

# GAMAJET®

The World Leader in Tank Cleaning Technology

100% aseptic

rotary impingement  
tank cleaning





Rotary Impingement Cleaning...  
Validatable cleaning  
with **impact**

## What is Rotary Impingement Tank Cleaning?

The underlying operating principle of all Gamajet Cleaning machines is the process of rotary impingement cleaning. All Gamajet units are fluid driven with no external power connections and combine pressure with liquid to produce a concentrated stream that is directed onto the surfaces to be cleaned.

Very much like the focused stream of a hose, cleaning is accomplished at the point of stream impact. It is this impact, and the cleaning that it provides, that is impingement cleaning. But, with the Gamajet units, significant cleaning also occurs as a result of the tangential force of the stream that radiates away from that point of impact. The cleaning solution literally explodes outward, with a force directly proportional to the initial strike. It is this radiating force which actually does the cleaning.

As the flow goes up, the force increases accordingly, creating a powerful spray that pounds all internal surfaces with a repeatable, rotating, and penetrating force, while also providing a cascading wash throughout the vessel. All surfaces get equally wet and equally cleaned.



# Why is Rotary Impingement Tank Cleaning the most **efficient** and **effective** process?

In the world of tank cleaning there are two basic methods, manual and automated. Manual tank cleaning often requires suiting up and entering into the tank with a brush and chemicals, it also includes the process of boiling out and the use of pressure washers and water blasting machines. These are often very time consuming, unsafe, and costly processes.

The first attempt to automate tank cleaning came with the introduction of the static spray ball, which operated by dousing the tank with large amounts of cleaning fluid to create a cascading effect. These devices were quickly and widely accepted for sanitary tank cleaning. As time passed, advancements in technology allowed for the introduction of rotary cleaners, which provided some additional direction to the wetting and cascading principle provided by spray balls.

Continued innovation of spray technology brought on a major breakthrough with **rotary impingement tank cleaners**. These machines not only provided a **verifiable pattern** of cleaning but also implemented the use of mechanical force, changing the value of the flow from a simple wetting to actual cleaning agent. This concept revolutionized the tank cleaning process and continues to develop and advance.

As the primary developer and innovator of impingement tank cleaners, all of Gamajet's machines are completely fluid-driven using the rotary impingement process, which continues to provide the most efficient and effective way to clean a tank.

When it comes to comparing automated tank cleaning processes there are many aspects to consider: How efficient and effective are they? Are they verifiable? What's the cost? Can it work with your current pressure and flow? Are they reliable?



Before



After using a Gamajet

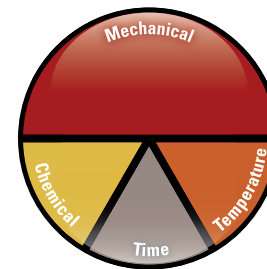
## Effectiveness

Gamajet machines project a concentrated jet stream of cleaning fluid upon the interior of the tank with enough impingement to blast rough residue from the surface. The sheer power of the streams as they rotate around the tank in a 360° pattern removes residue upon contact, leaving your tank entirely clean, every time. This impingement power is unmatched by other processes.

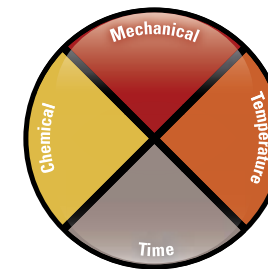
## Efficiency

Dr. Sinner's Circle (as seen below) describes the interaction and influence of the four main factors when it comes to the cleaning process: Chemical, Mechanical Force, Time and Temperature. Gamajet utilizes the mechanical factor to its maximum benefit, reducing the need for the remaining factors of time, temperature and chemical.

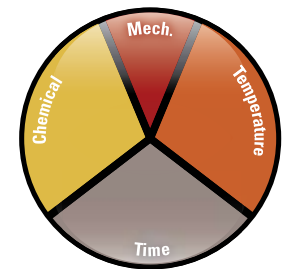
Dr. Sinner's Circle



**GAMAJET®**



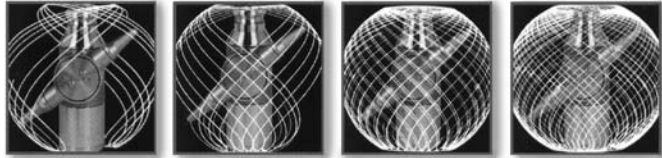
**Rotary Wetting**



**Spray Ball**

### Validatable

Gamajet's Rotary Impingement process is mechanically engineered to scour every square inch of the tank or vessel in a repeatable and reliable manner. By utilizing a series of gears the machines index every rotation directing the jet streams in a repeatable and reliable pattern as seen below.



Based on pressure and flow, the speed of rotation is mechanically designed into the machine, therefore remaining constant. The machine cleans in the exact same pattern at the exact same speed, every time. Wear parts have no effect on this process, making it 100% validatable.

### Cost

There are many factors that affect cost, some of the least understood costs include: time spent cleaning, the cost of cross-contamination, and the cost of confined space entry risks. Gamajet's rotary impingement process ensures that the least amount of cost is incurred while cleaning, in turn increasing productivity.

	Level of Cleanliness	Cleaning Time	Confined Entry Required
<b>GAMAJET®</b>	Excellent	Fast	No
Rotary Wetting	Fair	Moderate	No
Spray Ball	Poor	Slow	No
Water Blast	Good	Slow	Yes
Boil Out	Fair	Slow	No
Manual Hose	Poor	Slow	Yes
Scrape or Chip	Poor	Slow	Yes

### Pressure and Flow Requirements

Gamajet offers a complete line of rotary impingement tank cleaners that vary in size as well as pressure and flow requirements. Gamajet is committed to providing cleaning solutions from start to finish, which means if your current system cannot support a Gamajet we will work with you to build a customized solution for your needs.



Equipment Cost	Operating Cost	Cleaning Fluid Required	Maintenance & Repair Cost	Chemical Needs	Effluent Disposal Cost
Moderate	Low	Moderate	Low	No	Low
Moderate	Low	Moderate	Moderate	Yes	Low
Moderate	Low	Moderate	Low	Yes	Low
High	High	Moderate	High	No	Moderate
Low	High	High	Low	Yes	High
Low	High	Low	Low	No	Low
Low	High	Low	Low	No	Low

## Aseptic Tank Cleaning

**Gamajet has a complete line of products dedicated to sanitary cleaning applications.**

The Gamajet Aseptic line includes the revolutionary new Gamajet Aseptic-1, Aseptic-2 and Aseptic-6 which are designed from 316 Stainless Steel for permanent installation and to provide true germ and bacteria-free cleaning to meet the demands of the dairy, beverage, food, pharmaceutical and personal care products industries.

The design of these units completely eliminates all areas for potential bacteria growth making them ideal for sanitary cleaning applications. All machines are fluid-driven, offering variable flow rates and a consistent 360 degree spray pattern which ensures reproducible and repeatable cycles that provide thorough and verifiable cleaning.



### ASEPTIC-6

The Gamajet Aseptic-6 fits through standard 3" sanitary fittings and its light weight makes for easy handling and maneuverability.

### Which aseptic machine is right for you?

Unit	Operating Range: Pressure	Flow Rate	Tank Size
Aseptic-1	20 to 80 psi (1.4 to 5.5 BAR)	15 to 60+ gpm (57 to 227+ lpm)	Up to 30'
Aseptic-2	40 to 80 psi (2.75 to 5.5 BAR)	9 to 29 gpm (34.1 to 110 lpm)	Up to 12"
Aseptic-6	10 to 400 psi (0.7 to 27.5 BAR)	5 to 40 gpm (18.93 to 151+ lpm)	Up to 20'

All can be sanitized with steam up to 300° F.



### ASEPTIC-1

The Gamajet Aseptic-1 is the first rotary impingement cleaner to meet the requirements of 3-A Sanitation Standard 78-01.\* This machine offers true impingement cleaning with a direct drive design. One Aseptic-1 can easily replace up to five spray balls at the same pressure, with less flow.



### ASEPTIC-2

The Gamajet Aseptic-2 is the smallest rotary impingement cleaner to meet the requirements of 3-A Sanitation Standard 78-01.\* This machine will fit through a 3" sanitary tube, with standard inlet connections. One Aseptic-2 will easily replace up to **three** spray balls, with a more effective and efficient cleaning.



**The tank cleaning you need, meeting the standards you trust.**

*We provide a full line of sanitary inlet adaptors.*

### Water Savings Example

	Flow Rate of Machine (in GPM)	Duration of Cleaning (In minutes)	Number of Units per Tank	Water Used per Tank (In Gallons)
<i>Spray Ball:</i>	60	30	3	5400
<i>Aseptic-2:</i>	15	15	1	225

\* For Spraying Devices intended to remain in place.

## Other Cleaning Machines

**Better ways to clean, that make all other cleaning methods obsolete.**



### Gamajet IV-GT

The most powerful Gamajet — perfect for cleaning oversized tanks and vessels. Capable of high concentration chemical recirculation cleaning or high pressure-low volume water jet scrubbing in fixed CIP automated systems.

### Gamajet V

The patented Gamajet V's compact size readily passes through a 3" opening, making it ideal for cleaning small tanks, vats and vessels.



### Gamajet VI

Intended for cleaning smaller process vessels with a 3" opening, this unit incorporates design features that minimize leakage and ensure that up to 97% of the cleaning solution passes through the unit and is utilized in the cleaning process.

### Directional Units

The Gamajet IV, Gamajet V, and Gamajet VIII Directional Cleaning machines are designed specifically for cleaning all types and sizes of open-topped vats, tanks, and vessels.

These versatile units provide 180° rotary impingement cleaning to easily clean the sides and bottom of virtually any size application.



***If you have a tank to clean... we have a way to do it!***



### Gamajet E-Z7

Our smallest tank cleaning machine, the Gamajet E-Z7 offers powerful cleaning in a compact and durable design.

### Gamajet E-Z8

Designed to provide the same flow as traditional large-scale tank cleaners, but in a much smaller self-contained unit. The E-Z8 is lighter, shorter and narrower than any other fluid driven system allowing for easier handling and maneuverability.



### Gamajet IX - Tote Blaster

An innovative machine for fast and economical tote cleaning. It features minimum parts along with increased durability. The Gamajet IX operates with a wide range of pressure and flow making it ideal for many applications.

### ***Which Gamajet machine is right for you?***

<b>Machine</b>	<b>Pressure</b>	<b>Flow</b>	<b>Tank Diameter</b>
Gamajet IV-GT	20–700 PSI	30–320 GPM	Up to 200'
Gamajet V	50–1500 PSI	10–40 GPM	Up to 15'
Gamajet VI	10–700 PSI	5–40 GPM	Up to 20'
Gamajet E-Z7	50–1500 PSI	2–8 GPM	Up to 5'
Gamajet E-Z8	20–1000 PSI	25–100 GPM	Up to 70'
Gamajet IX-Tote Blaster	20–700 PSI	30–320 GPM	Up to 15'

# Providing Solutions from start to finish...

## Update your process, not your plant... with our mobile cleaning systems.

Gamajet not only provides the latest technology for tank cleaning, but for the systems that support this machinery as well. The Gamajet MCIP series was designed to eliminate the necessity and expense of piping a permanent Clean-In-Place system in each tank. Many plants either do not have a CIP system or have a system that typically operates with low pressure and high flow, which can not typically support rotary impingement cleaning machines. To update this outdated equipment often appears very costly. However, the Gamajet MCIP series offers an affordable and portable solution, to making your cleaning process more efficient and effective.



	Pressure Boosting Pumps	
	Vertical MultiStage Pump (Non-Sanitary)	Single Impeller Sanitary Pump
VM	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sani	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VM-H	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sani-H	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sani-HD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Opti	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



Gamajets offers a complete line of tailored Mobile CIP systems. Each system starts at a specific level of complexity and is built upon for your own unique application. Designed together, the end result is a unique mobile cleaning system for your plant.

The level of complexity of the system starts with a comprehensive matrix, as seen below. This matrix gives us the starting point to take your system where it needs to be. Further customization is possible based upon your individual needs. Whether your application requires multiple storage tanks, unique filtration, rapid heating of the wash fluid or multiple saved cleaning programs for different vessels, Gamajet has the engineered solution to meet your cleaning needs. Call us today for a consultation.

Holding Tank (200 Gal Capacity)	Immersion Heater	Dosing Pump	Chemical Solution Tank	PLC Programmable System Option	Filters		Start/Stop/Reset Control and Optional Timers
					Simplex Strainer	Sanitary Strainer	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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## The Gamajet Distinction

For over 50 years, Gamajet has been supplying a “Better Way to Clean” all types of tanks and vessels. Our rotary impingement cleaning method has become the first choice for many industries throughout the world. In order to earn this trust and recognition, we constantly strive to design innovative products and techniques that make our customers’ cleaning jobs easier, faster, safer and less expensive. No other manufacturer invests the resources that we do to advance the technology of cleaning. And, through constant innovation and unsurpassed product knowledge, we have become the world’s leader in this technology.

### Understanding the process from start to finish:

**Design and Testing Stage:** Gamajet employs a team of engineers, who dedicate their efforts to research and development, testing and designing every piece of machinery. Our engineers use the latest software for mechanical engineering as well as real live tests, to create the optimal impingement force with the least amount of resources such as cleaning fluid and time. Thousands of hours are spent developing and testing machines, with true impingement capabilities. Once a machine makes it through the design and testing processes, engineers are then assigned to continue the process. We honestly believe that there is always room for progress as we strive for perfection.

**Design Principles:** There are many principles enforced within the design of our machines. These principles are what have made Gamajet the company it is today and continue to be the backbone of our strong reputation as the world leader in tank cleaning technology. Although our patented rotary impingement technology is the primary operating principle the following support our overall design technique.

**Durability:** During the testing phase new Gamajet designs are put to the durability test. We run the machines continuously, day and night, to failure. Although the failure is typically an easily replaceable O-ring, if it doesn’t make it over 800 hours it doesn’t pass the test.

**Reliability:** The machines are designed in a way, that all the repairs are standard, there are no unanticipated interruptions. With regular preventative maintenance, the machines will last a lifetime, performing the same on day one-thousand as day one.

**Maintenance:** Many automated tank cleaners require unique tools and require a significant amount of time to maintain and repair the machines. Gamajets are not only durable and reliable in design, but they are field serviceable, meaning you can service your Gamajet with standard tools onsite.

**Leakage:** Many machines suffer from a significant amount of leakage. Rotary Impingement machines are designed to optimize the flow going into the machine. If a majority of that flow is getting lost throughout the cleaning process the force on the interior of the tank is reduced. Gamajet machines use the highest percentage of flow going into the machine with a small volume of controlled leakage designed into the machines to reduce pressure and allow the machine to be self-cleaning.

**Selecting the right machine for you:** Gamajet has developed a proud reputation for not only providing the best quality tank cleaner but also for being the most responsive and interactive. Each and every application is handled uniquely by our tank cleaning specialists to ensure the most efficient and effective cleaning occurs for your particular application. No machines are sold “off the shelf.” Each Gamajet is individually manufactured to your needs, right here at our facility. As a small independently owned business we design, manufacture and distribute our technology while remaining available to help troubleshoot a cleaning problem, repair a machine or provide technical assistance. With Gamajet, you’ll receive individual attention. We even offer next day shipping on new orders and a 48 hour turnaround on repairs.

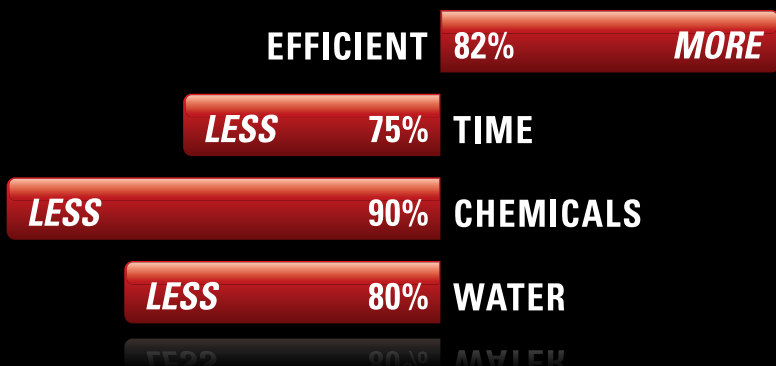
**Learn more at [www.Gamajet.com](http://www.Gamajet.com)**



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(610) 408-9945 Fax  
**877-GAMAJET**  
[www.gamajet.com](http://www.gamajet.com)

## Gamajet beats every other tank cleaning method hands down

Compared to any other cleaning method, Gamajet impingement cleaning offers an unmatched combination of thorough cleaning, speed, economy, efficient use of cleaning material, and safety. In every case, Gamajet is better, faster, more economical, and safer than other cleaning methods. Put the power of Gamajet to work in your operation and see the benefits firsthand.



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