

Maloney Pipeline & Prover Spheres

Compression Molded for
Optimum Resiliency and
Wear-Resistance

Characteristics & Applications

Maloney Spheres are specially compounded for optimum resiliency, wear-resistance and long life. Maloney does not pour-cast nor rotational-mold any of our spheres.

Maloney Spheres are compression-molded at cavity pressures exceeding 2000 PSI. The compression molding process is critical to ensuring a uniform density of the compounded material and to yield a wear-life that is unmatched in the industry!

During sphere production, each molded hemisphere is subjected to an intensive physical inspection. Following assembly and post-curing, every sphere is inflated to a specified increased diameter for 24 hours. This critical step is taken to assure that every Maloney Sphere that leaves our factory will fulfill the exacting demands of the task for which it was designed.

Inflatable spheres are available in 4" sizes and larger. Solid spheres are available from 1-1/2" through 4" diameters.

USES OF MALONEY SPHERES

Maloney Spheres have the following uses:

- ◆ Liquid displacer in Meter Prover Loops
- ◆ Liquid product separator
- ◆ Signal actuating device
- ◆ Two-phase flow
- ◆ Hydrostatic testing
- ◆ Liquid removal in gas lines

Maloney Sphere Advantages

Maloney Spheres will pass through short bends, properly designed tees and full-opening conduit type valves. They will pass through out-of-round pipe, will wear evenly, and can be wear-compensated by adjusting the diameter by inflating.



General Recommended Service Applications

Sphere Type	Recommended Operating Temperature		Recommended Use
	Minimum	Maximum	
Neoprene	-20 Deg. F (-29 Deg. C)	280 Deg. F (138 Deg. C)	General purpose, pipeline, hydrocarbon & chemical service
Nitrile	-15 Deg. F (-25 Deg. C)	212 Deg. F (100 Deg. C)	Exposure to n-octane, hydrocarbons & petroleum gas, water, gasoline, and diesel oil
Polyurethane U-53 (Yellow)	-20 Deg. F (-29 Deg. C)	in oil 170 Deg. F (77 Deg. C) in water 140 Deg. F (60 Deg. C)	Meter prover service, low temperature distillate removal service
Polyurethane U-58 (Green)	0 Deg. F (-18 Deg. C)	in oil 170 Deg. F (77 Deg. C) in water 140 Deg. F (60 Deg. C)	Gas distillate removal at greater than 600psi. Long line distillate removal service where temperatures are 60 Deg. F. or greater
Polyurethane U-66 (Red)	0 Deg. F (-18 Deg. C)	in oil 170 Deg. F (77 Deg. C) in water 140 Deg. F (60 Deg. C)	Gas distillate removal at greater than 600psi. General pipeline usage for situations requiring long runs or when pipeline is especially rough

Low-Friction SLC Spheres and stainless steel valves are available

SPHERES FOR MECHANICAL DISPLACEMENT METER PROVERS

The efficiency of Maloney Spheres in the evacuation or displacement of liquids in pipelines is well proven by the fact that they are the most popular spheres used for mechanical displacement meter provers.

LINE TESTING & CLEANING

During the hydrostatic testing of pipelines, spheres are inserted ahead of the water column. As the spheres move through the line, being pushed by the water, they purge all air from the line. During the testing phase the sphere remains in the line and is

unaffected by the test pressures. Following the test, the sphere can return to the starting point, evacuating the test water. In addition, if the line must be freed from all traces of moisture, the same spheres can be used to contain a slug of alcohol between them, absorbing all remaining traces of moisture as they travel through the line. In cleaning pipelines, the use of spheres to confine the batch of cleaning solution permits moving the solution back and forth through the line by alternately applying pressure at each end of the line.

(More information on reverse side)

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
> 150	Glycerol

Sphere Sizing Recommendation

- ◆ 2% over pipe ID

Required Tools & Accessories

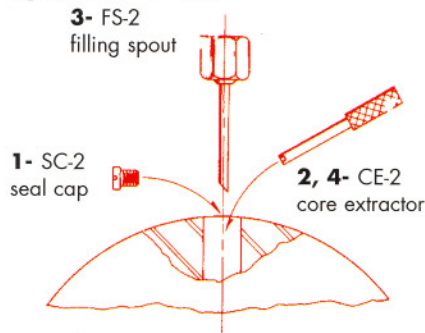
- ◆ Pressure Pump
- ◆ Valve Wrench
- ◆ Core Extractor
- ◆ Sizing Adapter
- ◆ Filling Spout

Optional Tools, Parts & Accessories

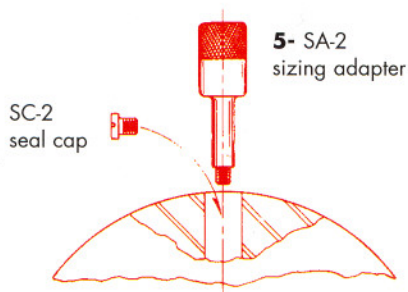
- ◆ Replacement valve core (all spheres)
- ◆ Replacement valve - spheres 6-1/4" and larger (complete with valve body, core, cap, and O-ring)
- ◆ Replacement caps
- ◆ Sizing ring (per customer specifications)
- ◆ Maloney offers an optional 316 SS Valve Assembly on all inflatable spheres for use in highly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

Sphere Filling Instructions

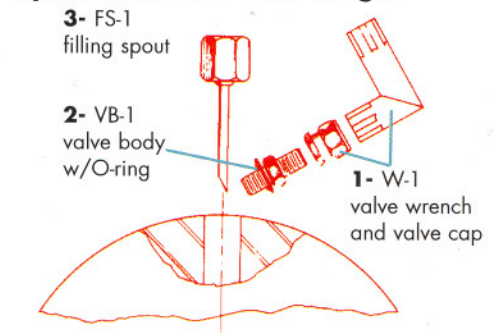
Spheres, 4" & 6"



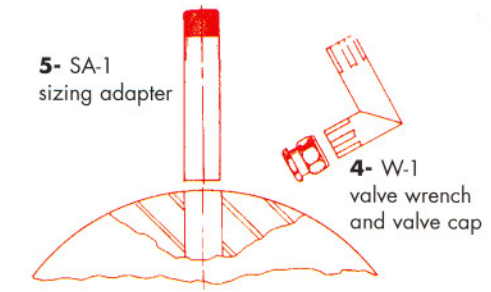
1. Remove seal cap using screwdriver.
2. Remove valve core using core extractor.
3. Fill sphere completely using filling spout or a small funnel. **NOTE:** It may be necessary to tap sphere to remove trapped air during this operation.
4. Replace valve core using the core extractor.
5. Connect sizing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



Spheres, 6-1/4" and Larger



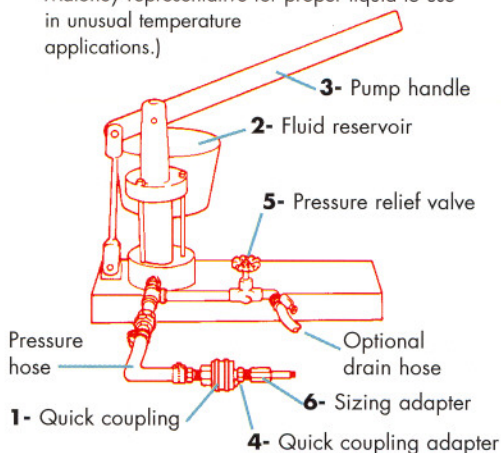
1. Remove valve cap using small end of valve wrench.
2. Remove valve body with large end of valve wrench.
3. Fill sphere completely using filling spout or a small funnel. **NOTE:** It may be necessary to tap sphere to remove trapped air during this operation.
4. Replace valve body using valve wrench.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