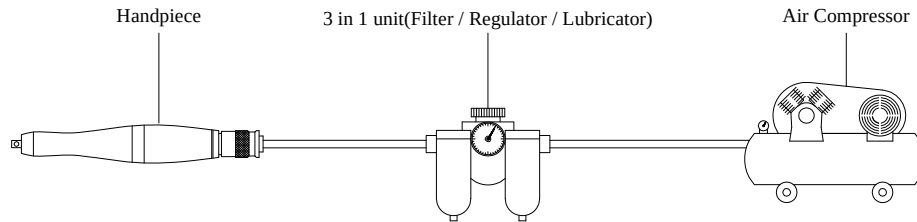


BEST DIAMOND INDUSTRIAL CO., LTD.

Pneumatic Air Grinders & Lappers

We thank you for choosing our products. This guide provides information on general machine setup, maintenance, safety instruction and warnings for our Pneumatic Air Grinders and Lappers. The exploded view parts and parts list are available at your request for all models.

A. General Setup:



B. Rules for Long Lasting and Performance Utilization:

Air Tools and the 3-in-1 units, Filter/Regulator and Lubricator

1. In order to remain the air tools in the best performance and prolong its life time, it is necessary and important to equip with the 3-in-1 unit; Filter/Regulator & Lubricator.
2. Before starting, use few drop of turbine oil at the tip of the air hose for lubrication.
3. Set the pressure controller (regulator) **at 90psi**, which is recommended air pressure for all air tools. Higher pressure is not necessary and will shorten the tools' life or cause damage to the tools.
4. Turn on the tool and let it runs freely (at no load) for few second before operation or before working on the work-piece.
5. Keep the compressed air in dry condition at all time to prevent rust that destroys the tools. Avoid moistness or water gets inside the hand-piece by checking the filter frequently. The air filter on the 3-in-1 unit is used for drying out water. Always check that the air filter tube does not contain over 80% water. It is advisable that the filter is drained daily.
6. Make sure that the lubricator or oiler unit is lubricated or contain lubrication oil at all time. Use only a good grade of light oil, it is important not to use thick and greasy oil.
7. Set the oil controller at 2 drops per minute for lubrication. During the weekend or a long period vacation, increase to 4 or 5 drops per minute, leave the tool running free for 30 to 60 second before turning off the tool.
8. Keep the unit away from fire, corrosion, moisture.

Operation Conditions; Start & Stop Device:

- ♦ The on/off switch is ring throttle action, which is located in the proximity of the handgrip; turn the throttle counter clock wise to open and turn clock wise to close it.
- ♦ Before connecting to or turning on the air supply, make sure that the throttle is in the **off** position.

C. Safety Instructions and Warning

Safety is a primary consideration when using the air tools. The tool should be used in the right way with good understanding of how to use the tool safely. Read and fully understand all the instructions before using this tool.

- ♦ The tool is designed to be used with the abrasive product for fine polishing. Do not use this tool for any other purpose.
- ♦ Do not burst into full speed operation, which might cause dangerous from over speed.
- ♦ Check the air pressure level before starting the operation. Pressure less than 90psi will reduce output and speed, while higher pressure will lead to premature wear and excessive speed. Excessive pressure is dangerous and shorten tool life.
- ♦ Observe accurate mounting of insert tools.
- ♦ If noise level exceeds 85dB(A) at the work station, operator must use ear plug and/or ear muffers.
- ♦ Operator is exposed to get the risk caused by vibrations. Frequent and prolonged exposure to high intensive vibrations can cause disorders, especially to hands and arms. Disorders caused by vibrations depend on many factors such as types of tool, type of work, individual operator, and his physical conditions, working conditions, working period, temperature, etc. The operator must use the tool in accordance with the tool daily usage of ISO5349.
- ♦ The operator shall wear necessary protective approved equipments such as eye protector, goggles, or face shield at all time during operation. Additional protection devices should be used where necessary.
- ♦ The stopping time or run-down time can be of several seconds, operator shall pay attention to the risk of drawing in long hair, loose cloth; risk of a whipping compressed air hose.
- ♦ The working area should be well ventilated to avoid possible contaminants in the compressed air exhaust.
- ♦ Seek medical advise immediately if any lubricant should contaminate the eyes or be accidentally ingested.

Protection Devices: Always wear necessary protective approved equipments such as eye protector, ear protector, face shield, safety apron, helmet, gloves and any necessary protective clothing.

Air Hose and Fittings:

- Use only the correct, clean air hose and fitting and always check that they are in good condition and properly installed. Do not use damaged, frayed or deteriorated hose and fittings, which can cause injury.
- Always keep the hose away from heat sources and sunlight and store it properly after using and check it before use.
- The air hose may come off and whip if it is not correctly used or the fittings are not properly installed.
- Avoid using a long hose, short length of hose should be chosen.

Lubrication:

- Air line lubricator should be used. Do not burst into full speed operation. Lithium system grease is recommended for lubrication of bearings, can and clutch part, gears and gear cases. Lubricate them when giving maintenance or periodical inspection.
- Seek medical advice immediately if any lubricant should contaminate the eyes or be accidentally ingested.

Noise: The operator must wear the ear protector when the noise level at this position exceeds 85dB(A). It is recommended that the operator wears the ear protector even if the noise levels less than 85dB(A).

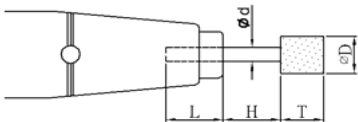
Vibration: The operator is exposed to get the risk caused by vibrations. Frequent and prolonged exposure to high intensive vibrations can cause disorders, especially to hands and arms. Disorders caused by vibrations depend on many factors such as type of tool, type of work, individual operator, and his physical conditions, working conditions, working period, design of tool, temperature, etc. The operator must use the tool in accordance with the total daily usage of ISO5349.

Mounting and Dismounting Abrasive Product

- When mounting and dismounting the abrasive product, make sure that the air line is not connected to the tool or that the air line is shut off.
- Make sure that the dimensions of the abrasive product are compatible to the tool and that the abrasive product fits the spindle of the tool.

Suggested gripping and over-hanging length

The minimum gripping length of insert tool should be no less than 10mm.



Remark:
L = gripping length
H = Overhanging length
T = Mounted Point length
ØD = Diameter of mounted point

ØD (mm)	T (mm)	Recommended overhanging length (mm)		
		13mm	25mm	38mm
3.0	13	105,000rpm	64,000rpm	46,650rpm
6.0	13	60,000rpm	38,000rpm	26,250rpm
9.5	13	45,370rpm	28,500rpm	21,000rpm
9.5	25	26,250rpm	18,750rpm	14,250rpm
13	13	34,500rpm	22,500rpm	16,870rpm
13	25	20,620rpm	13,870rpm	10,120rpm

Checking Abrasive Product

- Use only the appointed abrasive products. Do not use worn out product.
- Handle and store the abrasive product with care in accordance to its manufacturer's instructions.
- In an extremely high or low temperature, allows the tool and the abrasive products a sufficient slow revolution.
- After mounting the abrasive product, run the tool at no load for about 3 minutes in a safe place such as under a workbench or under an isolated place. Stop the operation immediately when you feel an unusual vibration, hear unusual sound, notice unusual change in speed and/or find any other irregularity.

Correct Working with Tool

- Always consult the manufacturer before attempting to install and use the tool if there should be any doubt about safety and appropriate use of tool or the abrasive product or accessory.
- Do not modify the tool without permission or agreement from the manufacturer.
- Never use or continue to use the tool when you feel unusual vibration, hear unusual sound, notice unusual changes in speed and find any other irregularities.
- The tool should be used according to its capacity and only for its own purpose.
- Do no touch the abrasive product mounted on the tool during operation.
- Be aware of long hair, loose clothing, ties, etc. drawing in the tool.
- Make sure that sparks resulting from use are directed so that they do not hit persons, flammables substances, etc.
- Make sure that the workpiece is properly supported or fastened so as to avoid kick back.
- Be aware that the tool will keep running-on for a while even after turning off. Do not touch the abrasive tool until it came to completely stop. It is very dangerous to touch the abrasive product soon after stopping operation.
- Never carry the tool by the hose or yank it to disconnect from power supply.
- Do not use the air hose for supporting, lifting or lowering the tool.
- Make sure that other people in the work area are at the safe distance.
- Do not abandon the tool during operation.
- Do not start the operation of the tool when it is laid down.

Keeping Tool After Use

The tool must be kept in a clean, dry place, so that it can be used properly easy and safely. The storage of tools should be in a humidity controlled room. Avoid large temperature fluctuations room.

Maintenance and Repairs

- The tool must be properly maintained and tested by competent and trained personnel. At any sign of malfunction or unusual behavior, the tool should be taken out of service for examination and repair.
- It is recommended to dismantle the tool for overhauling and cleaning periodically after 500 hours of operation or once every six months.
- When giving maintenance or repairs, make sure to disconnect the tool from the air line or to shut off the air supply.
- Before clearing the tool for use, make sure that all parts have been correctly assembled with all fasteners tightened.
- Check the speed or rpm of the tool without the abrasive product on the spindle after each maintenance or repairing.

Disposal of Tool

The tool is made of steel, casting iron, brass, bronze casting, aluminum alloy, rubber and plastic components or using some of those materials. When disposing of the tool, be sure not to cause pollution to human beings and environment.