

MALONEY TECHNICAL PRODUCTS

SPHERE INFLATION PUMP INSTRUCTIONS

The Maloney Pressure Pump is designed for filling and inflating Pipeline Spheres. As a simple, mechanical pump it is suitable for use in remote field locations and is ruggedly designed to operate reliably with minimal maintenance required.

The pump itself is a single acting, positive displacement, hand operated unit capable of pressure levels approaching 300 PSI, well above anticipated requirements.



Effective volume is approximately 4 cubic inches per stroke. Both suction and discharge sides are equipped with check valves, and a manual pressure relieving valve is included on the discharge side. The suction side of the pump is piped to standard 1/4" IPS threads with a removable hard rubber reservoir. The filling hose is terminated with a quick coupling adapter designed to accept the sizing adapters used in filling spheres.

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MAINTENANCE

In normal use, the pump requires no maintenance other than a few drops of oil on the roll pin bushings. For long periods of storage, pump a clean mineral oil through the pump before packing.

SIZING AND FILLING MALONEY PIPELINE SPHERES

For efficient operation, spheres must be filled with the appropriate liquid and sized to the proper diameter. This diameter is generally 2% over the nominal ID of the pipeline, but certain applications may require a different inflation diameter. Maloney recommends a sizing ring be used to ensure that spheres are as consistent in size as possible for critical Prover applications.

The filling accessories are illustrated in the picture below. Two styles are available, one used for the 4" & 6" Spheres, the other for the 6-1/4" and larger sizes.



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LIQUID BATCH SEPARATION

Maloney spheres are used for batch separation in lines carrying two or more products. The use of multiple spheres is one of the methods of decreasing the potential of mixing of the product batches. Spheres are used between different grades of gasolines, crudes and other liquid petroleum products.

Arrival of the spheres at check points is registered by detectors (See Maloney Series III Detector Brochure). The signals from the detectors may be used to activate the operation of various types of valves to accomplish a variety of functions.

LIQUID FILLERS

Inflatable spheres must be filled with liquid and sized to proper diameter. Recommendations are a guide only, experience will allow more accurate sizing for any given line under actual operating conditions.

Recommended Liquid Fillers for Pipeline Spheres

Temperature, Degrees F	Filler
< 32	50% Ethylene 50% Water
32 - 150	Water

Sphere Sizing Recommendation

- ◆ 2% over pipe ID

Required Tools & Accessories

- ◆ Pressure Pump
- ◆ Sizing Adapter
- ◆ Valve Wrench
- ◆ Filling Spout
- ◆ Core Extractor

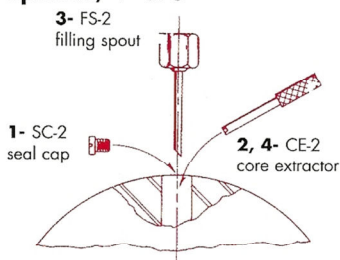
Optional Tools, Parts & Accessories

- ◆ Replacement valve core (all spheres)
- ◆ Replacement valve - spheres 6-1/4" and larger (complete with valve body, core, cap, and O-ring)
- ◆ Replacement caps
- ◆ Sizing ring (per customer specifications)
- ◆ Maloney offers an optional 316 SS Valve Assembly on all inflatable spheres for use in highly corrosive environments

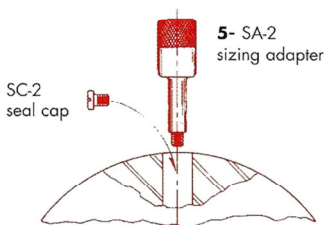
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Sphere Filling Instructions

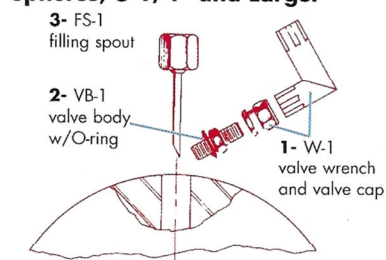
Spheres, 4" & 6"



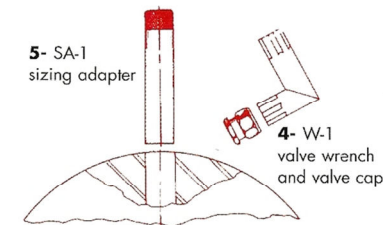
1. Remove seal cap using screwdriver.
2. Remove valve core using core extractor.
3. Fill sphere completely using filling spout or a small funnel. **NOTE:** It may be necessary to tap sphere to remove trapped air during this operation.
4. Replace valve core using the core extractor.
5. Connect sizing adapter to sphere valve hand tight. Continue following sizing instructions below.



Spheres, 6-1/4" and Larger



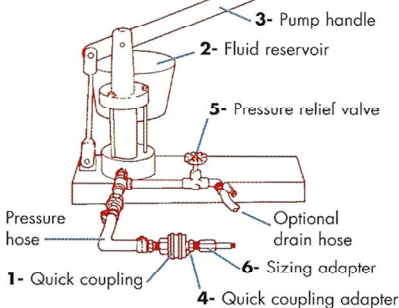
1. Remove valve cap using small end of valve wrench.
2. Remove valve body with large end of valve wrench.
3. Fill sphere completely using filling spout or a small funnel. **NOTE:** It may be necessary to tap sphere to remove trapped air during this operation.
4. Replace valve body using valve wrench. **CAUTION:** Do not overtighten. Damage to O-ring may result. Replacement O-rings included with every sphere.
5. Connect sizing adapter to sphere valve handtight. Continue following sizing instructions below.



Sphere Sizing Instructions

For All Spheres

1. After sphere has been filled, remove quick coupling from pressure hose and thread it into sizing adapter.
2. Fill reservoir on pump with liquid. (Consult your Maloney representative for proper liquid to use in unusual temperature applications.)
3. Operate pump until all air is evacuated from both pump and hose.
4. Recouple quick coupling adapter to quick coupling and inflate sphere to desired diameter.
5. After reaching desired diameter, pressure may be relieved from pressure hose using the pressure relief valve.
6. Remove sizing adapter from sphere valve, and replace valve cap.



PRECAUTIONS:

- ◆ All air must be evacuated from sphere during filling and inflating.
- ◆ Tighten valve and valve caps firmly but do not force threads.
- ◆ If valve leakage occurs, replace entire sphere valve assembly.