

G·M ENTERPRISES

A NITREX COMPANY

VACUUM SYSTEMS



MASTERING
STRENGTH.
WORLDWIDE.



MASTERING THE WORLD OF HEAT TREATING

In a fast-changing world that demands durability, sustainability, quality, and cost efficiency, more and more organizations, industries and applications are embracing heat treating as a mission-critical process. That's where we come in.

G-M ENTERPRISES is a leading heat treatment solution provider with over four decades of experience setting standards and defining strength. Our offering makes our customers' products and systems last longer, consistently performing better while meeting the highest standards.

WE BUILD RELIABILITY

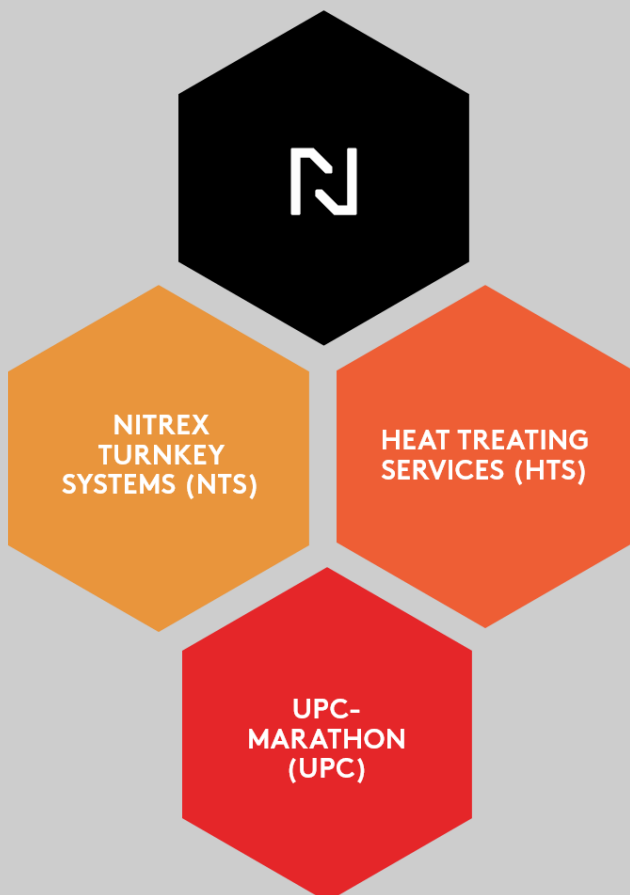
G-M Enterprises is a reliable partner that clients trust to meet their heat processing and application objectives with a variety of innovative solutions, timely manufacturing, and quality support services. From engineering to manufacturing, field service maintenance/installation technical groups, and after-market parts support, G-M Enterprises adds value to every system.

Our high-temperature vacuum furnaces and hot zones are developed and proven for all types of heat-treating applications from simple steel to high-temperature nickel-based alloys and titanium and a variety of industries, including aerospace, nuclear, power turbine, medical, tool and dies, MIM, and 3D additive, among others.

OUR STORY TODAY

At G-M Enterprises, we are always looking for new ways to provide customers with the best services and product offerings. Through our affiliation with NITREX and its global network of companies, G-M customers now have access to a full breadth of products, services, and scalable solutions — from turnkey vacuum systems to nitriding/nitrocarburizing systems, process and flow controls, automation solutions, as well as heat treating services — that will ensure we keep pace with their evolving needs and expectations.

Together, we are MASTERING THE SCIENCE OF HEAT TREATING.



SERVING THE COMMERCIAL AND CAPTIVE HEAT TREATING INDUSTRY

Nitrex Turnkey System (NTS), a leader of turnkey nitriding, nitrocarburizing and vacuum heat treat systems.

Heat Treating Services (HTS), a worldwide network of commercial heat-treating service centers.

UPC-Marathon, a leading provider of controls upgrade and automation solutions for heat treating and combustion industries.

HVF SERIES

THE INDUSTRY'S WORKHORSE

The HVF Series is designed for horizontal front loading applications requiring baskets or fixtured loads. The circular hot zone provides flexibility in work volume utilization. Wideband heating elements with special "V" shape reinforcements ribs allow for rapid and uniform heating of the workload. The heating elements are supported by G-M's patented full-width positive supports. The state-of-the-art "Screw-In" gas nozzle design provides uniform and rapid cooling throughout the work area.



**WE MAKE THINGS
DEPENDABLE**



**NEVER COMPROMISE
ON QUALITY**



**WHEN MEETING YOUR
DEADLINE IS ESSENTIAL**



MODEL SIZE	STANDARD SIZE LOAD W X H X D		ALTERNATE SIZE LOAD W X H X D		GROSS LOAD CAPACITY		STANDARD PUMP SIZES				STANDARD GAS COOLING SIZE
	INCHES	MILLIMETER	INCHES	MILLIMETER	LBS @ 2400°F	KG @ 1315°C	MECHANICAL/BLOWER		DIFFUSION PUMP		
							CFM/CFM	L/M/L/M	SIZE	L/S	
HVF 101-XB	15x15x24	381x381x610	20x8x24	508x203x610	500	227	80/950	2265/26922	10"	5300	GQ-800
HVF 201-B	24x24x36	610x610x915	27x6x36	689x152x915	1200	545	150/1600	4250/45290	10"	5300	GQ-4500
HVF 201-XB	24x24x48	610x610x1219	30x10x48	762x254x1219	1500	682	150/1600	4250/45290	16"	10000	GQ-4500
HVF 301-B	36x30x48	914x762x1219	44x10x48	1118x254x1219	2000	909	300/2000	8500/56615	20"	17500	GQ7500
HVF 301-XB	36x30x60	914x762x1524	44x10x60	1118x254x1524	2250	1023	300/2000	8500/56615	20"	17500	GQ-7500
HVF 301-XXB	36x30x72	914x762x1829	44x10x72	1118x254x1829	2500	1136	300/2000	8500/56615	20"	17500	GQ-7500
HVF 401-B	36x36x48	914x914x1219	48x12x48	1219x305x1219	2500	1136	300/2000	8500/56615	20"	17500	GQ-9000
HVF 401-XB	36x36x60	914x914x1524	48x12x60	1219x305x1524	3000	1364	300/2000	8500/56615	20"	17500	GQ-9000
HVF 401-XXB	36x36x72	914x914x1829	48x12x72	1219x305x1829	3500	1590	300/3000	8500/84923	20"	17500	GQ-12000
HVF 701-B	48x48x48	1219x1219x1219	60x30x48	1524x762x1291	3500	1590	300/3000	8500/84923	35"	50000	GQ12000
HVF 701-XB	48x48x60	1219x1219x1524	60x30x60	1524x762x1524	4000	1818	300/3000	8500/84923	35"	50000	GQ-12000
HVF 701-XXB	48x48x72	1219x1219x1829	60x30x72	1524x762x1829	4500	2045	300/3000	8500/84923	35"	50000	GQ-12000
HVF 801-B	48x48x84	1219x1219x2134	60x30x84	1524x762x2134	5000	2273	300/3000	8500/84923	35"	50000	GQ-15000
HVF 801-XB	48x48x96	1219x1219x2439	60x30x96	1524x762x2439	5500	2500	300/3000	8500/84923	35"	50000	GQ-15000

SFQ SERIES

The Super Fast Quench vacuum series is a high-pressure quenching furnace equipped with a post cooler heat exchanger that provides lower gas temperature quenching than any other gas cooling system offered in the market today.



MODEL SIZE	STANDARD SIZE LOAD W X H X D		ALTERNATE SIZE LOAD W X H X D		GROSS LOAD CAPACITY		STANDARD PUMP SIZES				STANDARD GAS COOLING SIZE
	INCHES	MILLIMETER	INCHES	MILLIMETER	LBS @ 2400°F	KG @ 1315°C	MECHANICAL/BLOWER		DIFFUSION PUMP		
							CFM/CFM	L/M/L/M	SIZE	L/S	
HVF 101-XBSFQ	15x15x24	381x381x610	20x8x24	508x203x610	500	227	80/950	2265/*	10"	5300	GQ-800
HVF 201-BSFQ	24x24x36	610x610x915	27x6x36	689x152x915	1200	545	150/1600	4250/45292	10"	5300	GQ-4500
HVF 201-XBSFQ	24x24x48	610x610x1219	30x10x48	762x254x1219	1500	682	150/1600	4250/45292	16"	10000	GQ-4500
HVF 301-BSFQ	36x30x48	914x762x1219	44x10x48	1118x254x1219	2000	909	300/2000	8500/56615	20"	17500	GQ-7500
HVF 301-XBSFQ	36x30x60	914x762x1524	44x10x60	1118x254x1524	2250	1023	300/2000	8500/56615	20"	17500	GQ-7500
HVF 301-XXBSFQ	36x30x72	914x762x1829	44x10x72	1118x254x1829	2500	1136	300/2000	8500/56615	20"	17500	GQ-7500
HVF 401-BSFQ	36x36x48	914x914x1219	48x12x48	1219x305x1219	2500	1136	300/2000	8500/56615	20"	17500	GQ-9000
HVF 401-XBSFQ	36x36x60	914x914x1524	48x12x60	1219x305x1524	3000	1364	300/2000	8500/56615	20"	17500	GQ-9000
HVF 401-XXBSFQ	36x36x72	914x914x1829	48x12x72	1219x305x1829	3500	1590	300/3000	8500/84923	20"	17500	GQ-12000
HVF 701-BSFQ	48x48x48	1219x1219x1219	60x30x48	1524x762x1291	3500	1590	300/3000	8500/84923	35"	50000	GQ-12000
HVF 701-XBSFQ	48x48x60	1219x1219x1524	60x30x60	1524x762x1524	4000	1818	300/3000	8500/84923	35"	50000	GQ-12000
HVF 701-XXBSFQ	48x48x72	1219x1219x1829	60x30x72	1524x762x1829	4500	2045	300/3000	8500/84923	35"	50000	GQ-12000
HVF 801-BSFQ	48x48x84	1219x1219x2134	60x30x84	1524x762x2134	5000	2273	300/3000	8500/84923	35"	50000	GQ-12000
HVF 801-XBSFQ	48x48x96	1219x1219x2439	60x30x96	1524x762x2439	5500	2500	300/3000	8500/84923	35"	50000	GQ-15000

VVF SERIES

AVAILABLE IN HIGH-PRESSURE QUENCH CAPABILITIES UP TO 10-BAR ABSOLUTE



The Vertical Vacuum Furnace series is designed for bottom loading applications and utilizes a circular design hot zone that provides for taller and larger workloads. With the hot zone having gas cooling nozzles 360° around the workload, combined with an external gas recirculation blower and fin/tube heat exchanger, the cooling gas is evenly distributed throughout the work area and optimum cooling is achieved.

The series comes available in a variety of insulation packages including ceramic fiber, graphite, multiple radiation shields, larger pumping, and gas cooling systems.

MODEL SIZE	STANDARD SIZE LOAD D X H		GROSS LOAD CAPACITY		STANDARD PUMP SIZES				STANDARD GAS COOLING SIZE
	INCHES	MILLIMETER	LBS @ 2400°F	KG @ 1315°C	MECHANICAL/BLOWER		DIFFUSION PUMP		
					CFM/CFM	L/M/L/M	SIZE	L/S	
VVF 202-B	48 x 54	1219 x 1371	3,000	1,361	300/1600	4250/45292	20"	17,500	GQ-9000
VVF 202-XB	48 x 60	1219 x 1524	3,000	1,361	300/1600	4250/45292	20"	17,500	GQ-9000
VVF 302-B	60 x 48	1524 x 1219	4,000	1,815	300/2000	4250/56615	20"	17,500	GQ-9000
VVF 302-B	60 x 60	1524 x 1524	4,000	1,818	300/3000	4250/84923	35"	50,000	GQ-12000
VVF 302-XB	60 x 72	1524 x 1829	4,000	1,818	300/3000	4250/84923	35"	50,000	GQ-12000
VVF 402-B	72 x 72	1829 x 1829	5,000	2,268	300/3000	4250/84923	35"	50,000	GQ-12000
VVF 402-XB	72 x 84	1829 x 2134	5,000	2,268	300/3000	4250/84923	35"	50,000	GQ-12000
VVF 502-B	84 x 84	2134 x 2134	5,000	2,268	300/3000	4250/84923	35"	50,000	GQ-12000
VVF 602-B	96 x 72	2438 x 1829	6,000	2,727	(2) 300/3000	4250/87923	35"	50,000	GQ-15000
VVF 602-XB	96 x 96	2438 x 2438	6,000	2,727	(2) 300/3000	4250/84723	(2) 35"	50,000	GQ15000
VVF 702-B	120 x 72	3048 x 1829	10,000	4,536	(2) 300/3000	4250/84923	(2) 35"	100,000	GQ-15000

NOTE: Also available in 6-Bar and 10-Bar

SAR SERIES

ARGON/HYDROGEN COATING BELL FURNACE

This batch-type furnace with a bell retort can either be lifted off or constructed with a bottom load design and is typically used in coating applications or annealing/heat treatment in hydrogen/argon atmosphere.



The go-to furnace for aerospace, heat treating, and power turbine companies.



Aerospace

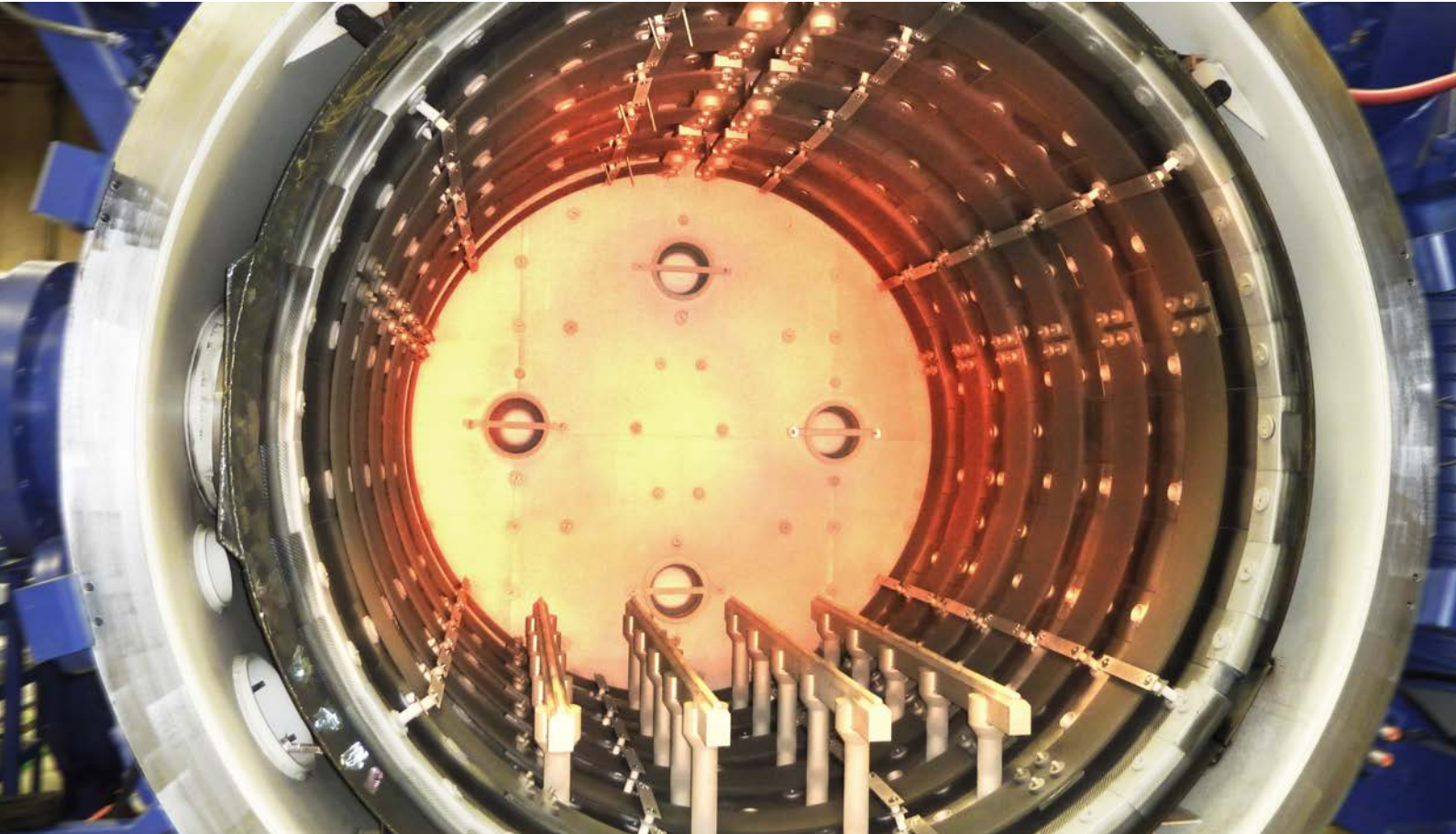


Commercial
Heat Treating



Power Turbine

HOT ZONES



The G-M aftermarket team has the experience and capabilities to tackle both the repair, rebuild, and upgrade of hot zones of most vacuum furnace brands.

Our hot zones are the industry's workhorses, designed to outperform competitive offerings with a lower cost of ownership. We can deliver a more durable, cost-effective, and thermally efficient alternative even for the most difficult processing applications. Whether it's a standard or custom-engineered hot zone with graphite or all-metal construction, G-M can build it better than the original.

THE G-M ADVANTAGE

- One-piece, double-wall plenum design provides a high-efficient, more uniform cooling gas flow
- Built of 30% thicker sheet metal assures structural integrity and eliminates distortion
- Patented screw-in venturi nozzles surround the hot zone for higher velocity with better and more uniform gas distribution
- Easily replaceable and repairable parts, easy maintenance, and longer component life

LEGACY CONTROLS

FUTURE-PROOFING YOUR FURNACE JUST GOT EASIER

**UPC-MARATHON
CONTROL PANEL RETROFIT**



**UPC-MARATHON
CONTROL SYSTEM**



**G-M OEM
CONTROL SYSTEM**



From a cost-effective retrofit to a new control system platform, G-M Enterprises state-of-the-art upgrade solutions will help take your G-M vacuum furnace into the next generation — boosting furnace performance and process reliability, while ensuring compliance to the latest quality and safety standards.

Today, through our affiliation with leading controls expert UPC-Marathon, G-M customers have access to more solutions that can help future-proof their business.



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