

Yanmar 3TNV 88	CGT Stamford PI 044	Generator Model:	<b>BCY 14-60 T4</b>
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60 Hz	3-Phase	Power Factor Cos $\Phi$ = 0.8	Emissions EPA Tier 4 Certified
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RATINGS	PRIME POWER (PRP)		STANDBY POWER (LTP)		
	kVA	kWe	kVA	kWe	Amps
480/277	16	13	16	<b>13</b>	19
440/254	16	13	16	<b>13</b>	21
240/138	16	13	16	<b>13</b>	38
220/127	16	13	16	<b>13</b>	42

### Definition of Ratings & Reference Conditions

**Prime Power (PRP)** is the nominal output continuously available, where the average load (variable) does not exceed 70% of the prime power rating. No overload is available.

**Standby Power (LTP)** is the maximum output available (at variable load), for up to 500 hours per year. No overload is available.

**Standard Reference Conditions:** air inlet temperature 25°C (77°F), 150m (500ft) above sea level and 60% relative humidity.

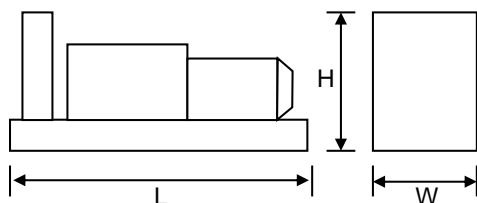
**Note:** The above ratings may be subject to derate at different operating conditions. Please see the Derate Guidelines on the Broadcrown Website.

All power ratings and reference conditions in accordance with ISO 8528-1 and ISO 3046-1.



### Key Features:

- Efficient water cooled diesel engine.
- Single bearing CGT Stamford alternator
- Radiator with pressure cap and drain point
- Fully guarded engine-driven fan
- Fabricated steel skid base with fork lift pockets
- Moulded polypropylene fuel tank with filler cap
- Heavy duty rubber anti-vibration mountings
- 12V starter battery and connecting cables
- Separate engine-driven battery charging alternator
- Spin on oil and fuel filters and dry type air filter element
- Industrial silencer (15dBA reduction) supplied loose
- BC 7210E-M Auto-Start control system
- Main line circuit breaker
- Factory Test Certificate
- Operation & Maintenance Manual
- Wide range of optional extra features available



### Overall Dimensions & Weights - Open Set

Length (L) = 1325mm [52in]  
 Width (W) = 610mm [25in]  
 Height (H) = 1313mm [52in]

Dry Weight (inc oil) = 650kg [1435lb]  
 Operating Weight = 695kg [1535lb]

Overall dBA	Typical Open Generator Sound Pressure Level at 1m, Free Field (dB)							
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
87	76	78	80	83	82	80	74	74

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**ENGINE & COOLING SYSTEM**
**YANMAR 3TNV 88**

	SI Units	[US Units]	PRIME	STANDBY	
Performance	Engine Speed	r/min	[rpm]	1800	
	Gross Power	kWm	[bhp]	15.4 [21]	15.4 [21]
	Fan Power	kWm	[bhp]	0.6 [0.8]	0.6 [0.8]
	Net Power	kWm	[bhp]	14.8 [20]	14.8 [20]
	Emissions Certification	EPA Tier 4			
	Altitude Capability	m	[ft.]	TBA [TBA]	TBA [TBA]
General	Cylinders / Type	3 cyl / inline / 4-stroke / MP Pump			
	Aspiration / Charge Cooling	Natural			
	Governing / Engine Management	Mechanical Governor			
	Bore / Stroke	mm	[in.]	88 / 90 [5.00 / 6.50]	
	Cubic Capacity	litres	[cu.in.]	1.64 [766]	
	BMEP	kPa	[psi]	469 [68]	469 [68]
Fuel	Fuel Consumption at 100% Power	litres/h	[gal/h]	4.4 [1.2]	4.4 [1.2]
	Fuel Consumption at 75% Power	litres/h	[gal/h]	3.3 [0.9]	3.3 [0.9]
	Fuel Consumption at 50% Power	litres/h	[gal/h]	2.2 [0.6]	2.2 [0.6]
	Total fuel flow	litres/h	[gal/h]	24.0 [6.3]	
	Standard Fuel Tank Capacity	litres	[gal]	55 [15]	
Air	Engine Air Flow	m <sup>3</sup> /s	[cfm]	0.022 [47]	0.022 [47]
	Maximum Air Intake Restriction (used filter)	kPa	[inWG]	6.23 [25]	
Exhaust	Exhaust Gas Flow	m <sup>3</sup> /s	[cfm]	0.07 [148]	0.07 [148]
	Exhaust Gas Temperature	°C	[°F]	590 [1094]	590 [1094]
	Maximum Exhaust Back Pressure	kPa	[inWG]	15.3 [61]	
	Typical Exhaust Pipe Diameter	mm	[in.]	50 [2]	
Cooling	Radiator Cooling Air Flow	m <sup>3</sup> /s	[cfm]	0.57 [1208]	
	Max Restriction to Cooling Air Flow	Pa	[inWG]	65 [0.26]	
	Max Radiator Air-On Temperature	°C	[°F]	47 [117]	
	Maximum Coolant Temperature	°C	[°F]	105 [221]	
	Coolant Capacity - Engine Only	litres	[gal]	2 [0.5]	
	Total Coolant Capacity	litres	[gal]	4.2 [1.1]	
Oil	Total Oil Capacity incl Filters	litres	[gal]	6.7 [1.8]	
	Typical Oil Pressure at Rated Speed	kPa	[psi]	390 [57]	
	Typical Oil Consumption (>250hrs Operation)	litres/h	[pt/h]	0.01 [0.02]	
Thermal	Heat Rejection to Engine Cooling Water	kW	[btu/min]	23.6 [1343]	23.6 [1343]
	Heat Rejection to Charge Cooler	kW	[btu/min]	n/a	
	Heat Radiated From Engine (Typical)	kW	[btu/min]	2 [110]	2 [110]
Elec	Electrical System Voltage	V		12	
	Battery Type			1 X SAE 66Ah	
	Battery Capacity SAE CCA	A		520	

**ALTERNATOR**
**CGT STAMFORD PI 044**

	SI Units	[US Units]	PRIME	STANDBY	
General Data	Manufacturer	Cummins Generator Technologies - STAMFORD			
	Model (may vary with voltage)	PI 044 G		PI 044 G	
	Operating Temperature	°C	[°F]	40 [104]	27 [81]
	Coupling / No. of Bearings	Direct / Single Bearing			
	Phase / Poles / Winding Type	3-Phase / 4-Pole / Winding 311			
	Power Factor	Cos Φ = 0.8			
	Excitation	Self Excited			
	Insulation System	Class H			
	AVR Type	SX 460			
	Voltage Regulation	± 1.0%			

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**STANDARD CONTROL SYSTEM**
**BC 7210E-M Automatic Remote Start**

The standard control system for the Midi Range is the **BC 7210E-M** Auto Start system, based on the DSE 7210 control module, which provides :

- Automatic remote start
- Overspeed protection
- Underspeed protection
- Low oil Pressure protection
- High coolant temperature protection
- Fail to Start indication
- Automatic cool-down timer function
- Optional - Common Alarm & System In Auto volt-free contacts

Together with digital displays for :

- Volts, Amps and Frequency
- Engine operating hours

This system also has an increased digital input/output count for external options and, being cost effective in comparison with the optional analogue system, is the preferred choice for most customers.

With a modest cost increase, the **BC 7210-M** is similar to the BC 7210E-M but comes with digital indications for Oil Pressure and Coolant Temperature.


**CONTROL SYSTEM OPTIONS**

**BC 7310 & BC 7320** control systems (Control Modules illustrated) provide complete power monitoring and protection facilities. Compared to BC 7210, additional features include :

- Pre-alarms for Low Oil Pressure and High Coolant Temperature
- Digital display of kW, kVA and Power Factor
- Under/Over Volts protection
- Over Current Protection
- Full RS485 Telemetry and SAE J1939 CANBus implementation. All generating sets driven by engines with onboard ECU/CANBus come with the BC 7310 as standard.

Note: The BC 7320 provides full AMF functionality with integrated mains monitoring and generator/mains contactor control.



The optional control system for the Midi Range is **BC 701E-M** (photo), based on the Deep Sea Electronics DSE701 Key Start controller.

This provides for the manual control of the generator via a two-position key switch and membrane push button for Start, together with Overspeed, Low Oil Pressure and High Coolant Temperature protection.

- LED indications for protection operation
- LED indication for charge alternator fail
- Membrane push button for engine preheat (where applicable)
- Analogue voltmeter with 4-position selector switch
- Analogue ammeter with 4-position selector switch
- Engine hours counter
- Emergency Stop button
- One auxiliary input for optional features
- Optional - Generator Running volt-free output

The panel is constructed in 1.5mm steel, powder coated to RAL9001 for a high quality, durable finish with the hinge points of the cover located at the bottom edge for improved maintenance access.

The **BC 701-M** control system (not illustrated) is similar to the BC 701E-M unit but benefits from the addition of :

- Analogue frequency meter
- Analogue gauges for Oil Pressure, Coolant Temperature & Battery Charge Amps
- 7-Position voltmeter selector switch

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**OPTIONAL ACOUSTIC ENCLOSURE**
**Midi Canopy M1**

The optional acoustic enclosure for this model is the **Midi 1 Canopy**, suitable for operation in harsh outdoor environments whilst providing excellent security and acoustic performance. All steel canopy components are pre-treated and polyester powder coated (to a typical thickness of 70-80µm) in RAL9001 white and the baseframe is finished in RAL9005 black.

Acoustically, the canopy is designed to meet the requirements of EU Legislation 2000/14/EC, achieved by extensive use of fire-retardant polyurethane foam together with efficient management of cooling air. Exhaust noise is minimised by internally mounted high performance exhaust silencers.

A compact fuel tank moulded in tough polypropylene, with visual level indication, is mounted within the baseframe.

Other key features include :

- Side opening door, for ease of access
- Panel viewing window in main door
- Heavy duty locks on all doors for total security
- Weather cap on exhaust discharge
- Emergency Stop button relocated to canopy exterior
- Lifting and holding down points
- Fork Lift pockets
- Single roof lifting point.



Dimensions mm [in]				Additional Weight kg [lbs]*	Typical Sound Pressure Level at Standby Power		Fuel Tank Capacity Litres [US gal]		Single Point Lift	
L	x	W	x		H	dB(A) at 1m [3ft]	dB(A) at 7m [23ft]	Integral		Bunded
1850 [72]	x	855 [33]	x	1264 [49]	100 [220]	69	59	75 [19]	-	Standard

\* Indicative weight of canopy *additional* to open set

Typical SPL is a mean level, measured in free field conditions, with no contributory background noise.

**KEY OPTIONS (Open Set)**
**Engine & Cooling :**

- Electronic governor
- Oil and coolants drains extended to edge of baseframe
- Coolant heater

**Alternator :**

- Anti-condensation heater
- Quadrature droop kit
- Alternative AVR

Please refer to Broadcrown Sales Department for full details of these and other options

**Fuel System :**

- Fuel level sensor (digital reading 0-100%)

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