



◦ Spray Balls

Spray Solutions Designed for Your Process

Sani-Matic has decades of experience in spray technology for the food & beverage and bio-pharm industries. We will evaluate your application needs to design and manufacture a spray solution with appropriate flows, pressures and spray patterns to ensure efficient and dependable cleaning for your specific process equipment.



Sani-Matic is 3-A certified for its standard spray ball design when used with a slip collar or butt weld. When considering a custom spray ball, there is the possibility that the spray ball will not conform to 3-A requirements. When considering a custom spray ball that requires 3-A certification, contact a Sani-Matic representative to ensure your requirements are met.

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ENTERPRISES LTD.
1-800-361-5361

Standard Features

- 316L stainless steel
- Sanitary finish: 32 µin Ra
- Wraparound clip
- Standard drilling is 40 gpm @ 25 psi
- Slip-fit collar
- Spherical hemisphere

Optional Features

- Custom drilling available (Drill Pattern: SB-3)
- Material certifications
- Orbital welding
- Directional drilling
- Supply Tubes, pages 40-43
- 2.5" tangential hemisphere
- Spray bubble

QUICK TIPS

Calculate the recommended minimum spray ball flow rate required for cleaning process vessels by entering the tank diameter:

$$\frac{\text{Spray Ball Flow in gpm}}{\text{(Tank Diameter in feet)}} = \frac{\text{Tank Diameter in feet}}{\text{Spray Ball Flow in gpm}} \times 9.5$$

A minimum flow rate of 3 gallons per minute (gpm) for every foot of tank circumference is required to produce sufficient turbulent flow to cascade solution down vessel walls.

Sani-Matic offers several spray ball types:

Spherical: Most common spray ball and ideal for general patterns.



Tangential: Provides a full 90° of drilling area on upper hemisphere.



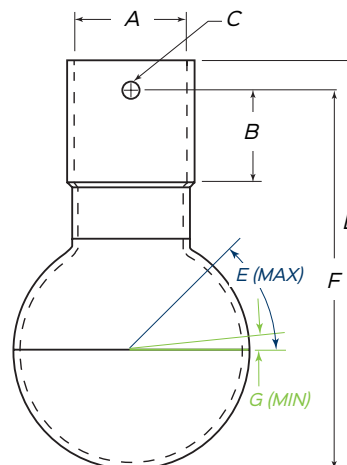
Spray Bubble: These are size-on-size sprays (hemisphere to supply tube) and ideal for saving space.



Spray Ball Dimensions

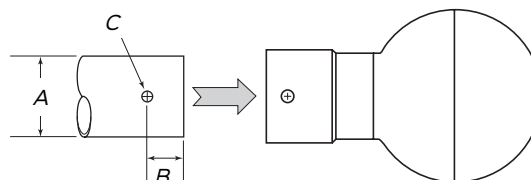
Ball Diameter	A	B	C	D	E (MAX)	F	G (MIN)
4.0"	Ø 2"	1"	Ø 1 ³ / ₆₄ "	5 ¹⁵ / ₁₆ "	55°	5 ¹ / ₂ "	11°
	Ø 1 ¹ / ₂ "	1 ¹ / ₁₆ "	Ø 1 ³ / ₆₄ "	5 ⁷ / ₈ "	62°	5 ⁷ / ₁₆ "	11°
	Ø 1"	3 ³ / ₈ "	Ø 9 ⁹ / ₆₄ "	5 ³ / ₈ "	70°	5"	11°
3.0"	Ø 2"	1"	Ø 1 ³ / ₆₄ "	4 ¹³ / ₁₆ "	42°	4 ³ / ₈ "	11°
	Ø 1 ¹ / ₂ "	3 ³ / ₄ "	Ø 1 ³ / ₆₄ "	4 ¹³ / ₁₆ "	55°	4 ³ / ₈ "	11°
	Ø 1"	3 ³ / ₈ "	Ø 9 ⁹ / ₆₄ "	4 ⁵ / ₁₆ "	67°	3 ¹⁵ / ₁₆ "	11°
2.5"	Ø 1 ¹ / ₂ "	3 ³ / ₄ "	Ø 1 ³ / ₆₄ "	4 ¹ / ₄ "	48°	3 ¹³ / ₁₆ "	11°
	Ø 1"	3 ³ / ₈ "	Ø 9 ⁹ / ₆₄ "	3 ³ / ₄ "	62°	3 ³ / ₈ "	11°
2.0"	Ø 1"	3 ³ / ₈ "	Ø 9 ⁹ / ₆₄ "	3 ¹ / ₄ "	55°	2 ⁷ / ₈ "	11°
	Ø 3 ³ / ₄ "	1 ¹ / ₄ "	Ø 9 ⁹ / ₆₄ "	3 ¹ / ₁₆ "	62°	2 ¹¹ / ₁₆ "	11°
1.5"	Ø 1"	3 ³ / ₈ "	Ø 9 ⁹ / ₆₄ "	2 ¹¹ / ₁₆ "	40°	2 ⁵ / ₁₆ "	15°
	Ø 3 ³ / ₄ "	1 ¹ / ₄ "	Ø 9 ⁹ / ₆₄ "	2 ¹ / ₂ "	52°	2 ¹ / ₈ "	15°
	Ø 1 ¹ / ₂ "	3 ³ / ₁₆ "	Ø 5 ⁵ / ₆₄ "	2 ⁹ / ₁₆ "	61°	2 ¹ / ₁₆ "	15°
1.25"	Ø 3 ³ / ₄ "	1 ¹ / ₄ "	Ø 9 ⁹ / ₆₄ "	2 ¹ / ₄ "	42°	1 ⁷ / ₈ "	15°
	Ø 1 ¹ / ₂ "	3 ³ / ₁₆ "	Ø 5 ⁵ / ₆₄ "	2 ⁵ / ₁₆ "	57°	1 ¹³ / ₁₆ "	15°

NOTE: Custom spray balls will require a longer lead time.



Solution Tube Pinhole Location for Proper Fit with Spray Ball

Tube A	Distance B	Drill Diameter C
1/2"	3/16"	5/64"
3/4"	3/16"	9/64"
1"	5/16"	9/64"
1 1/2"	11/16"	13/64"
2"	15/16"	13/64"





Standard Products

Stock Spray Balls

Description	Drill Pattern	Ball Diameter	Connection Size	Connection Style	gpm	psi	Finish	Part #
180° Up - Vertical Mount	SB-1	2.50"	1.50"	SC	40	25	32 Ra	128271
180° Up - Vertical Mount	SB-1	3.00"	1.50"	SC	40	25	32 Ra	131028
180° Up - Double Ball (each ball)	SB-2	4.00"	1.50"	SC	40	25	32 Ra	128272
360° Full Coverage	SB-5	1.50"	0.75"	SC	40	25	32 Ra	128277
360° Full Coverage	SB-5	1.50"	1.00"	SC	40	25	32 Ra	199108
360° Full Coverage	SB-5	2.00"	1.00"	SC	40	25	32 Ra	128276
360° Full Coverage	SB-5	2.50"	1.00"	PN	58	20	32 Ra	117503
360° Full Coverage	SB-5	2.50"	1.50"	SC	40	25	32 Ra	128275
360° Full Coverage	SB-5	3.00"	1.50"	SC	40	25	32 Ra	128274
360° Full Coverage	SB-5	4.00"	1.50"	SC	40	25	32 Ra	128273

NOTE: Clip included.

NOTE: Diagrams for standard drill patterns are shown on page 37.

Stock Spray Clips

Description	Part #
Hair Pin Clip for 0.50" SC*	321443
Wraparound Clip for 0.75" SC	321554
Wraparound Clip for 1.00" SC	321555
Wraparound Clip for 1.50" SC	321556
Wraparound Clip for 2.00" SC	321557



*0.50" Clip diameter does not conform to 3-A standard.

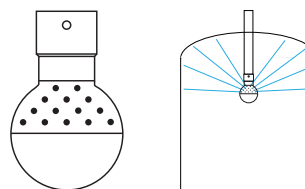
Configured Spray Balls

	1	2	3	4	5	6	7	8	9	Model #
SB										=

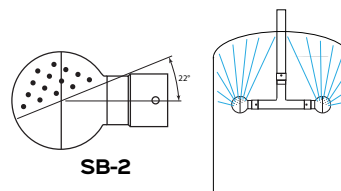
Configured Spray Ball Nomenclature

Product Option	Option Code	Option Description
1 Drill Pattern	0	No holes ²
	1	180° Up - Vertical Mount
	2	180° Up - Double Ball (each ball)
	3	Special Spray Pattern (diagram req'd) ¹
	4	180° Down - Vertical Mount
	5	360° Full Coverage
	6	180° Up - Horizontal Mount
2 Ball Diameter	1.25	1.25"
	1.5	1.50"
	2.0	2.00"
	2.5	2.50"
	3.0	3.00"
	4.0	4.00"
3 Connection Size	0.50	0.50" - 12 gpm (max. flow) ³
	0.75	0.75" - 25 gpm (max. flow)
	1.00	1.00" - 40 gpm (max. flow)
	1.50	1.50" - 100 gpm (max. flow)
	2.00	2.00" - 240 gpm (max. flow)
	2.50	2.50" - 400 gpm (max. flow)
4 Connection Style	SC	Slip Collar (standard)
	BW	Butt Weld
	FL	Flare (no connection) ²
	TC	Tri-Clamp ²
	HC	Half Coupling (FNPT) ²
	PN	Pipe Nipple (MNPT) ²
5 Flow (gpm) - See item 3 above for limitations	40	40 gpm (standard)
	0	0 gpm (no holes)
	Custom	Enter gpm
6 Pressure (psi)	25	25 psi (standard)
	0	0 psi (no holes)
	Custom	Enter psi (maximum 70 psi)
7 Finish (Microinch Ra)	32	32 µin Ra/150 Grit (standard)
	25	25 µin Ra/180 Grit
	15	15 µin Ra/240 Grit
8 Finish Option (EP)	EP	Electropolish (added to any finish)
9 Ball Type	SP	Spherical
	TG	Tangential (only available in 2.5" ball diameter)
	BB	Spray Bubble

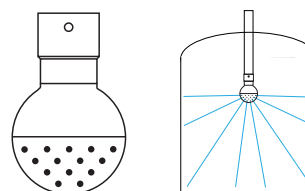
Spray Ball Drill Patterns



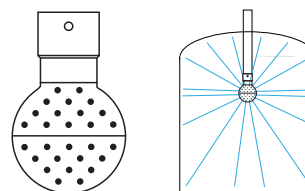
SB-1



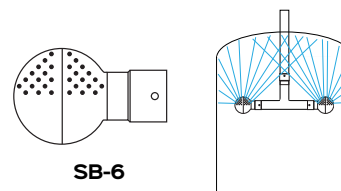
SB-2



SB-4



SB-5



SB-6

¹ Special spray patterns require special pricing.

² Does not conform to 3-A standard.

³ Hair pin clip diameter does not conform to 3-A standard.

Material certification is available for an additional cost.

Hastelloy® and AL-6XN® material options are available for some spray balls.

Spray Assemblies for Process Tanks

Custom-Engineered Solutions

Sani-Matic creates 3-D models of your process vessels to engineer effective static spray device drill patterns for proper coverage of all ports and surfaces. With decades of experience in spray technology for food, beverage and bio-pharm CIP applications, we understand the spray dynamics required to ensure proper flow rates, pressures and geometries.

Details regarding your specific process may be required to ensure complete spray coverage, therefore we may request the following information:

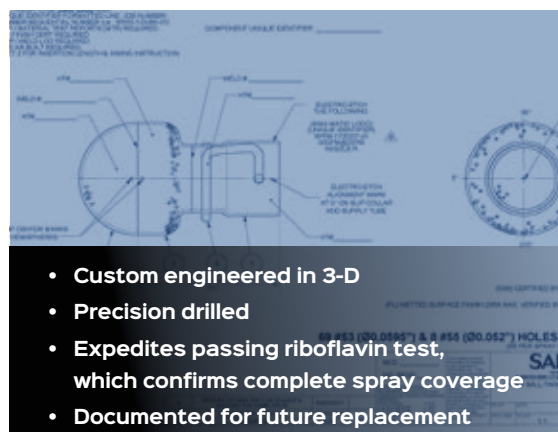
- Tank drawings indicating agitators, dip tubes, anti-foams and spray ball connections
- Available CIP flow and pressure
- Surface finish requirements



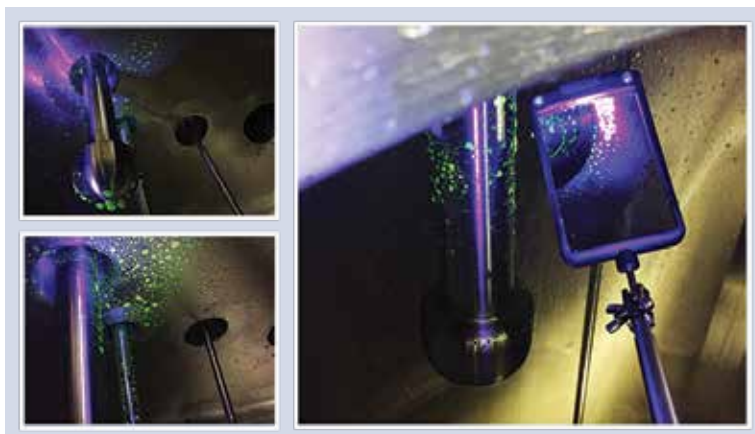
Directionally Drilled Spray Balls and Custom Supply Tubes

Once the spray pattern and design have been determined, Sani-Matic will manufacture the spray balls and supply tubes to deliver the cleaning solution.

- Custom patterns drilled with a CNC machine
- Orbital welding
- Product contact welds are ground and polished to meet interior finish requirements
- Orbital welds are borescope inspected to meet ASME BPE standards



- Custom engineered in 3-D
- Precision drilled
- Expedites passing riboflavin test, which confirms complete spray coverage
- Documented for future replacement



Riboflavin testing ensures complete spray coverage.

Component Documentation Packages

Sani-Matic can provide complete component documentation packages to meet your validation requirements.

- Material Certificates (MTRs)
- Weld qualification, log and inspection reports
- Weld map
- Mechanical polishing procedures
- Electropolishing procedures and certifications
- Surface finish certification
- General and subassembly as-built drawings
- Spray pattern layout with degrees and angles
- Weld procedures



Documentation / Turnover Packages				
Document Name	Document Description	Basic	Standard	Premium
Material Test Report (MTR)	MTR is a quality assurance document that certifies a material's chemical and physical properties and states the product made is compliant within the specific set standards. It also states the identification number of the batch/lot of steel, which the part/material was made from at the mill.	X	X	X
3-A Certification	A document certifying that the equipment listed conforms fully with 3-A Accepted Practices.	X	X	X
Sani-Matic Certificate of Compliance	A document that the equipment listed conforms fully with Sani-Matic's Internally Accepted Practices.	X	X	X
Certified "As-Built"	A certified drawing that documents the as-built dimensions and surface finish produced in manufacturing.	–	X	X
Heat Map	A certified document that contains details of an assembly where each of the materials' heat numbers are recorded. A heat map can stand by itself or be combined with a weld map and slope map.	–	X	X
Weld Map	A certified document that contains details of a piping assembly where each weld is identified with a unique number. The identifying number is used on the weld log which profiles each weld.	–	X	X
Weld Log	A certified document that records all welds contained in a weld map. The profile of each weld recorded includes heat numbers of the material, the detail where the weld is located, the welder's I.D., the date of the weld, the machine used to weld, and the Quality Inspector's approval signoff.	–	X	X
Surface Finish Certification	Part of the as-built drawing that states Sani-Matic has verified the assembly or that the parts' surface finish meets the agreed upon requirements in the sales order.	–	X	X
Borescope Video Documentation	The AWS-certified weld inspector will utilize a borescope to inspect the welds. The inspector will record all weld inspections. The videos are loaded to a DVD, which corresponds with the weld map/weld log.	–	–	X
Electropolish Certification (EP Cert)	A certified document that states that electropolishing was performed to the assembly or parts as agreed upon in the sales order.	–	–	X
Passivation Certification	A certified document that states that citric acid passivation was performed to assemblies or parts as agreed upon in the sales order.	–	–	X
Slope Map	Part of the as-built drawing where the actual slope of the piping or sheet is recorded to verify slope for proper drainage.	–	–	X