

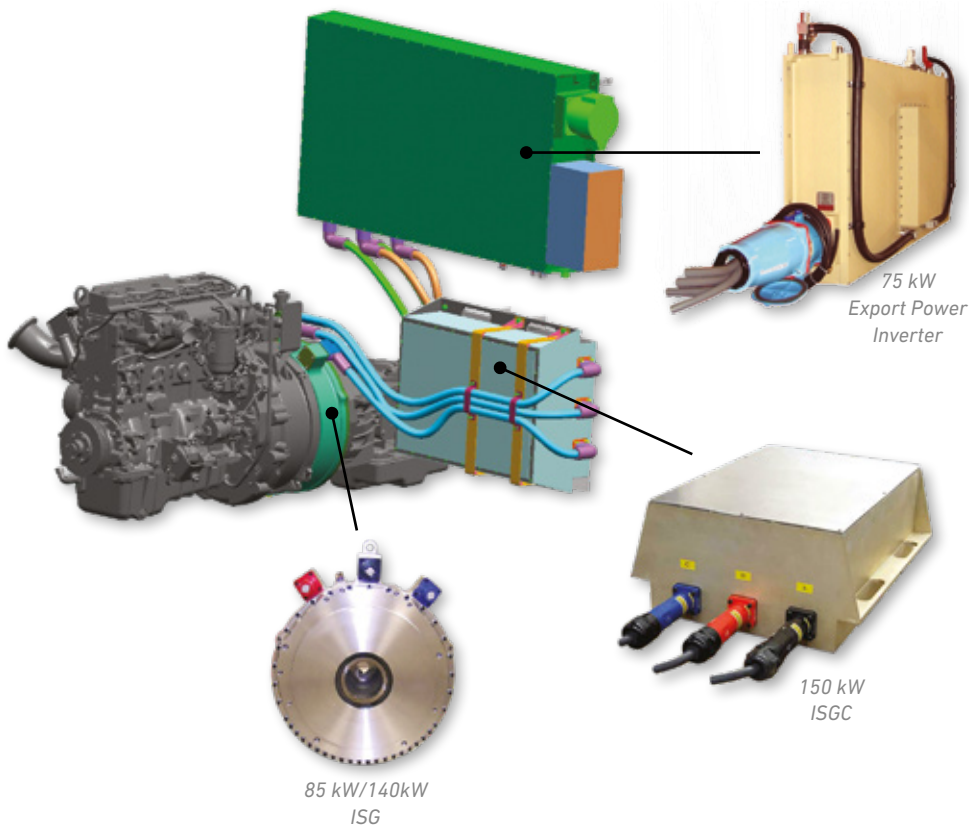


INLINE POWER GENERATION AND HYBRID PROPULSION CAPABILITIES

Collins Aerospace's Future Tactical Truck System (FTTS) Vehicle Hybrid Power System consists of a propulsion system and an export power inverter.

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 Export Power Inverter provides galvanically-isolated power conversion and conditioning from the vehicle high voltage DC bus to produce exportable 3-Phase AC power. Voltage and frequency is selectable via CAN BUS.



PROPULSION SYSTEM PERFORMANCE SUMMARY

ISG Specific Performance	Motoring	Generating
(with a 300Vdc Bus)		
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 @ 40psig, - 40°C to 80°C, ethylene glycol/water 50% mix	
ISGC Specific Performance		
DC Link Voltage (Vdc)	260 to 600 Vdc	
Output Power	150kW (300Vdc); 300kW (600Vdc)	
ISGC Drive Capability	1000 Amp rms (300Vdc); 640 Amp rms (600Vdc)	
ISGC Coolant	12 gpm @ 20 psig, - 40°C to 80°C, ethylene glycol/water 50% mix	
Common Characteristics		
DC Link GFI	Leakage currents ≤ 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 inches, weight 162 pounds	
Mechanical Specifications ISGC	Height 10 inches, length 23 inches, depth 16 inches	

EXPORT POWER INVERTER PERFORMANCE SUMMARY

DC Input	216 - 330 Vdc			
	75 kW			
	3 Phase/4 wire (Switched Neutral)			
		L-N	L-L	Efficiency
	Voltage	120	208	80.58%
		220	380	
		240	416	
		277	480	86.72%
AC Output	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)			
	Cooling Media	50% EG/Water		
	Cooling Flow	16 gpm min @ 20 psig		
Environmental	Cooling Inlet Temp	65°C max		
	Operating Temp	-40°C to 65°C		
	Immersion	IP-67		
		Over Temperature		
		Over Current		
Protection/Safety	Over/Under Voltage (DC Input, AC Output)			
	Ground Fault (leakage currents ≤ 2 ma)			
	Galvanic Isolation (High Voltage DC-in to AC-out)			
Communications	CAN - BUS, SAE - J1939			
Mechanical Specifications	Height 6 inches, length 42 inches, depth 24 inches			

Specifications subject to change without notice.

This document does not contain any export controlled technical data.



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