

# SAFEX<sup>®</sup> Air-Vacuum Excavation Systems



**CONCEPT ENGINEERING GROUP INC.**

*The air excavation experts*

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## System Specifications

	Utility	Truck / Trailer		Utility	Truck / Trailer
Compressor			Engine		
Air flow (scfm)	30	50 to 70	Power (Hp)	18	35 / 41 ( opt 50 )
Pressure (psig)	100	100	Fuel	Gas	Gas / diesel
Vacuum					
Air Flow (scfm)	260	370 ( opt 660 )	Storage (cu yds)	1/4	1/2 (opt to 2 1/2)
Suction (in Hg)	8	8	Weight empty / full (lbs)	700 / 1400	2100 / 3450
Hose diameter (in)	2.5	3.0 ( opt 4.0 )	Size (in)	44W by 46L by 58H	49W by 76 to 96L by 72H
Filter	Washable 0.2 micron	Washable 0.2 micron	Controls / Gauges	Key start, engine, air & vacuum	Key start, engine, air & vacuum

## Air-Vacuum Excavation

Although its roots reach back to the 1950 and 60's, in the last decade vacuum excavation has come to the forefront as a recognized means of safely uncovering buried utilities. Vacuum excavators are typically used to dig potholes to daylight utilities when directional boring or to provide access for keyhole type repair work.

Concept Engineering Group Inc. manufactures a range of SAFEX<sup>®</sup> air-vacuum excavation systems that use a combination of supersonic jets of air and high flow, pneumatic vacuum transport to dislodge and remove soil. Air-vacuum excavation has a number of advantages over other systems including:

- Unlike using water jets, air jets do not create a spoil disposal problem.
- Supersonic air jets break the soil into small pieces ideally suited for compacting back into the hole.
- The unit is lighter and more compact since air jets do not need a large water storage tank on board.
- Unlike high-pressure water jets that can actually cut a plastic gas line, air jets are harmless to buried utilities.
- Air jets are two to three times faster than hand excavation and can excavate rocky types of soils where a shovel cannot be used.
- Air excavation requires less vacuum because dry rather than wet material is being conveyed.

## SAFEX<sup>®</sup> Utility



Originally developed for the US Army for digging up buried land mines and unexploded ordnance, the SAFEX<sup>®</sup> Utility system provides an air-vacuum excavator in a compact package. The unit is skid mounted. It is sized to fit in the cargo area of utility type vehicles such as the John Deere Gator<sup>®</sup> or Kawasaki Mule<sup>™</sup>. The SAFEX<sup>®</sup> Utility unit provides sufficient air to power the AIR-SPADE<sup>®</sup> with a 25 scfm / 90 psig supersonic nozzle. Excavation rate is about ¼ cubic foot per minute in a moderate soil. Utility vehicles are finding increased use for all purpose construction site transportation.



## SAFEX<sup>®</sup> Truck / Trailer



This SAFEX<sup>®</sup> system is ideal for potholing for utility line location. The compressor provides air to run the AIR-SPADE<sup>®</sup> with nozzles up to 60 scfm / 90 psig supersonic nozzle. Excavation rate in a moderate soil is approximately ½ cubic foot per minute. Systems are sized to fit into the bed of a pickup truck, an open trailer, or an enclosed trailer. Storage capacity is sufficient for two typical potholes. Options include a blow back system to self-clean the air filter. Upgrades are available to a 4-inch diameter hose and larger spoils tanks. Systems are built to order.

