



# GAMAJET<sup>®</sup>

part of the Alfa Laval Group

## IT'S A TANK CLEANING REVOLUTION

80% Decrease in Water and Chemical Usage

85% Decrease in Time Spent Cleaning

100% Decrease in Manual Cleaning

100% Cleaning Effectiveness

Chemical, Paints, & Coatings Industries

# TANK CLEANING IN THE CHEMICAL INDUSTRY

Paints, adhesives, sealants and coaters are designed to stick on surfaces, making tank cleaning an overwhelming and oftentimes unsuccessful chore. Fortunately, Gamajet has created customer-driven solutions which revolutionize tank and vessel cleaning in the chemical industry. Not only do Gamajet machines clean tank interiors efficiently and effectively, but also save you time, water, and money. With our patented rotary impingement cleaning, tanks are cleaned entirely with minimal chemical and water usage in a fraction of the time. Gamajet works with you to develop customized tank cleaning solutions, tailored to your requirements, resulting in the most effective and efficient tank cleaning process.

## WHY CLEAN THE GAMAJET WAY?

Our highly efficient machines are designed to reduce water and chemical usage up to 80%, reduce time spent cleaning up to 85%, and completely eliminate hazardous confined space entry. Gamajet's goal is to enable plants and factories to increase productivity while decreasing costs. Through the use of our patented technology, you can be sure that every vessel, regardless of size, shape, or internal obstruction is entirely clean, every time.



## WE HAVE A SOLUTION FOR EVERY APPLICATION

### TANK TYPES:

Storage tanks, process tanks, totes/IBCs, drums, blenders, reactors, kettles, mixers, and more

### RESIDUES:

Paints, rubbers, plastics, adhesives, chemicals, pigments, creams, oils, and more



WATCH VIDEOS AND LEARN MORE AT [WWW.GAMAJET.COM](http://WWW.GAMAJET.COM)

Our innovative products are proven to decrease cleaning time and greatly reduce clogging, tank downtime, and water and chemical usage. Our machines eliminate the need for confined space entry and are easy and cost-effective to maintain.

The products listed on this page are most commonly used for tank and vessel cleaning in the chemical, paints, and coating industry:



**GAMAJET V**  
**Pressure:** 100-1000 PSI  
**Flow Rate:** 10-40 GPM  
**Wash Cycle Time:** 8-11 minutes  
*The V will readily pass through a 3" opening, making it ideal for cleaning small tanks, vats and vessels. Directional nozzles available for 180° cleaning patterns (shown right).*



**POWERFLEX**  
**Pressure:** 30-500 PSI  
**Flow Rate:** 20-120 GPM  
**Wash Cycle Time:** 8-20 minutes  
*The Gamajet PowerFLEX cleans tanks between 5,000-25,000 gallons and only weighs 10 pounds!*

**GAMAJET VIII**  
**Pressure:** 20-1000 PSI  
**Flow Rate:** 50-120 GPM  
**Wash Cycle Time:** 8-12 minutes  
*Weighing only 11 lbs, this machine is one of the most versatile on the market and the easiest to handle.*



**GAMAJET IX**  
*"Toteblaster"*  
**Pressure:** 100-600 PSI  
**Flow Rate:** 4-30 GPM  
*The Gamajet IX was originally made for cleaning totes but it's versatile design allows for cleaning small to mid-sized tanks as well.*



**GAMAJET X**  
**Pressure:** 40-300 PSI  
**Flow Rate:** 40-80 GPM  
**Wash Cycle Time:** 8-15 minutes  
*A low profile and high flow tank cleaner, the Gamajet X can fit through a 4" pipe for safe and easy handling.*

**GAMAJET IV**  
**Pressure:** 40-150 PSI  
**Flow Rate:** 80-160 GPM  
**Wash Cycle Time:** 10-25 minutes  
*Our largest automated tank cleaner is the Gamajet IV. Designed to clean larger-sized tanks with diameters of over 15' (4.57 m).*



## Want a TIME-EFFICIENT AND COST-EFFECTIVE solution for cleaning your TOTES?



Totes and IBCs are the most widely used container for storing and transporting materials. Inefficient cleaning can have direct repercussions to overall facility productivity. That's why Gamajet manufactures machines and systems specifically designed to provide the most effective and efficient solution based on the user's application.

Learn more about Gamajet's ToteBlast Station





# ASK YOURSELF...

# ARE WE CLEANING EFFICIENTLY?

**HOW CAN WE VALIDATE MANUAL CLEANING? WHAT ABOUT HUMAN ERROR?**

**HOW MUCH REVENUE IS LOST, PER HOUR, DUE TO**

**TANK DOWNTIME?**

**HOW MUCH WATER DO WE WASTE?**



**60 YEARS OF EXPERIENCE** allows **GAMAJET** to provide the best cleaning solution for your application, backed by quality products and unsurpassed service.

## CASE STUDIES

### PROBLEM

A chemical manufacturer based in Mason, OH was utilizing spray balls in their facility to clean their tanks. They decided to establish a more efficient and effective cleaning method because they could no longer meet the demands of their consumers using their existing methods. The company operated four continuous production lines, each with 3 tanks. Each day the tanks were shut down for cleaning which took a minimum of one hour. In many cases cleaning took longer because of the frequent clogging of the spray balls. There was also additional manual cleaning needed from time to time when the spray balls would fail and could not remove the built up residue.

### SOLUTION

The company turned to Gamajet rotary impingement tank cleaners, and the results were much more beneficial than they expected. A Gamajet Aseptic VI rotary impingement tank cleaner operating at 115 psi and 15 gpm, was purchased and implemented into the cleaning process. Cleaning began with a two-minute pre-rinse to remove the bulk of the residue followed by a five-minute re-circulated wash with caustic and a final two-minute rinse for a total cleaning time of nine minutes.

### RESULTS:

91% Faster Cleaning Time  
71% Increase in Production  
85% Reduction in Water & Chemical Usage

### PROBLEM

An Australian specialty chemical company decided to audit their processing tanks' CIP process in search for cost savings through time and water usage reductions. The CIP process they were using was a fill and drain method. As a 24-hour facility, running 7 days a week, they were able to make nearly 197 batches per year. Each batch took approximately 44 hours, 3.65 of which were dedicated to cleaning. The total process utilized 5,800 gallons of water with a caustic concentrate, per batch, totaling 1.5 million gallons per year. The filling process with hot water and caustic was taking too long for the company to keep up with growing demand. The water usage was also a major concern because of drought conditions, as well as the expense of disposal. Additionally, an oily residue remained within the internal coils of the reactors after the boil out, requiring additional cleaning.

### SOLUTION

The company introduced a mobile CIP system and a Gamajet rotary impingement tank cleaning device to the process. The CIP was needed to increase the pressure as well as better utilize the heating element. The Gamajet they purchased runs on 45 gallons per minute at 100 psi and obtains 15 lbs of force at a 15 ft distance. Coupled with hot water and the caustic, the 12-minute cycle time proved to be highly effective. All areas around the coils and behind were thoroughly cleaned, with 205 gallons of re-circulated fluid in one week.

### RESULTS:

50% Faster Cleaning Time  
100% Cleaning Effectiveness  
100% Outsourcing Eliminated

### PROBLEM

At a Georgia chemical company, totes are used for shipping the company's products, and they are recycled for re-use after the shipment has been delivered. Many of the totes for receiving raw materials from suppliers are also recycled for re-use at the company. For years, the company's Director of Operations was frustrated by the costs of sending dirty totes to their tote supplier for refurbishing/cleaning, and the time it took to clean them by hand if he chose to have them cleaned in-house. He also had to make sure that re-used totes were 100% clean, to avoid the dangers of cross-contamination between product shipments. Oftentimes, the cleaning done in-house by hand was less than perfect.

### SOLUTION

The Gamajet IX was designed for tote cleaning so he decided to give it a shot to see if they could reclaim the costs of sending totes out to be refurbished. In order to accomplish this, the Gamajet had to reduce the time spent cleaning totes in-house and increase the level of in-house cleaning effectiveness. Not only did the Gamajet accomplish these goals, but it accomplished them so well that the plant bought another Gamajet IX that paid for itself in one week.

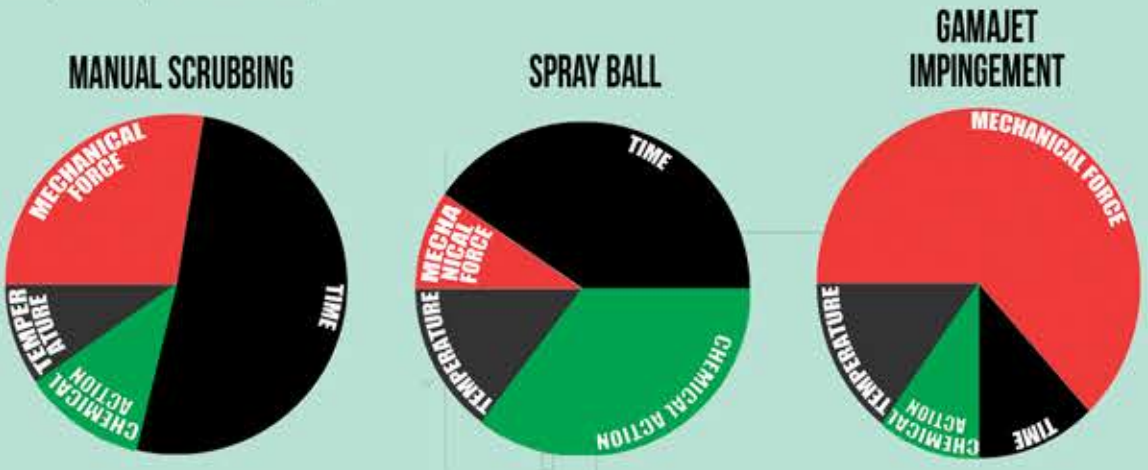
### RESULTS:

12.3% Increase in Production  
94% Faster Cleaning Time  
95% Reduction in Water & Chemical Usage



# THE FOUR FACTORS OF CLEANING

Dr. Herbert Sinner, a former chemical engineer for Henkel, first summarized the basic principles of cleaning in 1959. His summary, now referred to as the Sinner's Circle, describes the four factors that can be manipulated in any cleaning scenario: **Temperature, Chemical Reaction, Time, and Mechanical Force**. When the effectiveness of any factor is reduced, it must be compensated with the increase of one or multiple other factors. Gamajet utilizes the Mechanical Action to its maximum benefit, resulting in a drastic reduction of the three remaining factors: time, chemical reaction, and temperature (as shown below).

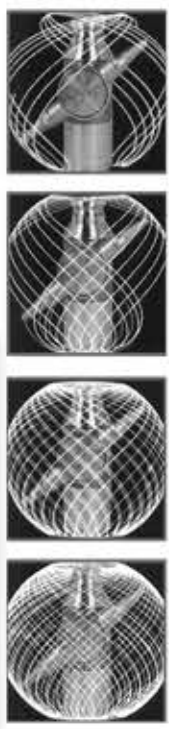


## WHAT IS ROTARY IMPINGEMENT TANK CLEANING?

Gamajet's rotary impingement tank cleaning machines combine pressure and flow to create high impact cleaning jets. Cleaning occurs at the point the concentrated stream impacts the surface. It is this impact and the resulting tangential force that radiates from that point that **blasts contaminants from the surface**, scouring 100% of the tank interior.

## WHY USE GAMAJET'S ROTARY IMPINGEMENT TECHNOLOGY?

Gamajet machines deliver the impingement force in a precise, repeatable and reliable 360° pattern. This full-coverage, indexing pattern ensures the entire tank or vessel interior is cleaned, every time. Combining impingement with a controlled cleaning process results in an economic ideal. **The Gamajet greatly reduces time spent cleaning, chemicals and water usage.** A ROI will quickly show that Gamajet's impingement process positively impacts the ultimate scorecard: your bottom line.



# SUSTAINABILITY

Cleanliness is our backbone, but economical solutions and the safety of our customers are paramount to us. For over 60 years, we have combined industry feedback and our cleaning expertise to develop the best possible equipment for the planet, our customers, and your bottom line:

## PLANET

Our tank cleaning machines allow you to obtain the sustainability goals designed to protect our world. Tank cleaning is typically the number one culprit in wasting water. Gamajet customers experience water savings nearing 80% and energy savings averaging around 85%. As a result, greenhouse emissions and the overall impact on our environment is significantly reduced. Many chemical companies have obtained their water savings goals through the simple implementation of a Gamajet tank cleaning machine.

## PEOPLE

Gamajet provides a safe way to clean tanks by eliminating the need for confined space entry. The dangers of confined space entry include the risk of falling and inhalation of hazardous fumes.

## PROFIT

Significant savings of expenditures such as time, chemicals and other operating costs are achieved through the use of a Gamajet. In addition, the significant savings in time allows for an increase in production and a recovery in revenue.



LEARN MORE ABOUT GAMAJET'S SUSTAINABILITY PROGRAM

- Customize your **GAMAJET** with a variety of options:
- Inlet Connections: Tri-Clover, Female NPT, Camlock, R-Clip\* Only Available with Select Machines
  - Seals and Bearings: EPDM, Viton®, Kalrez®
  - Stator and Nozzle Sizes: Based on operating conditions for optimal performance.



Watch Videos and Learn More at [www.GAMAJET.COM](http://www.GAMAJET.COM)

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