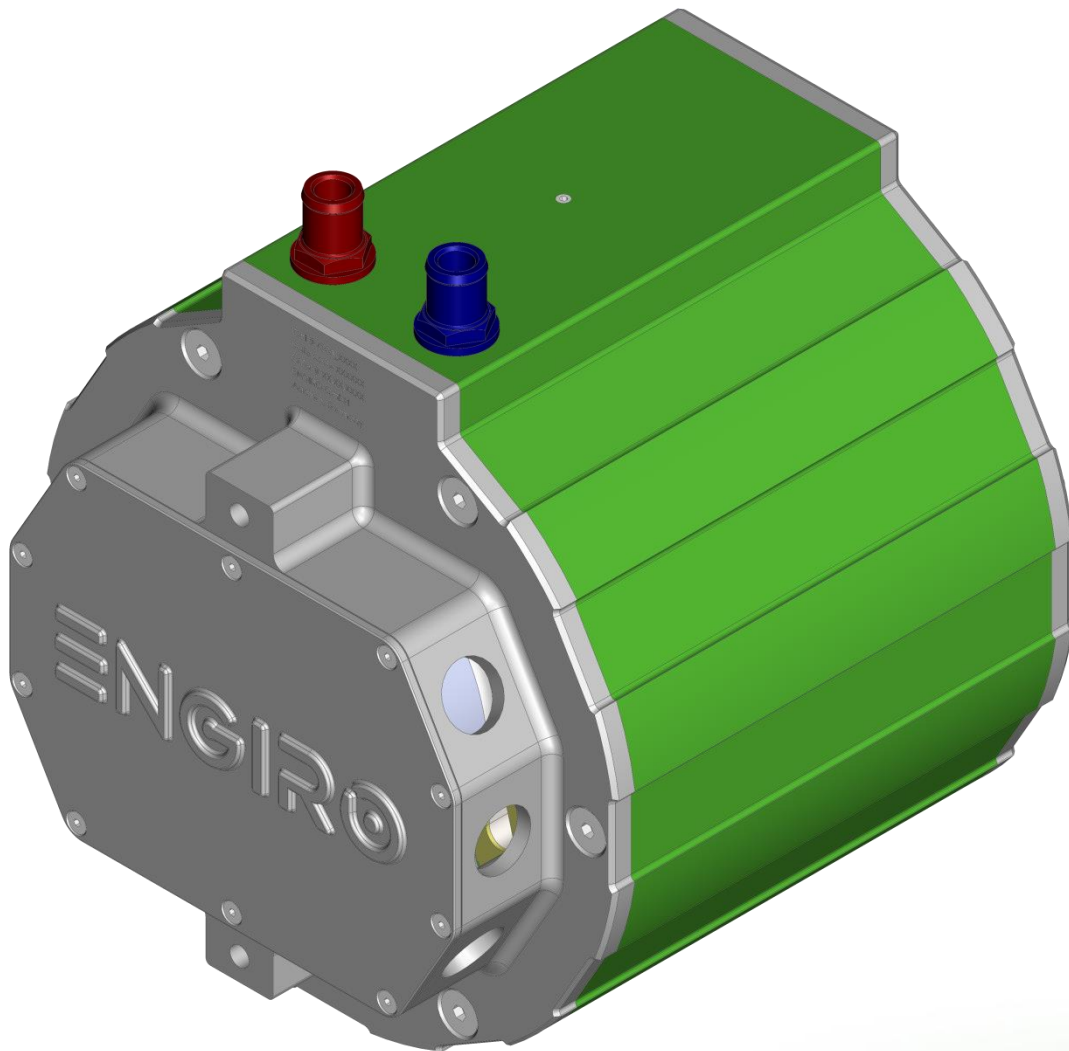


205W-08020-ABC

water-cooled motor / generator with up to 29 kW continuous power



KEY FEATURES

- permanent magnet synchronous machine
- water-cooled
- high peak power for motor applications
- convincing cost-benefit ratio
- recommended voltage range from 48V to 200V
- delivery with controller possible
- various mechanical interfaces available

| Section | Page |
|---------------------------------|------|
| Technical Data Machine | 3 |
| Technical Drawings Machine | 4 |
| Characteristics Machine 48V | 5 |
| Characteristics Machine 140V | 6 |
| Technical Data Inverter Set 48V | 7 |
| | |

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| Nominal Operation (S1, cooling as specified below) | | | | |
|--|-----------------|------------|--|--------------------------|
| Torque | T_{nom} | 89 | 89 | Nm |
| Power | P_{nom} | 9.8 | 29 | kW |
| Speed | n_{nom} | 1050 | 3100 | rpm |
| Phase rms-current | I_{nom} | 247 | 247 | A |
| Battery voltage (DC) | U_{nom} | 48 | 140 | V |
| Electric frequency | $f_{el,nom}$ | 70 | 207 | Hz |
| Power factor | $\cos(\varphi)$ | 0.72 | 0.69 | |
| Maximal Values (S2, 10s, cooling as specified below) | | | | |
| Torque | T_{max} | 189 | 189 | Nm |
| Power | P_{max} | 16 | 51 | kW |
| Phase rms-current | I_{max} | 625 | 625 | A |
| Battery voltage (DC) | U_{max} | | 200 | V |
| Speed | n_{max} | | 8000 | rpm |
| Electric frequency | $f_{el,max}$ | | 533 | Hz |
| Electrical Data | | | | |
| Number of phases | | | 3 | |
| Number of pole pairs | | | 4 | |
| Maximal efficiency | | | >96 | % |
| T/I constant ($I < I_{nom}$) | | | 0.36 | Nm/A _{rms} |
| U/n constant (AC) | | rms: 24.4 | peak: 34.5 | V/(1000rpm) |
| K_e constant (AC) | | rms: 0.058 | peak: 0.082 | V/(rad*s ⁻¹) |
| Additional Data | | | | |
| Weight (w/o cables) | | | see page 4 | |
| Rotor moment of inertia | | | 0.0123 | kg*m ² |
| Protection category | | | IP65 / IP69k | |
| Maximal motor temperature | | | 140 | °C |
| Allowed ambient temperature | | | -20 ... 45 ¹⁾ | °C |
| Cooling (medium, flow rate, inlet temperature, pressure) | | | water/glycol 50/50, 6 l/min, ≤ 45°C, ≤ 0.5 bar | |
| Temperature monitoring | | | 1 x KTY84-130 | |
| Type approval | | | CE, EN 60034 | |
| Customs tariff number | | | 8501 5230 | |
| Connectors | | | | |
| Power terminals | | | 3 x M25 cable gland | |
| Signal connectors | | | M16, 10 Pin | |
| Cooling connectors | | | 2 x ¾" / 19 mm | |

¹⁾ other range on request

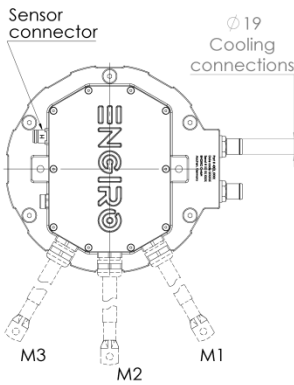
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Available Type Variants

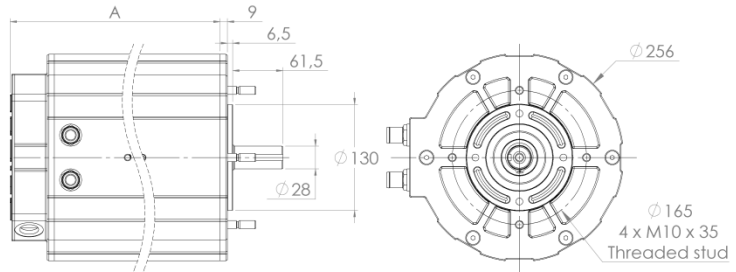
| type number | A: flange | B: shaft | C: position sensor |
|-------------|----------------------------------|---|--------------------|
| 205W-08020- | S: standard | S: cylindrical shaft with keyway Ø28mm | R: resolver |
| | B: flange for fan motor | H: hollow shaft with internal splines ANSI B 92.1 | E: sin/cos encoder |
| | C: flange for fan without insert | E: external splines, DIN 5480 | N: none |
| | | C: cylindrical shaft with keyway Ø35mm | |
| | | D: hollow shaft with internal splines ANSI B 92.1 | |

Dimension „A“ = 252 mm

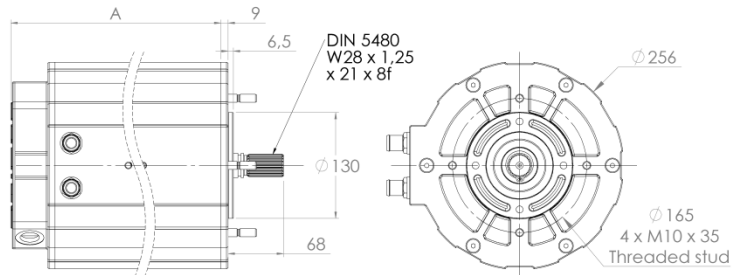
| Approximate machine weight | | |
|----------------------------|-------|----|
| flange | shaft | kg |
| S | S | 35 |
| S | E | 35 |
| S | H | 34 |
| C | D | 37 |
| B | C | 39 |



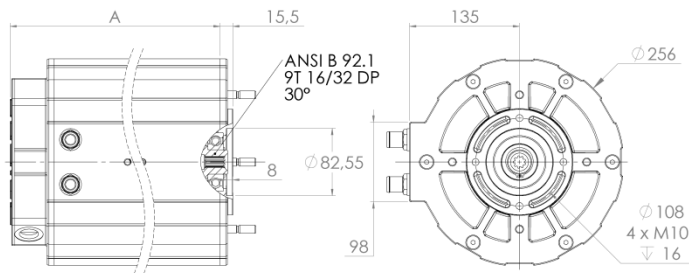
Flange S
Shaft S



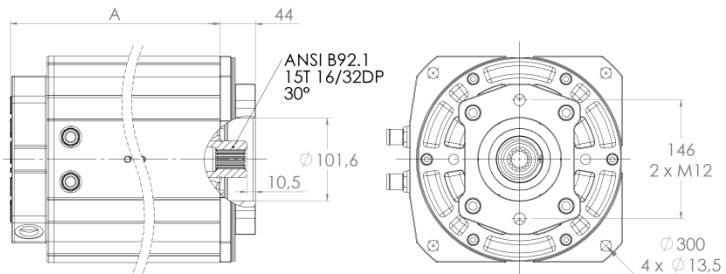
Flange S
Shaft E



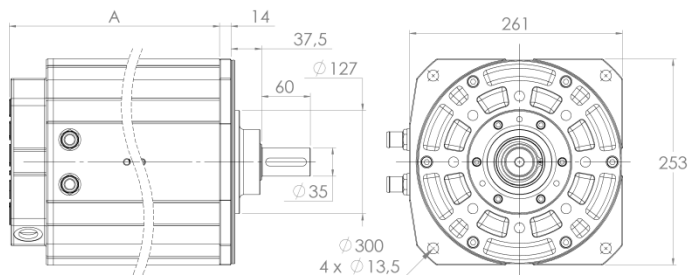
Flange S
Shaft H



Flange C
Shaft D



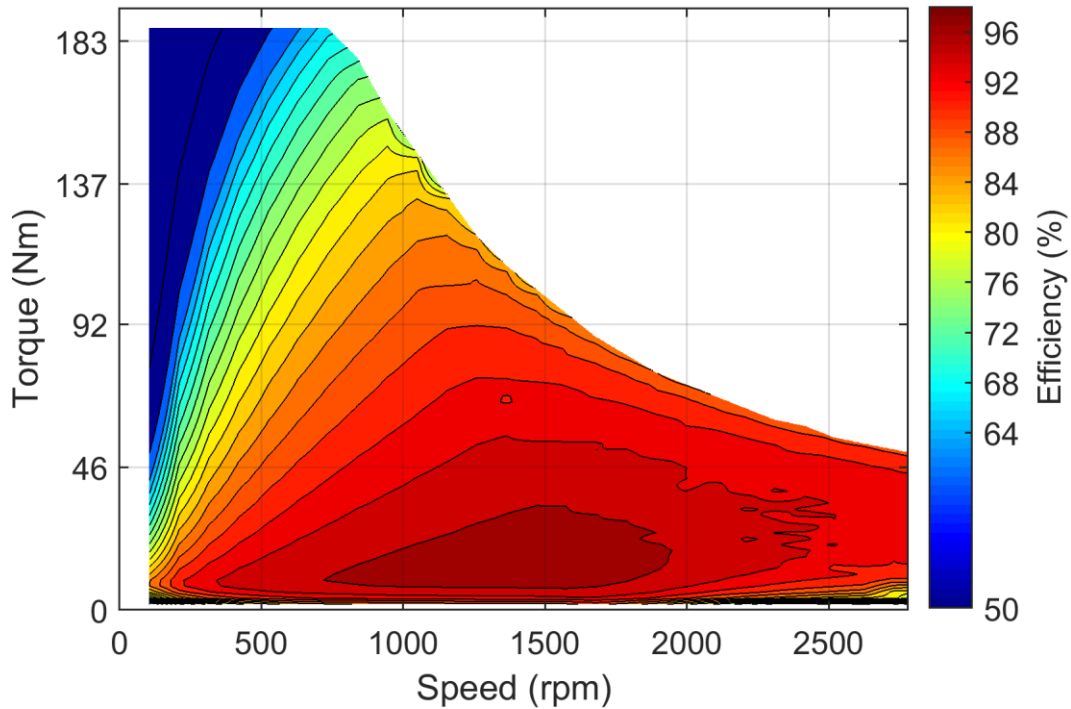
Flange B
Shaft C



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Simulated Efficiency of Motor Application

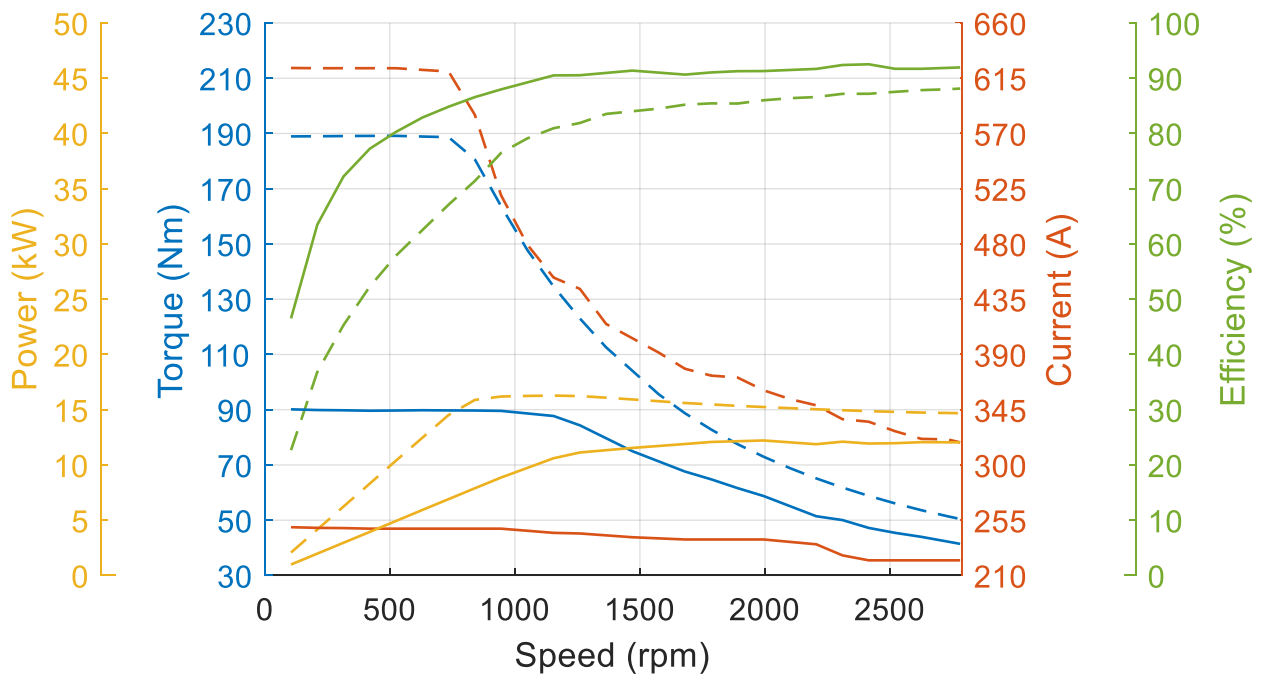
(electric machine only; $U_{nom} = 48\text{ V}$; machine at $100\text{ }^\circ\text{C}$;)



Simulated Characteristic Motor Parameters

$U_{nom} = 48\text{ V}$

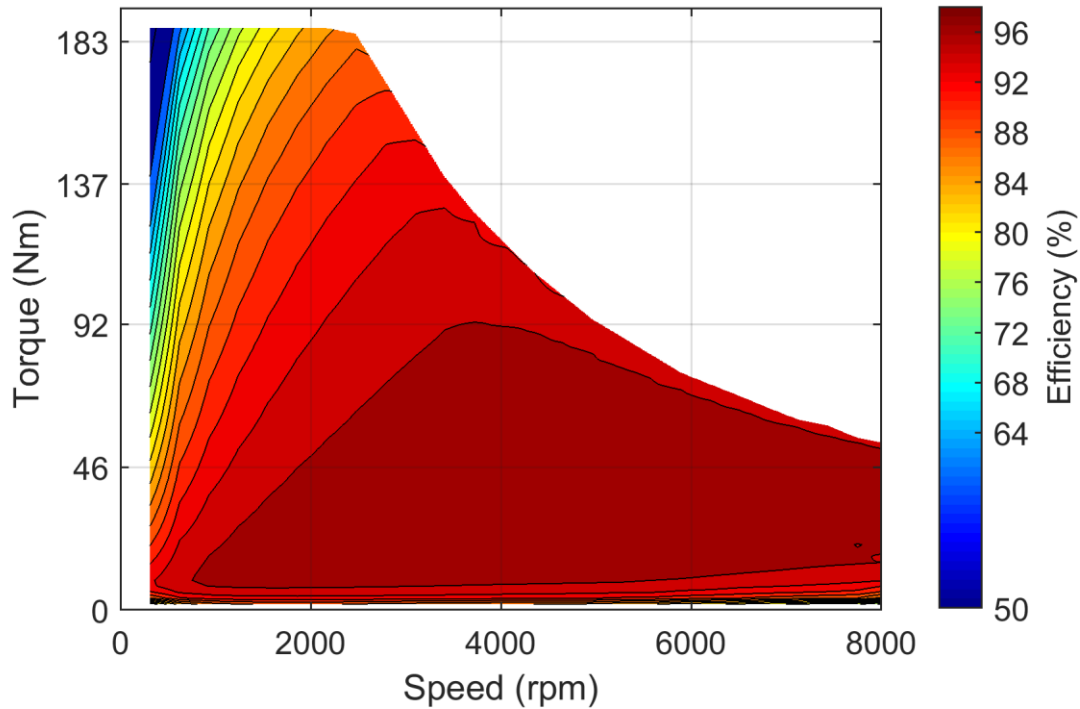
solid lines: continuous; dashed lines: maximum;
(jitter is caused by numerical inaccuracies in the simulation software)



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Simulated Efficiency of Motor Application

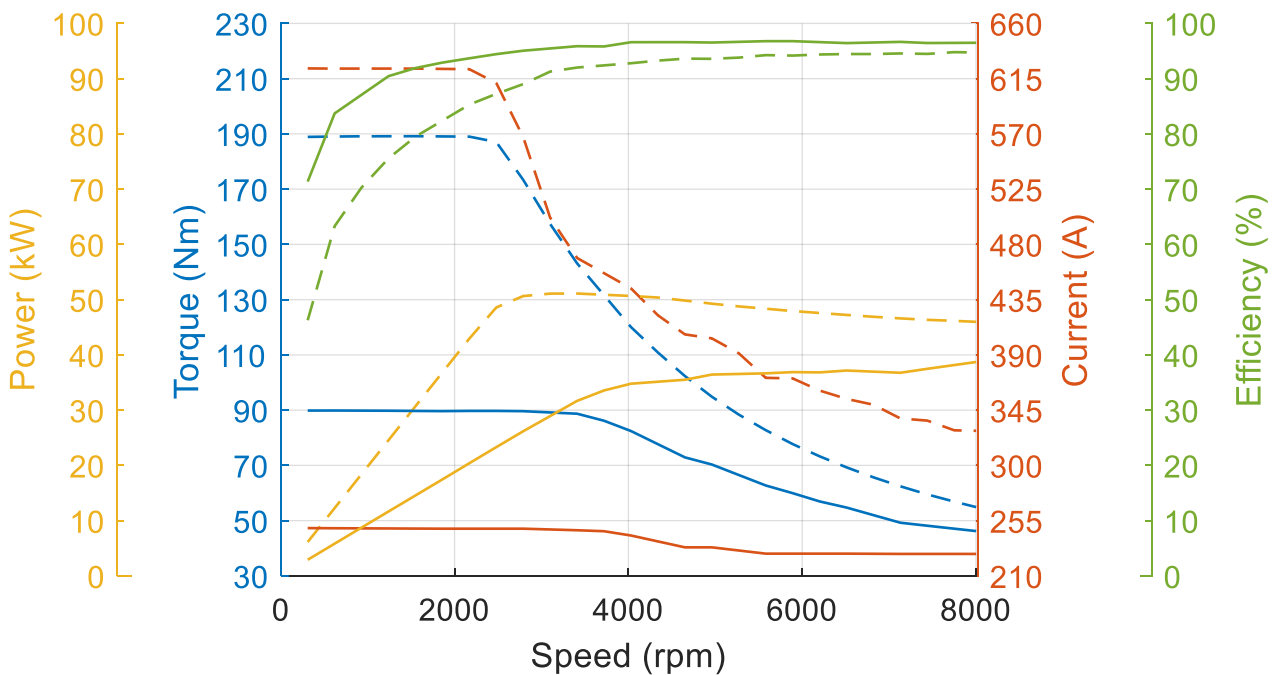
(electric machine only; $U_{nom} = 140\text{ V}$; machine at 100 °C ;)



Simulated Characteristic Motor Parameters

$U_{nom} = 140\text{ V}$

solid lines: continuous; dashed lines: maximum;
(jitter is caused by numerical inaccuracies in the simulation software)

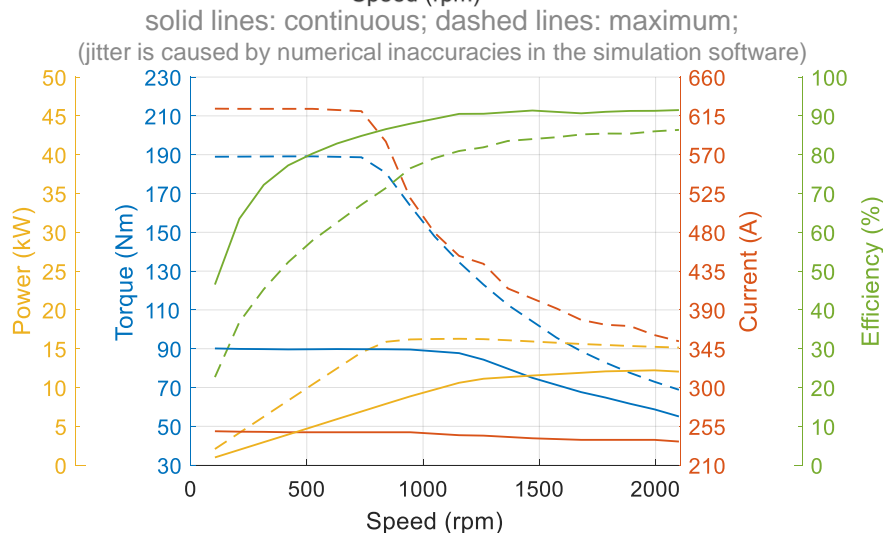
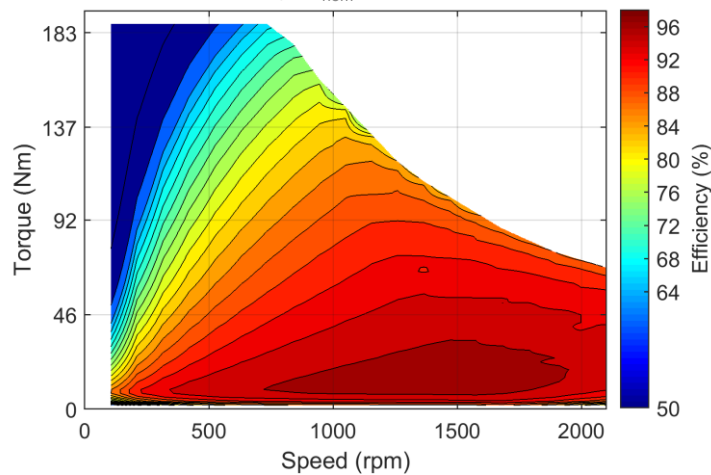


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| Nominal Operation Drive Set – 48V (S1) | | | |
|--|-----------------|--|----------|
| Torque | T_{nom} | | 89 Nm |
| Power | P_{nom} | | 9.8 kW |
| Speed | n_{nom} | | 1050 rpm |
| Phase rms-current | I_{nom} | | 247 A |
| Battery voltage (DC) | U_{nom} | | 48 V |
| Electric frequency | $f_{el,nom}$ | | 70 Hz |
| Power factor | $\cos(\varphi)$ | | 0.72 |
| Maximal Values Drive Set (S2, 1-10s) | | | |
| Torque | T_{max} | | 189 Nm |
| Power | P_{max} | | 16 kW |
| Phase rms-current | I_{max} | | 624 A |
| Battery voltage (DC) | U_{max} | | 48 V |
| Speed | n_{max} | | 2100 rpm |
| Electric frequency | $f_{el,max}$ | | 140 Hz |

Simulated Efficiency and Motor Characteristic of Motor Application

(electric machine only; $U_{nom} = 48\text{ V}$; machine at $100\text{ }^\circ\text{C}$;)



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