

INDUSTRIAL GENERATOR SETS

GENERAC[®]

INDUSTRIAL
POWER

BECAUSE INDUSTRY
DEPENDS ON POWER

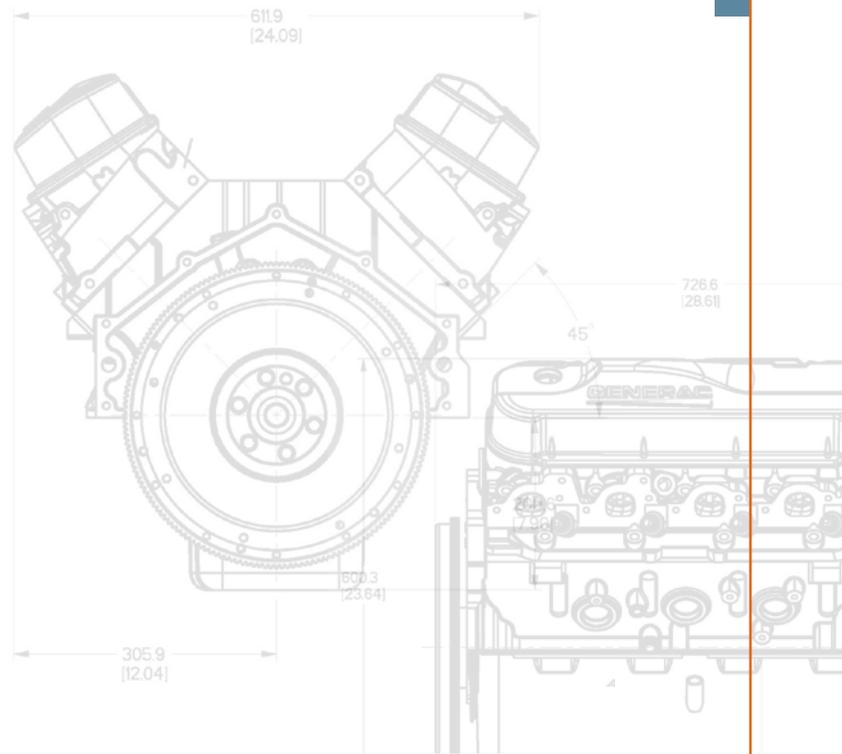


POWER FAILURE IS NOT AN OPTION

Utility power goes out. Productivity goes down. Facilities are at risk. That's unacceptable. Generac Industrial Power keeps facilities, from communications to colleges, up and running.

Generac Industrial Power provides more than power. We deliver the peace of mind and confidence that comes from a company whose only business is power generation. Not trucks. Not tractors. Just generators.

Because we adhere to a vertically integrated philosophy, customers can get a generator system designed, manufactured and supported by a single source. All parts of the production and testing process are controlled by us. The results? Shorter lead times and high quality standards. With alternators, enclosures, control systems, fuel tanks, communications software and engines all engineered



to do one thing: provide power that a facility needs to achieve its mission. This approach ensures generator systems that meet the highest reliability and performance standards, backed by 50 years of proven dependability.

In the 21st century, industry shouldn't have to depend on 20th century technology. That's why Generac utilizes in-house R&D and testing to provide leading-edge control, engine and power monitoring technology that keeps pace with today's mission-critical enterprises.

As the grid becomes less reliable and power outages more frequent, healthcare facilities, data centers, telecommunications companies, financial institutions and other high value enterprises depend on Generac Industrial Power.

The right components for your application.

Generac's industrial generator sets use an integrated approach to building the optimum system for each application. This approach matches the right engine, alternator, control panel, enclosure, base tank and software for the most effective solution.

POWER SOLUTIONS UP TO 9000 KW

Diesel engines, optimized for use in power generation, along with our own factory designed and built spark-ignited and Bi-Fuel™ engines allows us to meet a broad range of industrial and commercial power needs.

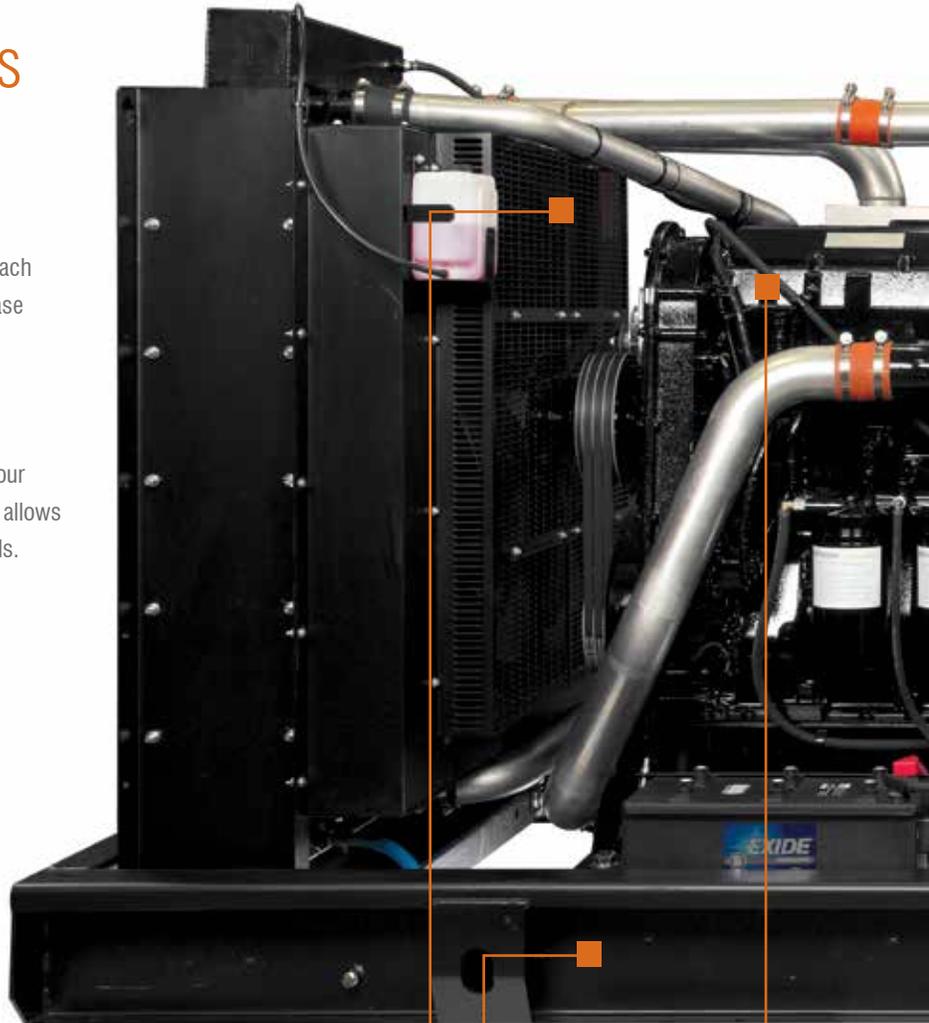
GENERATOR SET OPTIONS

- **Open model** Suited for indoor placement within a dedicated building or mechanical room
- **Weather protective enclosure** Provides outdoor protection against the elements
- **Sound attenuated enclosure options**
Two levels provide significantly lower sound levels and are offered in weather protective enclosures.

CERTIFICATIONS

- **UL2200 Listed** Generac was the first to introduce its complete product line in conformance with UL2200 safety standards.
- **UL1008 Listed** Automatic transfer switches
- **UL891** Paralleling switchgear
- **EPA** Environmental Protection Agency
- **NEMA** National Electrical Manufacturers Association
- **CSA** Canadian Standards Association*
- **CARB** California Air Resources Board*
- **SCAQMD** South Coast Air Quality Management District (CA)*
- **IBC 2009 & 2012** International Builder Code seismic compliance
- **OSHDP Approved** Generac has passed the shaker table test.
 S_{DS} value=2.5

* Select models only



GUARDING

Meeting UL2200 standards, Generac guards cover fan, belts, and pulleys for safety

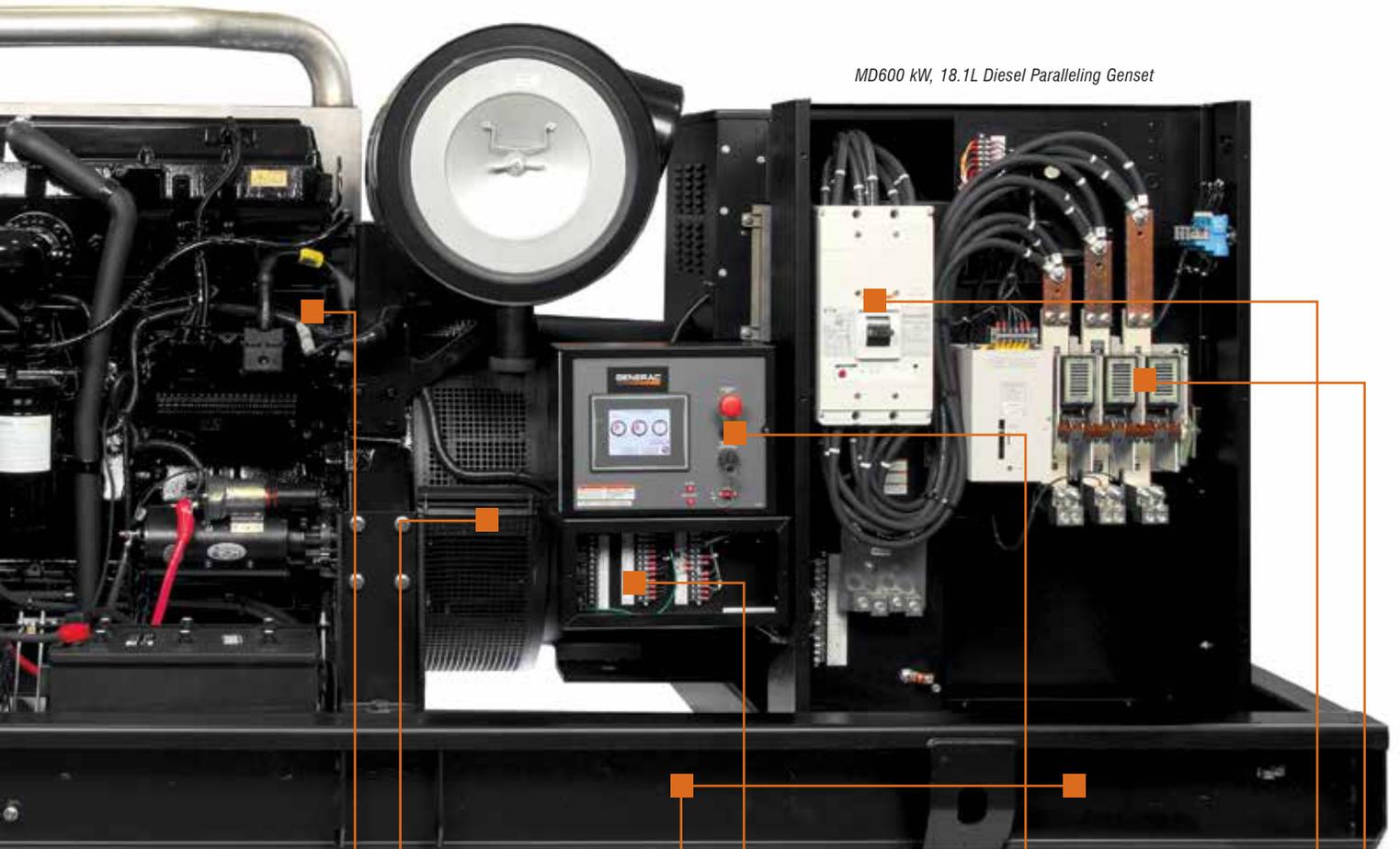
RIGID BASE FRAMES

Built to withstand high-torque transient conditions and eliminate vibrations. Fully welded for strength and then finished with industrial RhinoCoat™ paint finish

MODERN ENGINE TECHNOLOGY

Generac industrial engines are built for reliability, durability and performance. By employing modern engine technologies, we build our own spark-ignited engines and work with best-in-class manufacturers to optimize diesel engines specifically for use in power generation

MD600 kW, 18.1L Diesel Paralleling Genset



ADVANCED HARNESS & CONNECTION DESIGN

The advanced wire harness design with waterproof connectors assures reliable, repeatable interconnection between electronic and sensor components. Special sealed boots are used on interconnects and termination points for environmental protection

INDUSTRIAL ALTERNATORS

Generac industrial alternators are machine wound, inserted and varnished for the ultimate in consistent manufacturing

EASY STUB UPS

Power cabling stub up is directly below the circuit breakers or the paralleling switch, for the easiest installation

LOW VOLTAGE SEPARATION

Low voltage control connections located beneath the control panel include two-wire start, communications, alarms relay outputs, etc. and allow for easier installation

ADVANCED DIGITAL CONTROLS

The industrial control panel combines durable construction with seamlessly integrated components and features like constant monitoring, built-in alarms and adjustable parameters, helping ensure reliable generator operation

Fully Integrated Design

All control functions are integrated into a single encapsulated circuit board platform: genset controller, governor, regulator, synchronizer, load share and protection

Touch Screen Interface

User-friendly access to alarm and generator operation information

CIRCUIT BREAKERS

Available in thermal magnetic configurations or electronic trip. Multiple breaker solutions supported

PARALLELING SWITCH

Integrated contactor-style paralleling switch is used to ensure the highest reliability for repetitive switching. A shunt trip breaker provides back-up, fail safe separation capabilities

■ Powered by **ingenuity.**

Open up a Generac Industrial Power generator. You'll see more than an assembly of engines, alternators, controls and formed parts. You'll see 50 years of ingenuity and innovation hard at work. Because the best generators don't just run on fuel. They're powered by expertise and innovation. And a single-minded focus to provide engines designed to do one thing. Generate backup power.

The Generac commitment to vertical integration means that we source, design and build engines to overcome the challenges of applying off-the-shelf technology to generators. Because we control the supply chain, you get the best fit for your power, performance and durability requirements. Generac operates its own test and R&D facility. Before a design goes into production, it undergoes prototype testing to evaluate every aspect of performance. This ensures each engine and genset conforms to every major industry standard. Each of the engines used in a Generac generator meets the required EPA emissions standards. In addition to emissions, sound and endurance, a comprehensive set of highly specialized tests including torsional analysis, transient response, maximum motor starting and structural soundness is performed.



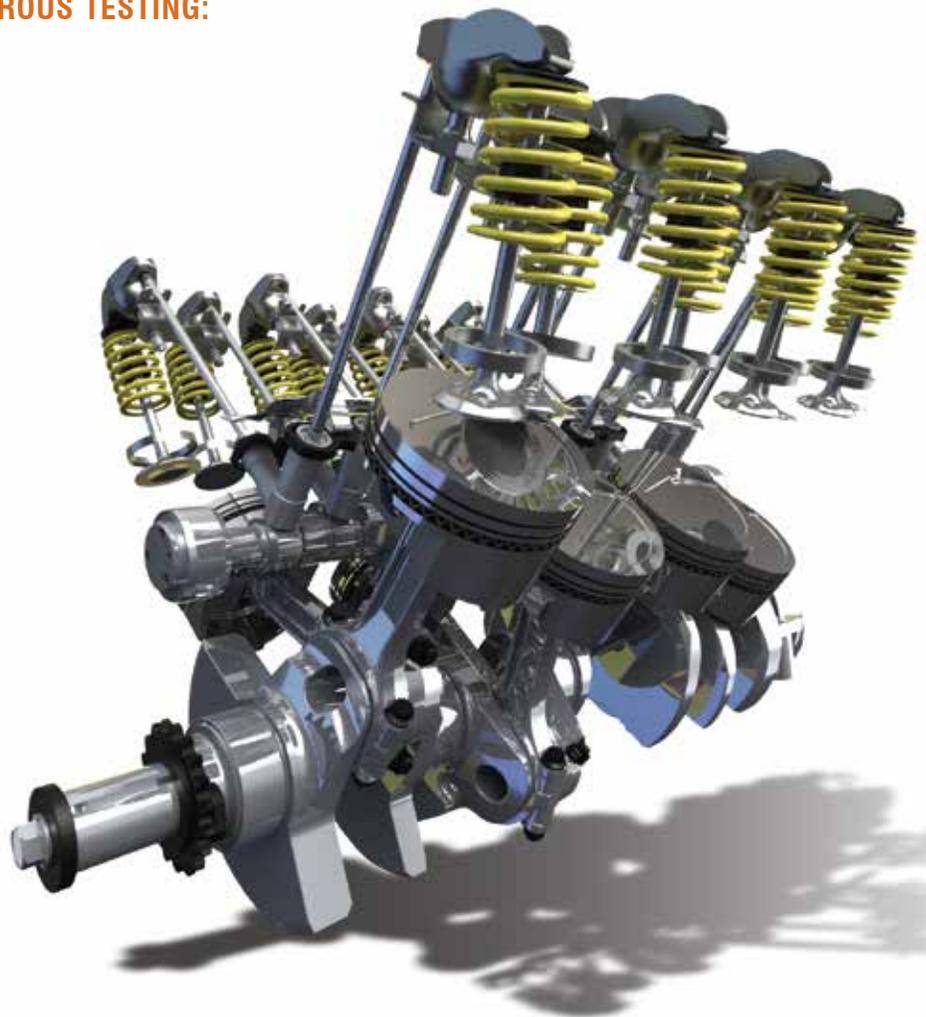
A GENERAC CERTIFIED INDUSTRIAL ENGINE MUST PASS THE FOLLOWING RIGOROUS TESTING:

Durability

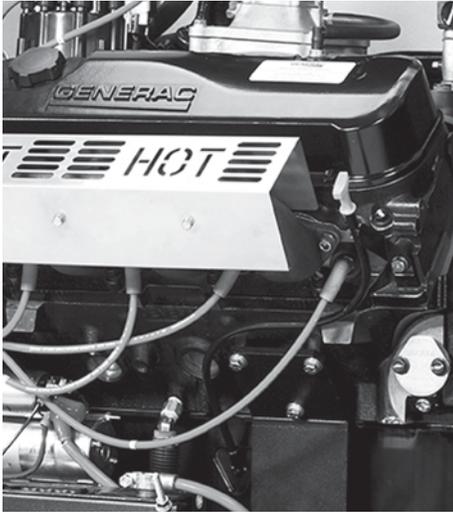
- Summer & winter durability tests
- Heat run tests with enclosures
- Vibration analysis
- Shaker table testing
- Coolant de-aeration test
- Prototype test

Performance

- Block load test
- Steady state response test
- Fuel consumption test
- Exhaust backpressure test
- Emissions verification
- Extreme cold-start test
- Air-flow test

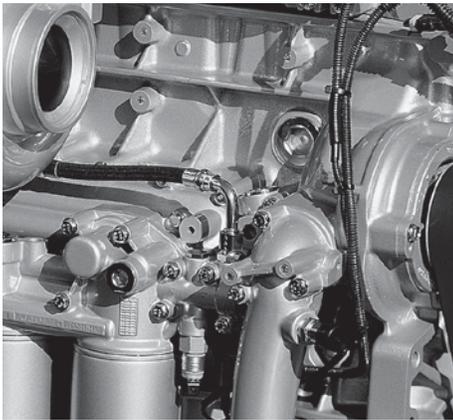


Internal components of Generac's 9.0L spark-ignited engine designed, engineered and manufactured specifically for power generation.



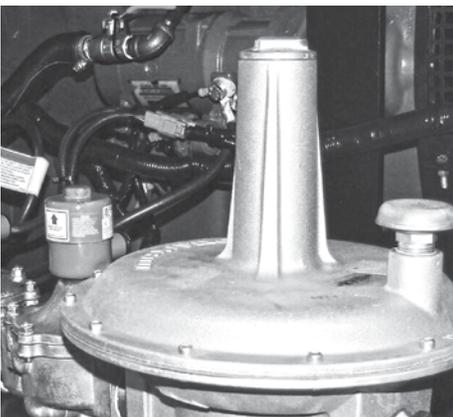
SPARK-IGNITED ENGINES

Applying gaseous fuel to standby power systems takes advanced engineering expertise to ensure reliability and long life. That's why Generac builds its spark-ignited engines from the block up. Upgrading the fuel system from gasoline to natural gas. Hardening the valves and seats to address the rigors of hotter-burning dry fuel. Adjusting engine timing to accommodate the unique combustion characteristics of natural gas. This allows Generac engines to last longer, require less maintenance, and perform more reliably in a standby power system than a third-party spark-ignited engine built to run on gasoline. Because we control the supply chain, we can also provide some of the shortest turnaround times in the industry. And as an additional benefit, every Generac engine meets the required EPA emission standards at the factory.



COMPRESSION IGNITED ENGINES

Diesel-fueled generators are an efficient choice for high kW applications, as well as for facilities where code requirements call for on-site fuel storage, like hospitals and 911 call centers. To provide the best possible diesel-fueled standby power solutions, Generac identifies and pre-qualifies diesel engines proven in real-world applications under adverse conditions. Then we work hand-in-hand with best-in-class diesel engine manufacturers to optimize designs specifically to meet Generac Industrial Power requirements.



Generac Bi-Fuel™ generators start on diesel fuel and add natural gas as load is applied, until the unit runs primarily on natural gas. Generac's Bi-Fuel generators are fully integrated solutions, not after-market conversions in the field. That means every component is specifically designed, engineered, and factory tested to work together. Generac Bi-Fuel generators have the added benefit of being EPA compliant from the factory—the only bi-fuel systems on the market that can make such a claim.

For more information, see "The Heart of Industrial Power", Bulletin 0197940SBY

Reliable, accurate, integrated controls for demanding applications.

POWERMANAGER® INDUSTRIAL DIGITAL CONTROLS

Modular Controller Architecture

Monitor and control key elements of your generator system with the touch of a button or click of a mouse. Generac engineers controls with safety and convenience as top priorities. In addition, features like constant monitoring capabilities, adjustable parameters and built-in protective alarms combine with seamlessly integrated components for the highest level of reliability.

A durable cast-aluminum casing withstands electrical interference and environmental effects. You get superior signal integrity and input protection against voltage surges, reversed polarity and short circuits from 4 to 20 milliamp analog circuitry.

FOR NON-PARALLELING APPLICATIONS

PowerManager® H-100 Generator Controller



This advanced controller integrates multiple functions, including:

- Isochronous speed control for the highest level of accuracy
- Digital voltage regulation with over-voltage protection
- Alternator Protection
- Digitally adjustable voltage/frequency settings
- Dual LCD display for improved navigation of features
- A wide array of monitored attributes including kW, KVA, power factor, frequency, phase voltages & currents
- Integration with building management systems via ModBus RTU
- I / O options available for custom configurations
- Built-in PLC functions for customer inputs and outputs
- Advanced diagnostic and digital graphing capabilities
- Optional modem or Ethernet connectivity
- Local/Remote interface via GenLink® communications software
- Data logging, trending and automatic service reminders or alarms
- NFPA 99/110 alarms & shutdowns

FOR PARALLELING SYSTEMS

PowerManager® G-200 Paralleling Controller



Integrated Controller Platform for the G-200 Controllers

Generac's G-200 controller is an advanced touch-screen based interface that combines with an integrated controller platform to replace multiple generator controllers. Includes all of the functionality of the H-100 plus:

- Intuitive and interactive touch-screen menus and displays
- Remote software updating capabilities
- Digital synchronization scope - displays phase angle
- Load-sharing parameters - displays KVAR and power factor controls
- Backup controls allow for semi-automatic (manual) synchronizing to the system bus
- Controls frequency, voltage and load balancing without master controller dependency

PowerManager® PM-SC Paralleled System Controller



Generac's PM-SC controller administrates overall system events and manages system load control for Generac's Modular Paralleling System.

- Manages system loading via permissive and load shed contacts
- Optional redundant load sequencing via Generac's Permissive Load Shed (PLS) controller
- Single point of on-site and remote communication
- Fine tunes generator load balancing, ensuring isochronous operation at all load levels
- Supported by redundant best source DC power



GENLINK® REMOTE GENERATOR MONITORING

GenLink is a remote generator monitoring software package that connects to any generator set equipped with Generac's PowerManager™ control system. It allows the user to:

- Monitor multiple systems from a single PC or laptop
- Check site status
- Servicing technician can remotely diagnose via direct serial connection, phone line or Ethernet connection.



GENprotect™ - Ensure your emergency power source is protected from unexpected power distribution faults. This alternator protection algorithm monitors the generator output. If short circuit current is sensed in excess of rated amps, GENprotect steps in to provide a controlled and safe approach to breaker coordination and alternator protection. Applies only to H-100 Generator Controller and G-200 Paralleling Controller.

- Limits the alternator short circuit current level to 300%, resulting in more consistent breaker coordination
- Performs I²T protection for the alternator, ensuring protection from thermal damage
- Provides 10 seconds of 300% fault current, securing adequate time for good coordination

A complete line of generator enclosures.

By manufacturing our own generator enclosures, Generac is able to ensure each unit combines the highest level of durability with the latest engineering advancements in noise reduction, weather resistance and streamlined design.

COMPONENT DURABILITY

Corrosion resistant SermaGard® silver coated fasteners are utilized throughout the enclosure. Heavy-duty door hinges, latches, and striker plates are polished stainless steel. Internal flanges and fastener locations reduce corrosion and improve external aesthetic appearance.

- **Large access doors** have been engineered with a slip-pin hinge design for easy door removal. Slip-pin door hinges are mounted with stainless steel fasteners and polyurethane gaskets for long life durability through dissimilar metals separation
- **Door jambs** have closed-cell polyurethane gasketing around 100% of the door perimeter to prevent water ingress and sound egress

LOW SOUND EMISSIONS

- **Sound attenuated enclosures** have adhesive backed acoustic silver Mylar® foam panels for maximum sound absorption, heat reflection and resistance to oil and water
- **Roof acoustic foam panels** are held with mechanical retention caps and pins that are capacitive discharge welded to enclosure panels

ADDITIONAL PERFORMANCE FEATURES

- **Hurricane level wind ratings** with optional certifications available
- **Door latches** keyed for equipment security
- **Full 180° door swing** provides full access to generator equipment
- **Heavy-duty steel or aluminum** options available
- **Alternate paint color** options available

RHINOCOAT™ PAINT FINISH

Our RhinoCoat finish system uses a process that evenly joins paint particles to every part of the metal surface. Components are then baked to form a lasting bond for superior protection against the elements. This process is used on not only the enclosure, but also the base frame, fuel tank and other sheet metal components.



SIX-LOUVER SINGLE PIECE DIE STAMPING

This manufacturing process allows for a more accurate control of airflow while preventing water ingress



FOAM INSULATION WITH REFLECTIVE SILVER MYLAR LAYER

- Improved sound attenuation
- Reflective surface provides added light during maintenance



GASKETED DOORS

Provides additional protection from weather and rodents



STAINLESS STEEL LATCH HANDLES

- Corrosion-free, non-protruding and secure, with built-in locks
- Standard doors & positive lock clasp
- Oversized door & 3-pt tuck & turn



NYLON WASHERS

All potential metal to metal contact areas are protected with a nylon washer eliminating rust points



BARN-STYLE DOORS

- Removable for extra access
- Decreases overall footprint
- Decreases weight of doors



SLIP-PIN DOOR HINGES

Open hinge system allowing for easy removal of doors

DISCHARGE HOOD

Improves generator reliability by:

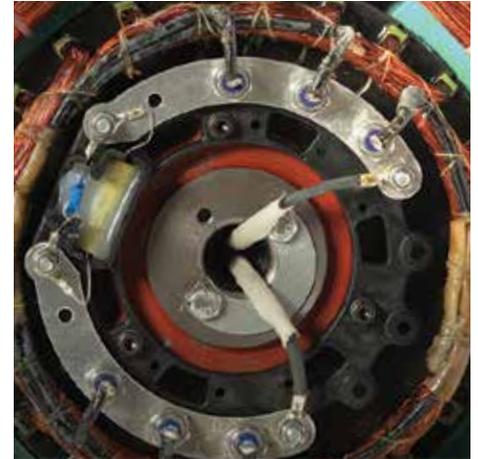
- Mounting hot muffler in a functionally optimal location
- Protecting radiator core from physical damage
- Preventing circulation of hot discharge air
- Avoiding negative impacts of prevailing wind

■ Alternators, fuel tanks and base frames designed for **optimized performance.**

INDUSTRIAL ALTERNATORS

Generac industrial alternators are machine wound, machine inserted and machine varnished for the ultimate in consistent manufacturing. Form winding and stack bracing ensures reliable performance. Rotor spin balancing eliminates vibration. And vented rotors contribute to cooler operation, longer life and enhanced efficiency. All alternators are built with high temperature 190° C NEMA Class H wire and insulation. Maximum operating temperatures are designed not to exceed a temperature rise of 120° C. This provides an extra margin of thermal capability for standby applications with single phase and non-linear loads.

For improved motor starting capabilities and less voltage drop, alternators can be upsized as an option. Producing more starting kVA and lower NEMA temperature rises in this manner is a Generac Industrial Power specialty. Alternator choices include a variety of voltages, excitation options, climate coating and anti-condensation strip heaters.



INDUSTRIAL KW OPTIMIZATION

At certain kW nodes, Generac chooses to utilize the engine's ability to put out more mechanical kW through optimized RPM. The solid design of Generac's gear-driven alternators allow some spark ignited configurations to operate within their optimal speed range and peak power. Durability and engine life is assured by reducing pressure on critical components and is backed by a 10 year warranty.





FUEL TANKS – UL-142 SECONDARY CONTAINMENT

The fuel tanks for Generac gensets are designed and manufactured by Generac. This gives us total quality control over this critical genset component. Every detail is designed to protect against fuel leaks and contamination.

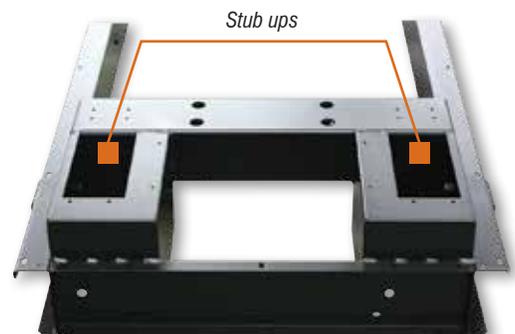
- **Robotic weld system** provides consistent welds to eliminate defects
- **Factory pressure tested and double wall construction** minimize concerns with onsite fuel leaks
- **Generac RhinoCoat™ powder coat paint system** offers maximum protection against the elements
- **Sloped tops** shed water to prevent corrosion and extend tank life
- **Sloped bottom** ensures separation of potential water contamination
- Meets a variety of **filling, venting and localized certifications**
- **Options include** spill fill containment, vents and alarm



BASE FRAME

Generac's heavy duty base frames assure accurate engine-alternator alignment remains intact.

- **Fully welded construction** resists high-torque transients while providing solid weldments for smooth, undisturbed painting surfaces
- **Oil and water drain points** located for easy access
- **Vibration isolators** contribute to smoother operation
- **Power cable stub up** for the easiest installation
- **Battery trays** are also welded in place prior to receiving Generac's RhinoCoat paint system
- **Heavy duty lifting eyes**



- Benefiting our customers through product innovation and support.



The most powerful generator sizing and design software.

Generac has incorporated 50 years of power generation experience into Power Design Pro™ with the goal of making sizing and specifying generators as easy as possible. It incorporates state-of-the-art algorithms that accurately model a load's true characteristics combined with full harmonic and transient analysis to ensure complete generator to load compatibility. This ability to accurately size and design generator solutions is unmatched by any other software in the industry.

TRUE HARMONIC ANALYSIS

Current market sizing programs use simple rule of thumb multipliers to size the generator for non-linear loads. Given the vast variation between different types of loads from different manufacturers, simple multiplier sizing is just not adequate for today's complex loads. Power Design Pro utilizes harmonic analysis to limit the harmonic voltage distortion to acceptable levels. The program automatically selects an appropriate harmonic current signature for each load type but gives the user the ability to modify it to accurately model any load. Once the loads are entered, Power Design Pro calculates the resulting harmonic voltage distortion as that load is applied to various generators.

TRANSIENT ANALYSIS

Most sizing programs use a simple voltage dip model to analyze motor starting transients and provide very limited analysis. Power Design Pro uses voltage and frequency tolerances that are customized for each load versus a single parameter for the entire project. It also provides the user with a detailed transient analysis which identifies the load sequences and the loads in that sequence that are causing the greatest system transients – voltage and frequency.

ELECTRICAL FEATURES:

- Accurate load modeling
- Load shedding
- Natural load sequencing, cyclic loading and load factors
- Spec sheets
- Installation drawings
- Emission information
- Spec text library with full inclusive design notes
- The ability to link directly to your supporting dealer for budgetary quoting and additional support

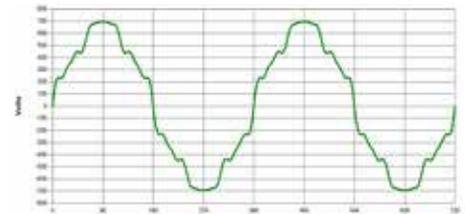
MECHANICAL DESIGN FEATURES:

- Exhaust piping calculator
- NG & LP piping calculator
- Pad design & layout support



SELECTED HARMONIC CURRENT AND VOLTAGE PROFILES

Profile	3rd	5th	7th	9th	11th	13th	15th	17th	19th
Current	0.0%	26.1%	10.4%	0.0%	7.7%	4.9%	0.0%	3.8%	3.6%
Voltage	0.0%	7.6%	4.3%	0.0%	5.0%	3.7%	0.0%	1.9%	2.0%

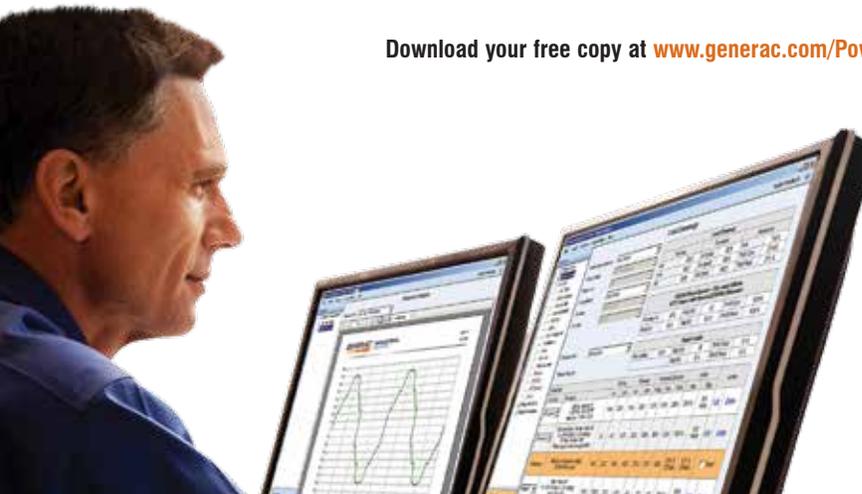


TRANSIENT ANALYSIS

Most difficult alternator transient requirements (voltage dip)	
Sequence	Priority
Load	#13
skVA	300.0
Voltage Dip Tolerance	15%
Voltage Dip Expected	7.7%

Most difficult engine transient requirements (frequency dip)	
Sequence	Step 2
Load	#15
skw	150.0
Frequency Dip Tolerance	5
Frequency Dip Expected	2.6

Download your free copy at www.generac.com/PowerDesignPro to enjoy the full benefits of Power Design Pro!



A TRADITION OF QUALITY AND INNOVATION

For over 50 years Generac has led the industry with innovative design and superior manufacturing. Because our sole focus has been and continues to be power generation, we are able to continually identify market needs and engineer new solutions. This ongoing commitment to quality and innovation has made Generac the name that home and industry have come to trust.

PROTOTYPE AND PRODUCT TESTING

As one of the world's leading manufacturers of power generation equipment, Generac is committed to a comprehensive program of research and development. Part of the R&D initiative is extensive product evaluation. Before a design goes into production, it is subjected to exhaustive prototype testing to evaluate every aspect of construction and performance. Every unit undergoes a rigorous test before it leaves the factory to become a Generac product. This rigorous testing ensures that all components operate properly and provide years of reliable service.

INNOVATION ENHANCES RELIABILITY

Every day, services we take for granted, like healthcare, cell phones and the internet, need proven, reliable power. Recognizing the critical needs in industrial markets, Generac responds with a series of innovative and award-winning products with its industrial genset as the system foundation, including our Modular Power Systems (MPS), Bi-Fuel™ system, and Gemini® Twin Pack.



Modular Power Systems (MPS)

Generac's MPS provides the advantages of redundancy, flexibility and scalability in an integrated approach to generator paralleling. A cost competitive solution compared to large single gensets and traditional paralleling systems.



Bi-Fuel™

Generac's Bi-Fuel system starts on diesel and adds natural gas as load is applied, extending run time and cutting fuel costs and emissions while maintaining reliability. Factory built, installed and tested, full factory warranty and service support are included.



Gemini®

Generac's Gemini Twin Pack combines the output of two 500 kW generators packaged inside a single weather-resistant and sound-attenuated enclosure. The ideal solution when space is at a premium yet reliability is critical.

SALES, DESIGN AND SERVICE SUPPORT

Just as important as product quality and reliability is Generac Industrial Power's commitment to customer support, both before and after the generator purchase. Generac Industrial Dealers sell and service all Generac generators, controllers and switching systems. Our national industrial dealer network has factory-certified technicians with trusted expertise in system design, sizing, installation, commissioning, diagnostics and repairs. They offer 24/7 emergency response, warranty service and scheduled maintenance programs. Generac trains over 4,000 technicians each year.

- 24/7/365 assistance
- Engineering and project management capabilities include professional and complete design and installation consultative services
- Dedicated strategic account support or successful implementation of regional and national backup power programs

SUPPORT FOR THE ENGINEERING COMMUNITY

Engineers, contractors, and end users depend on Generac for comprehensive power generation education and application support. We offer a wide range of extensive resources to help specify the best equipment for the job with the features, size and options that meet each customer's needs. In addition to publishing industry-leading whitepapers, the Generac website includes detailed reference information and one of the industry's most popular online sizing programs.

Thousands of engineers and EC's throughout North America have gone through our Professional Development Seminar Series. This training outreach program has been developed in conjunction with Milwaukee School of Engineering (MSOE), one of the top engineering universities in America and provides PDH's and CEU's to participating engineers.

POWER TRIP DEMO TRAILER (PTT)

Generac Industrial Power's ETP demo trailer travels the country providing consulting and specifying engineers with the latest updates on standby power generation and the advantages of paralleling technologies. This 53-foot hands-on, interactive classroom features an assortment of state-of-the-art power generation equipment including 2 live paralleled generators, switchgear, Generac Bi-Fuel™ and enclosure displays and a host of other educational displays and software.

This ambitious coast-to-coast effort is co-managed by the factory and our dealers, and has been host to hundreds of engineering firms.

To learn more about Generac Industrial Power education or to schedule a stop with our live demonstration trailer, please call us today at 888-GENERAC.

For product specifications, contact your Generac Industrial Power dealer or visit generac.com/industrial



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