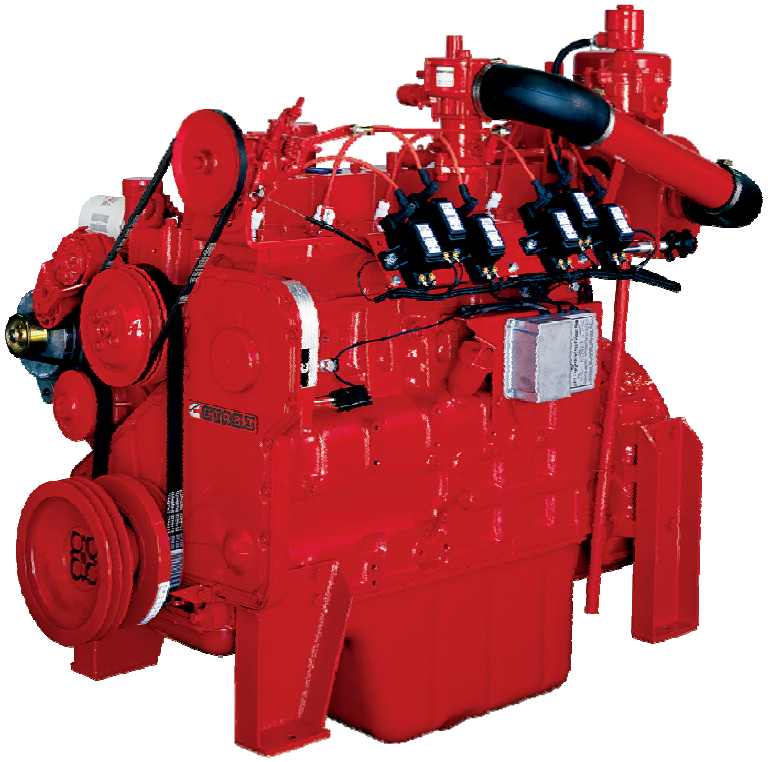
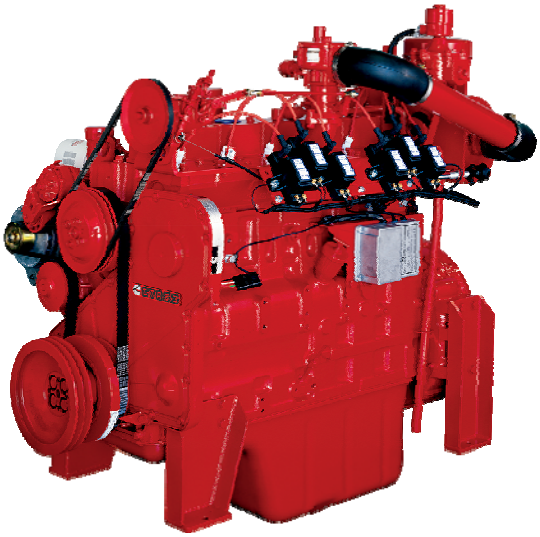
G8.3 and GTA8.3

Gas Compression Applications



G8.3
Gas Compression Applications



Wellhead compression and artificial lift applications require reliability and durability not found in every small natural gas engine. For dependable operations and world class support, you need the Cummins G8.3 – a high-performance natural gas engine that shares the proven heritage of the Cummins C Series diesel engines and many of the same heavy-duty components. You can depend on the G8.3 to keep maintenance costs down and the gas flowing. Every day.

General Specifications
Inline 6-Cyclinder, 4-Cycle, Natural Gas

Bore	4.49 in (114 mm)
Stroke	5.32 in (135 mm)
Displacement	8.3 L (505 cubic in)
Engine Power*	99-135 hp (74-101 kW)
Compression Ratio	10.5:1
Aspiration	Naturally aspirated
Exhaust Type	Dry or watercooled manifold
Weight**	1480 lb (671 kg)
Coolant Capacity	2.9 gal (10.9 L)
Lube Oil Capacity	6.5 gal (32.0 L)
Rotation	Counterclockwise

* Rating dependent
** Weight is approximate and varies with options.

Features

Designed for the oil and gas market, the G8.3 delivers exceptional dependability and low cost of operation.

Base Engine – Most major components, including block, crank, cam, gears and liners are common with the proven C series diesel.

Emissions – The G8.3 has catalyst ratings available to allow the engine to be operated as a rich burn engine and can be customer equipped with an AFR and catalyst to meet NSPS emissions requirements.

Air Handling – Naturally aspirated design delivers reliable performance and life.

Fuel System – Impco carburetor provides stable operation and fuel tracking through all load ranges.

Speed Control – Adjustable governor provides precise and stable rpm control under all load conditions.

Ignition System – Altronic CD1 integral electronic ignition system. Easily accessible spark plug location and single coil per cylinder for lower maintenance costs.

Lubrication System – High-capacity oil pan and combination full-flow and bypass oil filter reduces maintenance costs and extend service intervals.

Warranty – Cummins one year, unlimited hours. Backed by a worldwide distributor network.

Rating Details.

Model	Curve Number	Rating	Emissions	Combustion	Exhaust Type Wet / Dry
G8.3	FR-92227	135 hp @ 2200 rpm	(1)	Rich	Wet
G8.3	FR-92223	135 hp @ 2200 rpm	(1)	Rich	Dry
G8.3	FR-92228	118 hp @ 1800 rpm	(1)	Rich	Wet
G8.3	FR-92224	118 hp @ 1800 rpm	(1)	Rich	Dry
G8.3	FR-92229	99 hp @ 1800 rpm	(1)	Rich	Wet
G8.3	FR-92225	99 hp @ 1800 rpm	(1)	Rich	Dry
G8.3	FR-92230	99 hp @ 1500 rpm	(1)	Rich	Wet
G8.3	FR-92226	99 hp @ 1500 rpm	(1)	Rich	Dry

(1) NSPS compliant with customer installed Air-fuel ratio (AFR) controller and catalyst.
* Requires EPA site validation testing.

Standard Equipment.

Air Inlet System
- Factory installed heavy duty air cleaner

Cooling System
- Gear driven jacket water pump
- Thermostat controlled jacket water circuit
- Coolant filter for added corrosion protection
- Auxiliary coolant pump optional for compressor cooling

Exhaust System
- Tuned dry manifold for optimal exhaust flow

Fuel System
- Impco carburetor
- Maxitrol regulator

Speed Control System
- Belt-driven mechanical governor
- Electronic governor optional

Ignition System
- Altronic CD1 integral electronic ignition system
- Altronic III Shielded ignition optional

Lube Oil System
- Crankcase breather
- High capacity oil pan for extended oil drain intervals
- Combination full flow and bypass oil filter

Safety Shutoff Protection
- Electric fuel valve

Mounting Arrangement
- Four point mounting
- Lift provisions on engine

Flywheels and Flywheel Housings
- Flywheel SAE #3
- Flywheel housing – SAE #3 Cast-iron, machined to accommodate starter mounting
- SAE #2 and SAE #1 FW/FH options available

Electrical System
- 24-volt alternator

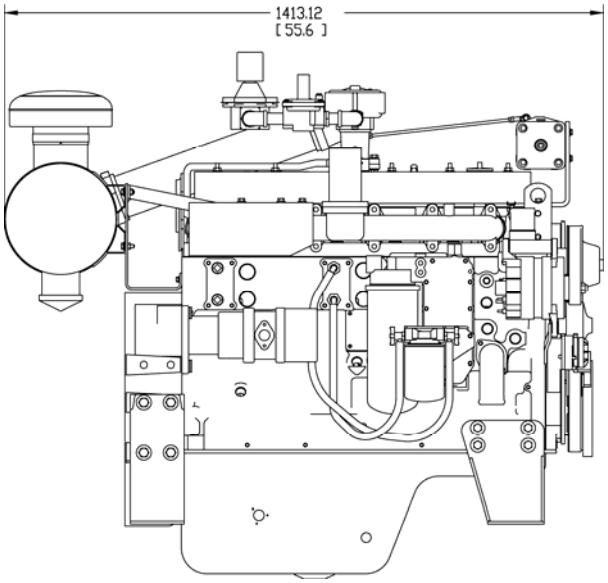
Starting System
- 24-volt starter
- Gas starter optional

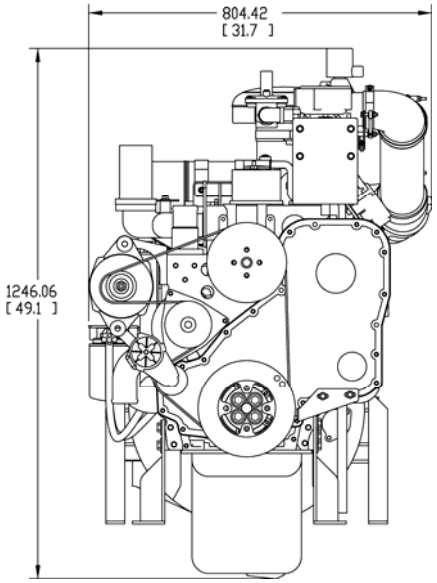
Power Take-Off
- Front crankshaft pulley
- Front stub shaft optional

Engine Technical Data.

Model		**G8.3**	**G8.3**	**G8.3**
Curve Number		FR-92229 (1)	FR-92224 (1)	FR-92228 (1)
Exhaust Type		Water-cooled	Dry	Water-cooled
Output Power (1)				
100%	HP (kW)	99 (74)	118 (88)	118 (88)
75%	HP (kW)	74 (55)	89 (66)	89 (66)
Engine Speed				
100%	RPM	1800	1800	1800
Max Turn Down	RPM	1350	1350	1350
Compression Ratio		10.5:1	10.5:1	10.5:1
Emissions Data – Engine-Out Emissions (1)				
NOx	g/hp-hr (g-kW-hr)	14 (18.77)	11.6 (15.56)	13 (17.43)
CO	g/hp-hr (g-kW-hr)	8.8 (11.8)	11 (14.75)	8.6 (11.53)
NMHC	g/hp-hr	0.08	0.17	0.07
THC	g/hp-hr	2.49	2.75	2.25
O2	%	0.55	0.52	0.53
Fuel Consumption (1)				
100%	BTU/hp-hr (MJ/kW-hr)	8388 (11.87)	8266 (11.69)	8032 (11.36)
75%	BTU/hp-hr (MJ/kW-hr)	9210 (13.03)	8882 (12.57)	8689 (12.29)
Heat Rejection (1)				
Jacket Water	BTU/min (kW)	5043 (88.68)	4034 (70.93)	5596 (98.4)
Exhaust	BTU/min (kW)	2899 (50.98)	4183 (73.55)	3340 (58.73)
Exhaust System (1)				
Flow Rate	ft^3/min (L/s)	424 (200)	604 (285)	528 (249)
Stack temp	°F (°C)	1063 (573)	1374 (746)	1127 (608)
Max Back Pres.	in-Hg	2	2	2
Intake System (1)				
Flow Rate	ft^3/min (L/s)	148 (70)	170 (80)	166 (78)
Max Restriction	in-H_2O	15	15	15
Gas Pressure				
Min - Max	in-H_2O	10-20	10-20	10-20

General Dimensions.





Dimensions*		
Length	Inches (mm)	55.6 (1413)
Width	Inches (mm)	31.7 (804)
Height	Inches (mm)	49.1 (1246)

* Dimensions are approximate and vary with options.

Disclaimers.

(1) All data is based on the engine operating with fuel system, water pump, and 6 in H2O (1.493 kPa) inlet air restriction with 3 in (76 mm) inner diameter, and with 1 in Hg (3 kPa) exhaust restriction with 3 in (76 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

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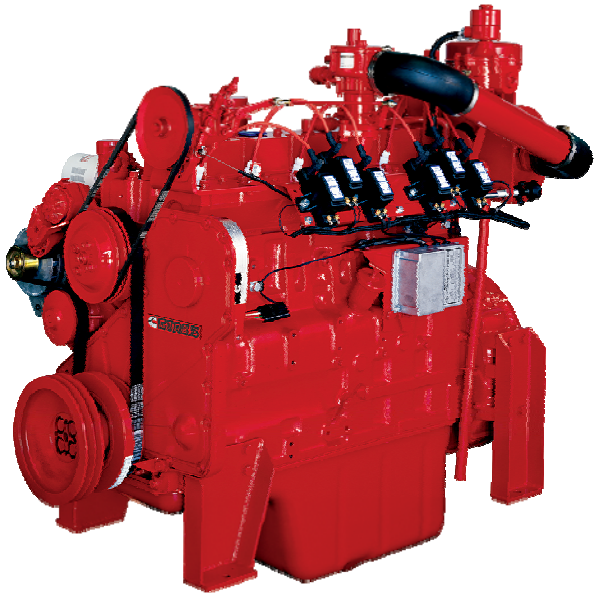
Rev 10/09

GTA8.3

Gas Compression Applications



Wellhead compression applications require reliability and durability. For dependable operations and world class support, you need the Cummins GTA8.3 – a high-performance natural gas engine that shares the proven heritage of the Cummins C Series diesel engines and many of the same heavy-duty components. You can depend on the GTA8.3 to keep maintenance costs down and the gas flowing. Every day.

General Specifications
Inline 6-cylinder, 4-Cycle, Natural Gas

Bore	4.49 in (114 mm)
Stroke	5.32 in (135 mm)
Displacement	8.3 L (505 cubic in)
Engine Power*	175-190 hp (131-142 kW)
Compression Ratio	8.5:1
Aspiration	Turbocharged and aftercooled
Exhaust Type	Dry manifold
Weight**	1650 lb (748 kg)
Coolant Capacity	2.9 gal (10.9 L)
Lube Oil Capacity	6.5 gal (32.0 L)
Rotation	Counterclockwise

* Rating dependent

** Weight is approximate and varies with options.

Features

Designed for the oil and gas market, the GTA8.3 delivers exceptional dependability and low cost of operation.

Base Engine – Most major components, including block, crank, cam, gears and liners are common with the proven C series diesel.

Emissions – The GTA8.3 does not have a catalyst rating and is available for export only.

Air Handling – Turbocharged and aftercooled design delivers reliable performance and life.

Fuel System – Impco carburetor provides stable operation and fuel tracking through all load ranges.

Speed Control – Adjustable governor provides precise and stable rpm control under all load conditions.

Ignition System – Altronic CD1 integral electronic ignition system. Easily accessible spark plug location and single coil per cylinder for lower maintenance costs.

Lubrication System – High-capacity oil pan and combination full-flow and bypass oil filter reduce maintenance costs and extend service intervals.

Warranty – Cummins one year, unlimited hours. Backed by a worldwide distributor network.

Rating Details.

Model	Curve Number	Rating	Emissions	Combustion
GTA8.3	FR-92106	175 hp @ 1800 rpm	Export Only	Standard
GTA8.3	FR-92105	190 hp @ 1800 rpm	Export Only	Standard

Standard Equipment.

Air Inlet System
- Factory installed heavy duty air cleaner

Cooling System
- Two pump / two loop cooling system
- Gear driven jacket water pump
- Gear driven auxiliary coolant pump
- Coolant filter for added corrosion protection
- Thermostat controlled jacket water circuit

Exhaust System
- Tuned dry manifold for optimal exhaust flow

Fuel System
- Impco carburetor
- Maxitrol regulator

Speed Control System
- Belt-driven mechanical governor
- Electronic governor optional

Ignition System
- Altronic CD1 integral electronic ignition system
- Altronic III Shielded ignition optional

Lube Oil System
- Crankcase breather
- High capacity oil pan for extended oil drain intervals
- Combination full flow and bypass oil filter

Safety Shutoff Protection
- Electric fuel valve

Mounting Arrangement
- Four point mounting
- Lift provisions on engine

Flywheels and Flywheel Housings
- Flywheel SAE #3
- Flywheel housing – SAE #3 Cast-iron, machined to accommodate starter mounting
- SAE #2 and SAE #1 FW/FH options available

Electrical System
- 24-volt alternator

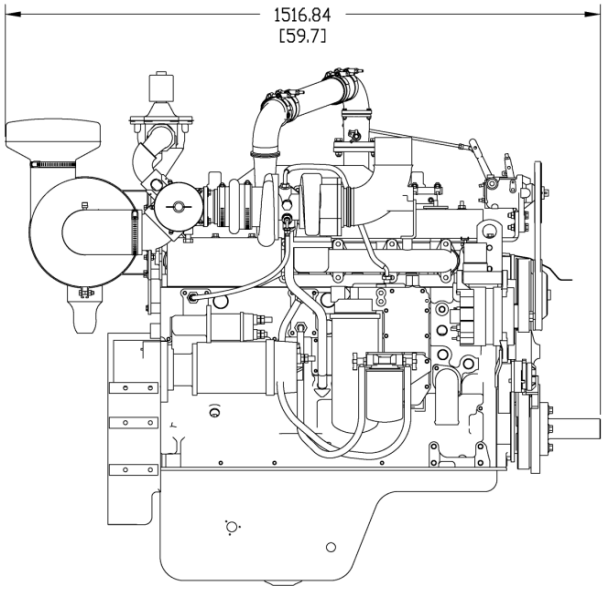
Starting System
- 24-volt starter
- Gas starter optional

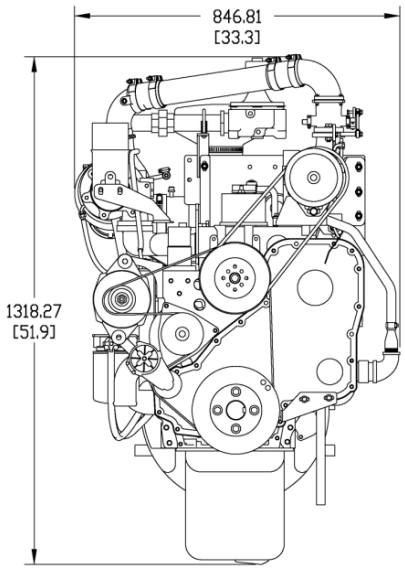
Power Take-Off
- Front crankshaft pulley
- Front stub shaft optional

Engine Technical Data.

Model		**GTA8.3**	**GTA8.3**
Curve Number		FR-92106 (1)	FR-92105 (1)
Output Power (1)			
100%	HP (kW)	175 (130)	190 (142)
75%	HP (kW)	131 (98)	143 (107)
Engine Speed			
100%	RPM	1800	1800
Max Turn Down	RPM	1350	1350
After-Cooler Water Inlet Temperature			
	°F (°C)	130 (54.4)	130 (54.4)
Compression Ratio		8.5:1	8.5:1
Emissions Data – Engine-Out Emissions (1)			
NOx	g/hp-hr (g-kW-hr)	14.5 (19.44)	16.4 (21.99)
CO	g/hp-hr (g-kW-hr)	2.4 (3.22)	1.7 (2.28)
NMHC	g/hp-hr	0.08	0.07
THC	g/hp-hr	1.14	0.99
O_2	%	6.2	6.1
Fuel Consumption (1)			
100%	BTU/hp-hr (MJ/kW-hr)	7369 (10.4)	7391 (10.5)
75%	BTU/hp-hr (MJ/kW-hr)	7756 (11.0)	7749 (11.0)
Heat Rejection (1)			
Jacket Water	BTU/min (kW)	4790 (84.23)	5011 (88.11)
After-cooler	BTU/min (kW)	1011 (17.78)	1156 (20.33)
Exhaust	BTU/min (kW)	7131 (125.39)	7712 (135.61)
Exhaust System (1)			
Flow Rate	ft^3/min (L/s)	1158 (547)	1240 (585)
Stack Temp	°F (°C)	1341 (727)	1354 (734)
Max Back Pres.	in-Hg	2	2
Intake System (1)			
Flow Rate	ft^3/min (L/s)	383 (181)	407 (192)
Max Restriction	in-H_2O	15	15
Gas Pressure			
Min - Max	in-H_2O	10-20	10-20

General Dimensions.





Dimensions*		
Length	Inches (mm)	52.5 (1334)
Width	Inches (mm)	34.3 (870)
Height	Inches (mm)	51.8 (1315)

* Dimensions are approximate and vary with options.

Disclaimers.

(1) All data is based on the engine operating with fuel system, water pump, and 8 in H2O (1.991 kPa) inlet air restriction with 4 in (102 mm) inner diameter, and with 1 in Hg (3 kPa) exhaust restriction with 4 in (102 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

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