



## DESIGN GUIDELINES & TECHNICAL INFORMATION

The following are design guidelines for components and sizing the brinemaker system:

All types of salt can be used in the Scienco® SciBRINE® Brinemakers: Pelletized Salt, Rock Salt, Solar and Food Grade Granulated Salt. A graded gravel bed is required when using granulated salt.

Down-flow Brining - Harvesting brine from the base of the brinemaker ensures a consistent, near saturated brine as the brine sinks and separates from the rising input water.

Liquid Head - Minimum of 8 feet, fluctuating between 7-9 ft. Brine fluidizes the salt mass to discourage channeling and ensures a consistent gravity feed of brine through the filtration zone into the collecting cistern.

Filtration Zone - 36 inches of salt and a graded gravel bed just below the water and covering the brine collection cistern. This separates undissolved crystals and insolubles from the brine. The gravel bed also encourages a uniform cross-sectional draw of brine. Graded gravel consists of 7 inches of 1/4" x 1/2" covered with 5 inches of 1/8" x 1/4" material.



Internationally recognized for quality products and top-notch field services, Scienco/FAST is a manufacturer of innovative, proven solutions for marine sewage devices, water treatment systems, biological tablets, and other industrial technologies.

To Order or for more information on **Mighty Mike®** products:

**Toll-free (866) 652-4539 or call (314) 756-9300**

w: [www.sciencofast.com](http://www.sciencofast.com) | e: [solutions@sciencofast.com](mailto:solutions@sciencofast.com)

# DESIGN GUIDELINES & TECHNICAL INFORMATION

**Brine Collector Cistern** - Six lateral stringers of 6.75 inch OD, slotted PVC pipe connected to a center plenum. Uniform collection of gravity-fed brine over the cross-sectional area of the brinemaker, discourages channeling of the filtration zone.

**Brine Withdrawal** - Preferred method is gravity transfer to a reservoir tank where it can be pumped to use points. If directly pumped from the brinemaker, use a plastic seal less, magnetic drive, centrifugal pump with a maximum internal suction of 75 psi to avoid compaction and clogging of the filtration zone.

**Brinemaking Rates** - Not to exceed 0.5 gpm per ft<sup>2</sup> of cross-sectional area to ensure saturation and avoidance of channeling. Maximum brinemaking rate is 40 gpm for 10 ft. diameter tanks, and 50 gpm for 12 ft. diameter tanks.

**Minimum Salt Level** - Minimum undissolved salt level in the brinemaker is 5 ft. from the base to ensure fully saturated brine and to maintain sufficient pressure on the filtration zone to avoid channeling. Bindicator Yo-Yo Systems are recommended to determine when there is adequate space to accept a shipment of salt.

**Free Board** - There should be at least one foot of sidewall freeboard upon salt delivery to ensure proper separation of salt and conveying air and avoid plugging the fill pipe and dust vent orifices. In a 10 ft. diameter tank, each foot of rise is equivalent of 3 tons of salt. In 12 ft. tanks, each foot of rise is equivalent to 4.2 tons of salt.

**Liquid Level Rise** - Vacuum salt has 40% void volume, thus each foot of salt delivered below the liquid level will produce a temporary liquid rise of 0.6 ft. if a gravity fed brine reservoir is used, it should be at least 13 ft. high to avoid overflow with each salt delivery.

**Pneumatic Fill Pipe** - Each brinemaker comes complete with a 4" dia. 304 stainless steel fill pipe with wide angle bends and center fill to distribute salt evenly over the cross-sectional area.

**Dust Control** - An 8" vent pipe is supplied to neutralize pressure. Water injector valve on the fill pipe at a 45° angle to inject 3-5 gpm of water during filling. Injection reduces particle attrition during fill and dampens dust. A 30 to 70 micron porosity polyester dust bag on the end of the dust vent is also supplied.



**For more information on the Scienco® Systems:**

**Toll-Free: (866) 652-4539**

**web: [www.sciencofast.com](http://www.sciencofast.com)**

**[solutions@sciencofast.com](mailto:solutions@sciencofast.com)**



**SCIENCO/FAST®**  
a division of Bio-Microbics, Inc.

12977 Maurer Industrial Dr.  
Sunset Hills, MO 63127 USA

Ph: (314) 756-9300

Fax: (314) 756-9306

Web: [www.sciencofast.com](http://www.sciencofast.com)

e-mail: [solutions@sciencofast.com](mailto:solutions@sciencofast.com)

© 2014 Bio-Microbics, Inc. All Rights Reserved.  
FAST is a registered trademark used under license. Scienco, SciBRINE, and LevetroI are registered trademarks.

**SCIENCO/FAST®**  
a division of Bio-Microbics, Inc.