



**Homberg + Brusius** e.K., Germany  
Auf der Lay 31, D-55743 Kirschweiler, Tel. +49 6781 35036,  
mail@homberg-und-brusius.de

01/21

## **User Manual for SLB 4 - 15/ 20 and SLB 6 - 15/20**

**Please read all instructions in their entirety before starting!**

This H+B unit is suitable for being equipped with up to 4 grinding/polishing wheels or 6 of our diamond wheels and a lateral FLAT plate (on right shaft side) with a diameter of 15 or 20 cm. You can grind with SiC (silica carbide) or diamond grinding wheels. It is also possible to swap the two grinding wheels on the left side of the unit with a saw table and a diamond-fitted saw blade.

The Motor is a 1/3 PS 0.3 kW/230 V/50 Hz single-phase alternating current motor for connection to standard 220/230 V household current. All ball bearings are lubricated for the service life of the unit.

### **Assemble**

The machine must be permanently mounted on a table or a wooden plate (protected against water) of about 60 x 56 cm in size and about 18 - 21mm thick, if the whole thing is to remain transportable as a unit. (Maybe to stay with friends, in the club / club / weekend house / school... to grind.) The complete system on the board is best attached to a table by means of clamps (or possibly with screws, possibly with a rubber pad for sound insulation). Position unit centered on board and with the front flush with the front edge of the board or slightly protruding. Mark fastening holes (left, right and rear) on the wooden board and drill these holes with a 6.1 or 6.5 mm drill. Push 7 DIN 601 M6x30 mm mushroom head square neck bolt (ISO 8677) (not included) through the holes from the bottom and use a hammer to push into the holes completely (incl.its square neck just under the bolt-head!). Attach unit and fasten in place with a washer and nut (not included) each.

**Important:** Before tightening the nuts, pull the drain tube through the small outflow spout at the pan and route the tube down and into a bucket on the ground to catch draining water. Then cut to size. It is also recommended sealing the holes at the screws against water using silicone (or some other sealant).

The bottom edges of the unit should also be sealed with silicone to prevent water from seeping underneath the machine. (For soundproofing, you can also apply a thin layer of spread out silicone or similar substance underneath the unit.)

### **Assembling Motor + Tensioning Rail**

Turn the board with the mounted unit in such a way that you are now facing the rear panel of the unit.

Now consult the tensioning rail/motor assembly instructions.

Select the highest rpm = smallest diameter belt pulley for cutting and grinding (if we delivered the motor). Small to small = fast, small to large belt pulley = slowest setting.

**Rear Belt Guard Assembly:** Attach L-bracket (3) to the outside of the closed end and fasten in place but only loosely. Slip the belt guard (1) over the belt and the wedge plate (on motor) and fasten the small upper bracket part to the rear panel of the unit directly above the belt exit using the 1/4-turn quick-release fastener (2). Slightly loosen the L-bracket (at side of belt guard), lower down to board, and screw in place. Make sure the belt guard is not resting on anything so that the drive belt and the belt pulleys are **not hindered** in their movements inside of the belt guard.

**Main switch/ safety switch to be attached** on the top of your SLB4 or SLB6 machine cover. To avoid possible transport damage, the security switch (already connected to the motor) is not yet installed on the machine. After attaching the motor to its tension rail and then to the rear panel of the machine, you can then install the main switch to the top of the machine cover. Two mounting holes are already in the top of the right side of the cover. You mount the switch with the two screws (delivered with the switch).

You switch the machine ON with the green button. OFF with the red button (see 4)

We also recommend pulling the power cable when leaving the room.

**Cooling Unit Assembly:** Screw the holders for the water containers to the cover of the machine using the predrilled holes (the closed sides at the back and at the left). Position water container in top, the valve on the right side. (See 4.) The four sides of a water container holder are slightly bent inwards to make sure the inserted container is gripped firmly. To insert the water container, hold the container at a slight angle and press into the holders (gently) until it snaps into place on the bottom of the holders. Then take the tube with the tube-slider and slide the hex head screw (at the back of the tube-slider) into the rail at the front of the machine cover. After that you can put the tube on the valve (at the water container). Therefore you have to unscrew the cap nut at the valve. Slide the tube through the cap nut. Then put the tube onto the valve and fasten the cap nut at the valve. (See 4).

### **Changing the wheel rpms**

Fast when cutting and grinding, slow when polishing on the felt polishing wheel. If necessary, the front strap guard can be removed by touching the upper part with both hands, pushing it down slightly (just over 1cm) and pulling it out. After that, if necessary, also loosen the rear belt guard at the rear and lift it off.

Now the strap is exposed. Loosen the screws of the motor clamping rail and push the motor a few cm towards the machine, transfer the belt to the desired level. Slow step: In the case of the motor pulley, place the belt on the small pulley and take the large pulley opposite the machine. Quick step: For the motor pulley, place the belt on the large pulley and place it on the opposite smaller pulley for the machine. Never lay the strap diagonally.

Then tighten the engine belt again using the engine tension rail and attach the rear belt guard (described above). The front belt guard is reattached as follows: Place it at the bottom, matching the recess on the machine. Now guide the belt guard upwards until the upper part of the guard comes to the top of the housing. Then push it down a little (about 1cm) and into the case.

**Mounting of the saw table** with diamond saw blade (**option**) on the left side of the SLB. If there are already wheels on the left side of the machine, remove the hexagonal nut (left thread), directly at the end of the shaft, using the open-end wrench SW30. The left side must be unpopulated. Slide the small flanges and spacer over the shaft with a length of 80mm as shown in the drawing. Now push the diamond saw blade onto the shaft and then the short spacer of 57mm length. Then attach a second flange and screw the nut onto the thread and tighten it. However, not too tight, as you will have to unscrew them again at some point. But so tight that the saw blade does not spin during operation. Check that the saw blade is running cleanly, otherwise they will loosen the nut, turn the blade a little and tighten the nut again. You always notice minimal movement in width. Now carefully slide the saw table under the shaft so that the sawmill is positioned in the slot of the table. The table is attached to the rear of the machine with the two M4 x 12 screws and washers.

**Hint:** Cut only with sufficient water cooling. The SLB is not suitable for coolants. If you want to cut hard stones such as agate, then only cut one stone between 5 other, softer stones so that everything does not get too hot. If you often cut hard stones, e.g. agates, then we recommend our SNB-25, which can be operated with coolant. Every now and then, especially after cutting very soft stones, clean the saw blade with our cleaning/shepherding stone. After that, the saw blade "grips" very well again.

**Grinding Wheels Assembly:** Now it is possible to mount the grinding and polishing wheels on the shaft (see diagram). Then tighten the nut on the shaft and check wheels for concentricity. If a wheel should be off, loosen the nut and turn the wheel slightly on the shaft (without turning the shaft as well). Retighten the nut and again check how the wheel is running (manually or motor-driven). If needed, repeat these steps. (See also the following description "True Running.") Do not overtighten or tighten the nuts on the shaft with excessive force but simply "tighten firmly" with a No. 24 flat wrench and attach a No. 19 wrench directly behind the front belt guard to make sure the shaft does not turn as well.

**Important:** Always disconnect the power supply (pull plug out with dry hands) before working on the machine to install or uninstall components, clean, repair, etc.

### **Wheel dresser:**

The wheel dresser is suitable for the concentric truing of a non-concentric (running untrue) SiC grinding wheel or to straighten or form the slideway as well as to refreshen the grinding surface if this surface no longer grinds/grips/abrades as it should and has become somewhat smooth or "glassy."

### **Note: If you have selected the machine with SiC wheels, make sure to note the following:**

There are two wheels each on the left and the right side.

If, when viewed per side, one wheel is offset towards the back by more than two centimeters compared with the other wheel, it is possible that your hand may touch the larger wheel eventually when holding the stone, which may be rather painful and dangerous and result in injuries. It is therefore very important to reset the larger wheel to make it smaller or to take the larger wheel off altogether if you are working with the smaller wheel and this wheel is already recessed more than 2 cm than the larger wheel next to it. It is also possible to work with larger objects on the single wheel. However, if you prefer to have two wheels installed per side at all times, you can use the roll truer regularly to circumvent the problem with the different circumferences. (Always wear protective goggles when using the roll truer.) A grinding wheel and a felt wheel are on the right machine side. It is most practical to mount the felt wheel (for polishing) on the inside and the grinding wheel (500 grain) on the outside. This felt wheel cannot be trimmed or made smaller over time. Since it hardly diminishes in size, make sure to pay close attention so that you know when to detach the felt wheel and work with the smaller and finer (500 grain) grinding wheel without risking injury to your hands.

If you have selected a machine equipped with diamond wheels or rubber expander- wheels, it is not possible to injure your hands on the grinding wheel running next to these wheels since neither the diamond nor the rubber wheels diminish in size. Their circumference stays the same over time.

### **Steps:**

**a)** If the SiC wheel is not running true and is to be roughened up only so that it grips and grinds properly again, move the roll truer manually to the SiC wheel (with fast running wheels + wearing safety goggles) and keep it there against the running wheel and move it across the whole width of the wheel.

Duration: Approx. a total of 4 to 5 seconds. The roll truer is gripped with both hands and carefully held to the outermost front side of the SiC wheel (i.e. at the height of the machine shaft) where it is held against the wheel and moved back and forth. This is a very noisy process so do not become alarmed. Always wear safety-goggles.

**b)** To straighten the front running surface of the SiC wheel or to form grooves (e.g. to make the shaping of cabochons easier). It is best to make an additional tool: Obtain a wooden block about 24x13.5x11cm (WxDxH). Turn the machine off and place the wooden block with its largest side of 24 cm in front of the two SiC grinding wheels (it does not matter whether you start from the left or right side). One end of the block should still be on the pan edge. There, cut a slot into the wood and a crosswise slot so that the block can be placed on/over the front edge of the pan (with an approx. 12-mm distance from the front edges of the grinding wheels).

**Note:** Make sure the speed of any motor is never higher than 1500 rpm if using a motor other than the one we shipped.

The motors recommended/ supplied by us are tuned to match our machines. They come with their matching step-pulleys.

*After finishing the grinding task, make sure the water supply to the wheels is really switched off and no longer dripping!*

*(It is best to turn/bend the supply sectional tube in such a way that any possible drops cannot fall on a wheel.)*

*This is important because a SiC wheel in rest, becoming wet from dripping water will have standing water in the lower wheel-part, which causes a significant and dangerous unbalance when starting the machine, and could burst/ split the SiC wheel.*

**Grinding:** You can hold the (precious) stone to be ground/polished in your hand if it is big enough. However, if the stone is small and is barely graspable with your fingers, we recommend using our dop wax with dop wax melting unit and the dop sticks to save your fingernails and fingertips. Just melt/heat a little dop wax in the pan of the dop wax melting unit. Also warm the already roughly shaped stone to be ground by placing it on the outer edge of the dop wax melting unit. A dop stick is somewhat smaller than the smallest end dimension of the stone to be ground and is also preheated by holding one end of the stick onto a very warm spot of the dop wax melting unit (a few seconds). Do not "cook" the dop wax; this will "destroy" it. Use the end of the dop stick to take a little melted dop wax from the pan and press onto the end of the dop stick to make sure it does not fall off. Use MOISTENED fingers to do this. Hold the dop stick with the dop wax end once more onto the hot dop wax melting unit part until the dop wax has become liquid.

**a)** If the dop stick does not hold enough dop wax yet, take some more out of the pan.

**b)** If there is enough dop wax on the stick, cement the warmed stone onto the wooden dop stick (spot free of dirt or oil) and align/center on the dop stick. The still pliable dop wax can be shaped underneath the stone to make sure the dop wax serves as reinforcement between stone and wooden dop stick.

**Important:** Always do this with moistened fingers to prevent the dop wax from sticking to you.

Allow to cool slowly before grinding (this ensures the stone is firmly attached and does not budge when grinding). Use the cooling time to prepare several other stones.

**Polishing Felt Wheel:** Stir the polishing powder (e.g. the commonly used "X-3" or our **Cerox** = specifically for quartz and opals, or **our Titanium-2//7** = for lapis lazuli and amber, etc.) into water in a small dish to form a mixture (sludge) with a medium and apply the mixture onto the slowly running felt wheel. The mixture should not be so thin that it is immediately flung off the wheel. Additional water may not be supplied to the wheel either. If the felt wheel is a new one, before starting the polishing task, apply the polishing mixture onto the running wheel a few times to saturate the felt. Although water may not be applied to the felt polishing wheel, you also may not polish completely dry but must spray/mist the running wheel with water regularly. A plant sprayer works well.

**Note:**

**Always grind wet and polish moist.** Make sure the stone being processed does not become hot because this could cause the stone to crack.

**If using our diamond belt,** a lot of water has to flush over the belt for cooling + rinsing because the diamond surface is permanently bonded to the belt. This makes high speeds possible.

**After your work** is finished, switch off the motor, unplug from the electricity-circuit and then clean and dry the water collection pan of the machine using a sponge or soft cloth.

**Cutting the stone:**

Turn on the machine and guide the stone (size max. 5 cm) by placing it on the "table" up to the blade. (To reassure you, the saw blade does not cut your fingers.) As soon as the saw blade has started to cut into the stone, press very gently and carefully. Press the stone with light, even pressure. In this case, do not determine the cutting speed yourself by applying too much pressure. Irregular pressure on the stone, causes irregular wear of the blade and causes ovalization of the blade. This is visible by the irregularities on the cutting edge. Then, when grinding and polishing, it becomes more difficult to fix this.

**Care instructions:**

It is recommended to lubricate the ball bearings laterally with ball bearing grease (also available from us) so that the grinding sludge cannot penetrate. After the work is done (with the engine switched off, of course), dry the water drip tray of the machine and clean with a sponge or cloth).

• **Warning:** For a grinding machine with wheels in silicon carbide and/or felt, check whether the grinding and polishing wheels are DRY. If not, it may be that a water bag has formed at the bottom of the wheel and this is dangerous. In such a case, the machine must not be switched on! The wheel or wheels have then formed an imbalance in the wheel due to one-sided water accumulation, whereby they first cause a very strong vibration in the machine and then there is a risk that a silicon-carbide wheel will burst as a result. In this case, please WAIT until the wheel(s) are dry. To avoid this danger, always divert the water supply away from the wheels after work.

**Disposal:**

The machine is long life. If the motor is defective, it can be replaced.  
Disposal of electronic machines.

We hope you have a lot of fun working with this machine!  
Your H+B –Team

**Warnings:**

- Read the operating instructions carefully and observe all safety instructions!
- The machine / equipment must not be exposed to the weather or stand in a damp room and must not stand/run with flammable liquids or gases.
- Do not place the machine and cable on heat sources (e.g. stove, heater).
- Remove the plug from the socket when the machine is not in use, also before mounting wheels on the machine and before cleaning.
- If it smells burnt, unplug it immediately. Determine if the smell comes from this machine or if it is due to the socket. Have it checked by a specialist (electrician).
- Do not use multiple sockets.
- Do not use extension cables.
- Plug into grounded socket only.
- Only remove the plug from the socket with dry hands. Also keep this in mind when plugging the plug into the socket.
- Do not pull the machine by the cable, never unplug the plug from the socket by the cable.
- Do not leave the running machine unattended.
- Keep your workplace clean
- Never operate the machine if the electric cable or plug is damaged, the machine malfunctions, has been dropped or in any other way is damaged.
- We recommend a DI personal protection adapter plug, which switches off the current in fractions of milliseconds in the event of a short circuit, for example.
- Before commissioning, check if there are things in the housing/tub and remove them to avoid accidents.
- Wear tight-fitting clothing. Remove loose clothing, ties, rings, bracelets or anything else
- Do not wear jewelry as it may get caught in the moving parts of the machine.
- Sturdy shoes with non-slip soles are required.
- A hair band or hair net is recommended for long hair (to keep hair from becoming entangled in the running machine!)
- Use safety goggles. Note: Everyday glasses with non-impact resistant glass
- are not suitable as protective goggles.
- Wear hearing protection while cutting.
- Wear apron for dry clothes
- Do not cut dry.
- For a grinding machine with wheels in silicon carbide and/or felt, check whether the grinding and polishing wheels are DRY. If not, it may be that a water bag has formed at the bottom of the wheel and this is dangerous. In such a case, the machine must not be switched on! The wheel or wheels have then formed an imbalance in the wheel due to one-sided water accumulation, whereby they first cause a very strong vibration in the machine and then there is a risk that a silicon-carbide wheel will burst as a result. In this case, please WAIT until the wheel(s) are dry. To avoid this danger, always divert the water supply away from the wheels after work.
- Set up the machine so that it is upright, securely mounted and cannot tip over.
- Only use quality diamond cutting discs and wheels.
- Do not modify the machine and only use it for the recommended objects, such as semi-precious stones.
- This machine is not suitable for construction work
- Before connecting your machine to the power supply, check the (technical) information from your machine and from the motor, and ensure that the connection to the power supply is possible / permissible.
- Do not cover the engine. The engine always needs air circulation.
- In case of unknown / disturbing noises that you cannot assign: Switch off the machine and use it again only after clarification.

- Use only suitable tools and do not make do with unsuitable or sharp aids. These could cause accidents or injuries.
- Use the machine out of the reach of pets.
- Do not allow minors, course participants or groups to work on the machine unsupervised

## CE– Certificate Of Conformity



**H+B Homberg + Brusius e.K.**

*Auf der Lay 31, D-55743 Kirschweiler, Germany*

*mail@homberg-und-brusius.de*

*Tel. +49 6781 35036*

### **SLB**

**Grinding- and polishing- machine for gemstones, semi-precious-stones**

**with asynchronous single phase motor,**

**KW 0,3. 4 Poles V.230/50Hz, frame size 71.**

### **65db**

2014/30/EU on the approximation of the laws of Member States relating to electromagnetic compatibility.

2014/35/EU on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment, RoHS

**The machine is herewith declared to conform with the following guidelines**

**Machine guidelines 98/37/EWG, 2006/42/EU**

**Kirschweiler, 2018**

**Kitty Homberg, Owner**

A handwritten signature in blue ink, appearing to read 'Kitty Homberg', is written over a faint, light blue grid background.