



AIR-SPADE®

UTILITY AIR-SPADE 4000
AIR EXCAVATION TOOL

THE NEW INDUSTRY STANDARD

UTILITY AIR-SPADE® sets a new standard for air-excavation tools. Engineered with safety in mind, UTILITY AIR-SPADE features AIR-SPADE's patented supersonic nozzle for rapid digging in the toughest of soils. Combined with a high-voltage insulated barrel and non-sparking components, the rugged UTILITY AIR-SPADE provides the highest degree of protection when working around underground electric, gas and other utility lines.

UTILITY APPLICATIONS

Sensitive underground pipes and cables can often be punctured or damaged by traditional digging methods. UTILITY AIR-SPADE offers a safe non-damaging alternative method of soil excavation. Ideal for digging holes or shallow trenches for pipes or cables, UTILITY AIR-SPADE is used in the following applications:

• **Utility locating and repair** • **Keyholing** • **Potholing** • **Valve box cleaning** • **Cable trenching**



Electric Power Lines



Gas Pipes



Water and Sewer Lines



**Telecommunication
Lines and Fiber Optics**

SAFETY AND PERFORMANCE BUILT IN

Working around underground gas and electric lines demands the safest equipment. Constructed from high-pressure, insulated inner air hose surrounded by non-conductive, fiberglass outer barrel, a UTILITY AIR-SPADE with a 4 ft. barrel is rated up to 300kV.

Non-sparking brass nozzle and brass barrel sleeves provide protection when digging in and around utility lines.



INNER AIR HOSE rated to 75kV per ft. for 5 minutes per SAE 100R7

OUTER FIBERGLASS TUBE rated to 100kV per ft. for 5 minutes per ASTM F711

FREQUENTLY ASKED TECHNICAL QUESTIONS

IN WHAT TYPE OF SOIL WILL UTILITY AIR-SPADE® WORK?

Because of the focused air-jet generated from the supersonic nozzle, UTILITY AIR-SPADE works in most soils, including compacted soils, and hard clays. In general, UTILITY AIR-SPADE will not cut through rock. However, shales may be broken apart by UTILITY AIR-SPADE if the jet is directed between the laminations of the rock. Similarly, UTILITY AIR-SPADE will not dislodge hard frozen soil which tends to behave like pavement or concrete.

WHAT SIZE NOZZLE SHOULD I USE?

This depends on the desired rate of soil excavation which is in turn dependent upon the air delivered from the AIR-SPADE nozzle. Soil excavation rates are summarized in the table below:

Soil Excavation Rates

Nozzle Size (cfm)	Soil Excavation Rates (cubic ft / min)		
105	0.9	to	1.5
150	1.2	to	1.8

WHAT SIZE AIR HOSE DO I NEED FOR THE UTILITY AIR-SPADE?

Generally a 1 inch ID air supply hose is recommended for use with the UTILITY AIR-SPADE.

WILL HIGHER AIR PRESSURE MAKE THE UTILITY AIR-SPADE WORK BETTER?

All AIR-SPADE nozzles are developed to operate optimally at 90 psi. Supplying higher air pressure to the AIR-SPADE supersonic nozzle that has been optimized for 90 psi actually de-focuses the air jet, thus degrading performance while consuming more air. In addition, energy required to operate the compressor at higher air pressure increases dramatically due to increased fuel consumption.

WHAT SIZE AIR COMPRESSOR DO I NEED TO PROPERLY RUN THE UTILITY AIR-SPADE?

Portable air compressors have model numbers that nominally reflect the approximate air delivery in cubic feet per minute (cfm) at a gauge delivery pressure of 100 pounds per square inch (psi). For example, a 185 compressor will deliver 185 cfm at 100 psi. AIR-SPADE nozzles are rated at 90 psi and are designated by their air consumption at this pressure. To size an AIR-SPADE nozzle to a given compressor simply ensure the compressor size is larger than the nozzle size.

Recommended Compressor Size

Nozzle Size (cfm)	Minimum Compressor Size (cfm @ 100 psi)
105	125
150	175 - 185

HOW SHOULD I DIG WITH THE UTILITY AIR-SPADE?

Each pass of the UTILITY AIR-SPADE dislodges material up to several inches deep in a medium to stiff soil. Unless the soil is highly compacted, dwelling on the same spot is unnecessary and tends to increase spray. Ideally, the UTILITY AIR-SPADE should be moved laterally at a rate of about 1 to 2 feet per second. When several inches of soil have been loosened, soil should be physically removed to expose a fresh working surface for the nozzle. Vacuum suction, as provided by the AIR-VAC® Vacuum Unit, is an excellent way to remove loosened soil.

AIR-SPADE®



Always wear eye and ear protection when operating air tools and related equipment.

EXCAVATION USING THE POWER OF COMPRESSED AIR

Soil is an unconsolidated assemblage of solid particles including clay, sand, and rock and sometimes organic matter. Voids between the particles are occupied by air and/or water. When compressed air is directed into soil at close range, air enters the voids where it expands, thereby fracturing the soil. Stronger, non-porous materials such as metal or plastic pipes, cables, or even tree roots are unaffected.

Non-sparking brass sleeves with threaded connections.

Adjustable dirt shield protects operator from flying debris.

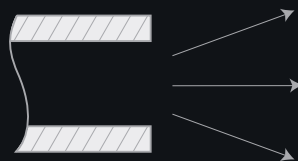
Rugged, lightweight, non-conductive, fiberglass construction, designed to protect both electrically and thermally. Extensions available in 2, 3, 4 and 5 feet lengths.

Patented, supersonic nozzle. Non-sparking brass construction. 105 and 150 cfm sizes available.

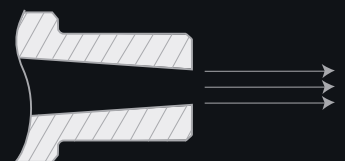
PATENTED SUPERSONIC NOZZLE

UTILITY AIR-SPADE's patented supersonic nozzle turns compressed air into a high-speed, laser-like jet moving at twice the speed of sound – Mach 2. All of the energy and momentum of air moving at approximately 1,200 mph is focused into the soil – dislodging it in a fraction of a second.

Air exiting from an improperly designed nozzle diffuses outward rapidly to 3 to 4 times the area versus the focused air-jet from the patented AIR-SPADE supersonic nozzle. The result is faster, safer, more efficient soil excavation.



UNFOCUSED AIR FLOW FROM IMPROPERLY DESIGNED NOZZLE




FOCUSED AIR FLOW FROM AIR-SPADE SUPERSONIC NOZZLE



Made in USA

PRODUCTS, PARTS & ACCESSORIES

	Part #	Description
	ASU4105G4	Utility Air-Spade 105 cfm w 4 ft Barrel
	ASU4150G4	Utility Air-Spade 150 cfm w 4 ft Barrel
	ASU4105KT	Utility Air-Spade 105 cfm Kit
	ASU4150KT	Utility Air-Spade 150 cfm Kit
	ASU4004BD	Utility Air-Spade 4 Ft Barrel w Dirt Shield
	ASU4002EX	Utility Air-Spade 2 Ft Extension w Coupler
	ASU4003EX	Utility Air-Spade 3 Ft Extension w Coupler
	ASU4004EX	Utility Air-Spade 4 Ft Extension w Coupler
	ASU4005EX	Utility Air-Spade 5 Ft Extension w Coupler
	ASU4000CP	Utility Air-Spade Barrel/Extension Coupler
	ASU4105NZ	Utility Air-Spade 105 cfm Nozzle
	ASU4150NZ	Utility Air-Spade 150 cfm Nozzle
	ASU4045AA	Utility Air-Spade 45 Degree Angled Adapter
	HT133	Sliding Dirt Shield
	HT180	Auxiliary Handle
	ASU4000HA	Utility Air-Spade Handle Assembly
	ASU4000HR	Utility Air-Spade Handle Repair Kit

AIR-SPADE®

54 Second Avenue
Chicopee, MA 01020
Phone: 800-482-7324
Fax: 413-594-4884
www.air-spade.com

A DIVISION OF
GUARDAIR
CORPORATION



Made in USA

Distributed by:

Retractable stabilizer bar provides superior operator control.



Pressure gauge ensures optimal digging performance.

Comfortable dead-man trigger.

Trigger guard prevents accidental activation.

3/4" FNPT inlet.

Chicago style swivel connector.

45 degree brass angled adapter aids digging in tight spaces.

High strength aluminum handle with plastic coated ergonomic grip. Engineered to accommodate linesman's gloves.

UTILITY AIR-SPADE® 4000 KIT includes:

- UTILITY AIR-SPADE® 4000 handle with Chicago style connector
- 4 ft barrel with dirt shield
- 45 degree brass angled adapter
- 105 cfm or 150 cfm brass nozzle
- 10 ft x 1" ID lightweight air hose with Chicago style connectors
- Heavy duty locking storage case