INLINE POWER GENERATION AND HYBRID PROPULSION CAPABILITIES

SILENT, EFFICIENT AND MISSION READY

Our Future Tactical Truck System (FTTS) Vehicle Hybrid Power System is a pre-built system that can be adapted or modified to meet your requirements. With this technology, Collins Aerospace will take you where you want to go.

The propulsion system consists of an integrated starter generator (ISG) and an ISG controller (ISGC). As a motor, it provides 85 kW shaft power for vehicle propulsion, torque assist and engine starts. As a generator, it provides up to 140 kW to the 300 VDC bus. Command, performance and health monitoring data are exchanged between the ISG and vehicle controller via CAN BUS.

The associated power electronics such as high-voltage converters and bi-directional inverters assist and manage the system to be optimized for customer mission and requirement. Through the use of silicone carbide and high-efficiency thermal management systems, these components are densely packaged to optimize available space claims.

The export power inverter provides galvanically-isolated power conversion and conditioning from the vehicle high voltage DC bus to produce exportable three-phase AC power. Voltage and frequency is selectable via CAN BUS.

KEY FEATURES & BENEFITS

- Burst acceleration
- Improved fuel efficiency
- Electrification of ancillary items such as fans, motors, etc.
- Higher cargo/ammo capacity
- Silent operation
- Silent watch
- Extremely dense power electronics
- Temperature resilient (inlet coolant and ambient)
- Scalable up/down to meet any need/platform

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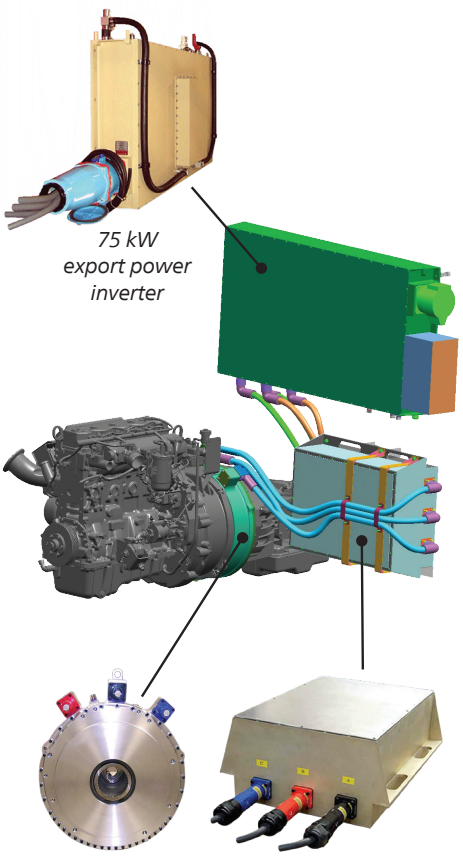

PROPULSION SYSTEM PERFORMANCE SUMMARY

ISG specific performance (with a 300Vdc Bus)	**Motoring**	**Generating**
Cont. power (kW)	85	140
Peak power (kW)	120 @ 2200 rpm	272
Cont. torque (Nm)	340	-340
Peak torque (Nm)	650 @ <1800 rpm	-650
Cont. phase current (Amp rms)	300	300
Intermittent phase current (Amp rms)	560	560
Speed (RPM)	2400	4000
End-to-end efficiency (Includes both ISGC and ISG efficiency)	88%	89%
Electric machine coolant	4 gpm @ 40 psig, - 40° C to 80° C, ethylene glycol/ water 50% mix	
ISGC specific serformance		
DC link voltage (Vdc)	260 to 600 Vdc	
Output power	150 kW (300 Vdc); 300 kW (600 Vdc)	
ISGC drive capability	1000 amp rms (300 Vdc); 640 amp rms (600 Vdc)	
ISGC coolant	12 gpm @ 20 psig, - 40° C to 80° C, ethylene glycol/ water 50% mix	
Common characteristics		
DC link GFI	Leakage current≤ 2ma	
Power quality	MIL-STD-704	
EMI	MIL-STD-461E	
Enclosure	Immersion IP - 67	
Operating temperature	-32° C to 105° C	
Storage temperature	-40° C to 80° C	
Communications	CAN - BUS, SAE - J1939	
Mechanical specifications ISG	Diameter 18", weight 162 lbs.	
Mechanical specifications ISGC	Height 10", length 23", depth 16"	

EXPORT POWER INVERTER PERFORMANCE SUMMARY

DC input	216 - 330 Vdc			
AC Output	75 kW 3 phase/4 wire (switched neutral)			
	Voltage	L-N	L-L	Efficiency
		120	208	80.58%
		220	380	
		240	416	
		277	480	86.72%
	Frequency	50/60/400 Hz		
	Loads	Linear load with +/- 0.8 PF Non-linear load		
	EMI	MIL-STD-461E		
	Power quality	MIL-STD-704, IEEE 519		
Efficiency	See AC output voltage table (100% load, 60 Hz)			
Environmental	Cooling media	50% EG/water		
	Cooling flow	16 gpm min @ 20 psig		
	Cooling inlet temp	65° C max		
	Operating temp	-40° C to 65° C		
	Immersion	IP-67		
Protection/ Safety	Over temperature Over current Over/under voltage (DC input, AC output) Ground fault (leakage current ≤ 2 ma) Galvanic isolation (high voltage DC-in to AC-out)			
Communications	CAN - BUS, SAE - J1939			
Mechanical specifications	Height 6", length 42", depth 24"			

Specifications subject to change without notice.

This document does not contain any export controlled technical data. notice.

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