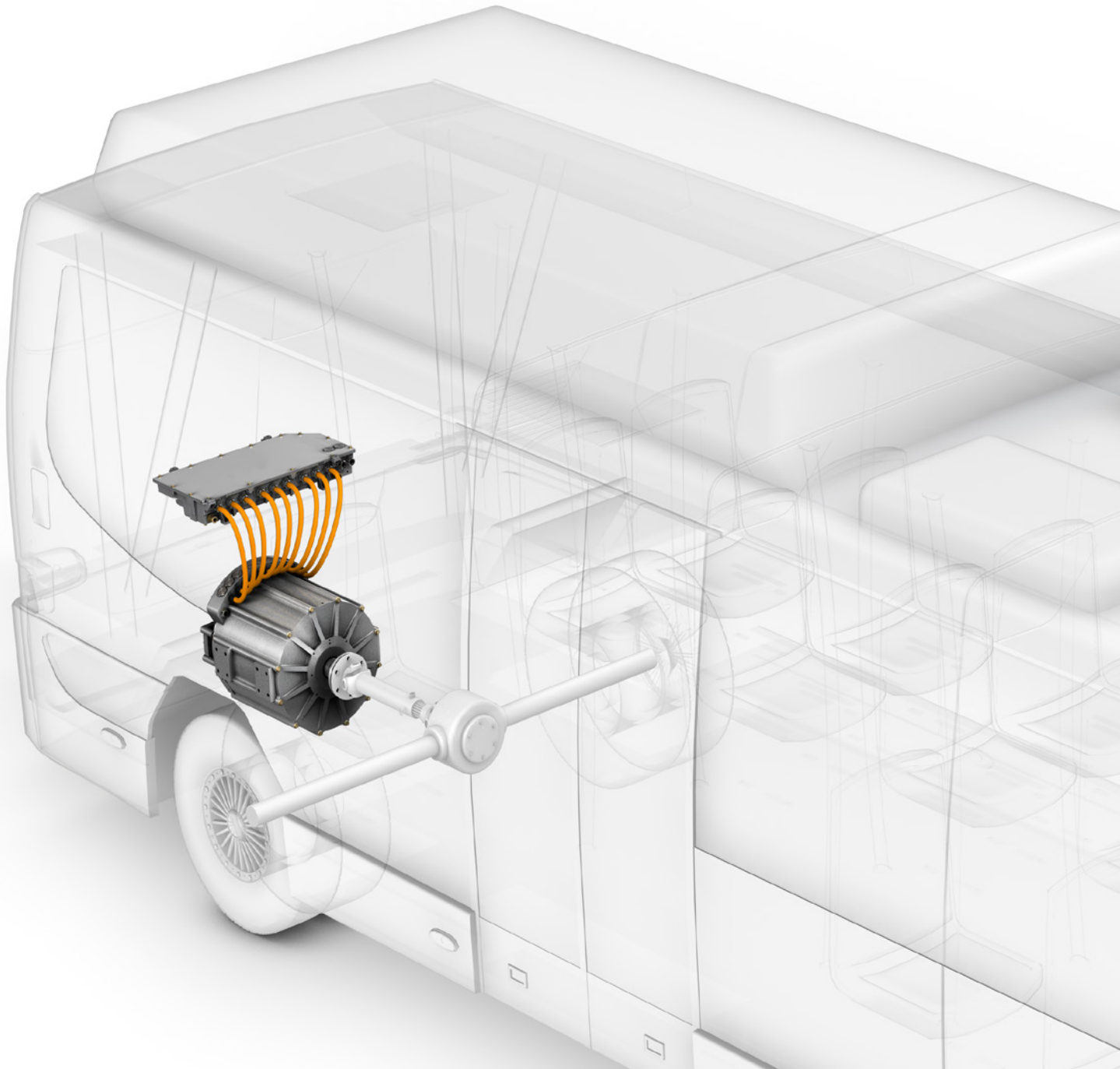


tm4

SUMO 

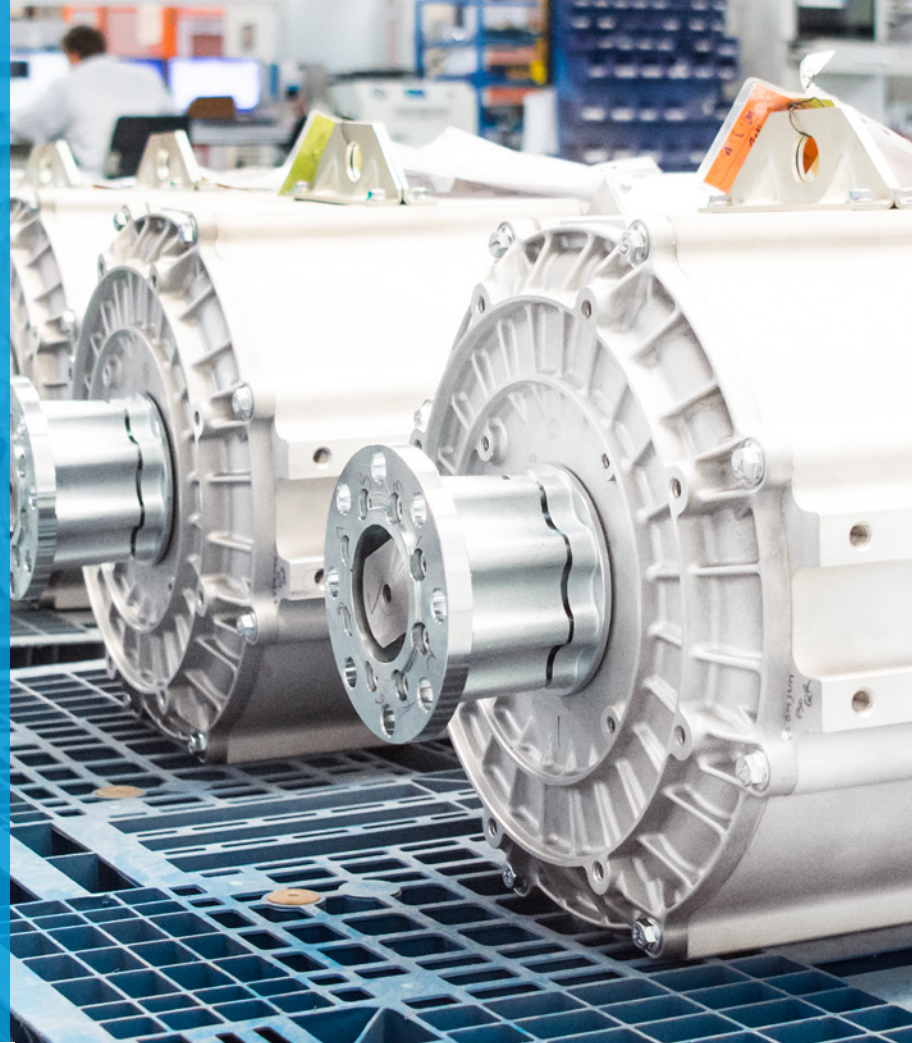
direct-drive electric
powertrain systems



TM4 SUMO™ family of products consists of high-torque electric powertrain systems for electric and hybrid commercial vehicle applications.

Multiple motor models with varying sizes paired with a choice of medium (<450 Vdc) or high voltage (<750 Vdc) inverters provide a wide range of solutions to your electric or hybrid propulsion needs. These high torque/low speed permanent magnet motors are designed to interface with standard rear differentials without the need for an intermediate gearbox.

More than 100 breakthrough patents combine to deliver unmatched efficiency and quality in a unit designed to meet the industry's highest requirements.



CONTROLLER FEATURES

- Medium (<450 Vdc) or high (<750 Vdc) voltage inverter
- Reflex™ gate driver technology
- EMI filter
- Best-in-class power density
- 3-phase or multi-phase inverters
- High efficiency

MOTOR FEATURES

- Proven permanent magnet technology for optimal efficiency
- Outer rotor topology for maximum torque density
- Low electro-magnetic noise
- Low-cogging torque for better NVH
- Four-quadrant operation
- Double-ended shaft option

SOFTWARE FEATURES

- Compatible with TM4's advanced diagnostic software suite
- CAN 2.0b communication interface
- Torque or speed control



COMMON CHARACTERISTICS

Peak system efficiency	94%
Max coolant temperature	65°C
Coolant type	40/60 water-glycol

Developed for performance and durability, TM4 SUMO™ systems are optimized for medium- and heavy-duty electric and hybrid vehicles such as 6-18 meter buses, delivery trucks, shuttles, tow tractors and more. By allowing direct drive operation, TM4 SUMO systems reduce powertrain complexity and cost, allowing for a simple, efficient and low-maintenance solution. A direct drive system yields over 10% efficiency gains throughout the driving cycle, representing an equivalent gain in battery usage. Some of TM4's SUMO systems are offered with a double-ended shaft option, allowing for easy integration in many hybrid-electric powertrain architectures.

APPLICATIONS

- City buses
- Delivery trucks
- Tow tractors
- Mining vehicles
- Marine applications
- Shuttles
- Other heavy duty vehicles

SPECIFICATIONS

600 Vdc, 30 seconds or more, 45°C

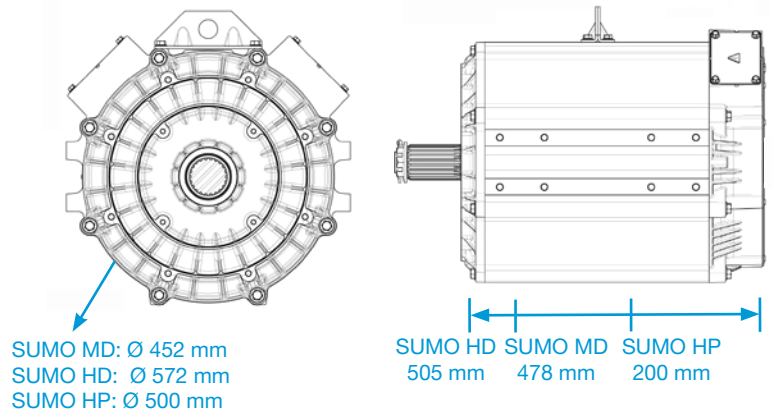
SUMO MD	MOTOR + INVERTER	PHASES	PEAK POWER (kW)	CONTINUOUS POWER (kW)	PEAK TORQUE (Nm)	CONTINUOUS TORQUE (Nm)	MAX OPERATING SPEED (RPM)
	SUMO MD HV1500-3P	3	162	100	1590	680	3250
	SUMO MD HV1800-3P	3	170	100	1770	680	3250
	SUMO MD HV2200-3P	3	200	145	2200	1150	2700
	SUMO MD MV2500-6P	6	230 ¹	115	2500	1140	3000
	SUMO MD HV2100-6P	6	235	130	2150	685	3500
	SUMO MD HV3000-6P	6	235	140	3255	1065	3000
	SUMO MD HV2400-6P	6	240	120	2300	605	3500
	SUMO MD HV2200-6P	6	255	190	2355	990	3700
	SUMO MD HV2600-6P	6	265	155	2760	970	3500
SUMO HD	MOTOR + INVERTER	PHASES	PEAK POWER (kW)	CONTINUOUS POWER (kW)	PEAK TORQUE (Nm)	CONTINUOUS TORQUE (Nm)	MAX OPERATING SPEED (RPM)
	SUMO HD HV2700-9P	9	250	195	2700	2060	3375
	SUMO HD HV3400-9P	9	250	195	3400	2060	2450
	SUMO HD HV3500-9P	9	350	260	3500	1830	3400
SUMO HP	GENERATOR + INVERTER	PHASES	ELECTRICAL PEAK POWER (kW _e)	ELECTRICAL CONT. POWER (kW)	PEAK TORQUE (Nm)	CONTINUOUS TORQUE (Nm)	MAX OPERATING SPEED (RPM)
	SUMO HP HV900-3P	3	220	160	915	624	2800

¹ 350 Vdc, 30 seconds, 45°C
Specifications are subject to change

WEIGHT AND DIMENSIONS

SYSTEM	PART	WEIGHT (kg)	LENGTH (mm)
SUMO HD-9P	LSM280 motor	340	505
	CO300 inverter	36	801
SUMO MD-6P	LSM200 motor	212	478
	LSM140 motor	180	419
SUMO MD-3P	CO200 inverter	26	670
	LSM110 motor	180	411
SUMO HP-3P	CO150 inverter	11	416
	LSG130 generator	100	200
	CO150 inverter	11	416

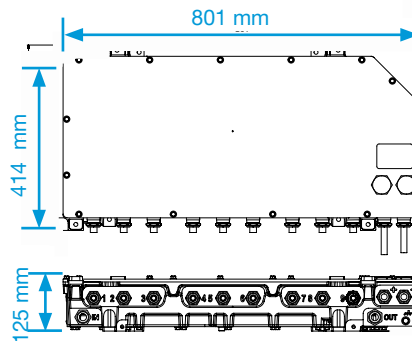
Motors/generators



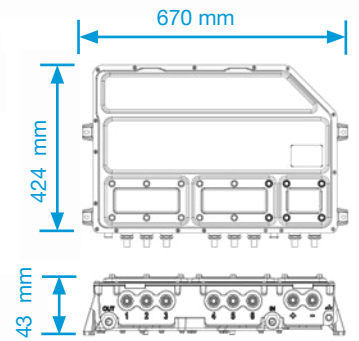
STANDARDS

Automotive components	AEC-Q100 AEC-Q101 ACE-Q200
Electromagnetic compatibility EMC	Main automotive international standards
System protection	IP6K5 (IP69K optional)
Toxic materials and flammability	ROHS, ELV, UL94-VO

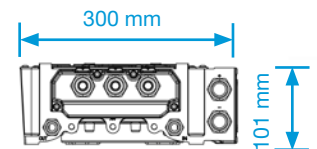
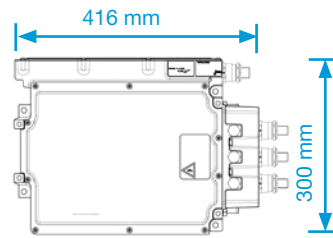
CO300 inverter



CO200 inverter



CO150 inverter



tm4



CONTACT

135 J-A Bombardier
 Suite 25
 Boucherville, Québec
 Canada
 J4B 8P1



Phone: +1-450-645-1444

www.tm4.com