

Magdeburg Hemispheres



Hemispheres and Hose

Purpose: Demonstrates the strength of air pressure.

This is a classic demo on air pressure. Slide the hose over the smaller barb on the vacuum pump manifold – you will not need a hose clamp. Turn on the pump, open the correct valve, and pump out the sphere. Close the valves on both the sphere and the pump cart, then use the bleed-valve to let air back into the hose. You can then detach the hose and sphere from the pump cart. Have fun with the students trying to pull it apart.

Note: The inside diameter of the sphere is about 3.5 in. This gives a cross-sectional area of 9.6 in^2 , so it should take about 140 lbs of force to pull it apart.

Extra Equipment: Pump cart. You might also need some vacuum grease, which is located on the cart with the bell jar.

Location: Pump cart