

Jet pumps may also be used to transport dry solids using a gas (e.g., air) as its motive source. The Penberthy **Model GST** (gas-operated solids transport) jet pump is designed to pneumatically convey powders and bulk solids via dilute phase through a closed piping system.

An excellent replacement for conventional auger or belt conveyors, the **Model GST** has the advantage of ambient pressure solids introduction of vacuum conveying systems and the discharge capabilities of positive pressure conveying systems. These jet pumps use the tendency of a moving stream of air to shear towards a boundary surface. This is known as the Coanda effect. This shearing effect and the geometry of the jet pump causes entrainment of ambient air and solid material in front of the jet pump. This entrained air and solid material are then transported down a length of pipe.

Unlike vacuum-based systems, the **Model GST** is a true pump that entrains the material at the source and pushes the air/solids mixture through the system. Working in a closed piping system, there is little opportunity for material loss or external contamination. In general, piping and feed requirements that provide good material flow in an existing vacuum or blower system are applicable to the **GST**. The material feed is at ambient pressure, thus eliminating the need for rotary valves and/or blow tanks. In certain applications, these units used alone can replace the function of some dual vacuum/positive pressure systems.

## Models Available

### GST



## Selection Guide

To size which Model GST would be the most efficient for your dry solids transport application, the following information is required. Once you have determined this information, simply contact your local Penberthy sales representative who will help to size and specify the Model GST unit to fit your needs.

### SOLIDS INFORMATION:

- Density (Weight of material)
- Geometry (Shape and size)
- Amount of Material To Be Moved
- Required Time To Move This Amount

### OPERATING AIR/(GAS) INFORMATION:

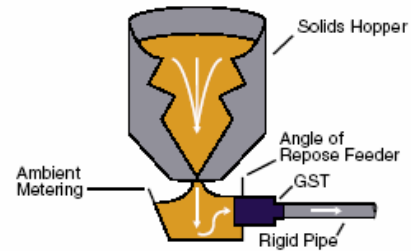
- Amount of Pressure and Flow Available

### DISCHARGE PIPING INFORMATION:

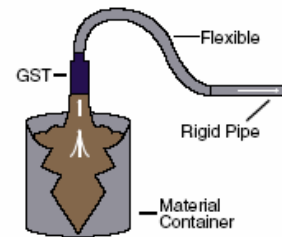
- Material of Construction
- Size & Schedule
- Total Length Involved
- Number of Bends/Elbows
- Vertical Lift
- Other Restrictions To Consider (e.g., Filter Elements)

## Typical Applications

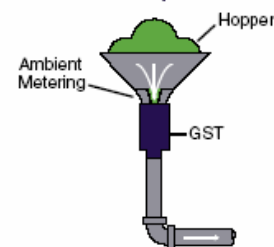
### Solids Transport From Hopper



### Solids Transport Through Flexible Tubing



### Direct Solids Transport From Hopper



### Industry Applications:

Potential applications for the Model GST include but are not limited to: moving bulk solids & powders and particle collection/evacuation. Industries that could benefit from using this method of transporting dry solid material include: feed & grain operations, plastic/resin manufacturers & users, particulate chemical manufacturers & users, mining operations, foundries, sugar/salt mills, fertilizer handling operations and general manufacturing.

## Model Construction Data

Model	GST	
Sizes Available	1 1/2"-6"	Standard Materials
		Cast: Low Lead Bronze, 316 STS, Aluminum Non-Metallic: CPVC

## Model Specifications

Model	GST				
Pump Size	1 1/2"	2"	3"	4"	6"
Motive Pressure Range*	5-35 psig (35-240 kPag)	5-60 psig (35-415 kPag)	5-90 psig (35-620 kPag)	5-120 psig (35-830 kPag)	5-200 psig (35-1380 kPag)

\* Please note that under certain application conditions, the Penberthy Model GL or GH units may be used.