

GNY SURGITE SURGE SUPPRESSOR



*Distributor inquiries
invited*

GNY EQUIPMENT, LLC

20 DREXEL DRIVE, BAY SHORE, NEW YORK 11706 U.S.A

PHONE: (631) 273 4940 / FAX: (631) 273 5018

EMAIL: gnyequip@gnyequipment.com

www.gnyequipment.com

GNY Equipment, LLC

The Company was an early pioneer in the development of hydrant type aircraft refueling equipment and related aircraft ground support equipment. Experience in this field led to the designing and manufacturing of pits required for the early hydrant systems. The company had traded under the name Garsite TSR. The Deer Park facility remained in New York as Garsite International until in December 1995, when GNY Equipment, LLC (GNY) was spun-off to an independent status, bringing with it, almost a half-century of experience in aviation fueling, in liquid, Air, Oil and Gas equipment. The people at GNY have been manufacturing Aviation fueling equipment for over three decades.



7-1/2 Gallon Unit

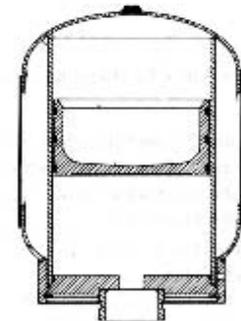
GNY Surgite Surge Suppressor: (Suitable for JET FUEL)

- Compact annular design protects inner cylinder wall from damage.
- Teflon coated "O" Ring seals for long leak-proof life.
- Removable cylinder liner, honed and chrome plated.
- Light weight Aluminum piston, Clear Anodized.
- 3" Grooved Inlet Connection or 2, 3 or 4" 150# R.F. flg. connection
- Working pressure 150 psi.
- Minimum burst 600 psi.
- Mounting legs optional.
- **Oil Port Blasted, Zinc Phosphate bath and Dry Lubricated.**
- **Vessel Body:** 414-G PVQ Plate, Prime Painted on Exterior.
- **Temperature Range:** -40°F to +160°F
- **Available Sizes:** 5, 7-1/2 and 10 Gallon are standard.

Advantages of Piston Type Units over Bladder Type

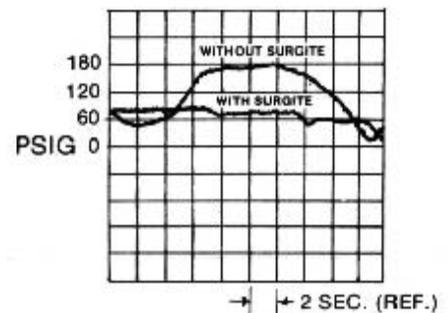
The Surgite piston type cannot have sudden failure, the operator has ample time to make maintenance improvements. A bladder can have a complete and sudden failure resulting in damage to the system.

The Surgite requires minimum maintenance because of long life Teflon coated "O" ring seals, a precision honed tube and a solid aluminum piston. The bladder design has a limited life due to extreme motions of the bladder and abrasion with the outer case.



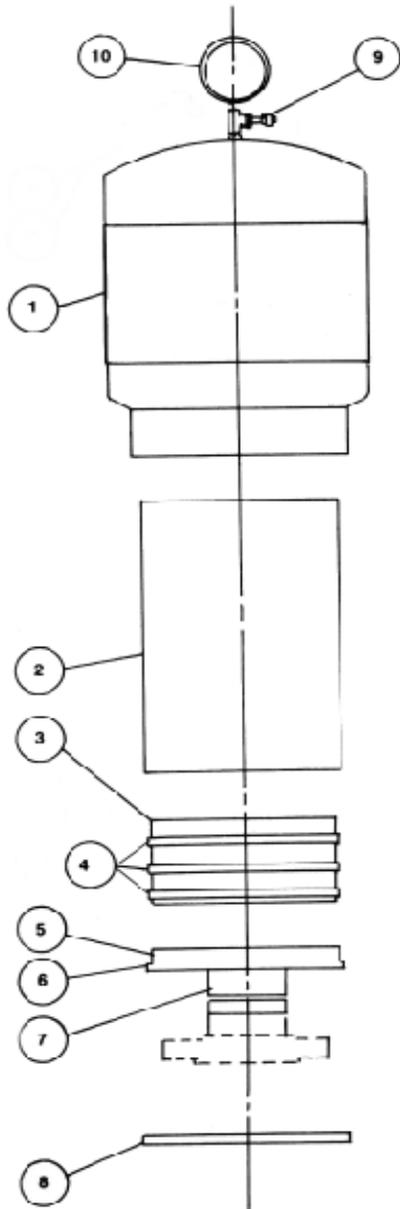
Typical Hydrant Cart Requirements* Are:			
Flow Rate (GPM)	Hose	Surgite Volume	Precharge
300	2 - 50' x 2 1/2"	1-5 Gal.	80% - 100% of Line Working Pressure
300	1 - 50' x 2 1/2"	1-5 Gal.	
600	2 - 10' x 2 1/2"	1-5 Gal.	
600	2 - 60' x 2 1/2"	2-7 1/2 Gal.	
1000	2 - 10' x 3"	2-7 1/2 Gal.	

* Assuming use of Pressure Control with Fast Acting Pilot



TYPICAL SURGE TEST RESULT

GNY Surgite Surge Suppressor



SURGITE SERVICE PROCEDURE:

Gas precharge should be 80% - 100% of line working pressure. If gas leak is apparent or fuel appears at gas valve, unit must be service as follows:

1. Depressurize unit, remove retainer (8) and end cap (7)
2. Remove piston by exerting 1 Or 2 psi, using hand pump. Use extreme care. Do not apply more pressure than needed to move piston slowly.
3. Inspect, replace all seals.
4. Reassemble, using an inert lubricant sparingly on O-Rings.

Item	Qty.	Description	Model 653391-*
1	1	Shell Weldment	6533149 - *
2	1	Cylinder	653386 - *
3	1	Piston	653385
4	3	Seal, O Ring	6533151 - S
5	1	Seal, O Ring	6533151 - P
6	1	Seal, O Ring	6533151 - T
7	1	End Cap, Oil Port	653388 - **
8	1	Retaining Ring	653391 - S
9	1	Charging Valve	653366
10	1	Pressure Gauge	653389

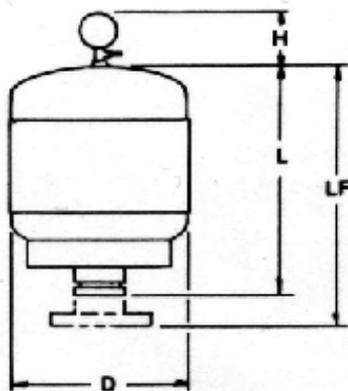
When Reordering Give Serial No.

NOTE:

* Denotes Size of Unit i.e. -5, -7.5, -10 Gallons

** Specify Suffix From Model Number To Indicate Inlet Port Variations

Viton seals are highly recommended for gasoline and high aromatic hydro-carbons.



150 WP MODEL 653391 --* 8 1/2" DIA. PISTON

Model	Size	D	L	LF	H	Wt
653391 - 10*	10 Gal.	12 1/4"	28 5/8"	33 3/8"	4 1/2"	123#
653391 - 7.5*	7.5 Gal.	12 1/4"	22 3/8"	27 1/2"	4 1/2"	105#
653391 - 5*	5 Gal.	12 1/4"	16 7/8"	21 5/8"	4 1/2"	86#

OPTIONS:

(Add Suffix to Model No. For Ordering)

Suffix

- 3V (Standard) 3" Victaulic Grooved Inlet Sch. 80
- 2F 2" 150 ASA Flange Inlet
- 3F 3" 150 ASA Flange Inlet
- 4F 4" 150 ASA Flange Inlet

GNY Surgite Surge Suppressor



CLUSTER MOUNT WITH 4" INLET
40 Gal. Unit Shown
Up to 80 Gal. Size Available

Cluster combine various size Surgites to result in a wide variety of available volume ratings from 5 gallons to 80 gallons. Standard size single surgites are 5, 7½, and 10 gallon.

Shown here is a Quad, 4" inlet, 40 gallon unit with four 10 gallons Surgites. Model: CLUSURGE-4-40

Manifolds are fabricated using Schedule 40, Carbon steel pipe, (Internal epoxy coating or stainless steel available) Standard wt. fittings and 150 lbs raised face, A-105 Flanges. The unit is Air tested, Hydrostatic tested to 225 P.S.I. and Prime painted.

Cork/Buna Gaskets, Grades 5 Bolts and Nuts and Charging Kits are supplied with the Surgite Cluster unit.

SURGE SUPPRESSOR VOLUME:

Calculating Surgite Surge Suppressor Volume required to Limit Surge Pressure due to instantaneous closure of a Valve. (**Note**--Surgite to be located as close as possible to the closing valve.)

FORMULA:

$$V = \left(\frac{w \text{ vel}^2}{64.4} \right) \left(\frac{0.4}{P_1} \right) \left[\frac{12}{\left(\frac{P_2}{P_1} \right)^{0.285} - 1} \right]$$

V = Required volume of Surgite, Cu. in.

Vel = Flow velocity of fluid (ft./ sec.)

W = Total weight of fluid in pipeline (lb.)

P₂ = Maximum shock or surge pressure (psia)

P₁ = Normal system pressure at normal flow (psia)

$$\text{Note: } \text{Vel} = \frac{0.41 \text{ GPM}}{d^2} \quad [d = \text{inside dia. of pipe (inches)}]$$

NOTES:

1. Instantaneous closure is defined as $t = \frac{2L}{a}$ in seconds, where "t" is time of closure, "L" is length of pipeline and "a" is velocity of sound in liquid flowing (approximately 4000 fps for kerosene).

2. psia (psi, absolute) is gauge pressure plus 14.7.

3. P₂ is maximum allowable shock or surge pressure.

4. V is Required Volume of surgite (cu. in.) as represents total gas volume prior to surge or shock.

5. If pipeline consists of combinations of diameters and lengths of pipe,

use sum of $\left(\frac{w \text{ vel}^2}{64.4} \right)$ for each section in place of $\left(\frac{w \text{ vel}^2}{64.4} \right)$ in formula above.

6. $\left(\frac{P_2}{P_1} \right)^{0.285}$ can be calculated on calculator using Y^X key as follow:
(example on TISR50A calculator).

1. Calculate $y = \left(\frac{P_2}{P_1} \right)$

2. enter Y

3. press $\boxed{Y^X}$ key

4. enter 0.285

5. press $\boxed{=}$ key

FOR EXAMPLE :

$$\frac{P_2}{P_1} = 5$$

$$\left(\frac{P_2}{P_1} \right)^{0.285} = 1.5819$$

$$\frac{12}{\left(\frac{P_2}{P_1} \right)^{0.285} - 1} = \frac{12}{1.5819 - 1}$$

$$= \frac{12}{0.5819}$$

$$= 20.62$$

GNY Surgite Surge Suppressor: (Suitable for JET FUEL)



Photograph showing Surgites under fabrication



Finished Surgites

www.gnyequipment.com