



SURFACE VEHICLE STANDARD

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Vacuum Excavation and Sewer Cleaning Equipment Classification and Nomenclature

RATIONALE

There are currently no standards or guidelines for the vacuum excavator industry. This standard will provide benefit to industry by providing consistency and definitions for terms commonly used with vacuum excavation and sewer cleaning equipment.

1. SCOPE

This document lists common terminology for vacuum excavation and sewer cleaning equipment, including component names and specific work completed by these machines. This document also illustrates some common types of equipment.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 Environmental Protection Agency Publications

EPA Test Method 9095B Paint Filter Liquids Test

3. TERMS AND DEFINITIONS

3.1 ACCUMULATOR

Device that stores energy, dampens shock, and/or maintains system pressure.

3.2 ACTUAL DELIVERED AIR FLOW (ADAF)

Measured, sustainable air flow capability of a component or system as installed, normalized to standard atmospheric conditions.

NOTE: ADAF is measured in volume/unit of time at a specified pressure (e.g., $x \text{ m}^3/\text{min}$ at $y \text{ kPa}$).

3.3 ACTUAL DELIVERED WATER FLOW (ADWF)

Measured, sustainable water flow capability of a component or system as installed.

NOTE: ADWF is measured in volume/unit of time at a specified pressure (e.g., $x \text{ L/min}$ at $y \text{ kPa}$).

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3.4 AIR EXCAVATION

Non-mechanical process of soil excavation that utilizes a combination of a high velocity airflow and suction to loosen, remove and capture soil.

3.5 AIR GAP

Air space between the water tank inlet and supply line that prevents siphoning and backflow.

3.6 AIR LANCE

Tool which uses pressurized air flow to excavate.

3.7 AIR MOVER

Machine that uses pneumatic conveyance.

3.8 AIR PURGE

System that utilizes high-pressure air to remove excess water from a piping system.

3.9 AUTOMATIC VACUUM RELIEF VALVE or KUNKLE VALVE

Device used to control or limit the maximum vacuum in a pneumatic conveying system.

3.10 BACKFLOW

Unwanted flow of a fluid in the reverse direction.

3.11 BLOWER

Positive displacement device that produces a flow of air, especially for creating vacuum.

3.12 BONDING or EQUIPOTENTIAL BONDING

Connecting of two or more conductive objects together so they are at the same electrical potential.

3.13 BOOM

Overhead extension attached to vacuum equipment for supporting hoses, wires, etc.

3.14 CARRY OVER

Any material that remains in suspension after passing through a pneumatic conveying system or component of said system.

3.15 CATCH BASIN NOZZLE

Vacuum nozzle used in sewer cleaning.

3.16 COMBUSTIBLE DUST

Any fine material that has the ability to catch fire and explode in the presence of air and an ignition source.

3.17 CROSS CONTAMINATION

Material contaminated by material left over from previous use.

3.18 CYCLONE FILTRATION (SEPARATOR)

Component of a filtration system which separates material by centrifugal force without the use of a filter element.

3.19 DEBRIS BODY or DEBRIS TANK

Container for collecting debris.

3.20 DECANTING

Removal of excess unsaturated liquids typically from a debris body.

3.21 DEWATERING

Act or method of separating water from the spoils.

3.22 DIELECTRIC

Electrically insulating material or very poor conductor of electric current.

3.23 DIELECTRIC MATERIAL

Electrically insulating material of some measurable capability to prevent the flow of current.

3.24 DIELECTRIC STRENGTH

Measure of the electrical strength of a material as an insulator.

3.25 DIG TUBE, VACUUM TUBE or SUCTION TUBE

Vacuum nozzle with an inlet end made of electrically insulated material used in vacuum excavation.

3.26 DRY BACKFILL

Spoils that pass the paint filter test.

3.27 DUMP VALVE

Valve to redirect flow from a pressurized system to reduce system pressure.

3.28 EARTH GROUNDING

Connecting an electrical circuit or device to the earth or bonded to another conductive object that is inherently grounded, such as a large storage tank or underground metallic piping.

3.29 EXCAVATION NOZZLE

Device with one or more orifices through which liquid or air that exits from a pressurized system typically found at the end of the lance.

3.30 FLOAT BALL SHUTOFF or PRIMARY SHUTOFF VALVE

Device using a floating ball to stop airflow in the debris body as the liquid level rises.

3.31 FLOWABLE FILL

Mixture of soil, cementitious materials, and water applied as a slurry backfill that does not require compaction.

NOTE: Flowable fill is also known as controlled low strength material (CLSM).

3.32 FLUID EXCAVATION UNIT

Equipment designed to pothole and to excavate the spoils created during directional drilling and related activities.

3.33 FRANGIBLE DISK or RUPTURE DISK

Non-serviceable pressure relief device.

3.34 GROSS DEBRIS BODY CAPACITY

Total capacity inside of the debris body, including any unusable space above the floats, inlets, etc.

3.35 GROUND MATS

Conductive ground covering which is bonded to vacuum equipment in order to create an equipotential zone for the operator to stand.

3.36 HANDGUN

Hand-held water gun with trigger used for cleaning and wash-down purposes.

3.37 HANDGUN PRESSURE RELIEF VALVE

Pressure relief valve for hand-held wash-down.

3.38 HOSE GUARD, HOSE GUIDE, TIGER TAIL or BUMBLE BEE

Device used to protect sewer-jetting hose from damage as it passes around corners and sharp objects.

3.39 HYDRO EXCAVATION

Non-mechanical process of soil excavation that utilizes a combination of a high velocity water flow and suction to loosen, remove, and capture soil.

3.40 HYDRO EXCAVATOR

Equipment which high pressure water and vacuum to loosen and remove soil or earth.

3.41 INDUCED AIRFLOW

Airflow created by high velocity water movement in a conduit.

3.42 INLET VALVE

Valve located on the debris body through which excavation spoils are drawn into the debris body, normally through vacuum hoses attached to the valve.

3.43 JETTING

Process of using a fluid-emitting, thrust-propelled nozzle on the end of a hose to clean and flush material from pipes or conduits.

3.44 LANCING

Application of a lance used to focus the emitted air or water at the soil being excavated.

3.45 LEADER HOSE

Extension to a sewer hose placed between the sewer hose and the nozzle.