



WELCOME TO THE TRANS MIDDLE EAST EVENT, DUBAI

Jan 2023



Refurbishments and Decarbonisation

Our Services and Products



Third-Party
Inspections
(SAMUEL BEMA)



Projects,
Refurbishments,
Structural Inspections
(DARAIUS DADACHANJI)



Operation
Consultancy
(STEWART LAWTON)



Manufactured
Products
(SEAN CORBETT)



Procurement /
Spare parts and
Logistics
(DIEDERIK LENSSONS)



Training
(RAVI BEHARA)

PLC & Drive refurbishments

Masterdrives to Sinamics Conversion

1. WCS upgraded 12 STS around the globe
2. Currently in progress 2 STS upgrades
3. Challenge for new enquiry is the lead time

Sinamics DCM Projects

1. We have done 13 STS and 10 RTG around the globe
2. In NON-DPW terminals, we have converted GE drives and PLC to Sinamics DCM

Third-party Drives & PLC to Siemens family

1. WCS has completed the following projects successfully on STS and RTG
 1. Yaskawa drives and PLC to Siemens
 2. Fuji drives and PLC to Siemens

Deliverables Timeline

Weeks	Materials	Masterdrive to Sinamics	Simoreg DC to Sinamics	3rd party Drives & PLC to Siemens
STS / RMG	48	3	3	4
RTG	48	2	2	3



Cranes Refurbishments Stats



Refurbishment carried over across 18 countries

ECO1 to ECO4 Conversion

ECO1 to ECO4 Conversions

- WCS has upgraded 12 RTGs to date
- We have 4 RTG orders expected in 2023
- High-efficiency variable speed engine control delivers the required energy during the required time
- Up to 35% Savings on fuel based on the specific operation conditions
- CO2 emission reduced by 70 tons per year per RTG

PROJECT TIMELINE

	Design	Materials	Assembly in Dubai	Installation + Commissioning
Weeks	1	48	3	2



CLEAN PIPING OF EXHAUST INSIDE THE ENCLOSURE

	TORSIONAL VIBRATION CALCULATION	TVC2938
Author: Björn Bergqvist	Appr. by: Niklas Hammarström	Date: 2019-07-04
		Page: 1 (30)

Torsional Vibration Calculation 2938

1 Summary

Distributor
 Al Shirawi Enterprises LLC
 PO Box 7427, Dubai, U.A.E.
 Charan-Joseph D'Souza

End user
 Name: World Crane Services
 Scania Order Number: O 963651
 Yard: Al Shirawi Enterprises LLC

Installation
 Application: Power Generation
 Engine: DC13 672A
 Output power: 365410
 Main driven component: Generator

Comment
 The TVC was performed to evaluate the described powertrain in regards to torsional vibrations. The TVC considers the vibratory torque in the crankshaft and the heat dissipation in the engine torsional vibration damper (TVD).

Scania Engine Dynamics approve the installation in respect of torsional vibration for Scania components during normal operation and misfire conditions.

Björn Bergqvist
 Björn Bergqvist
 Scania Engine Dynamics
 Scania CV AB

Niklas Hammarström
 Niklas Hammarström
 Scania Engine Dynamics
 Scania CV AB

TORSIONAL VIBRATION CALCULATION CERTIFICATE FROM SCANIA

ELECTRIC RTG

Full diesel to hybrid Battery-Diesel powerpack

- WCS is currently working on one RTG crane conversion
- Full battery operated, rechargeable using the diesel engine to minimise CO2 emissions
- Up to 60% Savings on fuel, based on the specific operation conditions
- CO2 emission reduced in 258 tons per year per RTG

Deliverables timeline

Weeks	Engineering & Materials	Factory assembling & shipping	+ Drives Refurbish	PLC & HMI Refurbish.	Commiss.
Same Engine	48	2	2	1	3
Smaller Engine	48	2	2	1	3

Energy Capacity	Require oversizing to achieve optimum performance. 300 - 450 kWh
Lifetime	8-12 years
Working Cycles	3,000-10,000 cycles
Battery Charge/Discharge Characteristics	High through oversizing
Safety	Extreme thermal/chemical stability and inherently safe. Do not suffer from 'thermal runaway' and is incombustible (does not catch fire).
Working Temp.	Can withstand a wider range of temp which is better in regions with extreme temperatures: 5 to 60 degrees Celsius
Environmental Impact	Environmentally friendly to make and dispose of. They do not contain toxic, heavy or rare earth metals.
Cost	Low. Result in same cost as NMC even with oversizing.
Energy Density	Higher weight and volume per watt

FUEL	Conventional	Hybrid
Genset power capacity (prime)	565 kW	100 kW
Engine model (1800 rpm)	TAD 1641 GE	
Daily Engine Running hours	17	6.84
Yearly Engine Running hours	5,940	2461.25
Yearly fuel consumption (L)	151470	63992.4
Yearly fuel cost (\$)	\$165,102.30	\$69,751.72
MAINTENANCE	Conventional	Hybrid
Yearly Engine Running hours	5940	2461
Engine maintenance period (H)	1000	1000
Each maintenance cost (\$)	\$480.90	\$240.45
Yearly maintenance cost (\$)	\$2,856.55	\$591.81
Overhaul	Conventional	Hybrid
Yearly Engine Running hours	5940	2461
Engine overhaul cost (\$)	\$49,006.90	\$24,503.45
Engine overhaul period (Hr)	30000	30000
Yearly overhaul cost (\$)	\$9,703.37	\$2,010.30
TOTAL YEARLY SAVINGS		
Yearly cost	\$177,662.21	\$72,353.83
Hybrid savings	\$105,308.38	
Return Of Investment (years)	3.32	

210 ton/year

258 ton/year

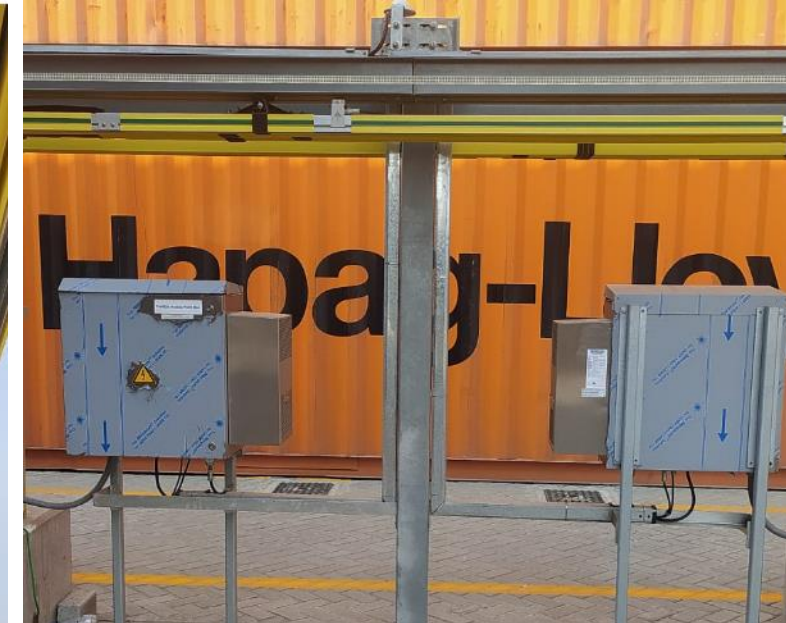
FUEL	Conventional	Hybrid
Genset power capacity (prime)	565 kW	565 kW
Engine model (1800 rpm)	TAD 1641 GE	TAD 1641 GE
Daily Engine Running hours	17	3.1
Yearly Engine Running hours	5,940	1134
Yearly fuel consumption (L)	151,470.0	73,679.9
Yearly fuel cost (\$)	\$165,102.30	\$80,311.10
MAINTENANCE	Conventional	Hybrid
Yearly Engine Running hours	5940	1134
Engine maintenance period (Hr)	1000	1000
Each maintenance cost (\$)	\$480.90	\$480.90
Yearly maintenance cost (\$)	\$2,856.55	\$545.12
Overhaul	Conventional	Hybrid
Yearly Engine Running hours	5940	1134
Engine overhaul cost (\$)	\$49,006.90	\$49,006.90
Engine overhaul period (Hr)	30000	30000
Yearly overhaul cost (\$)	\$9,703.37	\$1,851.70
TOTAL YEARLY SAVINGS		
Yearly cost	\$177,662.21	\$82,707.93
Hybrid savings	\$94,954.29	
Return Of Investment (years)	3.16	

ELECTRIFICATION OF YARD & RTG

- WCS can be your turnkey partner for delivering this project
- WCS needs the information on the yard map, the number of RTG to be converted
- WCS can prepare the tender to compare the supplier quotes like to like with a document for the client to make a choice
- WCS can support the client in the installation of the yard, conversion of RTG, and interfacing for successful operation in the E-yard
- WCS Offers a complete project management for this job to ensure the deliverables technically and contractually

Present Delivery timelines

Weeks	Design	Materials	Site Installation per crane / Block
E-RTG	2	48	10days/RTG
Yard	2	48	2weeks/100m



Thank You!

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