Volumetric Measuring Instrument

An Instrument That Makes Multiple Measurements To Determine the Volume of a Bulk Commodity

The instrument began as a Multiple Dimensioning Measuring Device for measuring three sides of an object to calculate the objects volume.

Over time the instruments capability has increased to calculate the volume of a commodity transported in a vehicle or container.

System Configuration

The instrument consists of a measurement sensor connected to a system controller.



Pole mounted sensor



Overhead frame mounted sensor



System Controller

System Installations

Volumetric Measuring Systems can be installed in temporary or permanent installations.



Temporary Installation



Permanent Installation

Typical Operation

- The systems are used for dynamic measuring as the vehicle containing the commodity passes under the sensor.
- Systems can operate in single or bi-directional modes.
- Commodities are ones that do not contain voids or air pockets. Typical materials are topsoil, aggregate, and sand.
- Vehicles transporting the commodities must be measured empty. This allows the system to obtain the correct profile however they do not need to be measured empty first.

Operator Message Display

A system would also include a message display to inform the vehicle operator of the system status or any errors that may have occurred during the measuring process as these systems are often unattended.









Vehicle Classes in the United States



International Conference of Weighing - 2026

Vehicle Classes Tested for Certification



Class Five



Class Seven

Vehicle Classes Tested for Certification



Class Eight

Transfer Standard for Certification Testing

- **Verification testing is performed by placing a know volume of material typically aggregate into the vehicle.**
- **This is accomplished by using a transfer standard with a known volume.**



Verification Testing

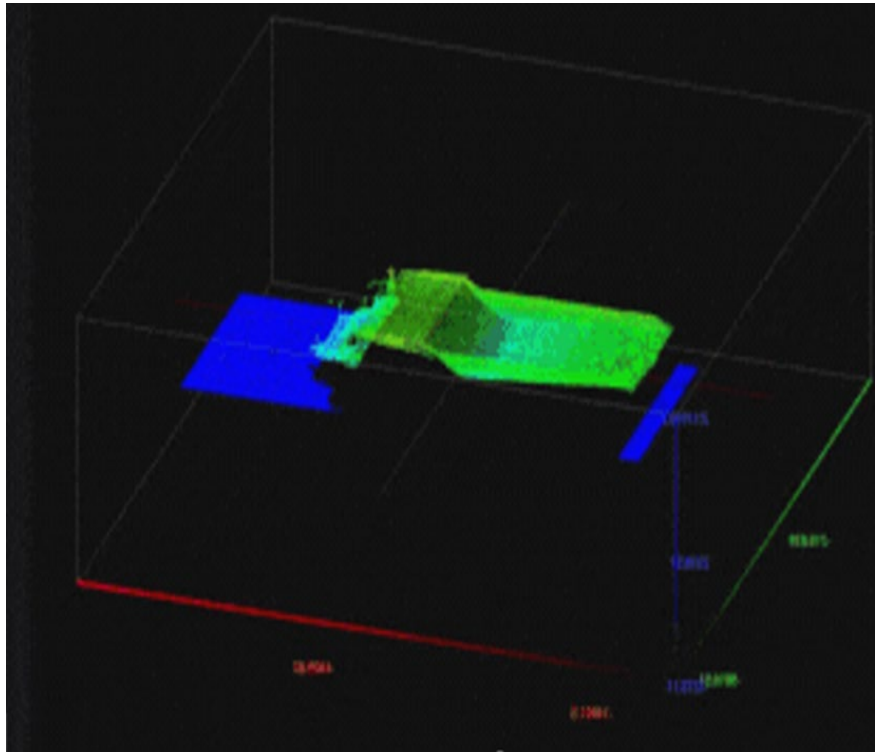
- The material is then loaded in the transportation vehicle.
- Using this method allows loading the vehicle to minimum capacity, mid-capacity, and near maximum capacity volumes.
- The vehicle then passes under the sensor. The vehicle is detected and the measurement takes place.



Vehicle Measured Empty



Vehicle being measured empty

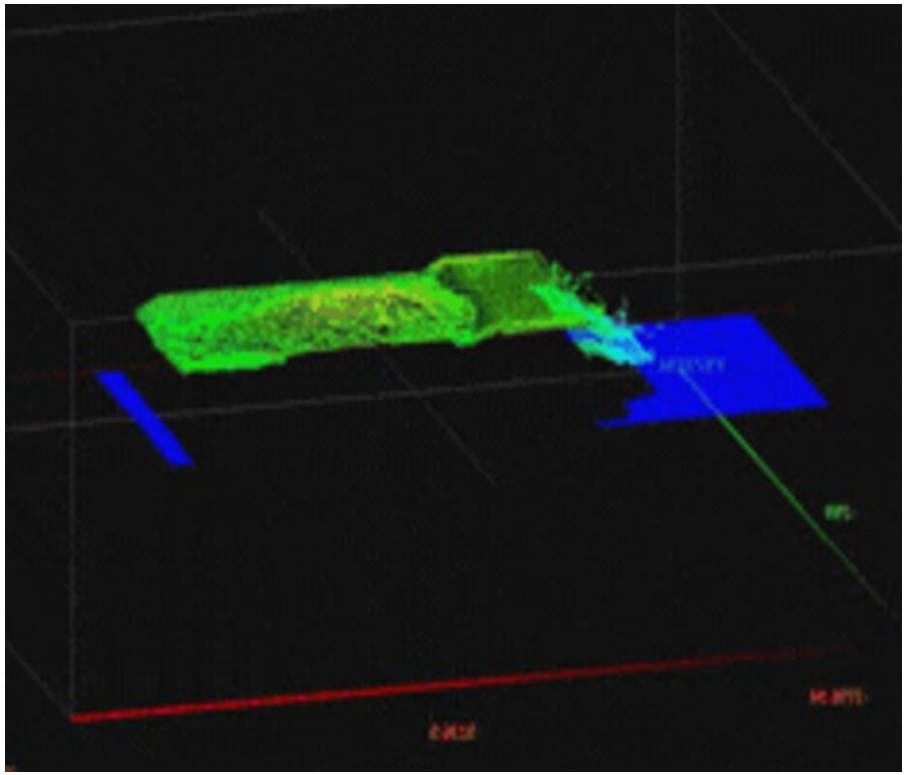


Scan image of vehicle empty

Vehicle Measured Full

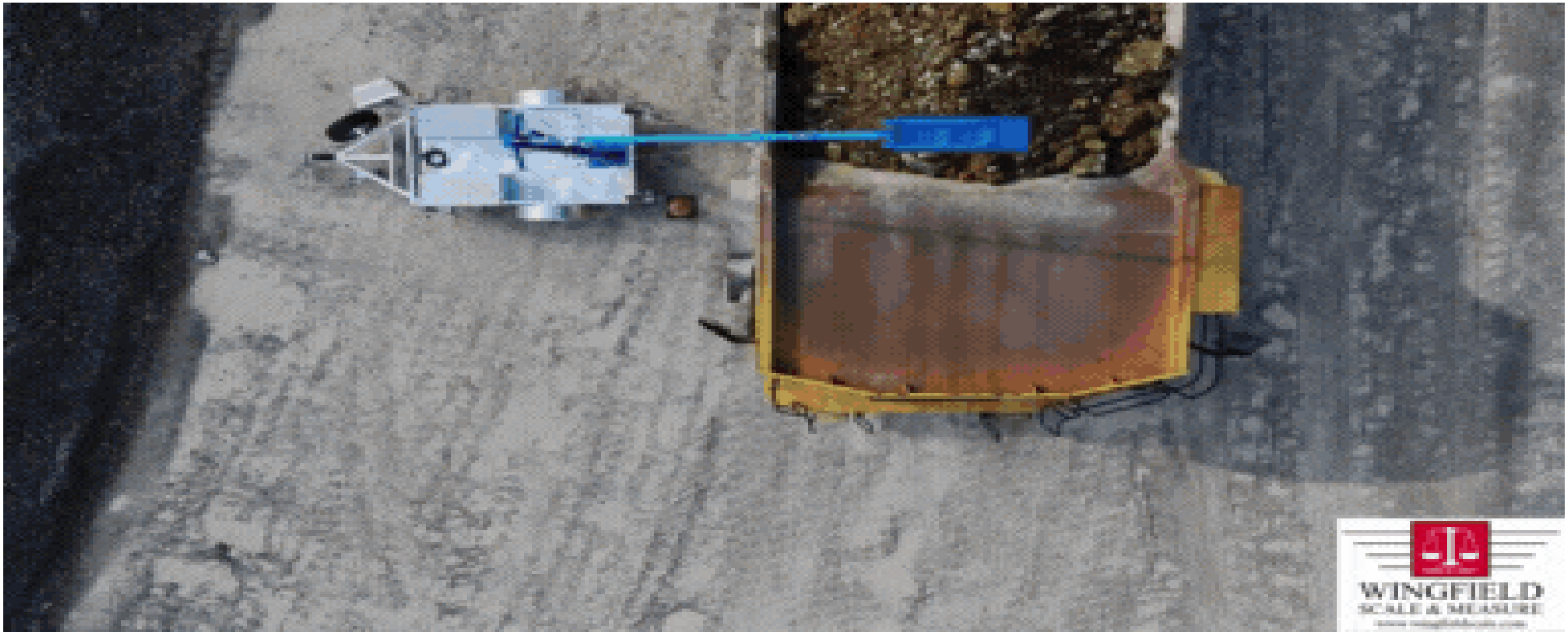


Vehicle being measured full



Scan Image of vehicle full

Vehicle Measuring Process



Measurement Result



Future of Volumetric Measuring Systems





A special thanks to Wingfield Scale & Measure Co. for many of the photographs used in this presentation

and

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