



## Diesel Generating Sets

60  
Hz

Model: **KYC681**

INDUSTRIAL RANGE

Powered by Cummins



## Generating Rates

POWER RATING		STANDBY	PRIME
POWER	KVA	750	681
	KW	600	545
Rated Speed	R.P.M	1800	
Standard Voltage	V	480	
Available Voltages	V	480/277-440/254-220/127-208/120	
Rated at power factor	Cos Phi	0.8	

Ambient conditions of reference: 1000 mbar, 25°C, 30% relative humidity. Power according to ISO 3046 normative.

P.R.P. Prime Power - ISO 8528 : prime power is the maximum power available during a variable power sequence, which may be run for an unlimited number of hours per year, between stated maintenance intervals. The permissible average power output during a 24

Standby Power (ISO 3046 Fuel Stop power): power available for use at variable loads for limited annual time (500h), within the following limits of maximum operating time: 100% load 25h per year – 90% load 200h per year. No overload available. Applicable i



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### Engine Specifications 1800 r.p.m.

ENGINE		STANDBY		PRIME
Rated Output	kW	600		545
Manufacturer		Cummins		
Model		VTA28-G3		
No. of Cylinders and Build		4 Cycle; In-line; 12 Cylinder Diesel		
Aspiration and Cooling		Natural Aspiration		
Bore/Stroke	mm	140 x 152		
Cooling system		Water-cooled		
Total Coolant Capacity	L	80		
Engine Speed/Frequency	rpm/Hz	1800/60HZ		
Compress the ratio		13.0:1		
Starting System		Electric 12 volt DC		
Displacement	L	28		
Lubricant system Capacity	L	83		
Battery Volatge / Capacity		24VDC		
Governing Type	Type	Mechanical		
Air Filter	Type	Dry		
Fuel Consumption	Load of prime power	100%	75%	50%
	L/h	140	106	74

**ENGINE**--Industrial 4 stroke cooled diesel engine complete with air,fuel and oil filters,electric starting and charging equipment,engine protection against low water level.

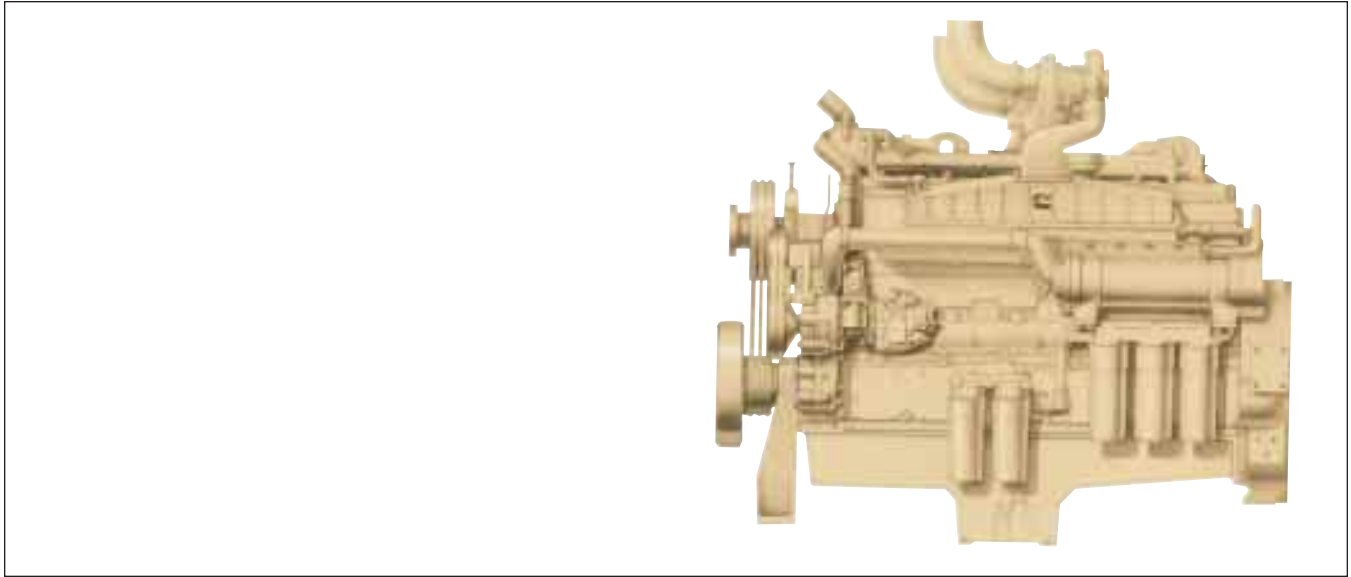
**COOLING**--Radiator and colling fan complete with protection guards,designed to cool engine at specified output in air temperatures upto 45 °C ,radiators suitable for higher temperatures are available.Low water level protection fitted as standard.

**ELECTRICAL SYSTEM**--12V upto.Axial type starter motor,battery charging alternator,high capacity lead acid battery,and battery tray mounted on the generator base frame,and heavy duty interconnecting cable with terminations.

**EXHAUST SYSTEM**--Heavy duty industrial exhaust silencer with flexible piping.



# VTA28-G5 GENERATOR DRIVE



## SPECIFICATIONS

4-Stroke Cycle, Turbocharged/Aftercooled,  
V-12 Cylinder Diesel Engine.

### 1800 RPM Engine Output

Standby Power Rating	<b>900 BHP</b>	<b>[671 kWm*]</b>
Prime Power Rating	<b>815 BHP</b>	<b>[608 kWm*]</b>
Continuous Power Rating	<b>675 BHP</b>	<b>[504 kWm*]</b>

### 1500 RPM Engine Output

Standby Power Rating	<b>825 BHP</b>	<b>[615 kWm*]</b>
Prime Power Rating	<b>750 BHP</b>	<b>[560 kWm*]</b>
Continuous Power Rating	<b>660 BHP</b>	<b>[492 kWm*]</b>

\* Refers to gross power available from engine, not generator set.

Bore and Stroke	5.50 x 6.0 in.	[140x152 mm]
Displacement	1710 cu. in.	[28 L]
**Lube System Oil Capacity	21.9 U.S. gal.	[83 L]
Coolant Capacity	21.2 U.S. gal.	[80 L]

Net Weight with Standard Accessories, Dry	6,395 lb.	[2900 kg]
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Approx. Overall Dimensions:

Width	50.5 in.	[1283 mm]
Length	77.2 in.	[1960 mm]
Height	66.4 in.	[1685 mm]

\*\* Bypass filters are included in total.

### RATING GUIDELINES:

**Standby Power Rating** is applicable for supplying emergency electric power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating.

**Prime Power Rating** is applicable for supplying electric power in lieu of commercially purchased power. Prime Power is the maximum power available at variable load for an unlimited number of hours. A 10% overload capability is available.

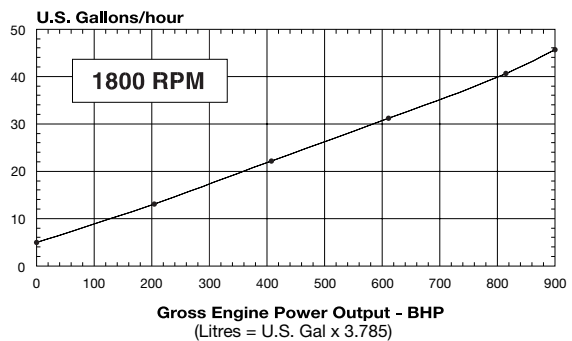
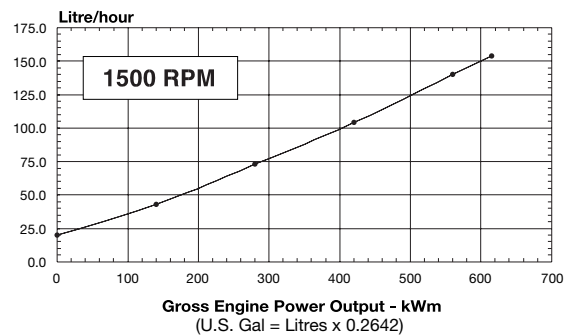
### OPERATION at ELEVATED TEMPERATURE and ALTITUDE:

The engine may be operated at:

- 1800 RPM up to:  
4000 ft. (1220 m) and 104 °F (40 °C) without power deration.
- 1500 RPM up to:  
4000 ft. (1220 m) and 104 °F (40 °C) without power deration.

For sustained operation above these conditions derate by:  
4% per 1,000 ft. (300 m) and 1% per 10 °F (2% per 11 °C).

VTA28-G5 CPL: 1651 (DRY) Curve: FR-5122  
Fuel Consumption



### PERFORMANCE:

#### Standard Conditions:

Data Shown Above Are Based On:

- Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan and optional driven components.
- Engine operating with diesel fuel corresponding to grade No. 2D per ASTM D975.
- ISO-3046, Part 1, Standard Reference Conditions of: 29.53 in. Hg. (100 kPa) barometric pressure (361 ft. [110 m] altitude), 77 °F (25 °C) air temperature and a relative humidity of 30%.

#### NOTES:

- For Continuous Power or Base Power, Interruptible Power (Utility Power Curtailment) and Peak Shaving, contact the local Cummins representative.
- Cummins Engine Company recommends that Cummins engines be operated at a minimum load of 30% of their respective Standby Power rating.

# VTA28-G5

## GENERATOR DRIVE

### Design Features

**Aftercooled:** Two large capacity aftercoolers result in cooler, denser intake air for more efficient combustion and reduced internal stresses for longer life. Aftercooler is located in engine coolant system, eliminating need for special plumbing.

**Bearings:** Replaceable, precision type, steel backed inserts. Seven main bearings, 5.75 in. (146 mm) diameter. Connecting rod bearings 3.75 in. (95 mm) diameter.

**Camshaft:** Dual camshafts precisely control valve and injector timing. Lobes are induction hardened for long life. Fourteen replaceable precision type bushings 2.0 in. (51 mm) diameter.

**Connecting Rods:** Drop forged, I-beam section 12 in. (305 mm) center-to-center length. Rifle drilled for pressure lubrication of piston pin. Rod is tapered on piston pin end to reduce unit pressures. Rods are removable through cylinders.

**Cooling System:** Belt driven centrifugal water pump. Large volume water passages provide even flow of coolant around cylinder liners, valves and injectors. Dual modulating bypass thermostats regulate coolant temperature.

**Crankshaft:** High tensile strength steel forging with induction hardened fillets and journals. Fully counterweighted and dynamically balanced.

**Cylinder Block:** Alloy cast iron with removable wet liners. Cross bolt support to main bearing cap provides extra strength and stability.

**Cylinder Heads:** Alloy cast iron. Each head serves three cylinders. Drilled fuel supply and return lines. Valve seats are replaceable corrosion resistant inserts. Valve guides and cross head guides are replaceable inserts.

**Cylinder Liners:** Replaceable wet liners dissipate heat faster than dry liners and are easily replaced without reboring the block.

**Fuel System:** Cummins PT™ self-adjusting system. Integral dual flyweight governor provides overspeed protection independent of main governor. Camshaft actuated fuel injectors give accurate metering and timing. Fuel lines are internal drilled passages in cylinder heads. Spin-on fuel filter.

**Gear Train:** Timing gears and accessory drive gears are induction hardened helical gears driven from crankshaft and located at front of block.

**Lubrication:** Large capacity gear pump provides pressure lubrication to all bearings and oil supply for piston cooling. All pressure lines are internal drilled passages in block and heads. Oil cooler, full flow filters, and bypass filters maintain oil condition and maximize oil and engine life.

**Pistons:** Aluminum alloy, designed to compensate for thermal expansion assures precise fit at operating temperatures. Oil cooled for rapid heat dissipation. Two compression and one oil ring.

**Piston Pins:** Full floating, tubular steel retained by snap rings 2 in. (51 mm) diameter.

**Turbocharger:** Two Holset turbochargers mounted at top of engine. Turbocharging provides more power, improved fuel economy, altitude compensation, and lower smoke.

**Valves:** Dual 1.875 in. (48 mm) diameter poppet type intake and exhaust valves. Wear resistant face on exhaust valves.

**Vibration Damper:** Standard configuration equipped with a rubber member damper, recommended for use with all 1800 RPM ratings. 1500 RPM ratings should use the viscous damper.

### Standard Equipment

#### Cooling System

1. Fan drive for radiator (0.63:1 drive ratio, 19.25 in. [489 mm] center).
2. Remote cooling capability.

#### Exhaust System:

1. Exhaust manifold, dry only.
2. Exhaust connection, 90° exhaust elbow for adapting flexible 5 in. (127 mm) tubing.

#### Filters: Fleetguard.

1. Corrosion resistor sized for a 37-69 gallon system.
2. Dual spin-on fuel filters.
3. Spin-on full flow lube filters with option of kit or mounted bypass filter.

**Flywheel:** To fit SAE-514 (18.375 in. [467mm] diameter) or SAE-518 (22.500 in. [572 mm] diameter) generator flexible drive disk. Complies with SAE standard J620.

**Flywheel Housing:** SAE No. 0 dry type.

**Governors:** Electric or hydraulic; for droop or isochronous operation. Cummins EFC (electric fuel control) or others.

#### Starting System:

1. Electric starter (24 volt positive engagement type).
2. Pre-engagement compressed air starter.
3. Battery charging alternator negative ground (24 volt, 35 ampere).

**For other available equipment consult your local Cummins representative.**

### Agency Certification

**Certification:** Contact the local Cummins representative.

*Cummins has always been a pioneer in product improvement. Thus, specifications may change without notice. Illustrations may include optional equipment.*



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U.S.A.



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## Alternator Technical Specifications

ALTERNATOR BRAND		STAMFORD
Model		HCI544F
Exciter System		Self-excited, brushless
Poles	Num	4
Cooling Fan		Cast alloy aluminum
Bearing		Single, double shielded
Windings		100% copper
Connection Type		Reconnectable
Insulation Type	Class	Class H
Pitch		2/3
Amortisseur Winding		Full
Voltage Regulator		A.V.R. (Electronic)
Steady Voltage Precision		± 1%
Underspeed Protection		Standard
Overexcitation Protection		IP23
TIF (1960 Weightings)		<50

**ALTERNATOR**--Brushless, self exciting, self regulation, screen protected, drip proof rated in accordance with IEC60034. Voltage regulation maintained within  $\pm 0.5\%$  from no load to full load. between 0.8 lagging and unity. All standard voltages available



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## Control Panel Technical Specifications



DSE Genset



# DSE6110

## AUTO START & AUTO MAINS FAILURE CONTROL MODULES

### FEATURES

DSE6110



### KEY FEATURES

- Back-lit text LCD display
- Front panel editing
- LED and LCD alarm indication
- Power Save mode
- CAN and Magnetic Pick-up/Alt. versions available (specify on ordering)
- PC and front panel configuration
- 6 Digital inputs
- 3 Analogue inputs
- 6 Outputs (4 configurable on Magnetic Pick-up/Alt., 6 configurable on CAN version)
- Configurable timers and alarms
- Alternative configuration
- Event Log(10)
- Remote Start input
- 3 Phase generator monitoring

- Current Monitoring and protection
- Battery voltage monitoring
- Engine pre-heat
- Hours counter
- Comprehensive shutdown or warning on fault condition

### KEY BENEFITS

- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout

- Multiple engine parameters are monitored simultaneously
- Module can be configured to suit individual applications
- Compatible with a wide range of CAN engines
- Tier 4 engine support
- Uses DSE Configuration Suite PC software for simplified configuration
- IP65 rating (with optional gasket) offers increased resistance to water ingress
- Licence-free PC software

### SPECIFICATION

#### DC SUPPLY

**CONTINUOUS VOLTAGE RATING**  
8 V to 35 V Continuous

#### CRANKING DROPOUTS

Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

#### MAXIMUM OPERATING CURRENT

178 mA at 12 V, 95 mA at 24 V

#### MAXIMUM STANDBY CURRENT

88 mA at 12 V, 50 mA at 24 V

#### CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

#### MAINS (UTILITY) DSE6120 ONLY

**VOLTAGE RANGE**  
15 V - 333 V AC (L-N)

#### FREQUENCY RANGE

3.5 Hz to 75 Hz

#### OUTPUTS

**OUTPUT A (FUEL)**  
2 A DC at supply voltage

**OUTPUT B (START)**  
2 A DC at supply voltage

**AUXILIARY OUTPUTS C, D, E & F**  
2 A DC at supply voltage

#### GENERATOR

**VOLTAGE RANGE**  
15 V - 333 V AC (L-N)

**FREQUENCY RANGE**  
3.5 Hz to 75 Hz

**MAGNETIC PICK UP**  
**VOLTAGE RANGE**  
+/- 0.5 V to 70 V

**FREQUENCY RANGE**  
10,000 Hz (max)

#### DIMENSIONS

**OVERALL**  
215 mm x 158 mm x 42 mm  
8.5" x 6.2" x 1.6"

**PANEL CUT-OUT**  
182 mm x 137 mm  
7.2" x 5.4"

**MAXIMUM PANEL THICKNESS**  
8 mm  
0.3"

#### STORAGE TEMPERATURE RANGE

-40 °C to +85 °C





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### Generating Sets Standard Features

Three phase four wire, output voltage 480V/277V,60HZ,between 0.8 lagging, protection capability according with the standard of NAME1 and IP23.

#### General Features:

- Composed of Perkins diesel engine and Stamford or Leroy Somer alternator Oil and fuel filter fitted, water separator
- Lube-oil drain valve fitted
- Electric Starter Charge motor 12
- VD.C Water-cooled
- 8-hours operation base tank
- Auto start
- Optional soundproof and weatherproof canopy
- 3 pole MCCB Delixi breaker
- Operation & Maintenance manual
- Special Integrated Steel Base tank and sprayed overall in gloss enamel paint

#### Voltage Regulation:

- Voltage regulation maintained within  $\pm 0.5\%$
- Between 0.8 and 1.0 lagging and unity
- From no load to full load
- At speed droop variation upto 4.5%

#### Frequency Adjustable Ratio:

- Change load from 0-100%,within 1.0%( electric speed regulator),within 4.5%( mechanical speed regulator)

#### Frequency Undulation:

- load from 0-100%,frequency undulation within 0.25%
- No load wire volts max undulation ration\ within 1.8%
- Three Phrased balanced load in the order of 5%
- Effect factor of Telecom
- TIF better than 50
- THF to IEC60034 Part 40 better than 2%



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## Soundproofed Version Features

### Robust Corrosion Resistant Construction

Black finish stainless steel lock and hinges

Body made from steel components treated with polyester powder coating

### Excellent Access for Maintenance

Two large doors on each

side Radiator fill access plate

lube oil and cooling water drains pipes to exterior of the enclosure

### Security and Safety

Control panel viewing window in a lockable access door

Emergency stop push button (red) mounted on enclosure interior

Cooling fan and battery charging alternator fully guarded

Exhaust silencing system totally enclosed for operator safety







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## Generating Sets other Features

### Generating Sets Optional Features

- Low fuel level alarm shutdown
- Automatic Fuel Filling System
- Engine oil feeding and drain pump
- Auto Transfer Switch( ATS)
- Parallel control panels
- Circuit Breaker MCCB & ACB
- Remote Control Panel
- weatherproof/soundproof
- Canopy Trailer type Gensets

### Quality Standards

- ISO9001:2000,ISO14000,ISO3046
- ISO8528 BS4999
- BS5514,AS1359,ICE34
- CE Compliance

### Gensets Dimensions & Weight

Open type:LxWxH (mm) Net Weight Kgs  
3720\*1680\*2200, 4950kgs

Silent type:LxWxH (mm) Net Weight Kgs  
20ft container soundproof, 5720kgs

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