

Marine Performance Curves

Basic Engine Model
QSC8.3-500 HO
Engine Configuration

Curve Number:
M-96721
CPL Code:

5234

[493 bhp, 500 mhp]

Date: 24-Jan-2019

Displacement: 8.3 liter
Bore: 114 mm

[505 in³] [4.49 in] [5.31 in] Rated Power: 368 kw

Rated Speed: 2600 rpm

D413038MX03

Stroke: 135 mm Fuel System: HPCR

6

Cylinders:

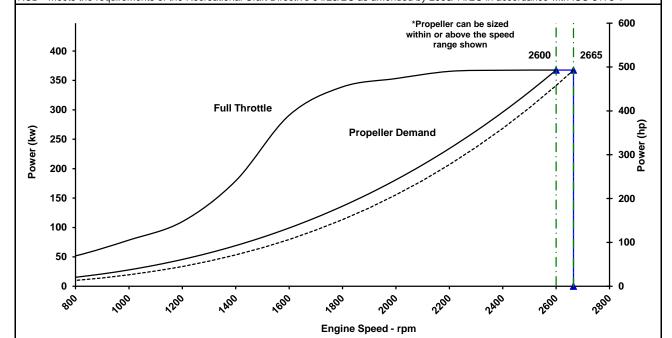
Rating Type: High Output

Aspiration: Turbocharged / Sea Water Aftercooled

CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:

EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR1042)

IMO Tier II - Tier 2 (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 RCD - meets the requirements of the Recreational Craft Directive 94/25/EC as amended by 2003/44/EC in accordance with ISO 8178-1



Full Throttle- Torque uel Cons.- Prop. Curve 2.7 Ex Full Throttle- Power Speed kw N-m I/hr (gal/hr) rpm (hp) (ft-lb) 2665 368 1317 (493)(972)2600 368 (493)1350 (996)96.2 (25.4)2400 367 (493)1462 (1078)78.2 (20.7)2200 365 (490)1586 (1170)60.3 (15.9)2000 353 (474)1687 (1244)47.7 (12.6)1800 339 (455)1799 (1327)36.1 (9.5)1600 291 (390)1735 (1280)27.3 (7.2)1400 179 (240)1223 (902)19.1 (5.0)1200 110 (147)874 (645)13.1 (3.5)1000 79 (105)750 (553)8.7 (2.3)800 (69)617 (455)5.6 (1.5)52 600 (46)(400)(0.3)34 542 1.0

\* Cummins Full Throttle Requirements:

- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
- Engines in variable displacement boats (such as pushboats, tugboats, net draggers, etc.) achieve no less than 100 rpm below rated speed at full throttle during a dead push or bollard pull
- Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

Rated Conditions: Ratings are based upon ISO 15550 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25deg. C [77 deg. F] and 30% relative humidy. Power is in accordance with IMCI procedure. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%.

Full Throttle curve represents power at the crankshaft for mature gross engine performance corrected in accordance with ISO 15550. Propeller Curve represents approximate power demand from a typical propeller. Propeller Shaft Power is approximately 3% less than rated crankshaft power after typical reverse/reduction gear losses and may vary depending on the type of gear or propulsion system used.

Fuel Consumption is based on fuel of 35 deg. API gravity at 16 deg C [60 deg. F] having LHV of 42,780 kj/kg [18390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

High Output (HO). Intended for infrequent use in variable load applications with a power factor of 10-30 %. Full power is limited to one out of every eight hours of operation. Reduced power operation must be at or below 80% load.

Thethe Hery

CHIEF ENGINEER

Curve No. M-96721 DS: 3075 CPL: 5234 DATE: 24-Jan-19

**General Engine Data** 

Engine Model   GSC8.3-500 HO   Rating Type   SC8.3-500 HO   Rating Type   SC8.3-500 HO   High Output   Rated Engine Power   Rated Engine Power   Rated Engine Speed   Rated Engine Speed   Rated Engine Speed   Rated Engine Speed   Rated Engine Foruse @ 1800 rpm.   Sc800   Rated Power Production Tolerance   ±% 5   5   5   5   5   5   5   5   5   5	General Lingline Data			00000 0 500 110
Rated Engine Power	5			QSC8.3-500 HO
Rated Fngine Speed	3 7.			• ,
Rated Power Production Tolerance   .±%   5   Peak Engine Torque @ 1800 rpm	3			
Peak Engine Torque @ 1800 rpm	9 1		•	
Brake Mean Effective Pressure				
Indicated Mean Effective Pressure				
Maximum Allowable Engine Speed         rpm         2685           Maximum Torque Capacity from Front of Crank²         N-m [lb-ft]         271 [200]           Compression Ratio         16.3:1         11.7 [2303]           Piston Speed         m/sec [ft/min]         11.7 [2303]           Firing Order         1.5-3-6-2-4           Weight (Dry) - Engine Only - Average         kg [lb]         NA [N.A.]           Weight (Dry) - Engine With Heat Exchanger System - Average         kg [lb]         386 [1975]           Weight Tolerance (Dry) Engine Only         3xStd Dev(±%)         N.A.           Rovernor Settings         rpm         2665           High Speed Governor Break Point         rpm         2665           Minimum Idle Speed Setting         rpm         600           Normal Idle Speed Variation         pm         2665           High Speed Range         Minimum         pm         2665           Maximum         rpm         2665           Moise and Vibration         pm         2665           Average Noise Level - Top         (Idle)         .dBA @ Im         82           Average Noise Level - Right Side         (Idle)         .dBA @ Im         82           Average Noise Level - Front         (Idle)         .dBA @ Im				
Maximum Torque Capacity from Front of Crank²         N·m [lb·ft]         271 [200]           Compression Ratio         16.3:1           Piston Speed         m/sec [ft/min]         11.7 [2303]           Firing Order         1.5-3-6-2-4           Weight (Dry) - Engine Only - Average         kg [lb]         N.A. [N.A.]           Weight (Dry) - Engine With Heat Exchanger System - Average         kg [lb]         896 [1975]           Weight Tolerance (Dry) Engine Only         3xStd Dev(±%)         N.A.           Governor Settings				
Compression Ratio				
Piston Speed				
Firing Order				
Nate   Nate	•			11.7 [2303]
Weight (Dry) - Engine With Heat Exchanger System - Average        Kg [lb]         896 [1975]           Weight Tolerance (Dry) Engine Only         .3xStd Dev(±%)         N.A.           Governor Settings	Firing Order			1-5-3-6-2-4
Weight Tolerance (Dry) Engine Only         3xStd Dev(±%)         N.A.           Governor Settings         7         2665           High Speed Governor Break Point.         rpm         600           Minimum Idle Speed Setting         rpm         600           Normal Idle Speed Variation         ±rpm         10           High Idle Speed Range         Minimum         rpm         2665           Maximum         rpm         2665           Noise and Vibration         dBA @ 1m         82           Average Noise Level - Top         (Idle)         dBA @ 1m         82           Average Noise Level - Right Side         (Idle)         dBA @ 1m         82           Average Noise Level - Left Side         (Idle)         dBA @ 1m         82           Average Noise Level - Front         (Idle)         dBA @ 1m         82           Average Noise Level - Front         (Idle)         dBA @ 1m         82           Rated)         dBA @ 1m         82         8           Average Noise Level - Front         (Idle)         dBA @ 1m         82           Average Noise Level - Front         (Idle)         dBA @ 1m         82           Rated)         dBA @ 1m         82         66.0 [17.4]				
Governor Settings           High Speed Governor Break Point.        rpm         2665           Minimum Idle Speed Setting        rpm         600           Normal Idle Speed Variation        trpm         10           High Idle Speed Range         Minimum        rpm         2665           Maximum        rpm         2685           Noise and Vibration           Average Noise Level - Top         (Idle)        dBA @ 1m         82           (Rated)        dBA @ 1m         82           Average Noise Level - Right Side         (Idle)        dBA @ 1m         82           (Rated)        dBA @ 1m         82           (Rated)        dBA @ 1m         82           Average Noise Level - Left Side         (Idle)        dBA @ 1m         82           (Rated)        dBA @ 1m         82           Average Noise Level - Front         (Idle)        dBA @ 1m         82           Average Noise Level - Front         (Idle)        dBA @ 1m         82           Average Noise Level - Front         (Idle)        dBA @ 1m         82           Average Noise Level - Front         (Idle)        dBA @ 1m         82 <td< td=""><td></td><td></td><td></td><td>896 [1975]</td></td<>				896 [1975]
High Speed Governor Break Point		3	3xStd Dev( ±%)	N.A.
Minimum Idle Speed Setting         rpm         600           Normal Idle Speed Variation         ±rpm         10           High Idle Speed Range Minimum         rpm         2665           Maximum         rpm         2685           Noise and Vibration         Type         Average Noise Level - Top         (Idle)         dBA @ 1m         82           Average Noise Level - Right Side         (Idle)         dBA @ 1m         82           Average Noise Level - Left Side         (Idle)         dBA @ 1m         82           Average Noise Level - Front         (Idle)         dBA @ 1m         82           Average Noise Level - Front         (Idle)         dBA @ 1m         82           (Rated)         dBA @ 1m         82	<u> </u>			
Normal Idle Speed Variation	High Speed Governor Break Point		rpm	2665
High Idle Speed Range   Minimum	Minimum Idle Speed Setting		rpm	600
Noise and Vibration         Average Noise Level - Top         (Idle)        dBA @ 1m         82           Average Noise Level - Top         (Rated)        dBA @ 1m         98           Average Noise Level - Right Side         (Idle)        dBA @ 1m         82           (Rated)        dBA @ 1m         98           Average Noise Level - Left Side         (Idle)        dBA @ 1m         98           Average Noise Level - Front         (Idle)        dBA @ 1m         98           Average Noise Level - Front         (Idle)        dBA @ 1m         98           Average Noise Level - Front         (Idle)        dBA @ 1m         98           Average Noise Level - Front         (Idle)        dBA @ 1m         98           Average Noise Level - Front         (Idle)        dBA @ 1m         98           Average Noise Level - Front         (Idle)        dBA @ 1m         98           Average Noise Level - Front         (Idle)        dBA @ 1m         98           Fuel Consumption 1         S0 8178 E3 Standard Test Cycle        I/In [gal/hr]         33.6 [8.9]           Average Noise Level - Front         (Ille)        I/In [gal/hr]         33.6 [8.9]           Fuel Consumption - ISO 8178 E3 Standard Test Cycle         <				10
Noise and Vibration  Average Noise Level - Top (Idle)	High Idle Speed Range Minimum		rpm	2665
Average Noise Level - Top (Idle)	Maximum		rpm	2685
Rated	Noise and Vibration			
Average Noise Level - Right Side (Idle)	Average Noise Level - Top	(Idle)	dBA @ 1m	82
Rated)       dBA @ 1m       98         Average Noise Level - Left Side       (Idle)       dBA @ 1m       82         (Rated)       dBA @ 1m       98         Average Noise Level - Front       (Idle)       dBA @ 1m       82         (Rated)       dBA @ 1m       82         (BBA @ 1m       98       82         (BBA @ 1m       98       98         Fuel System¹       dBA @ 1m       82         (Rated)       dBA @ 1m       82         (BBA @ 1m       98       98         Fuel Consumption = ISO 8178 E3 Standard Test Cycle       l/hr [gal/hr]       66.0 [17.4]         Avg. Fuel Consumption = ISO 8178 E3 Standard Test Cycle       l/hr [gal/hr]       33.6 [8.9]         Fuel Consumption = ISO 8178 E3 Standard Test Cycle       l/hr [gal/hr]       33.6 [8.9]         Fuel Consumption = ISO 8178 E3 Standard Test Cycle       l/hr [gal/hr]       33.6 [8.9]         Avg. Fuel Consumption = ISO 8178 E3 Standard Test Cycle       l/hr [gal/hr]       36.0 [17.		(Rated)	dBA @ 1m	98
Average Noise Level - Left Side (Idle)	Average Noise Level - Right Side	(Idle)	dBA @ 1m	82
Rated		(Rated)	dBA @ 1m	98
Average Noise Level - Front (Idle)	Average Noise Level - Left Side	(Idle)	dBA @ 1m	82
Rated		(Rated)	dBA @ 1m	98
Fuel System¹         Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle	Average Noise Level - Front	(Idle)	dBA @ 1m	82
Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle		(Rated)	dBA @ 1m	98
Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle	Fuel System <sup>1</sup>			
Avg. Fuel Consumption - ISO 8178 E5 Standard Test Cycle	•	dard Test Cvcle	l/hr [gal/hr]	66.0 [17.4]
Fuel Consumption at Rated Speed	- · · · · · · · - · · · · · · · · · · ·			33.6 [8.9]
Approximate Fuel Flow to Pump       .l/hr [gal/hr]       151.4 [40.0]         Maximum Allowable Fuel Supply to Pump Temperature       °C [°F]       60.0 [140]         Approximate Fuel Flow Return to Tank       .l/hr [gal/hr]       55.3 [14.6]         Approximate Fuel Return to Tank Temperature       °C [°F]       85.1 [185]         Maximum Heat Rejection to Drain Fuel       kW [Btu/min]       1.3 [73]         Fuel Transfer Pump Pressure Range       kPa [psi]       N.A.         Fuel Pressure - Pump Out/Rail . Mechanical Gauge       kPa [psi]       N.A.		•		96.1 [25.4]
Maximum Allowable Fuel Supply to Pump Temperature°C [°F]60.0 [140]Approximate Fuel Flow Return to Tank.l/hr [gal/hr]55.3 [14.6]Approximate Fuel Return to Tank Temperature°C [°F]85.1 [185]Maximum Heat Rejection to Drain FuelkW [Btu/min]1.3 [73]Fuel Transfer Pump Pressure RangekPa [psi]N.A.Fuel Pressure - Pump Out/Rail . Mechanical GaugekPa [psi]N.A.	·			• •
Approximate Fuel Flow Return to Tank				
Approximate Fuel Return to Tank Temperature		-		
Maximum Heat Rejection to Drain FuelkW [Btu/min]1.3 [73]Fuel Transfer Pump Pressure RangekPa [psi]N.A.Fuel Pressure - Pump Out/Rail . Mechanical GaugekPa [psi]N.A.	• • •			
Fuel Transfer Pump Pressure RangekPa [psi] N.A. Fuel Pressure - Pump Out/Rail . Mechanical GaugekPa [psi] N.A.				
Fuel Pressure - Pump Out/Rail . Mechanical GaugekPa [psi] N.A.				
· · · · · · · · · · · · · · · · · · ·				
	•	•		

TBD= To Be Determined N.A. = Not Available N/A = Not Applicable

- 1 Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.
- No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.
   Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler,
- a service fouling factor should be applied according to the cooler manufacturer's recommendation.

  4 Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
- <sup>5</sup> May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

### **CUMMINS ENGINE COMPANY, INC**

DS: 3075 CPL: 5234 DATE: 24-Jan-19

Curve No. M-96721

Air System¹	
Intake Manifold PressurekPa [in Hg]	214 [63]
Intake Air Flow	483 [1024]
Heat Rejection to AmbientkW [Btu/min]	34 [1931]
Exhaust System <sup>1</sup>	
Exhaust Gas Flow	1038 [2200]
Exhaust Gas Temperature (Turbine Out)°C [°F]	451 [843]
Exhaust Gas Temperature (Manifold)°C [°F]	649 [1200]
Emissions (in accordance with ISO 8178 Cycle E3)	
NOx (Oxides of Nitrogen)g/kw·hr [g/hp·hr]	5.27 [3.93]
HC (Hydrocarbons)High Output (HO). Intended for infr <b>gdwe</b> rhr [g/hp⋅hr]	0.20 [0.15]
CO (Carbon Monoxide)g/kw·hr [g/hp·hr]	0.90 [0.67]
PM (Particulate Matter)g/kw⋅hr [g/hp⋅hr]	0.04 [0.03]
Emissions (in accordance with ISO 8178 Cycle E5)	
NOx (Oxides of Nitrogen)g/kw·hr [g/hp·hr]	5.28 [3.94]
HC (Hydrocarbons)g/kw·hr [g/hp·hr]	0.20 [0.15]
CO (Carbon Monoxide)g/kw·hr [g/hp·hr]	0.67 [0.50]
PM (Particulate Matter)g/kw·hr [g/hp·hr]	0.06 [0.05]
Cooling System <sup>1</sup>	
Sea Water Pump SpecificationsMAB 0.08.17-07/16/2001	
Pressure Cap Rating (With Heat Exchanger Option)kPa [psi]	103 [15]
Engines without Low Temperature Aftercooling (LTA)	
Sea Water Aftercooled Engine (SWAC)	
Coolant Flow to Engine Heat Exchanger	454 [120]
Standard Thermostat Operating Range (Start to Open)°C [°F]	71 [160]
Standard Thermostat Operating Range (Full Open)°C [°F]	81 [178]
Heat Rejection to Engine Coolant <sup>3</sup> kW [Btu/min]	234 [13337]

TBD= To Be Determined N/A = Not Applicable N.A. = Not Available

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- No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.
   Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler,
- a service fouling factor should be applied according to the cooler manufacturer's recommendation.

  Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
- <sup>5</sup> May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

## **CUMMINS ENGINE COMPANY, INC**



### CUMMINS INC.

Columbus, IN 47201

Marine Performance Curves

Basic Engine Model

QSC8.3-500 INT

Engine Configuration

D413038MX03

Curve Number: M-96722

CPL Code: **5234** 

Date: 24-Jan-19

Displacement: 8.3 liter [505 in³] Rated Power: 368 kw [493 bhp, 500 mhp]

 Bore:
 114 mm
 [4.49 in]
 Rated Speed:
 2600 rpm

 Stroke:
 135 mm
 [5.31 in]
 Rating Type:
 Intermittent Duty

Fuel System: HPCR Aspiration: Turbocharged / Sea Water Aftercooled

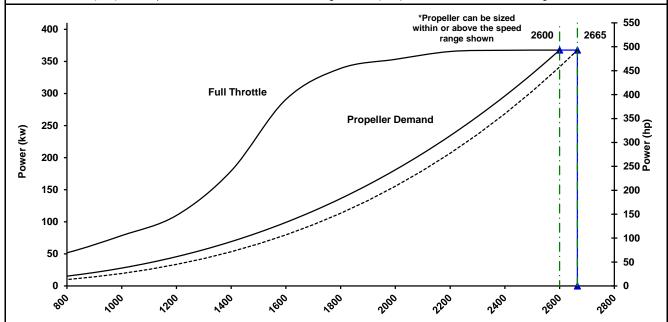
Cylinders: 6

CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:

EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR1042)

EU Stage IIIa - EC Nonroad Mobile Machinery Directive (2004/26/EC)

IMO Tier II - Tier 2 (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13



Engi	ne Speed	- rpm
	TI 441 -	

Speed	Full Thro	ttle- Power	Full Throt	tle- Torque	Fuel Cons Pro	p. Curve 2.7 Exp.
rpm	kw	(hp)	N∙m	(ft-lb)	L/hr	(gal/hr)
2665	368	(493)	1317	(972)		
2600	368	(493)	1350	(996)	96.2	(25.4)
2400	367	(493)	1462	(1078)	78.2	(20.7)
2200	365	(490)	1586	(1170)	60.3	(15.9)
2000	353	(474)	1687	(1244)	47.7	(12.6)
1800	339	(455)	1799	(1327)	36.1	(9.5)
1600	291	(390)	1735	(1280)	27.3	(7.2)
1400	179	(240)	1223	(902)	19.1	(5.0)
1200	110	(147)	874	(645)	13.1	(3.5)
1000	79	(105)	750	(553)	8.7	(2.3)
800	52	(69)	617	(455)	5.6	(1.5)
600	34	(46)	542	(400)	1.0	(0.3)

Cummins Full Throttle Requirements:

- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
- Engines in variable displacement boats (such as pushboats, tugboats, net draggers, etc.) achieve no less than 100 rpm below
- rated speed at full throttle during a dead push or bollard pull
- Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

Rated Conditions: Ratings are based upon ISO 15550 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25deg. C [77 deg. F] and 30% relative humidy. Power is in accordance with IMCI procedure. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%.

Full Throttle curve represents power at the crankshaft for mature gross engine performance corrected in accordance with ISO 15550. Propeller Curve represents approximate power demand from a typical propeller. Propeller Shaft Power is approximately 3% less than rated crankshaft power after typical reverse/reduction gear losses and may vary depending on the type of gear or propulsion existence used.

Fuel Consumption is based on fuel of 35 deg. API gravity at 16 deg C [60 deg. F] having LHV of 42,780 ki/kg [18390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

Intermittent (INT). Intended for intermittent use in variable load applications with a power factor of 20-40%. Full power is limited to two out of every eight hours of operation. Reduced power operations must be at or below 80% load.



Curve No. M-96722

DS: 3075 CPL: 5234 DATE: 24-Jan-19

General Engine Data			
Engine Model			QSC8.3-500 INT
Rating Type			Intermittent Duty
Rated Engine Power		kW [hp]	368 [493]
Rated Engine Speed		rpm	2600
Rated Power Production Tolerance		±%	5
Brake Mean Effective Pressure		kPa [psi]	2052 [298]
Indicated Mean Effective Pressure	·····	kPa [psi]	N.A. [N.A.]
Maximum Allowable Engine Speed		rpm	2685
Maximum Torque Capacity from Front of Cran	k²	N·m [lb·ft]	271 [200]
Compression Ratio			16.3:1
Piston Speed	·····	m/sec [ft/min]	11.7 [2303]
Firing Order			1-5-3-6-2-4
Weight (Dry) - Engine Only - Average		ka [lb]	N.A. [N.A.]
Weight (Dry) - Engine With Heat Exchanger S			896 [1975]
Weight Tolerance (Dry) Engine Only			N.A.
Governor Settings		- ( )	
High Speed Governor Break Point	· · · · · · · · · · · · · · · · · · ·	rpm	2665
Minimum Idle Speed Setting			600
Normal Idle Speed Variation			10
High Idle Speed Range Minimum		rpm	2665
Maximum		rpm	2685
Noise and Vibration			
Average Noise Level - Top	(Idle)	dBA @ 1m	82
	(Rated)	dBA @ 1m	98
Average Noise Level - Right Side	(Idle)	dBA @ 1m	82
	(Rated)	dBA @ 1m	98
Average Noise Level - Left Side	(Idle)	dBA @ 1m	82
	(Rated)	dBA @ 1m	98
Average Noise Level - Front	(Idle)	dBA @ 1m	82
	(Rated)	dBA @ 1m	98
Fuel System <sup>1</sup>			
Avg. Fuel Consumption - ISO 8178 E3 Standa	rd Test Cycle	l/hr [gal/hr]	66.0 [17.4]
Fuel Consumption at Rated Speed		l/hr [gal/hr]	96.2 [25.4]
Approximate Fuel Flow to Pump		l/hr [gal/hr]	151.4 [40.0]
Maximum Allowable Fuel Supply to Pump Ten	nperature	°C [°F]	60.0 [140]
Approximate Fuel Flow Return to Tank		l/hr [gal/hr]	55.2 [14.6]
Approximate Fuel Return to Tank Temperature	e	°C [°F]	85.1 [185]
Maximum Heat Rejection to Drain Fuel		kW [Btu/min]	1.3 [72]
Fuel Transfer Pump Pressure Range		kPa [psi]	N.A. [N.A.]
Fuel Pressure - Pump Out/Rail . Mechanical G	auge	kPa [psi]	N.A. [N.A.]
INSITE Read	ing	kPa [psi]	160000 [23206]

TBD= To Be Determined N/A = Not Applicable N.A. = Not Available

- 1 Unless otherwise specified, all data is at rated power conditions and can vary  $\pm$  5%.
- 1 Onless other wise speciment, an data is at rated power continuous and can vary ± 3%.
   2 No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.
   3 Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler, a service fouling factor should be applied according to the cooler manufacturer's recommendation.
   4 Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
   5 Manufacturer is at least of the cooler manufacturer is recommendation.

- <sup>5</sup> May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

### **CUMMINS ENGINE COMPANY, INC**

Curve No. M-96722 DS: 3075 CPL: 5234 DATE: 24-Jan-19

	DATE: 24-Jan-19
Air System¹  Intake Manifold Pressure	214 [63] 483 [1024] 34 [1931]
Exhaust System <sup>1</sup>	
Exhaust Gas Flow	1038 [2200] 451 [843]
Exhaust Gas Temperature (Manifold)°C [°F]	649 [1200]
Emissions (in accordance with ISO 8178 Cycle E3)	
NOx (Oxides of Nitrogen)g/kw⋅hr [g/hp⋅hr] HC (Hydrocarbons)g/kw⋅hr [g/hp⋅hr] CO (Carbon Monoxide)g/kw⋅hr [g/hp⋅hr] PM (Particulate Matter)g/kw⋅hr [g/hp⋅hr]	5.27 [3.93] 0.20 [0.15] 0.90 [0.67] 0.04 [0.03]
Cooling System¹ Sea Water Pump Specifications	103 [15]
Engines without Low Temperature Aftercooling (LTA)	
Sea Water Aftercooled Engine (SWAC)  Coolant Flow to Engine Heat Exchanger	

N.A. = Not Available TBD= To Be Determined N/A = Not Applicable

<sup>1</sup> Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.

On rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult installation Direction Rooklet for Limitations.
 Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler,

a service fouling factor should be applied according to the cooler manufacturer's recommendation.

Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.

<sup>&</sup>lt;sup>5</sup> May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.



Marine Performance Curves

Basic Engine Model
QSC8.3-550 HO
Engine Configuration

D413038MX03

Curve Number: M-96720

CPL Code: **5234** 

Date: 24-Jan-19

Displacement: 8.3 liter [505 in³] Rated Power: 405 kw [543 bhp, 550 mhp]

 Bore:
 114 mm
 [4.49 in]
 Rated Speed:
 3000 rpm

 Stroke:
 135 mm
 [5.31 in]
 Rating Type:
 High Output

Fuel System: HPCR Aspiration: Turbocharged / Sea Water Aftercooled

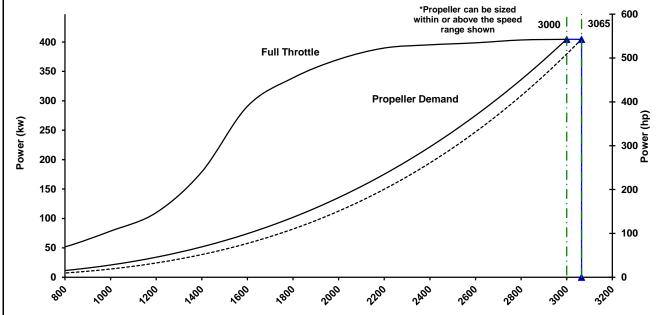
Cylinders: 6

CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:

EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR1042)

IMO Tier II - Tier 2 (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13

RCD - meets the requirements of the Recreational Craft Directive 94/25/EC as amended by 2003/44/EC in accordance with ISO 8178-1



Engine Speed - rpm

Speed	Full Thro	ttle- Power	Full Throt	tle- Torque	Fuel Cons Pro	p. Curve 2.7 Exp.	
rpm	kw	(hp)	N∙m	(ft-lb)	L/hr	(gal/hr)	
3065	405	(543)	1261	(930)			
3000	405	(543)	1288	(950)	113.0	(29.9)	
2800	404	(541)	1376	(1015)	89.8	(23.7)	
2600	399	(535)	1464	(1080)	75.9	(20.1)	
2400	395	(530)	1573	(1160)	58.8	(15.5)	
2200	390	(523)	1692	(1248)	47.2	(12.5)	
1800	339	(455)	1799	(1327)	28.8	(7.6)	
1600	291	(390)	1735	(1280)	21.6	(5.7)	
1400	179	(240)	1223	(902)	14.0	(3.7)	
1200	110	(147)	874	(645)	9.8	(2.6)	
1000	79	(105)	750	(553)	6.4	(1.7)	
800	52	(69)	617	(455)	4.3	(1.1)	

Cummins Full Throttle Requirements:

- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
- Engines in variable displacement boats (such as pushboats, tugboats, net draggers, etc.) achieve no less than 100 rpm below rated speed at full throttle during a dead push or bollard pull
- Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

Rated Conditions: Ratings are based upon ISO 15550 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25deg. C [77 deg. F] and 30% relative humidy. Power is in accordance with IMCI procedure. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%.

Full Throttle curve represents power at the crankshaft for mature gross engine performance corrected in accordance with ISO 15550. Propeller Curve represents approximate power demand from a typical propeller. Propeller Shaft Power is approximately 3% less than rated crankshaft power after typical reverse/reduction gear losses and may vary depending on the type of gear or propulsion system used.

Fuel Consumption is based on fuel of 35 deg. API gravity at 16 deg C [60 deg. F] having LHV of 42,780 kj/kg [18390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

High Output (HO). Intended for infrequent use in variable load applications with a power factor of 10-30 %. Full power is limited to one out of every eight hours of operation. Reduced power operation must be at or below 80% load.

There to then I

CHIEF ENGINEER

Curve No. M-96720

DS: 3075 CPL: 5234 **DATE: 24-Jan-19** 

General Engine Data			
Engine Model			QSC8.3-550 HO
Rating Type			High Output
Rated Engine Power		kW [hp]	405 [543]
Rated Engine Speed		rpm	3000
Rated Power Production Tolerance		±%	5
Rated Engine Torque		N·m [lb·ft]	1289 [951]
Peak Engine Torque @ 1800 rpm		N·m [lb·ft]	1799 [1327]
Brake Mean Effective Pressure		kPa [psi]	1958 [284]
Indicated Mean Effective Pressure		kPa [psi]	N.A. [N.A.]
Maximum Allowable Engine Speed			3085
Maximum Torque Capacity from Front of Cr	ank²	N·m [lb·ft]	0 [0]
Compression Ratio			16.3:1
Piston Speed		m/sec [ft/min]	13.5 [2657]
Firing Order			1-5-3-6-2-4
Weight (Dry) - Engine Only - Average			N.A. [N.A.]
Weight (Dry) - Engine With Heat Exchange	-	<del>_</del>	896 [1975]
Weight Tolerance (Dry) Engine Only		3xStd Dev( ±%)	N.A.
Governor Settings			
High Speed Governor Break Point		•	3065
Minimum Idle Speed Setting		rpm	600
Normal Idle Speed Variation		±rpm	10
High Idle Speed Range Minimum		rpm	3065
Maximum		rpm	3085
Noise and Vibration			
Average Noise Level - Top	(Idle)	dBA @ 1m	82
7.110.10g0 1.10.100 <b>2</b> 0.10.	` '	dBA @ 1m	98
Average Noise Level - Right Side	,	dBA @ 1m	82
Attorage Holes Ester High Glas	, ,	dBA @ 1m	98
Average Noise Level - Left Side	,	dBA @ 1m	82
Average Ivelse Level Left Glac	` '	dBA @ 1m	98
Average Noise Level - Front	,	dBA @ 1m	82
Average Noise Level - 1 Tolli	` ,	dBA @ 1m	98
	(Nateu)	dbA @ IIII	90
Fuel System <sup>1</sup>			
Avg. Fuel Consumption - ISO 8178 E3 Stan	dard Test Cycle	l/hr [gal/hr]	76.0 [20.1]
Avg. Fuel Consumption - ISO 8178 E5 Stan	dard Test Cycle	l/hr [gal/hr]	38.3 [10.1]
Fuel Consumption at Rated Speed		l/hr [gal/hr]	113.0 [29.9]
Approximate Fuel Flow to Pump		l/hr [gal/hr]	162.8 [43.0]
Maximum Allowable Fuel Supply to Pump T	emperature	°C [°F]	60.0 [140]
Approximate Fuel Flow Return to Tank	•		49.8 [13.1]
Approximate Fuel Return to Tank Temperat			85.1 [185]
Maximum Heat Rejection to Drain Fuel			1.1 [65]
Fuel Transfer Pump Pressure Range			N.A.
Fuel Pressure - Pump Out/Rail . Mechanica			N.A.
	_	kPa [psi]	160000 [23206]
	3		[====0]

TBD= To Be Determined N/A = Not Applicable N.A. = Not Available

- 1 Unless otherwise specified, all data is at rated power conditions and can vary  $\pm$  5%.
- No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.
   Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler,
- a service fouling factor should be applied according to the cooler manufacturer's recommendation.

  4 Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
- <sup>5</sup> May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

### **CUMMINS ENGINE COMPANY, INC**

## COLUMBUS, INDIANA

All Data is Subject to Change Without Notice - Consult the following Cummins intranet site for most recent data:

http://marine.cummins.com/

DS: 3075 CPL: 5234 **DATE: 24-Jan-19** Air System<sup>1</sup> Intake Manifold Pressure ......kPa [in Hg] 223 [66] 560 [1186] Heat Rejection to Ambient ......kW [Btu/min] 34 [1931] Exhaust System<sup>1</sup> 1253 [2654] Exhaust Gas Temperature (Turbine Out) ......°C [°F] 483 [900] Exhaust Gas Temperature (Manifold) ......°C [°F] 666 [1230] Emissions (in accordance with ISO 8178 Cycle E3) NOx (Oxides of Nitrogen) .......g/kw·hr [g/hp·hr] 4.59 [3.42] HC (Hydrocarbons) .......g/kw·hr [g/hp·hr] 0.20 [0.15] CO (Carbon Monoxide) ......g/kw·hr [g/hp·hr] 0.58 [0.43] 0.07 [0.05] Emissions (in accordance with ISO 8178 Cycle E5) NOx (Oxides of Nitrogen) .......g/kw·hr [g/hp·hr] 4.76 [3.55] HC (Hydrocarbons) .......g/kw·hr [g/hp·hr] 0.20 [0.15] CO (Carbon Monoxide) ......g/kw·hr [g/hp·hr] 0.72 [0.54] 0.06 [0.05] PM (Particulate Matter) .......g/kw·hr [g/hp·hr] Cooling System<sup>1</sup> Sea Water Pump Specifications .......MAB 0.08.17-07/16/2001 Pressure Cap Rating (With Heat Exchanger Option) ......kPa [psi] 103 [15] Engines without Low Temperature Aftercooling (LTA) Sea Water Aftercooled Engine (SWAC) 473 [125] Standard Thermostat Operating Range (Start to Open) ......°C [°F] 71 [160] Standard Thermostat Operating Range (Full Open) ......°C [°F] 81 [178] Heat Rejection to Engine Coolant<sup>3</sup> .......kW [Btu/min] 254 [14477]

TBD= To Be Determined N/A = Not Applicable N.A. = Not Available

- $_{\rm 1}$  Unless otherwise specified, all data is at rated power conditions and can vary  $\pm\,5\%.$
- 2 No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.
- 3 Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler,
- a service fouling factor should be applied according to the cooler manufacturer's recommendation.

  4 Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
- b May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

#### CUMMINS ENGINE COMPANY, INC

COLUMBUS, INDIANA

Curve No. M-96720



Marine Performance Curves

Basic Engine Model

QSC8.3-600 HO

Engine Configuration **D413038MX03** 

M-96718

Curve Number:

CPL Code: **5234** 

Date: 24-Jan-19

Displacement: 8.3 liter [505 in³] Rated Power: 442 kw [593 bhp, 600 mhp]

 Bore:
 114 mm
 [4.49 in]
 Rated Speed:
 3000 rpm

 Stroke:
 135 mm
 [5.31 in]
 Rating Type:
 High Output

Fuel System: HPCR Aspiration: Turbocharged / Sea Water Aftercooled

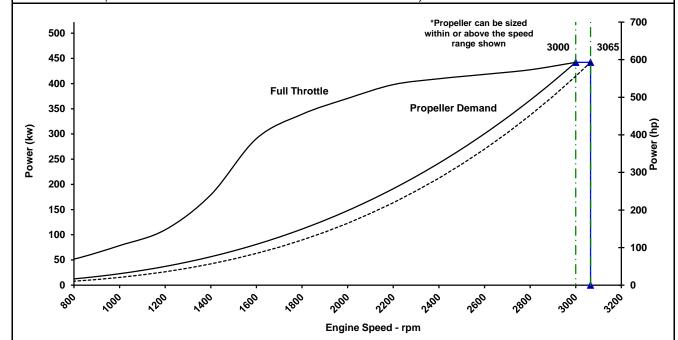
Cylinders: 6

CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:

EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR1042)

IMO Tier II - Tier 2 (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13

RCD - meets the requirements of the Recreational Craft Directive 94/25/EC as amended by 2003/44/EC in accordance with ISO 8178-1



1			T		T	
Speed	Full Thro	ttle- Power	Full Throt	tle- Torque	Fuel Cons Pro	p. Curve 2.7 Exp.
rpm	kw	(hp)	N⋅m	(ft-lb)	L/hr	(gal/hr)
3065	442	(593)	1377	(1016)		
3000	442	(593)	1407	(1038)	123.1	(32.5)
2800	427	(573)	1457	(1075)	103.3	(27.3)
2600	418	(561)	1536	(1133)	79.4	(21.0)
2400	410	(549)	1630	(1202)	64.1	(16.9)
2200	398	(534)	1727	(1274)	50.4	(13.3)
1800	339	(455)	1799	(1327)	31.0	(8.2)
1600	291	(390)	1735	(1280)	22.4	(5.9)
1400	179	(240)	1223	(902)	14.2	(3.7)
1200	110	(147)	874	(645)	11.1	(2.9)
1000	79	(105)	750	(553)	7.5	(2.0)
900	64	(86)	683	(504)	6.0	(1.6)
800	52	(69)	617	(455)	4.9	(1.3)
600	34	(46)	542	(400)	1.0	(0.3)

\* Cummins Full Throttle Requirements:

- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
- Engines in variable displacement boats (such as pushboats, tugboats, net draggers, etc.) achieve no less than 100 rpm below rated speed at full throttle during a dead push or bollard pull
- Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

Rated Conditions: Ratings are based upon ISO 15550 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25deg. C [77 deg. F] and 30% relative humidy. Power is in accordance with IMCI procedure. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%.

Full Throttle curve represents power at the crankshaft for mature gross engine performance corrected in accordance with ISO 15550. Propeller Curve represents approximate power demand from a typical propeller. Propeller Shaft Power is approximately 3% less than rated crankshaft power after typical reverse/reduction gear losses and may vary depending on the type of gear or propulsion system used.

Fuel Consumption is based on fuel of 35 deg. API gravity at 16 deg C [60 deg. F] having LHV of 42,780 kj/kg [18390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

High Output (HO). Intended for infrequent use in variable load applications with a power factor of 10-30 %. Full power is limited to one out of every eight hours of operation. Reduced power operation must be at or below 80% load.

CHIEF ENGINEER

Curve No. M-96718 DS: 3075 CPL: 5234

DATE: 24-Jan-19

General Engine Data			
Engine Model			QSC8.3-600 HO
Rating Type			High Output
Rated Engine Power		kW [hp]	442 [593]
Rated Engine Speed		rpm	3000
Brake Mean Effective Pressure		kPa [psi]	2139 [310]
Compression Ratio			16.3:1
Piston Speed		m/sec [ft/min]	13.5 [2657]
Firing Order			1-5-3-6-2-4
Weight (Dry) - Engine Only - Average		ka [lb]	N.A. [N.A.]
Weight (Dry) - Engine With Heat Exchanger S			896 [1975]
Weight Tolerance (Dry) Engine Only			N.A.
Governor Settings		,	
High Speed Governor Break Point		rpm	3065
Minimum Idle Speed Setting		•	600
Normal Idle Speed Variation		•	10
High Idle Speed Range Minimum		•	3065
			3085
Noise and Vibration			
Average Noise Level - Top	(Idle)	dBA @ 1m	82
/o.agoo.o	(Rated)	•	98
Average Noise Level - Right Side	(Idle)	_	82
ggg c.ac	(Rated)	_	98
Average Noise Level - Left Side	(Idle)	_	82
	(Rated)		98
Average Noise Level - Front	(Idle)	_	82
	(Rated)	_	98
Fuel System <sup>1</sup>			
Avg. Fuel Consumption - ISO 8178 E3 Standa	ard Test Cycle	l/hr [gal/hr]	83.6 [22.1]
Avg. Fuel Consumption - ISO 8178 E5 Standa			42.0 [11.1]
Fuel Consumption at Rated Speed			123.1 [32.5]
Approximate Fuel Flow to Pump		- <del>-</del> -	181.7 [48.0]
Maximum Allowable Fuel Supply to Pump Ter	nperature	°C [°F]	60.0 [140]
Approximate Fuel Flow Return to Tank	······································	l/hr [gal/hr]	58.6 [15.5]
Approximate Fuel Return to Tank Temperatur			85.1 [185]
Maximum Heat Rejection to Drain Fuel			1.4 [77]
Fuel Transfer Pump Pressure Range		kPa [psi]	N.A.
Fuel Pressure - Pump Out/Rail . Mechanical G	Sauge	kPa [psi]	N.A.
	ing		160000 [23206]

TBD= To Be Determined N.A. = Not Available N/A = Not Applicable

- 1 Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.
  2 No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive 2 No rear roads can be applied when the PTPUs It stuly loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.
   3 Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler, a service fouling factor should be applied according to the cooler manufacturer's recommendation.
   4 Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
   5 May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

#### **CUMMINS ENGINE COMPANY, INC**

COLUMBUS, INDIANA

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http://marine.cummins.com/

Curve No. M-96718 DS: 3075 CPL: 5234 DATE: 24-Jan-19

Air System <sup>1</sup>		
Intake Manifold Pressure	. 01	230 [68]
Intake Air Flow		580 [1230]
Heat Rejection to Ambient	kW [Btu/min]	37 [2124]
Exhaust System <sup>1</sup>		
Exhaust Gas Flow	l/sec [cfm]	1336 [2830]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	510 [950]
Exhaust Gas Temperature (Manifold)	°C [°F]	705 [1300]
Emissions (in accordance with ISO 8178 Cycle E3)		
NOx (Oxides of Nitrogen)	g/kw·hr [g/hp·hr]	4.76 [3.55]
HC (Hydrocarbons)	0 10 1 1	0.20 [0.15]
CO (Carbon Monoxide)	0 10 1	0.61 [0.45]
PM (Particulate Matter)		0.09 [0.07]
Emissions (in accordance with ISO 8178 Cycle E5)		
NOx (Oxides of Nitrogen)	g/kw·hr [g/hp·hr]	4.68 [3.49]
HC (Hydrocarbons)		0.20 [0.15]
CO (Carbon Monoxide)	g/kw-hr [g/hp-hr]	0.73 [0.54]
PM (Particulate Matter)	g/kw-hr [g/hp-hr]	0.09 [0.07]
Cooling System <sup>1</sup>		
Sea Water Pump Specifications	MAB 0.08.17-07/16/2001	
Pressure Cap Rating (With Heat Exchanger Option)		103 [15]
Engines without Low Temperature Aftercooling (LTA)		
Sea Water Aftercooled Engine (SWAC)		
Coolant Flow to Engine Heat Exchanger	[/min [gal/min]	473 [125]
Standard Thermostat Operating Range (Start to Open)	,°C [°F]	71 [160]
Standard Thermostat Operating Range (Full Open)	°C [°F]	81 [178]
Heat Rejection to Engine Coolant <sup>3</sup>	kW [Btu/min]	270 [15345]

TBD= To Be Determined N/A = Not Applicable N.A. = Not Available

- 1 Unless otherwise specified, all data is at rated power conditions and can vary  $\pm$  5%.
- 2 No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.
  3 Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler,

- a service fouling factor should be applied according to the cooler manufacturer's recommendation.

  4 Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.

  5 May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

#### **CUMMINS ENGINE COMPANY, INC**



Marine Performance Curves

Basic Engine Model
QSC8.3-600 LD
Engine Configuration

D413038MX03

CPL Code:

5234

[592 bhp, 600 mhp]

M-96719

Date: **24-Jan-19** 

Curve Number:

Displacement: 8.3 liter

114 mm

135 mm

[505 in<sup>3</sup>] [4.49 in] [5.31 in] Rated Power: 441 kw
Rated Speed: 2800 rpm

Rating Type:

Light Duty Commercial

Fuel System: HPCR Cylinders: 6

Bore:

Stroke:

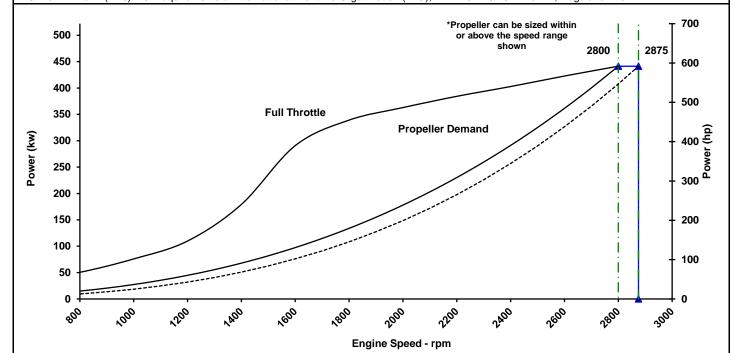
Aspiration: Turbocharged / Sea Water Aftercooled

CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:

EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR1042)

EU Stage IIIa - EC Nonroad Mobile Machinery Directive (2004/26/EC)

IMO Tier II - Tier 2 (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13



Speed	Full Throt	tle- Power	Full Throt	tle- Torque	Fuel Cons Pr	op. Curve 2.7 Exp.
rpm	kw	(hp)	N⋅m	(ft-lb)	L/hr	(gal/hr)
2875	441	(592)	1466	(1081)		
2800	441	(592)	1505	(1110)	122.7	(32.4)
2600	423	(567)	1552	(1145)	97.6	(25.8)
2400	403	(540)	1603	(1182)	76.1	(20.1)
2200	384	(515)	1668	(1230)	59.6	(15.7)
2000	363	(487)	1733	(1278)	46.4	(12.2)
1800	339	(455)	1799	(1327)	36.1	(9.5)
1600	291	(390)	1735	(1280)	26.8	(7.1)
1400	179	(240)	1223	(902)	19.2	(5.1)
1200	110	(147)	874	(645)	13.1	(3.5)
1000	76	(102)	725	(535)	8.8	(2.3)
800	51	(68)	603	(445)	5.6	(1.5)

Cummins Full Throttle Requirements:

- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
- Engines in variable displacement boats (such as pushboats, tugboats, net draggers, etc.) achieve no less than 100 rpm below rated speed at full throttle during a dead push or bollard pull
- · Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

Rated Conditions: Ratings are based upon ISO 15550 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25deg. C [77 deg. F] and 30% relative humidy. Power is in accordance with IMCI procedure. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%.

Full Throttle curve represents power at the crankshaft for mature gross engine performance corrected in accordance with ISO 15550. Propeller Curve represents approximate power demand from a typical propeller. Propeller Shaft Power is approximately 3% less than rated crankshaft power after typical reverse/reduction gear losses and may vary depending on the type of gear or propulsion system used.

Fuel Consumption is based on fuel of 35 deg. API gravity at 16 deg C [60 deg. F] having LHV of 42,780 kj/kg [18390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

Light Duty Commercial (LD). Intended for intermittent use in variable load applications with a power factor of 10-30%. Full power is limited to one hour out of every eight hours of operation. Reduced power operation must be at or below 80% load.



Curve No. M-96719 DS: 3075 CPL: 5234 **DATE: 24-Jan-19** 

	12.6 [2480]
rpm ±%  N·m [lb·ft]  kPa [psi]  kPa [psi]  rpm  N·m [lb·ft]  m/sec [ft/min]  kg [lb]  Average  kg [lb]  3xStd Dev(±%)	2800 5 1506 [1110] 1799 [1327] 2288 [332] N.A. [N.A.] 2875 0 [0] 16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
	5 1506 [1110] 1799 [1327] 2288 [332] N.A. [N.A.] 2875 0 [0] 16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
	1506 [1110] 1799 [1327] 2288 [332] N.A. [N.A.] 2875 0 [0] 16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
	1799 [1327] 2288 [332] N.A. [N.A.] 2875 0 [0] 16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
kPa [psi]   kPa [psi]   kPa [psi]   kPa [psi]     rpm	2288 [332] N.A. [N.A.] 2875 0 [0] 16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
	N.A. [N.A.] 2875 0 [0] 16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
rpmN·m [lb·ft]m/sec [ft/min]kg [lb] Averagekg [lb]3xStd Dev( ±%)rpm	2875 0 [0] 16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
	0 [0] 16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
	16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
	16.3:1 12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
	12.6 [2480] 1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
kg [lb] Averagekg [lb]3xStd Dev( ±%)rpm	1-5-3-6-2-4 N.A. [N.A.] 896 [1975] N.A.
Averagekg [lb]3xStd Dev( ±%)rpm	896 [1975] N.A.
3xStd Dev(±%)	896 [1975] N.A.
3xStd Dev(±%)	N.A.
rpm	
•	2875
•	=0.0
	600
· · · · · · · · · · · · · · · · · · ·	10
·	2865
•	2885
	2000
e)dBA @ 1m	82
,	98
,	82
,	98
,	82
,	98
· —	
•	82
tea)dBA @ 1m	98
Cyclel/hr [gal/hr]	80.9 [21.4]
	122.7 [32.4]
	181.7 [48.0]
	60.0 [140]
	59.0 [15.6]
	85.1 [185]
	1.4 [77]
	N.A.
	N.A.
	160000 [23206]
	100000 [23200]
	N.A. = Not Ava
	rpm

### CUMMINS, INC

<sup>1</sup> Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.
2 No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive 2 No teal loads can be applied when the PT Os I tilly loaded. Max PTO torque is contingent on torstonia analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.
 3 Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler, a service fouling factor should be applied according to the cooler manufacturer's recommendation.
 4 Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
 5 May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

DS: 3075 CPL: 5234 **DATE: 24-Jan-19** Air System<sup>1</sup> Intake Manifold Pressure ......kPa [in Hg] 230 [68] 540 [1145] Heat Rejection to Ambient ......kW [Btu/min] 37 [2124] Exhaust System<sup>1</sup> 1244 [2635] Exhaust Gas Temperature (Turbine Out) ......°C [°F] 540 [1,004] Exhaust Gas Temperature (Manifold) ......°C [°F] 709 [1307] Emissions (in accordance with ISO 8178 Cycle E3) NOx (Oxides of Nitrogen) ......g/kw·hr [g/hp·hr] 5.08 [3.79] HC (Hydrocarbons) .......g/kw·hr [g/hp·hr] 0.20 [0.15] 1.06 [0.79] PM (Particulate Matter) .......g/kw·hr [g/hp·hr] 0.06 [0.04] Cooling System<sup>1</sup> Sea Water Pump Specifications .......MAB 0.08.17-07/16/2001 Pressure Cap Rating (With Heat Exchanger Option) ......kPa [psi] 103 [15] Engines without Low Temperature Aftercooling (LTA) Sea Water Aftercooled Engine (SWAC) 473 [125] 71 [160] Standard Thermostat Operating Range (Start to Open) ......°C [°F] 81 [178] Standard Thermostat Operating Range (Full Open) ......°C [°F] Heat Rejection to Engine Coolant<sup>3</sup> ......kW [Btu/min] 270 [15345]

TBD= To Be Determined N/A = Not Applicable N.A. = Not Available

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COLUMBUS, INDIANA

Curve No.

M-96719