

# Request Datasheet

Please share as much information as possible.

1. Basic Project Data	
1.1 Project name	
1.2 Date	
1.3 Scope of request	Traction motor Gearbox Generator
1.4 Type of vehicle (LRV, Metro, EMU, DMU, Loco, etc.)	
1.5 Drive concept (longitudinal or parallel drive, nose-suspended, semi-suspended, partly suspended, fully suspended)	
1.6 Number of drive motors in the vehicle	
1.7 Nominal catenary voltage (V) (if overhead line is available)	
1.8 Track gauge (normal, meter, wide, etc.) (mm)	
1.9 Wheel diameter (mm)	Ø new
	Ø worn
1.10 Gear ratio	
1.11 Tractive effort	Please fill in values in diagram on next page!
1.12 Max. vehicle speed (km/h) (normal operation)	
1.13 Ambient temperature (°C)	maximum
	minimum

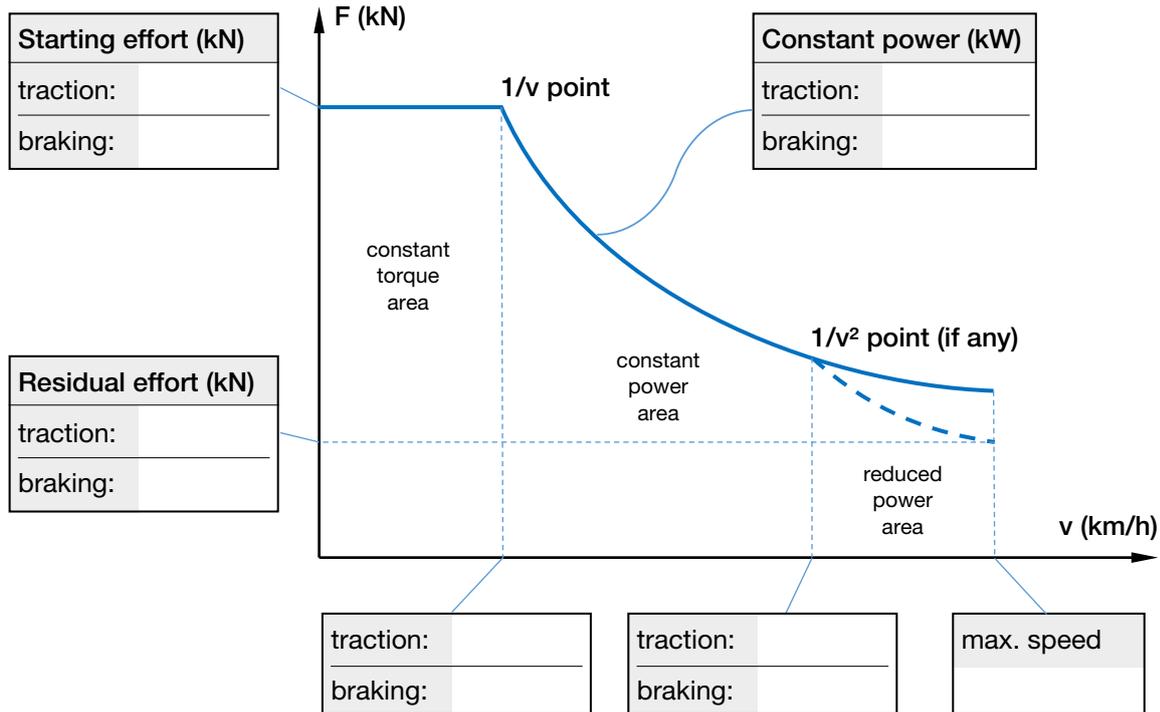
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2 Parameters for Traction Motor Design	
2.1 Available installation space for the motor (if available, please enclose a drawing.) length x width x height (mm)	
2.2 Preferred type of cooling (self-ventilated, open design   self-ventilated, encapsulated   forced ventilation   liquid cooling)	
2.3 Rotor suspension (1 or 2 bearings)	
2.4 Rated point for continuous operation (S1) rated mechanical output power (kW)	
rated electrical frequency (Hz)	
rated motor speed (rpm)	
2.5 Motor-AC-Klemmenspannung (V) maximum available value at terminals (line-to-line, RMS value)	
for traction	
for braking	
2.6 Motor line current (A) maximum permissible value (RMS)	
2.7 Speed sensor required? (yes / no) Remark: A speed sensor may require additional space in axial direction.	
2.8 Number of motors connected in parallel to one converter	
2.9 Permissible difference between wheel diameters (mm)	

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## Tractive effort diagram



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### 3 Converter Data

This additional data is required to optimize motor design for operation on converter supply

3.1 DC link voltage (V)	nominal	
	minimum	
	maximum	
3.2 Number of output voltage levels (2 or 3)		
3.3 Maximum available switching frequency (Hz)		
3.4 Pulse pattern	Please fill in values in table below (as far as data is available)	

Fundamental frequency range			
from (Hz)	to (Hz)	modulation type	switching frequency (Hz)
<b>Example:</b>			
0	120	asynchronous (PWM)	2000
121	180	full wave	—

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4 Parameters for Gearbox Design	
4.1	Maximum axle load for driven axle (t)
4.2	Type of coupling <div style="text-align: right; margin-right: 20px;">motor — gearbox</div> <hr/> <div style="text-align: right; margin-right: 20px;">gearbox — wheelset shaft</div>
4.3	Type of gearbox <div style="text-align: right; margin-right: 20px;">type of gears (helical or bevel)</div> <hr/> <div style="text-align: right; margin-right: 20px;">number of stages (1 or 2)</div>
4.4	Available installation space for gearbox: (Please submit drawing if available.) <div style="text-align: right; margin-right: 20px;">center distance (mm)</div> <hr/> <div style="text-align: right; margin-right: 20px;">width (mm)</div> <hr/> <div style="text-align: right; margin-right: 20px;">height above wheel axle (mm)</div>
4.5	Minimum ground clearance with worn wheels (mm) (at non-displaced primary spring)
4.6	Diameter of wheelset shaft between seats (mm)
4.7	Diameter of driving wheel seat on wheelset shaft (mm)
4.8	Diameter of gearbox bearing seats on wheelset shaft (mm) (if available)
4.9	Maximum displacement of primary suspension $\pm$ (mm) <div style="text-align: right; margin-right: 20px;">longitudinal – x</div> <hr/> <div style="text-align: right; margin-right: 20px;">lateral – y</div> <hr/> <div style="text-align: right; margin-right: 20px;">vertical – z</div>

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5 Parameters for Generator Design	
5.1 Generator technology	Asynchronous machine (ASM) Permanent Magnets (PM)
5.2 Rated point for continuous operation (S1)	
rated mechanical input power (kW) Power available at generator's shaft. Power consumption of auxiliary units (e.g. coolant pump) has to be subtracted from diesel engine's output power.	
rated electrical output power (kW) (Optional specification, as an alternative to mechanical input power)	
rated electrical frequency (Hz) (Optional specification, as an alternative to speed)	
rated generator speed (rpm) (Identical to rated diesel engine speed)	
5.3 Available installation space for generator (Please submit drawing if available)	
length x width x height (mm)	
5.4 Maximum permissible weight (kg)	
5.5 Preferred type of cooling	
Suitable and common cooling types are: for ASM: self-ventilated, open design for PM: liquid cooling, encapsulated design	
5.6 Speed area of diesel engine (rpm)	
minimum	
maximum	
5.7 Diesel engine's power vs. speed characteristic	If available, please submit data
5.8 Connection to diesel engine	
Type of coupling	
Type of flange (SAE)	

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5 Parameters for Generator Design	
Relevant to Asynchronous generators only:	
<b>5.9 Generator AC voltage (V)</b> maximum available value at terminals (line-to-line, RMS value)	
<b>5.10 Converter data</b>	Please fill in values in section 3!
Relevant to PM Generators only:	
<b>5.11 Generator DC voltage (V)</b> (Generator's output voltage after rectification)	
<div style="text-align: right;">_____</div> desired nominal value	
<div style="text-align: right;">_____</div> absolute maximum permissible value	
Permissible range for full load	
<div style="text-align: right;">_____</div> minimum	
<div style="text-align: right;">_____</div> maximum	
<b>5.12 Operating point for minimum power</b> engine speed (rpm)	
Permissible DC output voltage	
<div style="text-align: right;">_____</div> minimum	
<div style="text-align: right;">_____</div> maximum	
<b>5.13 Type of rectification</b>	passive (diode bridge rectifier) active (converter) – please fill in values in section 3.