



TSP, INC.

Louisiana / Texas / Oklahoma



VACUUM BOXES

YEARS OF INDUSTRY TESTING • SIMPLE TO OPERATE

FAST & SAFE EVACUATION • SHOCKPROOF

CUSTOM BOXES AVAILABLE

www.ndt.com.au

VACUUM BOXES ►

TSP, Inc. has been manufacturing vacuum boxes for leak detection since 1990. Our vacuum boxes are manufactured to a high degree of quality. TSP boxes are constructed for ease of use, durability, and simplicity for an affordable price to the inspector.

The TSP line of vacuum boxes uses a venturi system (ejector) to evacuate air inside the box in order to form the vacuum. This method of operation is consistently reliable, as there are no moving parts. As little as 4 cubic feet per minute of air flow is required to operate the venturi efficiently. As a result, portable air compressors connected to 120v current may be used to operate TSP boxes.

Along with the standard line of vacuum boxes, we manufacture custom boxes for many different industries including nuclear power plants, shipbuilding, aerospace and petrochemical.



TSP, INC.

We manufacture a variety of boxes in the following categories to ensure we have the exact product to suit your specific needs:

- ▶ CORNER
- ▶ FLEXIBLE
- ▶ LAP JOINT
- ▶ FLAT BOTTOM
- ▶ CUSTOM
- ▶ VAC BOX ACCESSORIES

DEPENDABLE PERFORMANCE

TSP vacuum device designs have been thoroughly field tested for several years in a variety of applications throughout the world.

SIMPLE TO OPERATE

The air ejector has no moving parts. After applying leak detection fluid along seam, simply place the vacuum device over the area to be tested and open the air valve. Slight pressure may be required to seal the box.

RUGGED, YET LIGHTWEIGHT

Our shockproof vacuum devices are built with lightweight acrylic which can be fabricated for special applications. The tough rubber gasket is designed to provide a maximum seal.

FAST, SAFE EVACUATION

Air ejection on standard models is less than 3 seconds. Our ejector uses no electricity. Your compressed air supply (40-90 psi or 4.00 cfm) will insure safe and economical operation.

COMPRESSED AIR MODELS - INSTRUCTIONS ►

PARTS SUPPLIED

- (1) Vacuum box with installed venturi and dial indicator
- (1) ¼" threaded nipple
- (1) ¼" F x F ball valve
- (1) ¼" F x M elbow (corner boxes only)
- (1) ¼" quick connect
- (1) 2 oz Leak Test concentrate sample (4oz/5 gallons of water)

ASSEMBLY

1. Remove the vacuum box from the crate and place it on a flat clean surface. Care must be taken not to lay the box on items that will deform the gasket material.
2. Attach the ¼" threaded nipple to the venturi on the vacuum box.
3. Attach the ¼" ball valve to the ¼" threaded nipple. The ball valve lever needs to be in the open position in order to thread it to the ¼" nipple (parallel to the axis of the ball valve).
4. CORNER BOXES ONLY – Thread the ¼" elbow to the ¼" ball valve.
5. Attach the ¼" quick connect fitting to the ball valve. Corner boxes require attachment of the 1//4" quick connect fitting to the ¼" elbow.

OPERATION

1. Safety glasses are to be worn at all times during the operation of this equipment.
2. Remove the paper masking from the vacuum box.
3. Verify that the ball valve lever is in the closed position (lever is perpendicular to the axis of the ball valve).
4. Connect the available air supply hose to the ¼" quick connect.
5. Check the surface to be tested to make sure that it is reasonably clean and smooth.

TSP vacuum boxes are tested to our standards during the manufacturing process. Your satisfaction is important to TSP, Inc.

6. Apply the diluted Leak Test concentrate to the weld to be tested.
7. Place the vacuum box over the weld to be tested and turn the ball valve lever to release the air flow. Press down on the box and a vacuum should form inside of the vacuum box immediately. Note: the level of vacuum may be controlled at the air source or by partially opening the ball valve.
8. Examine the weld through the viewing area of the vacuum box for any sign of bubbles indicating a potential leak. The vacuum time and the level of the vacuum are to be determined by in-house, customer, or industry procedures.
9. Upon allowing for sufficient time to examine the weld, close the ball valve and move to the next area to be tested.

TROUBLE SHOOTING

- ▶ **PROBLEM:** The box does not seal
- ▶ **CAUSES:**
 - Insufficient air flow due to the air source or venturi failure
 - Air is flowing into the box due to a worn gasket or significantly uneven surface
- ▶ **SOLUTIONS:**
 - Check the venturi operation by momentarily placing a finger over the intake hole on the inside of the vacuum box, while air is flowing through the venturi. While suction should be experienced, it will not be at a high level if the venturi is operating. It is possible to connect another dial indicator to the machined hole on the side of the venturi to take a direct reading.
 - Monitor the air flow from the air source. A flow rate of 4 scfm will operate the venturi.
 - Replace the gasket if it is worn. Significantly uneven or wavy surfaces may be mitigated by using an additional gasket.
 - The box was not designed to work for that particular task (example: flat box for a lap joint). Please call to discuss this possible issue.