

All slow speed rotary carving tools operate at low speed due to their motor bulk, friction armature restrictions. Slow speed handpieces use 1/8 inch diameter burs while Turbo Carver® instruments use 1/16 inch diameter dental burs. The slow speed hand piece is very good at doing bulk or gross reduction where detail and precision is not a consideration. For engraving, doing fine details, or carving in things like knotholes, end grain of wood, cork, bone, and gemstones, nothing can beat the Turbo Carver®.

ATTACHING TO AN AIR COMPRESSOR - Any air compressor that has an air storage tank will operate the Turbo Carver®. If your air compressor doesn't have an air storage tank, you will need at least a 1/2 HP model. Also you will have to install a length of buffer tubing. We can supply you with a 20-foot length of buffer tubing (BT). An air compressor that doesn't have a storage tank will run continuously, thus creating more heat in the supply airline than an air compressor with a tank. This excessive heat could cause the foot control tubing to balloon and rupture. The foot control tubing has a 1/4" MPT (male pipe thread) on one end that you connect to your air compressor regulator. The other side of the foot control tubing has an in-line air filter with a barbed fitting that the handpiece tubing attaches to. The 1/4" black plastic threaded fitting connects directly to the output of your air regulator. The black handpiece tubing attaches to the in-line air filter or air pressure gauge (if your system has one). The Turbo Carver® consumes 1 CFM (cubic foot per minute) at 45 PSI. Note: Disregard any pressure setting information that accompanies the compressor.

ADJUSTING THE AIR PRESSURE REGULATOR ON YOUR COMPRESSOR a reading of 45 PSI indicated on the gauge at the pressure regulator on your air compressor is not a guarantee that the handpiece will be operating at that op-

optimum setting. Gauges are not always accurate and there are line losses, as much as 1 PSI per foot (for 1/8-inch ID air tubing) of airline between the compressor and the handpiece. Running the handpiece with excessive air pressure and little or no load will cause the handpiece to rotate too fast, leading to heat build up and premature bearing failure. If you don't already have it, it is highly recommended that you purchase the in-line air pressure gauge there is no other way to accurately adjust to optimum performance. An in-line pressure gauge lets you accurately set up the pressure regulator on your compressor. Do not exceed 45 PSI, as measured at the handpiece.

SAFETY

Carving and engraving can create fine dust particles and certain materials produce toxic fumes. It is therefore necessary to wear eye protection and a facemask. Earplugs should be worn if you are sensitive to the high frequency sound. Our high speed tool can cut almost any material and should be used with great care.

The Turbo Carver® is a highly precise and professional tool. It can be broken by excessive force or by over driving it with air pressure above 45 lbs. It is the fastest air carver made, traveling at over 450,000 rpm.

Burs must be fully inserted into spindle. Refer to the section on INSERTING A BUR. When the bur is fully inserted into the handpiece, there should be no more than a 1/8-inch free play in the ejection plunger. **DO NOT EXTEND THE BUR TO INCREASE ITS REACH.**

Never try to touch the bur or make contact with any body part while the tool is spinning. Wait until the power is off. Keep fingers away from the rotating bur. Keep objects, other than the piece being cut, away from the bur. Fabric can become wound up onto the bur instantly. Keep it away from fabric when bur is turning. Read the owners manual and safety precautions before using. Do not run the tool without the foot control.

Do not unduly force the tool. Do not expect the tool to remove large areas quickly. Instead, remove material while carving in a small and steady manner. Never cut the material at excessive speed. This increases stress on both the material being cut and the tool. **It is a detailing tool and should be used as such.** With the right bur you can create highly exact detailing. You may consider a larger tool for removing the large areas and use your Turbo Carver® to add the detail as only a high speed drill can do. With proper cleaning and safe handling, you will have many satisfying hours carving and engraving with your Turbo Carver®.

Trouble Shooting

Handpiece fails to shut off-

If the handpiece is operated under normal temperatures and it fails to shut off, it means the tubing has flattened out inside the foot control. To solve this problem, depress the foot control with your hand and slide the tubing through it a small amount towards the handpiece for about 6 inches.

Handpiece has no power-

Check to see if your compressor is providing 40 to 50 pounds of pressure. The bearings may have been contaminated and are failing. Check with High Speed Carving. You may need to send the tool in for warranty service if it is within the warranty time frame or replace your handpiece.

Bur is not cutting-

Depending on the materials being cut and the frequency of use, burs should last for sometime. Some materials have a tendency to clog carbide burs. Scraping the flutes with your fingernail can easily clean carbide and most diamond burs.

THE TURBO CARVER'S® WATER SPRAY SYSTEM



The unique water spray application actually directs a mist of water onto the bur and the material being cut. All materials being carved or engraved will produce fine dust particles that can get suspended in the air. Some materials will even give off toxic fumes and dust as a result of the cutting process. Water may help eliminate these problems. Water also has the effect of cooling your subject and lubricating the cutting bur. With the use of water, less expensive carbide burs can be used on hard materials. Water is essential if you want to carve deeply in glass or other hard material. Flat objects can be submersed in a shallow pan of water, you can run water over the surface, or use the water spray system.

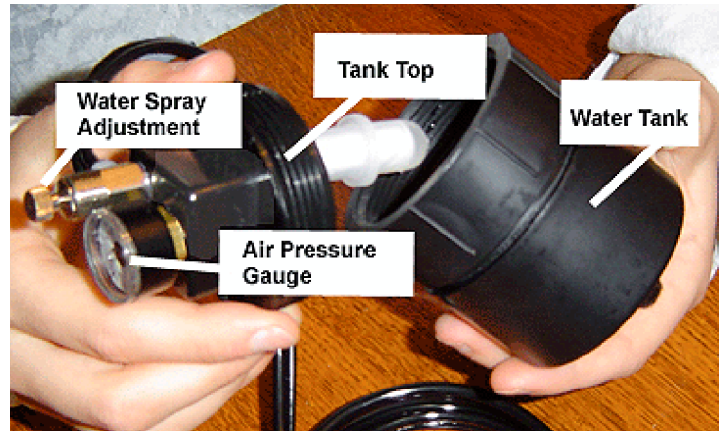
Operating the water mist system:

1) Adjusting air pressure: Refer to instructions in operator's manual for your compressor to adjust the operating pressures, **DO NOT EXCEED 45 PSI AS INDICATED ON THE IN-LINE PRESSURE GAUGE IN THE HANDPIECE TUBING.** Over pressure could rupture the tank or damage the handpiece. Do not stop the handpiece underwater or on the dusty surface this will cause dirt to contaminate the bearings.

2) Filling water tank: (Distilled water is recommended)

Distilled water will keep your water spray mist system free of hard water deposits, which may restrict the water flow or contaminate the spray. Do not fill the tank to the top. Three quarters full is maxim (about 1/3 cup). If your tool has been sitting unused for sometime it may be necessary to purge any remaining air pressure that might be in the tank.

To add water grasp the black plastic "cube" on top with one hand and the water tank with the other. Unscrew the tank top from the tank. It is a good idea to add 1 teaspoon of Vinegar **or** 1/4 teaspoon of liquid bleach to the tank before putting in the distilled water. This is necessary to prevent biofilms from forming inside the tank and water lines. These biofilms can clog the water lines and can be harmful if they are breathed in.



3) Adjusting water flow.

After filling the water tank, open the Water Spray Adjustment valve, the silver metal valve on

top of the water tank, about one quarter turn (clockwise) from its fully closed position. Begin operating the handpiece. It will take a few seconds for the water to flow. Direct the flow away from you. Adjust the flow control until a fine mist flows when the handpiece is operated. You may not be able to see the mist with the naked eye but you will feel it on your skin or you can use a paper towel to verify that water is coming out. This should be the optimum setting. If the dust begins to collect in a paste, adjust the water flow up until it is washed away. Many users employ a terry cloth towel.



4) Disabling the mist spray:

You may use the water spray system without water. To do this: Turn the Water Spray Adjustment valve in (counter clockwise) to a fully closed off position. Water may continue to spray for a short time, until all the residual water is sprayed out of the line. This is normal.

5) Storage procedures if you are not going to use the water spray for 2 or more days:

Empty as much water from the tank as possible. Open the flow control fully and operate the handpiece for 10 seconds or until only air is coming out of the water line. It may be necessary to turn the tank over to prevent water from flowing. This will minimize the chances of bacteria growing in the tank and water lines. When using for the first time after storage, aim the handpiece away from you for the first 20 seconds or so to flush out any biofilms.

6) Use with CO2:

Using CO2 will carbonate the water and cause the spray to sputter. To lessen this effect, keep the water tank as full as possible and release the internal pressure by unscrewing the filler cap whenever you take a break. You may have to increase the flow rate to compensate. Contact Turbo Carver® for a glycol solution that will lessen the effects of carbonation.

CO2 OPERATION

CO2 is the best option for working in remote locations where power is unavailable or where sound must be held to a minimum. A CO2 tank is lighter and easier to carry than a compressor. It will also power other compressed air tools as long as they operate at 50 PSI. Carbon Dioxide (CO2) tanks are available through your local welding supply outlets and come in 50, 20, 10, and 5-pound sizes. The pound rating applies to the weight of liquid CO2 contained in the tank. The weight of the tank should be engraved on the side of the tank. High Speed Carving Products can provide you with an inexpensive CO2 regulator. A 20-pound tank will cost about \$100 (filled). Part of this figure is a core charge and is refundable with many welding supply stores should you return the tank. One pound of liquid CO2 equals 7 cubic feet of gas. A 20-pound tank will power the Turbo Carver® for up to 3 1/2 hours of continuous use. 20-pound tanks are the most convenient. They measure 7 inches in diameter by 3 feet in height and weigh 43 pounds full. Tank pressure is 800 PSI.

Avoid using CO2 in a small, confined area without doors or windows. Excessive CO2 consumption is indicated by increased breathing/heart rate and sleepiness.

Note: CO2 tanks come in 2 styles. The one we recommend has a valve that delivers CO2 as a gas. The other tank is called a Siphon or quick freeze tank. Siphon tanks deliver CO2 as a liquid. They are usually labeled as such but occasionally the identification marks get rubbed off. If you experience the regulator freezing up so that the handpiece will not run, you may have the wrong type of tank or the tank is over filled. If this occurs, turn the tank upside down and try operating the tool again. If the handpiece works in the upside down position, you have a siphon tank. If the regulator still freezes up, the tank may be over-filled. Turn the tank right side up and bleed some gas off and try again. Another way to check is to remove the regulator and slightly open the valve on the tank. If snowflakes come out, it's a siphon tank.



TURBO CARVER® LIMITED WARRANTY

This Limited Warranty covers any defects in your new Turbo Carver system and its component parts (hereafter "the Product") during the first six months after your retail purchase. It is offered by High Speed Carving and Engraving Products, LLC (the "Company") to a retail purchaser ("the Buyer"). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

1. No Other Warranties. With the exception of this warranty, the Company makes no other warranty, either oral or written. Any implied warranty of merchantability or fitness for particular purpose is limited to the six-month warranty period. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

2. What the Warranty Covers. This warranty covers all parts of the Product sold by the Company FOR SIX MONTHS from the Buyer's original retail purchase. The warranty does not cover shipping or other charges for returning the product to the Company.

3. Limitations and Exclusions. This warranty does not cover a product that has been subject to misuse, improper storage or maintenance, accident, or structural alteration, or that has been operated contrary to the operating instructions in the Operator's Manual. The Company is not responsible for any incidental or consequential damages caused by any defect in the product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation or exclusion may not apply to you. Return of more than TWO replacement parts within the warranty period may be deemed evidence of improper use by the Buyer. In this case, the Company may elect to refund the equal purchase price paid less a reasonable depreciation for the Buyer's use.

4. How to Obtain Warranty Service. To initiate a claim, you must return the product to the Company at the address below and include with the product a description of the nature of defect, your date of purchase and purchase price, and a copy of YOUR ORIGINAL INVOICE. You are responsible for shipping charges.

HIGH SPEED CARVING AND ENGRAVING PRODUCTS, LLC.

29844 24th Ave. SW

Federal Way, WA 98023

800-373-0707 - www.turbocarver.com

5. Our Right to Improve. The Company reserves the right to improve its product through changes in design or material without notice or obligation to incorporate such changes in Products previously sold by the Company

ACCESSORIES

| | | | |
|---|-----------------|---|------------|
| Complete system = Lube free handpiece, foot control, two sample burs, stencil sample, video, operators manual, bur catalog, in-line filter and pressure gauge | (TS550) | Complete system with CO2 regulator Same as above but with CO2 regulator | (TSC550) |
| Water spray system with pressurized water mist spray added | (WSTS550) | Water spray system with CO2 regulator..... | (WSTSC550) |
| Water system upgrade to existing handpieces (textured grip only) | (WS550) | Lube Free handpiece by itself | (TC550) |
| Foot Control | (FC400) | Thomas 3/4 hp tank less Compressor | (AC400) |
| Buffer tubing-used on tank less compressors and CO2 operation in cold weather | (BT) | Mylar Stencil Sheet with peel off backing | (ST400) |
| Burs..... | see bur section | Bur caddy (looks like a tape cassette and holds 25 burs) | (BC400) |
| Replacement Foot Control Tubing | | CO2 Regulator | (CO2R) |
| Blank Water Slide Decal Paper (with overcoat) see PG 11 | (WSD1) | Blank Water Slide Decal Paper (without overcoat) see PG 11 | (WSD2) |
| In-Line 5 Micron Air Filter..... | (AF400) | Air pressure gauge, in-line with handpiece tubing | (AG400) |
| 1/4 lb., Atomized Steel Powder | (FM-1044A) | 1/4 lb., Atomized Zinc Powder..... | (FM-1050A) |
| 1/4 lb., Atomized Bronze Powder | (FM-1062A) | 1/4 lb., Atomized Brass Powder | (FM-1068A) |
| 1/4 lb., Atomized Aluminum | (FM-1074A) | 1/4 lb., Atomized Copper Powder | (FM-1082A) |
| 1/4 lb., Atomized Nickel Silver Powder | (FM-1088A) | Casting resin (pint size with 1 oz catalyst)..... | (CR) |
| Resin Dye Kit (6 translucent colors) | (RDK) | Resin Pigment Pit (8 opaque colors) | (RPK) |
| Introductory/training video (refundable upon purchase or return)..... | (TV400) | Scrimshaw, Wonderful World of Scrimshaw..... | (SCRIM2) |
| Scrimshaw, basic preparation of ivory and hand tooling | (SCRIM1) | Fish scale gun stock checkering by Bill Janney | (GVSC) |
| Basket weave gun stock checkering by Bill Janney | (GVBW) | | |

*Current prices are available on our Web site at www.turbocarver.com

BURS

Burs are an important part of the Turbo Carver®. Depending on the type of bur and the application, they can make your job much easier and more productive. The burs used in our Turbo Carver® are the 1/16 size commonly used by dentists. High Speed Carving Products stocks a complete line of burs in carbide, diamond, stone, and rubber. See our Web site for prices, pictures, and information regarding ordering burs.

Burs are available in carbide, diamond, steel, rubber and stone.

Diamond burs are used primarily for working on glass and other very hard materials. When used with water, diamond burs can be used to carve deeply in glass and the other very hard, non-metallic materials. If a diamond bur is forced to cut too hard, without the use of water, it will heat to the point of glowing red, which causes the adhesive plating to vaporize, causing the diamond coating to strip off and ruin the bur. You will know when this has occurred if the bur engraves with a dark line rather than a frosty white line. Our Water Mist System should extend the life of diamond burs.

Carbide burs are used primarily for working with wood, bone, metal, antler and soft stone. They can also carve and engrave on glass but produce much coarser results. Some materials have a tendency to clog carbide burs. Scraping the flutes with your fingernail can easily clean carbide burs. Some materials, such as antler, may cause a chirping sound when using a sharp carbide bur. If this happens, try using a diamond bur instead of the carbide.

Rubber burs come in 2 colors - brown for producing a smooth finish and green for a luster finish. Do not run these burs at full speed, as they will come apart. When using these burs, try not to flex the tip unless you are running the handpiece at a reduced speed. Flexing the tip creates eccentric operation that will shear off the rubber tip if it is running at high speed.

Stone burs are an inexpensive substitute for diamond. Diamond burs have only a thin coating of diamond chips plated on them, while stone burs are solid. These burs can be pushed hard, without fear of damaging them, even without using water. There are many sizes and shapes not listed in this manual. Dental professionals primarily use them. However, if you need a specialized bur, call us at 1-800-373-0707.

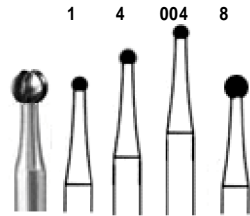
Bur Recommendations Below:

Burs included in our Wood Kit -
Carbide: #1, #4, #8, 699, 56, 556, 59, 701-S,
For detailing- 1701, 9903, 7611, 331/2, 35, 38, Diamond: MM4, MM5, MM58C, MM3, MM3.2-023, & 035-
Totaling 21 high quality burs. Included free with our Wood Bur Kit a convenient high impact bur cassette to keep your burs organized.
*We also recommend our Turbo Carver Mill to get the most out of your high speed drill and burs.
Burs recommended for SCRIMSHAW AND BONE-
Carbide: #1, #4, #8, 699, 35, 56, 1701, 7611, 9903, 331/2, 35, 38, 39, 701-S
For detailing- 1701, 9903, & 7611 - Diamond: SP1, MM1, MM3, MM3.2, MM4, MM5, 023, & 035, also we recommend the MILL attachment.

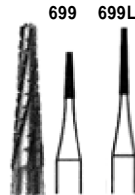
Burs that are included in our Egg Carving Kit -
Carbide: 1, 4, 8, 38, 701-S, For detailing- 331/2, 7611
Diamond: MM1, MM3, MM3.2, MM4, MM5, MM5F, MM58C, MM58F, 023, 035, 050, also 601-420 and 661-420 Stone Flame
Totaling 20 of the highest quality burs.
Included free with our Wood Bur Kit a convenient high impact bur cassette to keep your burs organized.
*We recommended purchasing our Bur Cleaning Stone for keeping your burs clean and free of debris. Burs recommended for INLAY CARVING in any material...
Carbide: #1, #4, #8, 699, 35, 38, 56, 59, 56, 1701, 7611. We also recommend the MILL attachment.

Burs recommended for engraving GLASS, METAL, & STONE-
Burs for Glass:
Carbide: 1, 4, 8, 699, 1701, 7611, 33.5, 35, 38, 9903
Diamond: MM1, MM3, MM3.2, MM4, MM5, 023, & 035, also 661-120 - Green Stone Bur.
Totaling 18 highest quality burs.
Includes a convenient high impact bur cassette to keep your burs organized.
Burs included in our Gourd Bur Kit-
Carbide: 1, 4, 8, 556, 59, 699, 33.5, 35, 38, 170L, 332L, For detailing- 1701, 7611
Diamond: MM3, MM3.2-, MM5, MM5F, 035-
Totaling 18 top quality burs.
Includes a convenient high impact bur cassette to keep your burs organized.

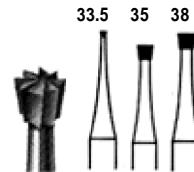
Carbide Burs



CARBIDE - Round
Small, Medium, Long,
Large - For shaping and
texturing in wood, and
engraving metal. Also good
for bulk reduction in most
materials.



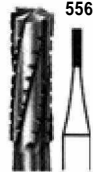
**CARBIDE - Fissure, Cross
Cut Tapered Good bur** for
outlining relief carvings in
wood. Also good bur for
metal engraving. 4.2 mm &
5.2 head lengths.



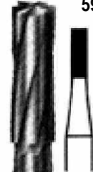
CARBIDE - Inverted Cone,
small, medium, & large.
Ideal for bright line engraving in
metal and undercutting for
epoxy inlay.



**CARBIDE - Fis-
sure, Small-** Great
for outlining relief
carvings. 4.2 mm
head length.



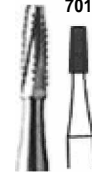
**CARBIDE - Fissure,
Small Coarse-** Great
for outlining relief
carvings. 4.2 mm head
length.



**CARBIDE - Fissure,
Large-** For doing inlay
and bulk reduction work.
4.4 mm head length.



**CARBIDE -
Fissure, Large-**
For inlay and bulk
re-duction work.
4.4 mm head
length.



**CARBIDE -
Super Sharp Best
bur for cutting out
sections of Ostrich
and Emu eggs.**



**CARBIDE - Sharp
Taper-** For fine detail-
ing in softer materials or
outlining a delicate relief
carving.



**CARBIDE - Long Dome
Pear-** Good for cutting
eggs and general con-
touring and carving. 4.2
mm head length.



**CARBIDE - Fissure,
Tapered - Long-**
Used for high def-
inition engraving in
metal, and for outlin-
ing relief and inlays.

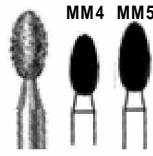


**CARBIDE - Needle
Point-** For ultra-fine
detailing and scrim-
shaw work.

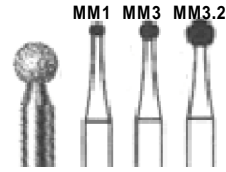
Diamond Burs



**MM58 – Diamond
Flame Point,
Coarse, Fine, & Long**
Used for contouring and
fine shaping in hard or
soft materials.



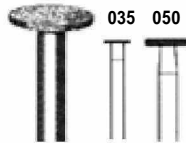
Diamond Football
Both come in fine &
coarse. Used for con-
touring and fine shaping in
hard or soft materials.



Round Diamond
Small, Medium, & Large,
Best bur for engraving and
stippling in glass. Also used
to shape and contour softer
materials.



Diamond Knife Edge
Used to carve straight
grooved channels



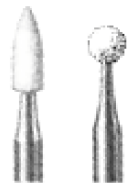
Diamond Wheels
Two sizes - Used to
carve straight, flat bottom
grooves and for section-
ing.



**Single Diamond
Ultra Fine- Hair Line**
For a hair line engraving &
etching in hard materials.

Stone & Rubber Burs

661-120 601-120



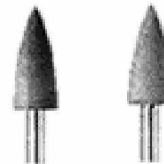
**White Arkansas Stone-
Round & Flame Point**
Provides a fine polish in
glass, ceramics and hard
metals.

661-420 601-420



**Green Stone-
Round & Flame Point**
Used as a pre-polish for
glass and ceramics. Can
be used in place of
diamonds for engraving
and bulk reduction. Also
good for grinding metals

0055 0155



**RUBBER POLISHING
Brown & Green**
Burs have a grit im-
pregnated into a rub-
ber base. They pro-
duce a fine finish in
metals, & eggs.

More ways to enjoy your Turbo Carver®

CASTING RESIN, METAL POWDER AND SILVER ALLOY INLAYS

In the past, inlaying was done by cutting out a design in a thin sheet of ivory, gold, mother of pearl or other material. A cavity was then created in the subject and the inlay placed within the cavity. With this method, you are limited to the amount of detail that can be created and it is impossible to create a cavity that doesn't leave gaps in the inlay. With the Turbo Carver® method for producing inlays, you add colored pigments to casting resin to simulate ivory, mother of pearl or other materials. Atomized metal powders can also be mixed with casting resin to produce metallic inlays. The pre- pared resin is then poured into a highly detailed cavity created with the Turbo Carver® handpiece. The resin is poured into the cavity until it stands slightly above the surface. This is because the resin will shrink as it cures. Once the resin cures, it can be sanded and polished until the inlay is flush with the surface.

Beautiful silver inlays can be obtained by substituting Silver Alloy for the casting resin. Silver alloy is similar to the material Dentists fill cavities with. It comes in 800-milligram capsules. The capsules contain about twenty percent mercury, ten- percent zinc and other materials and seventy percent fine silver. These capsules are placed into a machine called an amalgamator and are vigorously oscillated in a figure eight pattern. The process is called trituration and is defined as grinding to a fine powder. Once trituration is complete, which usually takes about 10 seconds, the capsule is broken open and the silver alloy spills out. At this point the alloy has the consistency of putty and is relatively easy to push into the smallest crevasses. You will have about four minutes to work before the mercury bonds with the silver and the mass hardens. During the four minute set up time the cavity is filled in and leveled with a metal spatula. After twenty-four hours, the inlay can be polished, carved in or engraved. The mercury is now bound with the silver and any health hazard is minimal. Mercury vapors can be driven off the alloy if its temperature is elevated above three hundred degrees. The basic Silver alloy inlay package consists of an amalgamator, respirator, gloves, fifty- (800 milligram) alloy capsules, recycling and handling procedures. Note: High Speed Carving Products is not responsible for improper or misuse of this product. To create conventional inlays, make a profile from a thin (1/16") piece of ivory, mother of pearl or any other de- sired material. Clamp the profile to the object that is going to be inlayed and trace the outline with a fine felt marker. This will give you an exact outline that you can now carve out to accept the inlay.

CASTING RESIN INLAYS-Mixing translucent, opaque pigments or atomized metal powders with clear epoxy and polyester casting resins produce excellent inlays. With pigments you can simulate effects like ivory, mother of pearl and any color under the rainbow. With metal powders you can closely reproduce metallic effects like copper, brass, nickel, stain- less and more.

SILVER ALLOY INLAY KIT-This kit contains all you will need to create exquisite silver inlays in just about anything. The silver alloy comes in 800-milligram capsules, which contain about twenty percent mercury; ten percent zinc plus other materials and seventy percent fine silver. These capsules are mixed on a machine called an amalgamator. The capsule is then broken open and the silver alloy spills out with the consistency of putty. You have about four minutes to work be- fore the mercury bonds with the silver and the mass hardens. During the four minute set up time the cavity is filled in and leveled with a metal spatula. After twenty-four hours, the inlay can be polished, carved in or engraved. The mercury is now bound with the silver and any health hazard is minimal. Mercury vapors can be driven off the alloy if its temperature is elevated above three hundred degrees. Note: Ultra Speed Products, Inc. is not responsible for improper or misuse of this product.

STENCIL ART

There are a number of ways to transfer an image onto the material on which you are going to carve, engrave, or etch.

Freehand Sketch

If you are a good free hand artist, you could draw directly onto your subject. You can first coat the surface with Whiteout or white enamel spray paint, to provide a better surface to draw on.

Rubber Stamp, Picture,

Most artists prefer the stencil approach since it is a lot faster than free hand. Stencils can be free hand drawn, printed from a computer, traced from a photo, or produced on a copy machine. You can also cut out a picture from a magazine or use a rubber stamp. These are the least expensive methods and work well if there are no fine line details. Once you have the image on the stencil, it is a good idea to use a spray fixative or clear coat over the image to prevent smudging it with your fingers. Since the glue stick is water-soluble it makes removal easy when you are finished engraving. This is a definite advantage when working with delicate items such as eggshells.

Solvent Transfer

Another way of getting an image onto a surface is called solvent transfer. With this method you use a laser printer or copy machine to create an image on a piece of paper. You then take the paper and lay it with the toner side facing the working surface. Once the paper is taped into position, wet the backside of the paper with a Q-tip dipped in acetone. The acetone dissolves the toner and transfers it to the work surface. This method will not work on certain surfaces. Nonporous surfaces require a very controlled application of acetone; otherwise the image will blur. Heat is another way of transferring the toner to the surface you are working on. An electric clothes Iron works well for this.

Water Slide Decal Paper

High Speed Products can provide you with 2 types of water slide decal paper that you can print or copy onto. They are very thin and work well when you have a lot of fine details. One type puts the image on the topcoat, the other puts the image on the glue itself and you apply the lacquer topcoat yourself. This puts the image closest to the work surface and is best for extra fine detail engraving.

Cutting a line through the stencil requires a little more pressure than without it, so you will need to practice first. Use a rubber stamp, carbon paper tracing or the solvent transfer method to apply the design directly onto the work surface. In this way, you won't have to worry about applying the correct amount of pressure to cut through the stencil. Carbon paper leaves a dark blue line, which works well for light colored objects. With dark colored objects a white carbon paper is required. Craft and fabric outlets sell a white transfer paper. Once the design is put on your subject, use a clear coat, or fixative, to prevent the design from rubbing off.

Waterproof Mylar Stencil

Turbo Carver® has an excellent waterproof stencil, which is made from a thin Mylar sheet, with a peel off backing; it is called repro paper. Also, it is transparent and can be used to trace on. This stencil works especially well if you are going to use water or have fine details. This material tends to form bubbles when it is applied. Piercing them with a sharp object can eliminate the problem. You can run this stencil through a copy machine or laser printer. Once the stencil is applied, simply trace the lines, cutting through the stencil into your subject material. It will take some practice to develop the proper cutting force to use. It does take more effort to engrave the surface when you are cutting through the stencil. This stencil material is available from our Web site.

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Images to Transfer



Turbo Carver®

The Possibilities Are Endless.



Knife & Gun Engraving



Gemstone Etching



Finish & Mark Parts



Deburring Metal Parts



Metal Engraving



Wood Burning



Auto & Cycle Glass



Scrimshaw & Antler



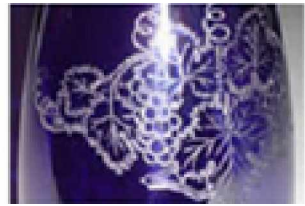
Custom Inlays



Egg & Gourd Carving



Gunstock Carving



Glass Etching

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