233

1/8" 95° PENCIL DIE GRINDER

⚠ WARNING

Study, understand and follow all instructions provided with this product. Read these instructions carefully before installing, operating, servicing or repairing this tool. Keep these instructions in a safe accessible place.

ONYX by Astro

INTENDED USE OF THE TOOL

The 233 95° Pencil Die Grinder is designed to be used with 1/8" shank attachments rated for over 52,500rpm only. Do not use this tool outside of the designed intent. Never modify the tool for any other purpose or use.

BEFORE USE

Before use, check the parts diagram and part number listing on page 5 to make sure all parts are included. If any parts are missing or damaged, please call your distributor.

PRODUCT INFORMATION

- Right-angle 95° head for access and comfort in the hand
- Lightweight design for tight spots and minimal fatigue
- High speed 52,500rpm for rapid material removal

SPECIFICATIONS:

Free Speed: 52,500 RPM
Collet: 1/8" (3 mm)
Overall Length: 5.47" (139 mm)
Net Weight: 0.485 lbs. (0.22 kgs)
Hose Length: 11.8" (1300mm)
Air Inlet Thread NPT: 1/4"
Air Consumption: 2.7 CFM
Air Pressure: 90 PSI

⚠ WARNING ⚠

CAUTION: TO HELP PREVENT PERSONAL INJURY.

- Use of this product can expose you to chemicals including ethylene glycol, gasoline vapors and engine exhaust, which are known to the State of California to cause cancer, birth defects, or reproductive harm. Always wear ANSI approved safety equipment, safety glasses and clothing when using this product. Study, understand, and follow all instructions provided with this product. Failure to read and follow all warnings and operating instructions may result in damages and serious injury or death.
- Always wear ANSI approved goggles when using this product. (Users and Bystanders).
- Never use this tool for any application other than for which it was designed.
- Only use accessories designed for this tool.
- Never alter or modify this tool in any way.
- Improper operation and/or maintenance of the tool, modification of the tool, or use of the tool with accessories not designed for it could result in serious injury or death.
- Always select the correct accessories of the correct size and design for the job that you are attempting to perform.
- Always work in a clean, safe, well-lit, organized and adequately equipped area.
- Do not begin repairs without assurance that vehicle is in secure position, and will not move during repair.
- Users of this tool should review the chemical composition of the work surface and any products used in conjunction with this tool for any such chemicals prior to engaging in any activity that creates dust and/or microscopic particles.
- Users should obtain the Material Safety Data Sheets for all identified chemicals, either from the manufacturer or their employer, and proceed to study, understand, and follow all instructions and warnings for exposure to such chemicals.
- Some examples of these chemicals are: lead from lead based paints; crystalline silica from bricks, cement and other masonry products; and arsenic and chromium from chemically treated lumber. A listing of the chemicals can be obtained under Propoisition 65.
- In order to reduce their exposure to such chemicals, users should always:

  - work in well-ventilated areas.
  - wear appropriate safety equipment and clothes that are specifically designed to filter out microscopic particles.

⚠ WARNING ⚠

- The tool shall not be used in potentially explosive atmospheres.
- Disconnect the air hose before changing or adjusting any inserted tools.
- Before using tool, please confirm all couplings and plugs are fixed securely. An air hose that is under pressure may lash out when disconnected and could lead to serious injuries.
- Prevent loose clothes, long hair or any other personal accessories from coming close to moving parts to reduce the risk of being caught, trapped or drawn into the rotating spindle.
- Excessive high air pressure that exceeds the maximum pressure may cause injuries to user.
- Exposure to strong vibration for extended time may cause harm to operator.
- Be aware of the rotation direction before starting the tool to reduce hazardous situations due to unexpected rotation direction.
- **WATCH YOUR STEP!** Leaving excess hose unattended near working area or walk path could result in injury or death.
- Wearing eye/face protection could reduce the danger to person from high speed splinters being emitted from the tool or work surface.
- Wearing correct breathing protection will help avoid inhaling dust or debris from work process that can be harmful to your health.
- High sound levels can cause permanent hearing loss. Use hearing protection while operating tool.
- Due to the material being processed, there may be a risk of explosion or fire. Be aware of work surface dangers prior to beginning work.
- There is a risk of being cut due to high speed rotation. Do not touch high speed rotating disc.
- This power tool is not insulated. If contact is made with an electric current, injury may occur.
- Dust created by sanding, sawing, grinding, drilling and other related activities may expose the user to dust and/or microscopic particles that may contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

MAINTENANCE INSTRUCTION

LUBRICATION:
Before connection of the hose, apply 4 to 5 drops of a good quality air tool oil at the air inlet.
After 3 to 4 hours of operation, oiling may be necessary again.

TIGHTNESS OF PARTS:
Regularly check whether all connection parts are fastened securely. Follow this procedure daily before beginning work.

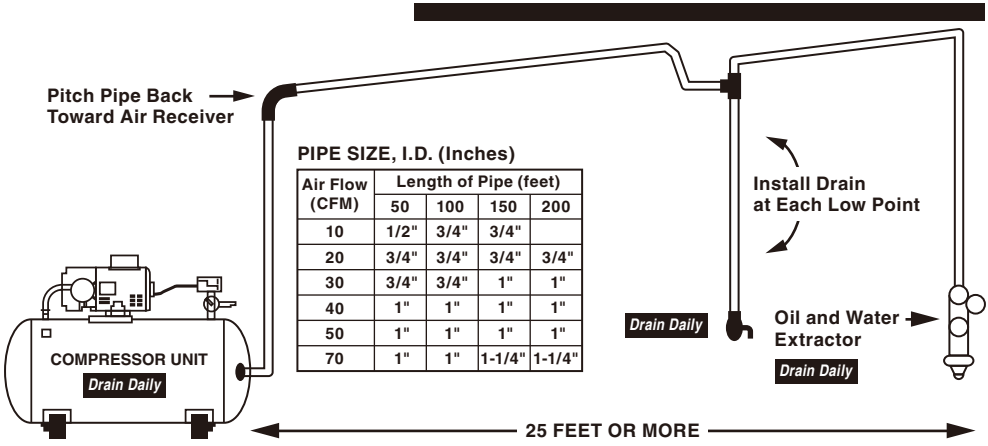
DISPOSAL:
Follow national legislation of waste disposal.

STORAGE:
Avoid storing the tool in a location subject to high humidity. If the tool is left unused, the residual moisture inside the tool can cause rust. Before storing and after operation, oil the tool at the air inlet with a good quality air tool oil and run it for a short period.

SUGGESTED AIR LINE CONNECTION

The oil and water extractor should not be mounted on or near the air compressor.

The temperature of air is greatly increased during compression. As the air cools down to room temperature, in the air line, on its way to the Air Power Tool, the moisture contained in it condenses. Thus, for maximum effectiveness, the oil and water extractor should be mounted at some point in the air supply system where the temperature of the compressed air in the line is likely to be lowest.
Air lines must be properly drained daily. Each low point in an air line acts as a water trap. Such points should be fitted with an easily accessible drain. See diagram below. Pitch all air lines back towards the compressor so that condensed moisture will flow back into the air receiver where it can be drained off. **Drain daily.**

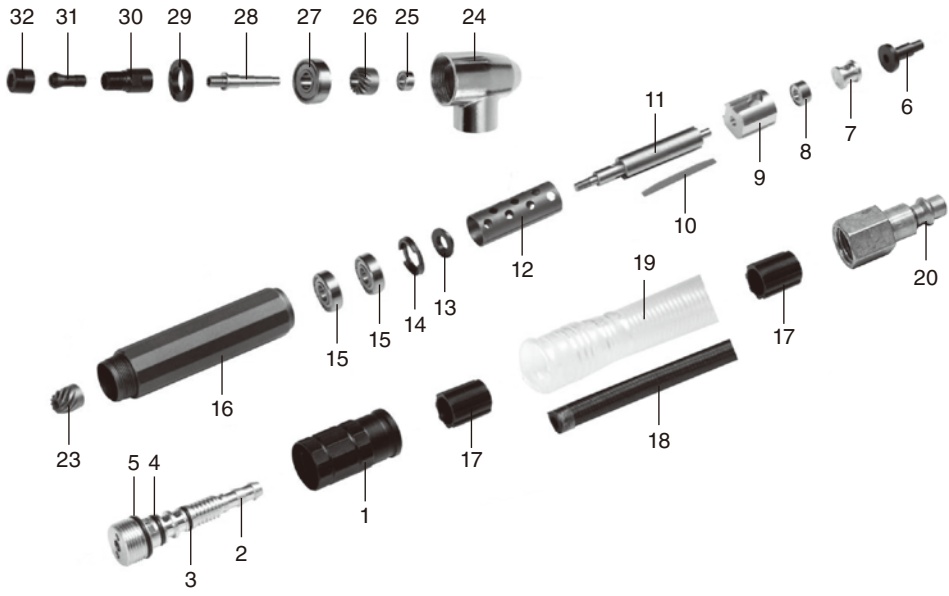


PIPE SIZE, I.D. (Inches)

Air Flow (CFM)	Length of Pipe (feet)			
	50	100	150	200
10	1/2"	3/4"	3/4"	
20	3/4"	3/4"	3/4"	3/4"
30	3/4"	3/4"	1"	1"
40	1"	1"	1"	1"
50	1"	1"	1"	1"
70	1"	1"	1-1/4"	1-1/4"

Oil and Water Extractor should be at least 25 ft. from the compressor. Further if possible.

PARTS BREAKDOWN



PARTS LIST

Index	*Part No.*	*Description*	*Qty*
1	233-01	Switch	1
2	233-02	Intake Shaft	1
3	233-03	O-Ring	1
4	233-04	O-Ring	1
5	233-05	O-Ring	1
6	233-06	Joint	1
7	233-07	Shunt	1
8	233-08	Intake Plate	1
9	233-09	Bearing Plate	1
10	233-10	Rotor Blade	3
11	233-11	Rotor	1
12	233-12	Cylinder	1
13	233-13	Spacer	1
14	233-14	Lateral Dise	1
15	233-15	Ball Bearing	2

Index	*Part No.*	*Description*	*Qty*
16	233-16	Sleeve	1
17	233-17	Connector	2
18	233-18	Tracheal	1
19	233-19	Silencer Tube	1
20	233-20	Tracheal Connector	1
23	233-23	Gear	1
24	233-24	Sleeve	1
25	233-25	Intake Plate	1
26	233-26	Big Gear	1
27	233-27	Ball Bearing	1
28	233-28	Axis	1
29	233-29	Gasket	1
30	233-30	Collet Foundation	1
31	233-31	Connector	1
32	233-32	Clamping Nut	1