

Protector™ Series

Diesel Generator Set

INCLUDES:

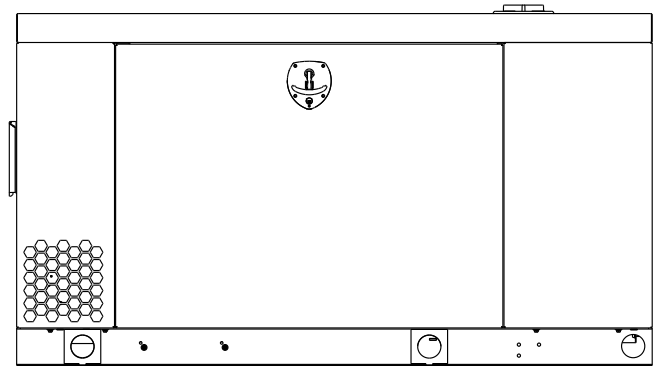
- Power Zone® 410 controller with external viewing window for easy indication of generator status and breaker position.
- Isochronous electronic governor
- Sound attenuated aluminum enclosure
- Smart battery charger
- UV / Ozone resistant hoses
- ±1% voltage regulation
- Integrated base tank options are available with run times over 90 hours without having to refuel*
- Five year limited warranty
- UL 2200 / UL142 / ULC S601 certified
- Double wall fuel tank
- Meets code requirements for external vent and fill

Meets EPA Emission Regulations
CA/MA Emissions Compliant

* Runtime calculated at 50% load.

Standby Power Rating

Model RA01522 - 15 kW 60 Hz
Model RA02022 - 20 kW 60 Hz
Model RA03022 - 30 kW 60 Hz



Reference Image Only



QUIET-TEST™



*Assembled in the USA using domestic and foreign parts

FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.
- **TEST CRITERIA:**
 - ✓ PROTOTYPE TESTED
 - ✓ NEMA MG1-22 EVALUATION
 - ✓ SYSTEM TORSIONALTESTED
 - ✓ MOTOR STARTING ABILITY
- **TRUE POWER™ ELECTRICAL TECHNOLOGY:** Superior harmonics and sine wave form produce less than 5% Total Harmonic Distortion for utility quality power. This allows confident operation of sensitive electronic equipment and micro-chip based appliances, such as variable speed HVAC systems.
- **NFPA 110 CAPABILITY:** Generator comes able to support NFPA 110 controller requirements. Requires the addition of an optional NFPA 110 controller accessory kit.
- **SOLID-STATE, FREQUENCY COMPENSATED VOLTAGE REGULATION:** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine. Digital voltage regulation at ±1%.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's extensive dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component.
- **GENERAC TRANSFER SWITCHES:** Long life and reliability are synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems and controls for total system compatibility.

15 • 20 • 30 kW**GENERATOR SPECIFICATIONS**

Type	Synchronous
Rotor Insulation Class	F (15 & 20 kW)
Stator Insulation Class	H
Telephone Interference Factor (TIF)	<50
Alternator Output Leads 1-Phase	Three wire
Alternator Output Leads 3-Phase	Six wire
Bearings	Single Sealed
Coupling	Direct, Flexible Disc
Excitation System	Direct
Total Harmonic Distortion	< 5%

VOLTAGE REGULATION

Type	Electronic
Sensing	Single-phase
Regulation	Voltage and frequency regulation designed for sensitive electronics
Features	Adjustable voltage & gain

GOVERNOR SPECIFICATIONS

Type	Electronic isochronous
Steady State Regulation	Voltage and frequency regulation designed for sensitive electronics

ELECTRICAL SYSTEM

Battery Charge Alternator	85 Amp - 15 & 20 kW
Static Battery Charger	5 Amp
Recommended Battery (battery not included)	Group 27F, 700 CCA
System Voltage	12 volts

ALTERNATOR SPECIFICATIONS

Revolving field heavy duty generator
 Directly connected to the engine
 Operating temperature rise 120 °C above a 40 °C ambient
 Class H insulation is NEMA rated
 Class F insulation is NEMA rated
 All models fully prototype tested

ENCLOSURE FEATURES

Aluminum weather protective enclosure	Provides protection against mother nature. Electrostatically applied textured epoxy paint for added durability.
Enclosed critical grade muffler	Quiet, critical grade muffler is mounted inside the unit to prevent injuries and maximize sound dampening.
Small, compact, attractive	Makes for an easy, eye appealing installation.
SAE	Sound attenuated enclosure ensures quiet operation.

15 • 20 • 30 kW

ENGINE SPECIFICATIONS: 15 & 20 kW

Make	Perkins
Model	In-line
Cylinders	4
Displacement - L	2.2
Bore - mm (in)	84 (3.3)
Stroke - mm (in)	100 (3.9)
Compression Ratio	23.3:1
Intake Air System	Naturally aspirated
Cylinder Head Type	Cast iron
Piston Type	Aluminum

ENGINE SPECIFICATIONS: 30 kW

Make	Contact Factory
Model	Contact Factory
Cylinders	Contact Factory
Displacement - L	Contact Factory
Bore (in / mm)	Contact Factory
Stroke (in / mm)	Contact Factory
Compression Ratio	Contact Factory
Intake Air System	Contact Factory
Cylinder Head Type	Contact Factory
Piston Type	Contact Factory

ENGINE LUBRICATION SYSTEM

Oil Pump Type	Gear
Oil Filter Type	Full flow spin-on canister
Crankcase Capacity - L (qt)	10.6 (11.2) - 15 & 20 kW Contact Factory - 30 kW

ENGINE COOLING SYSTEM

Water Pump	Pre-lubed, self-sealing
Fan Speed - RPM	2,250 - 15 & 20 kW Contact Factory - 30 kW
Fan Diameter - mm (in)	390 (15.5) - 15 & 20 kW Contact Factory - 30 kW
Fan Mode	Pusher

FUEL SYSTEM

Fuel Type	ULSD (Ultra Low Sulfur Diesel)
Fuel Pump Type	Mechanical engine driven gear
Injector Type	Mechanical
Fuel Supply Line - mm (in)	7.9 (0.31)
Fuel Return Line - mm (in)	7.9/.31 - 15 & 20 kW Contact Factory - 30 kW
Fuel Specification	ASTM
Fuel Filtering - microns	5 - 15 & 20 kW Contact Factory - 30 kW

WEIGHTS AND DIMENSIONS

Power Output	Tank Size - L (US gal)	Total Weight - kg (lb)	Overall Dimensions (L x W x H) - mm (in)
15 kW	189(50)	669 (1,475)	2,134 x 776 x 1,275 (84.0 x 30.5 x 50.2)
	379 (100)	761 (1,678)	2,134 x 776 x 1,598 (84.0 x 30.5 x 62.9)
20 kW	189 (50)	669 (1,475)	2,134 x 776 x 1,275 (84.0 x 30.5 x 50.2)
	379 (100)	761 (1,678)	2,134 x 776 x 1,598 (84.0 x 30.5 x 62.9)
30 kW	Contact Factory	Contact Factory	Contact Factory
	Contact Factory	Contact Factory	Contact Factory

15 • 20 • 30 kW

Application and Engineering Data

TANK SPECIFICATIONS

		Total Capacity - L (US gal)	Usable Capacity - L (US gal)	Run Time at 50% Load (h)	
Power Output	15 kW	50 US gal Tank	205 (54)	189 (50)	62
		100 US gal Tank	390 (103)	379 (100)	126
	20 kW	50 US gal Tank	205 (54)	189 (50)	50
		100 US gal Tank	390 (103)	379 (100)	100
	30 kW	Contact Factory	Contact Factory	Contact Factory	Contact Factory
		Contact Factory	Contact Factory	Contact Factory	Contact Factory

GENERATOR OUTPUT POWER/AMPERAGE-60 HZ

		Standby Power (kW)	Standby Amperage (A)	CB Size (A)
RA01522	120 / 240 V, 1Ø, 1.0 pf	15	62	70
	120 / 208 V, 3Ø, 0.8 pf	15	52	60
	120 / 240 V, 3Ø, 0.8 pf	15	45	50
RA02022	120 / 240 V, 1Ø, 1.0 pf	20	83	100
	120 / 208 V, 3Ø, 0.8 pf	20	69	80
	120 / 240 V, 3Ø, 0.8 pf	20	60	70
RA03022	120 / 240 V, 1Ø, 1.0 pf	contact factory	contact factory	contact factory
	120 / 208 V, 3Ø, 0.8 pf	contact factory	contact factory	contact factory
	120 / 240 V, 3Ø, 0.8 pf	contact factory	contact factory	contact factory
	277 / 480 V, 3Ø, 0.8 pf	contact factory	contact factory	contact factory

SURGE CAPACITY IN AMPS

		Voltage Dip @ < 0.4 pf 30%
RA01522	120 / 240 V, 1Ø	contact factory
	120 / 208 V, 3Ø	contact factory
	120 / 240 V, 3Ø	contact factory
RA02022	120 / 240 V, 1Ø	contact factory
	120 / 208 V, 3Ø	contact factory
	120 / 240 V, 3Ø	contact factory
RA03022	120 / 240 V, 1Ø	contact factory
	120 / 208 V, 3Ø	contact factory
	120 / 240 V, 3Ø	contact factory
	277 / 480 V, 3Ø	contact factory

ENGINE FUEL CONSUMPTION

		Fuel Consumption - L/h gph
RA01522	25% of rated load	2.3 (0.6)
	50% of rated load	3.2 (0.8)
	75% of rated load	4.1 (1.1)
	100% of rated load	5.2 (1.4)
RA02022	25% of rated load	2.6 (0.7)
	50% of rated load	3.8 (1.0)
	75% of rated load	5.2 (1.4)
	100% of rated load	6.9 (1.8)
RA03022	25% of rated load	contact factory
	50% of rated load	contact factory
	75% of rated load	contact factory
	100% of rated load	contact factory

15 • 20 • 30 kW

Operating Data

ENGINE COOLING

	15 kW	20 kW	30 kW
Alternator & Combustion Intake Airflow - m ³ /min (CFM)	63 (2,213)	63 (2,213)	Contact Factory
System Coolant Capacity - L (US gal)	7.6 (2.0)	7.6 (2.0)	Contact Factory
Heat Rejection to Coolant - kW (BTU/min)	22.3 (1,268)	22.3 (1,268)	Contact Factory
Maximum Ambient Air Temperature - °C (°F)	52 (126)		

COMBUSTION REQUIREMENTS

Airflow at Rated Power - m ³ /min (CFM)	1.7 (61.4)	1.8 (64.4)	Contact Factory
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SOUND EMISSIONS

Sound Output in Exercise Mode - dB(A) at 7 m (23 ft)	65		
Sound Output at Normal Load - dB(A) at 7 m (23 ft)	70		

EXHAUST

Exhaust Airflow at Rated Output - m ³ /min (CFM)	4.5 (160)	4.8 (168)	Contact Factory
Exhaust Temperature at Rated Output - °C (°F)	510 (950)	510 (950)	Contact Factory

ENGINE PARAMETERS

Rated Synchronous Engine Speed - RPM	1,800		
Engine Power at Rated Electrical Power - kW (hp)	17 (24)	24 (32)	Contact Factory

POWER ADJUSTMENT FOR AMBIENT CONDITIONS

Temperature Deration..... 3% for every 5 °C above 25 °C (1.7% for every 5 °F above 77 °F)
 Altitude Deration (15 and 30kW) 1% for every 100 m above 915 m (3% for every 1,000 ft above 3,000 ft)
 Altitude Deration (20 kW)..... 1% for every 100 m above 305 m (3% for every 1,000 ft above 1,000 ft)

CONTROLLER FEATURES

Standard Features

128 x 64 Graphical Display with Heater	Multi-Lingual	Full System Status
Three Phase Sensing Digital Voltage Regulator	Full Range Standby Operation	Remote Communication
Programmable Auto Crank	Emergency Stop	On / Off Manual Switch
Not in Auto Flashing Light	Selectable Low Speed Exercise	NFPA 110 Capable**
5 A Integrated Battery Charger***		
Full System Status: •Three Phase AC Volts •Three Phase Amps •kW •Power Factor •Oil Pressure •Water Temperature •Oil Temperature* •Oil Level* •Fuel Pressure and Level •Engine Speed •Battery Voltage •Alternator Frequency •Time •Date •Line Power and Gen Power •Run Hours •Service Reminders •Fault History (Alarm Log)		

Standard Protections

Low Oil Pressure	Low Coolant Level	High / Low Coolant Temperature
Oil Temperature	Over / Under Speed	Over / Under Voltage
Over / Under Frequency	Over / Under Current	Over Load
Battery Voltage	Battery Charger Current	Phase to Phase and Phase to Neutral Short Circuits (I ² T Algorithm)
Ground Fault		

Display

Easy Menu Structure	Multi-Lingual	On Screen Editable Parameters
Key Function Monitoring: •Three Phase Voltage, Amperage, kW, kVA, and kVAR •Selectable Average or Line to Neutral Voltage Measurements •Frequency •RPM •Engine Coolant Temperature •Engine Oil Temperature •Battery Voltage •Warning and Alarm Indication •Diagnostics •Maintenance Events / Information •Hourmeter		

Control Panel

Audible Alarm and Silence†	Auxiliary Shutdown Rocker Switch	Not in Auto Indication
AUTO / OFF / MANUAL: •Operation Through Onboard Buttons or Optional Key Switch •Indication Through Display Screen and LEDs		

* Optional; When Available.

** See NFPA 110 in Accessory Section.

*** Operation Disabled when Optional 10A Battery Charger is Installed.

† When Selected; See Modular NFPA 110 Components Section.

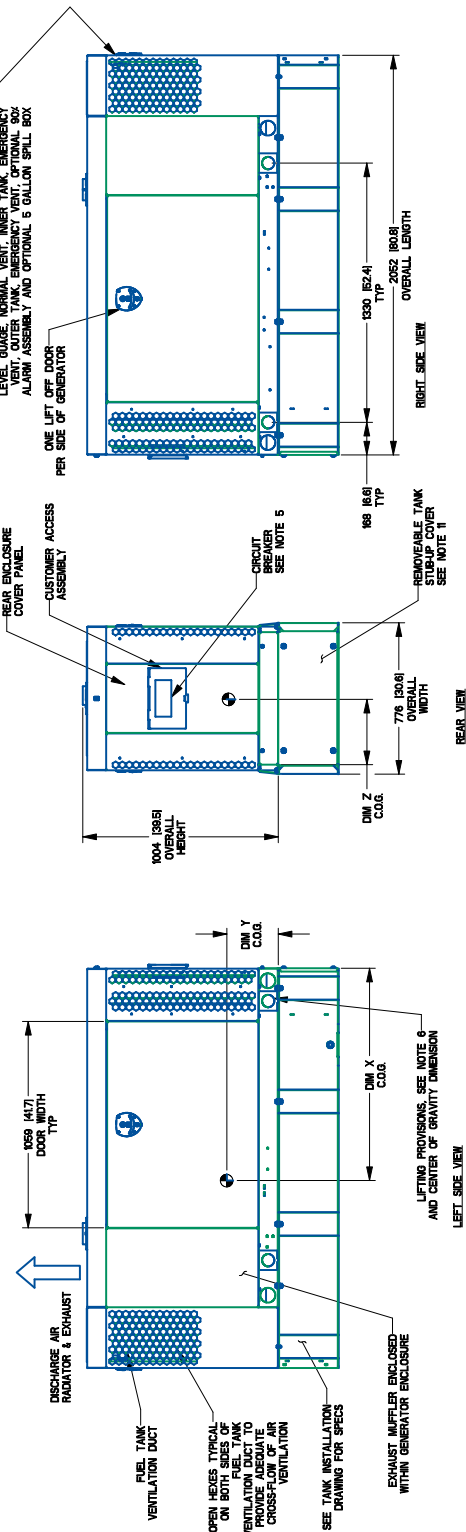
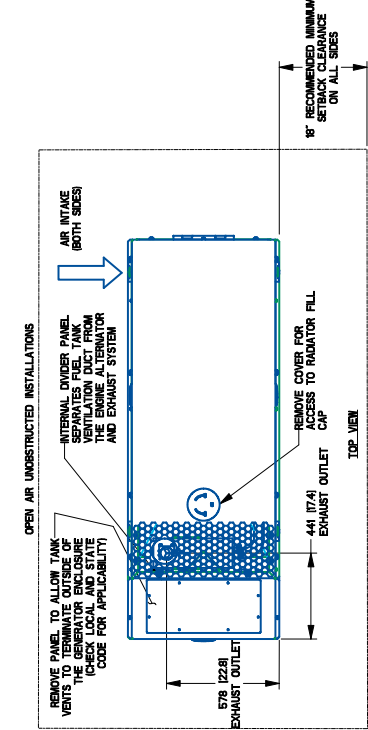
15 • 20 • 30 kW

Installation Drawings

D2.2 G22 Enclosed (A0002043859 1 of 3) RA01522 / RA02022

- Notes:
- CONTROL PANEL: 15 AMP BATTERY CHARGER (INSIDE).
 - CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN THE LOW VOLTAGE ROOM.
 - BATTERY (12V VOLTAGE) (GROUND SYSTEM) (STUB-UP AREA).
 - BATTERY (12V VOLTAGE) (GROUND SYSTEM) (STUB-UP AREA).
 - MAIN LINE CIRCUIT BREAKER (INCLUDES 15 AMP LOADS).
 - SEE SPECIFICATION SHEET FOR OTHERS MANUALLY BORR ON REAR OF GENERATOR.
 - DIMENSIONS MAY VARY DUE TO UNIT CONFIGURATION.
 - ENGINE SERVICE CONNECTIONS: SEE SHEET 9.
- INLET DIESEL = 1/4" NPT
 OUTLET DIESEL = 1/2" NPT
 RADIATOR DRAIN = 1/4" NPT
 ***** SEE GENERATION SIZING GUIDE FOR FUEL PIPE SIZING TO SUIT APPLICATION *****
- ADVISE AND DISCHARGE FROM THE RADIATOR IS NOT REGULATED.
 - BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INFESTATION.
 - EXHAUST SYSTEM MAXIMUM BACK PRESSURE = 10" WGD (ADDITIONAL).
 - THIS STUB-UP AREA IS AS FOLLOWS:
 - HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION.
 - LOW VOLTAGE CONNECTION INCLUDING TRANSFER SWITCH CONTROL WIRES (SEE SHEET 9).
 - ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICE (SEE SHEET 9).
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 - SUPPORTING DOCUMENTATION FOR AIR FLOW CLEARANCE IN SUBMITTAL DOCUMENTS.

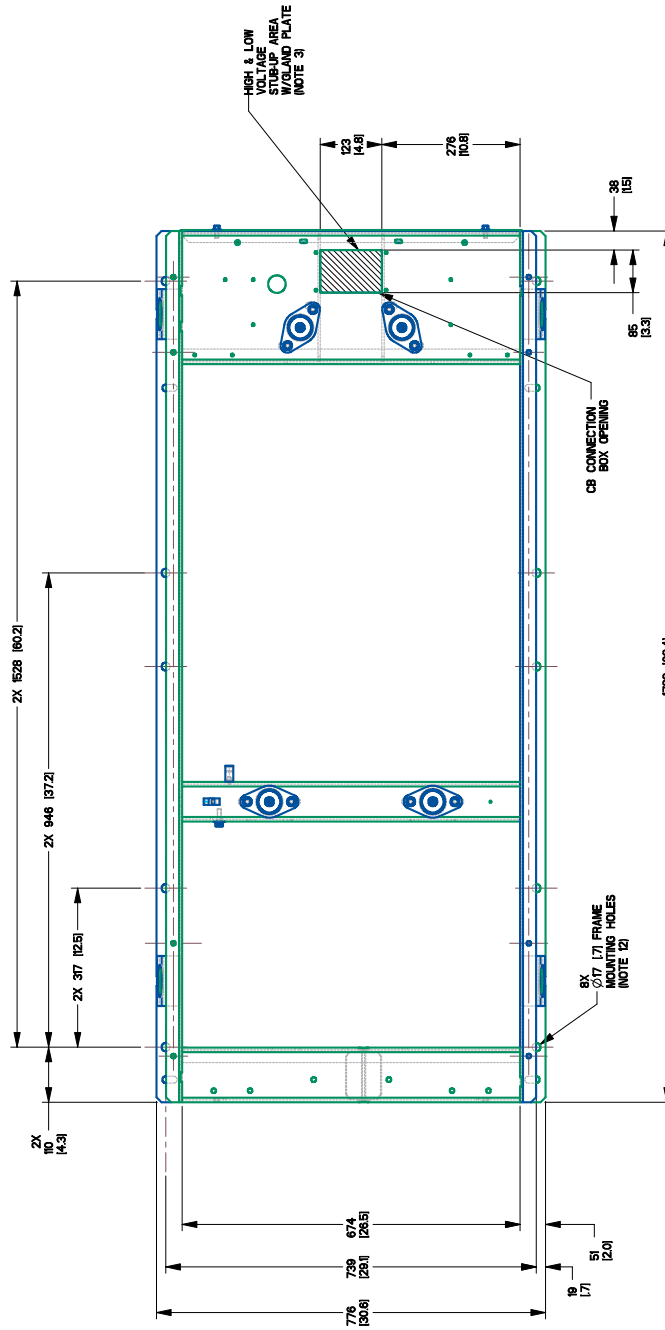
SERVICE ITEM	Z Z L
OIL FILL CAP	RIGHT SIDE
OIL DIP STICK	RIGHT SIDE
OIL FILTER	RIGHT SIDE
OIL DRAIN HOSE	RIGHT SIDE
RADIATOR DRAIN HOSE	RIGHT SIDE
AIR CLEANER ELEMENT	RIGHT SIDE
MUFFLER	FRONT
FAN BELT	RIGHT SIDE
BATTERY	RIGHT SIDE



DIMENSIONS ARE IN MILLIMETERS (INCHES)

15 • 20 • 30 kW

D2.2 G22 Enclosed (A0002043859 2 of 3) RA01522 / RA02022



SEE TANK INSTALL FOR UNIT MOUNTING AND DIMENSIONS

DIMENSIONS ARE IN MILLIMETERS (INCHES)

D2.2 G22 Enclosed (A0002043859 3 of 3) RA01522 / RA02022

STD ENCLOSURE, ALUMINUM

WEIGHT	CENTER OF GRAVITY DIM X	CENTER OF GRAVITY DIM Y	CENTER OF GRAVITY DIM Z
472.2 kg [1041 lbs]	779 [30.7]	365 [14.4]	397 [15.6]

L2A ENCLOSURE, ALUMINUM

WEIGHT	CENTER OF GRAVITY DIM X	CENTER OF GRAVITY DIM Y	CENTER OF GRAVITY DIM Z
472.2 kg [1041 lbs]	779 [30.7]	365 [14.4]	397 [15.6]

STD ENCLOSURE, STEEL

MODEL	VOLTAGE	WEIGHT	CENTER OF GRAVITY DIM X	CENTER OF GRAVITY DIM Y	CENTER OF GRAVITY DIM Z
RA010	240V, 1 Ø	521.6 kg [1150 lbs]	779 [30.7]	365 [14.4]	397 [15.6]
RA015	240V, 1 Ø				
RA020	240V, 1 Ø				
RA020	208V, 240V, 1 Ø, 3Ø				

L2A ENCLOSURE, STEEL

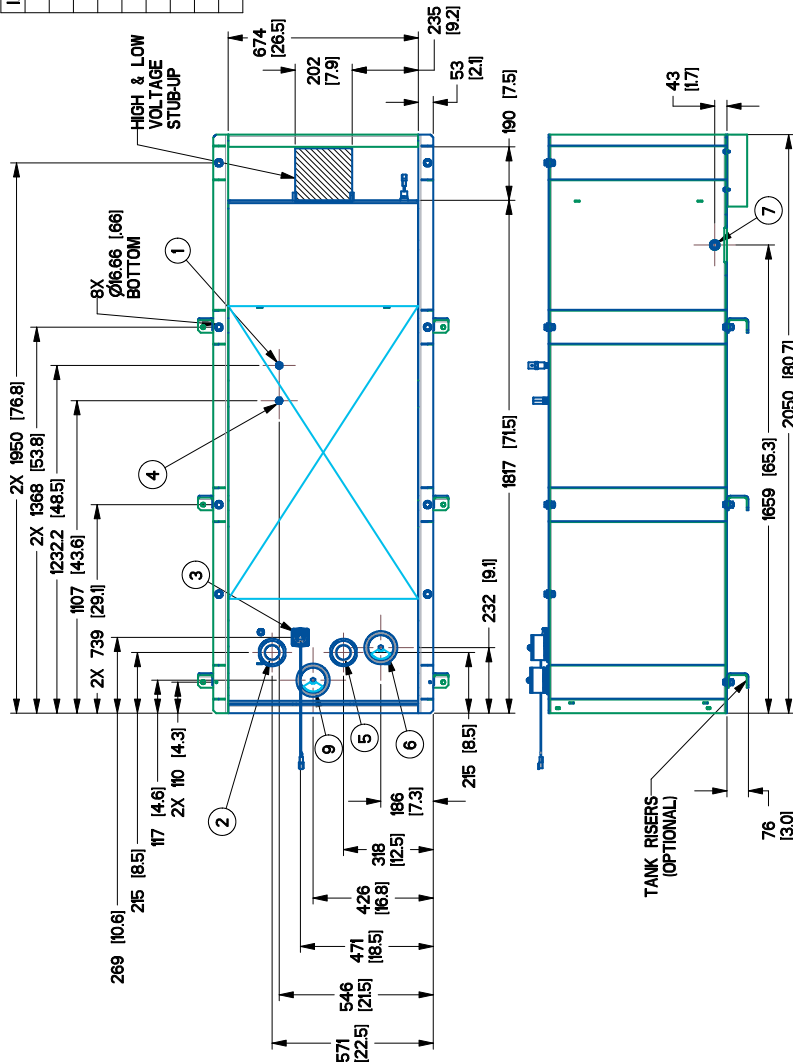
MODEL	VOLTAGE	WEIGHT	CENTER OF GRAVITY DIM X	CENTER OF GRAVITY DIM Y	CENTER OF GRAVITY DIM Z
RA010	240V, 1 Ø	521.6 kg [1150 lbs]	779 [30.7]	365 [14.4]	397 [15.6]
RA015	240V, 1 Ø				
RA020	240V, 1 Ø				
RA020	208V, 240V, 1 Ø, 3Ø				

DIMENSIONS SHOWN ARE WITHOUT A TANK
DIMENSIONS ARE IN MILLIMETERS (INCHES)

Protector Product Only Available with STD Enclosure, Aluminum

D2.2L G22 Install Base Tanks (A0001834211) RA01522 / RA02022

I/N	TANK FITTING	PROVIDING FUNCTION
1	3/8" NPT COUPLING	FUEL SUPPLY
2	2" NPT WELD FLANGE	FUEL FILL
3	FUEL LEVEL OPENING	FUEL LEVEL
4	3/8" NPT COUPLING	FUEL RETURN
5	2" NPT WELD FLANGE	EMERGENCY VENT
6	3" NPT WELD FLANGE	EMERGENCY VENT
7	3/4" NPT COUPLING	DRAIN
8	1/2" NPT HALF COUPLING	LEAK DETECTOR
9	3" NPT WELD FLANGE	OUTER EMERGENCY VENT



CAPACITY: LITER (GALLONS)
 WEIGHT: KILOGRAMS (POUNDS)
 LENGTH: MM (INCH)

UL #42 / ULC-S601 LISTED

TANK P/N	A0003081521	A0003081515
DIM 'A'	311 [12.2]	632 [24.9]
TOTAL CAPACITY	205 [54]	392 [103]
USABLE CAPACITY	189 [50]	379 [100]
DRY WEIGHT	197 [434]	289 [637]

DIMENSIONS ARE IN MILLIMETERS (INCHES)

15 • 20 • 30 kW

GENERAC®**Available Accessories**

Model #	Product	Description
G0089040	Spill Box Kit	The 5-gallon spill box screws into the existing fuel fill port of the base tank. It captures and contains fuel if over fueling or spilling occurs during the fill process.
G0080180	90% Fuel Level Alarm	The 90% fuel level alarm alerts the fuel fill operator when the tank reaches a 90% fill level by sounding an audible alarm and triggering an LED warning light.
G0080190 — 15 & 20 kW Contact Factory — 30 kW	Tank Riser Kit	Tank risers are required in some municipalities to help avoid potential base tank corrosion caused by mounting on rough surfaces.
G0080200 — 100 G G0080210 — 50 G	Fuel Fill Drop Tubes	A powder coat painted, steel fuel fill drop tube is required in some municipalities to prevent sparking due to static electricity buildup, which can be caused by the fuel dropping into the tank from the fill area. Using a drop tube also results in submerged filling, which increases the fuel delivery flow rate and reduces vapors, foam and potential tank evaporation.
G0080220 — 15 & 20 kW Contact Factory — 30 kW	Stainless Steel Fuel Lines	Some municipalities require the use of stainless steel fuel lines instead of the standard hoses provided with the diesel generator products. These stainless steel lines are fire resistant for additional safety.
G0080170	Remote E-Stop	E-stop allows for immediate fuel shutoff and generator shutdown in the event of an emergency.
G0080160	Spill Box Drainback Kit	The spill box drainback kit allows fuel that was captured in the 5-gallon spill box to be drained directly back into the fuel tank to avoid vapors.
G0080230	Vent Extension Support Kit	The vent extension support kit consists of two aluminum plates with the appropriate pipe cutouts to secure the vent extension pipes coming through the top of the generator enclosure. It helps to minimize stress on the NPT fittings integrated on the tank and also helps protect against pests.
G0065120	Lockable Fuel Cap	The cast iron, lockable fuel cap provides the ability to lock the fuel system to prevent unwanted fuel tampering or fuel siphoning.
G0076410 — 15 & 20 kW Contact Factory — 30 kW	Maintenance Kits	The Protector Maintenance Kits offer all the hardware necessary to perform complete maintenance on Generac Protector generators.
G0080140 — 15 & 20 kW Contact Factory — 30 kW	Cold Weather Kits	Recommended for generators installed in regions where the temperature regularly falls below 32 °F (0 °C). The Cold Weather Kits consist of a block heater with all necessary mounting hardware and a battery warmer with a thermostat built into the battery wrap.
G0057030	Paint Kit	If the generator enclosure is scratched or damaged, it is important to touch up the paint to protect from future corrosion. The paint kit includes the necessary paint to properly maintain or touch up a generator enclosure.
G0070000 (50 Amps) G0070060 (100 Amps)	Smart Management Module	Smart Management Modules (SMM) optimize the performance of a standby generator. They manage large electrical loads upon startup and load shed to aid in recovery when overloaded. In many cases, SMMs can reduce the overall size and cost of the system.
A0000018981	Ultrasonic Cleaner Solution	An ultra-concentrated anti-corrosive cleaning solution engineered to reach the smallest cavities to clean the toughest contaminants. This water based formula is non-toxic, biodegradable, and safe for both metal and plastic surfaces and is superior in rinsability.
A0000019001	All Surface Protectant	All Surface Protectant for vinyl, rubber, and plastics creates a barrier that seals & protects surfaces from water and UV rays while renewing the look of the surface.
G0080240	NFPA 110 Controller Capability Kit	Includes features for NFPA 110 controller and charger compliance including emergency-stop, key switch, alarm horn, battery charger, and remote annunciator.
G0074110	Phase Sense Kit, 120-240 V, PZ410	3-Phase Sensing Wire Upgrade Power Zone® 410 Kit ('G' 208 / 120 V and 'J' 240 / 120 V RTS 3-Phase Switches)
G0074120	Phase Sense Kit, 480 V, PZ410	3-Phase Sensing Wire Upgrade Power Zone® 410 Kit ('K' 480 / 277 V RTS 3-Phase Switches)

GENERAC®

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