

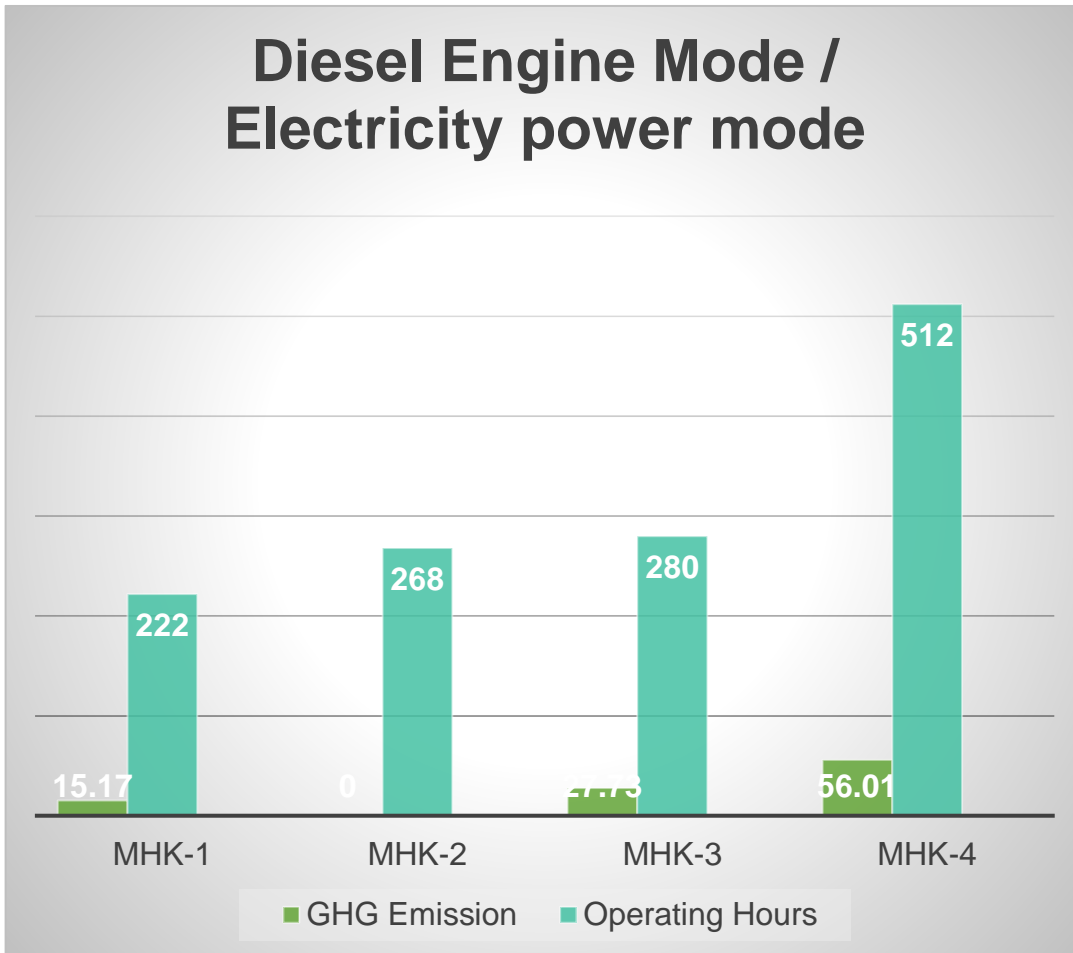


ARISE
PORTS & LOGISTICS

Engineering



GHG Emissions Report May-2022 to August 2022



Cranes running under **Diesel Engine Mode:**

Running hours:

MHK -1 - 222 Hours

MHK- 3 - 280 Hours

MHK- 4 - 512 Hours

Electricity Mode:

MHK-2 - 268 Hours -37540 Kwh

Note: The port side carbon emission is zero for the MHK-2 under the electricity power operation.

External Power Supply for Gottwald Mobile Harbour Cranes

Green Benefits of External Power Supply



- Increased efficiency
- Reduction of noise emissions
- No exhaust emissions in the port
- Reduced operating costs
- Less maintenance cost



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04 August 2022

Power Consumption Comparison

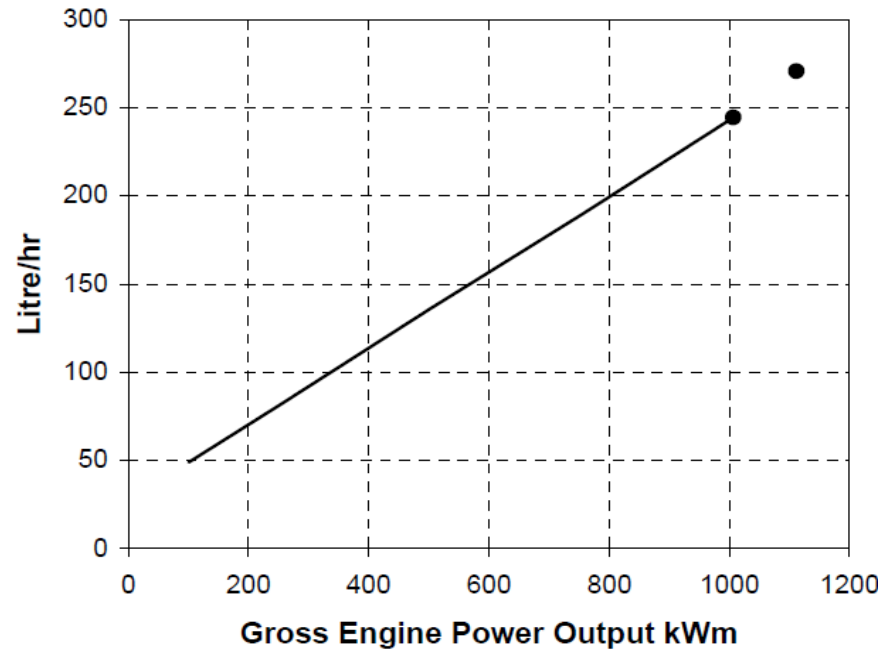
Diesel vs. Electric Drive

Average fuel consumption GHMK 6507 B: 45 – 50 liters/hour

Installed engine :Cummins QST 30 –G2

According to engine data sheet a fuel consumption of 45-50 l/h is equivalent to an average power output of approx. 120 to 140 kW. In case of operation with shore power supply in one hour of operation 120 to 140 kWh would be consumed.

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	Kg/ kW-h	Lb/ BHP-h	Liter/ hour	U.S. Gal/ hour
10% OVERLOAD CAPACITY						
110%	1112	1490	0.207	.341	271	71.5
PRIME POWER						
100%	1007	1350	0.206	0.340	244.5	64.6
75%	755	1012	0.213	0.351	189.6	50.1
50%	504	675	0.230	0.379	136.3	36.0
25%	252	338	0.275	0.452	81.4	21.5
10%	101	135	0.413	0.680	49.0	12.9
CONTINUOUS POWER						
80%						N.A.



Power Consumption Comparison

Diesel vs. Electric Drive

Fuel Costs:

- * Diesel price approx. 1145 CFA/L
- * 45 ... 50 L/h = 51,525 CFA/h ... 57,250 CFA/h

Electricity costs:

- * Electrical power approx. 92 CFA/kWh
- * 120 kWh ... 140 kWh = 11,040 CFA/h ..12,880 CFA/h

Approximately **44,370 CFA /Hour** is advantage /saving in one hour Electricity operation compared to Diesel Engine Operation.

Additional advantages of electrical power supply: lower noise emissions, no exhaust emissions, possibility of power regeneration when lowering (refunds!), „greener image“ ...

