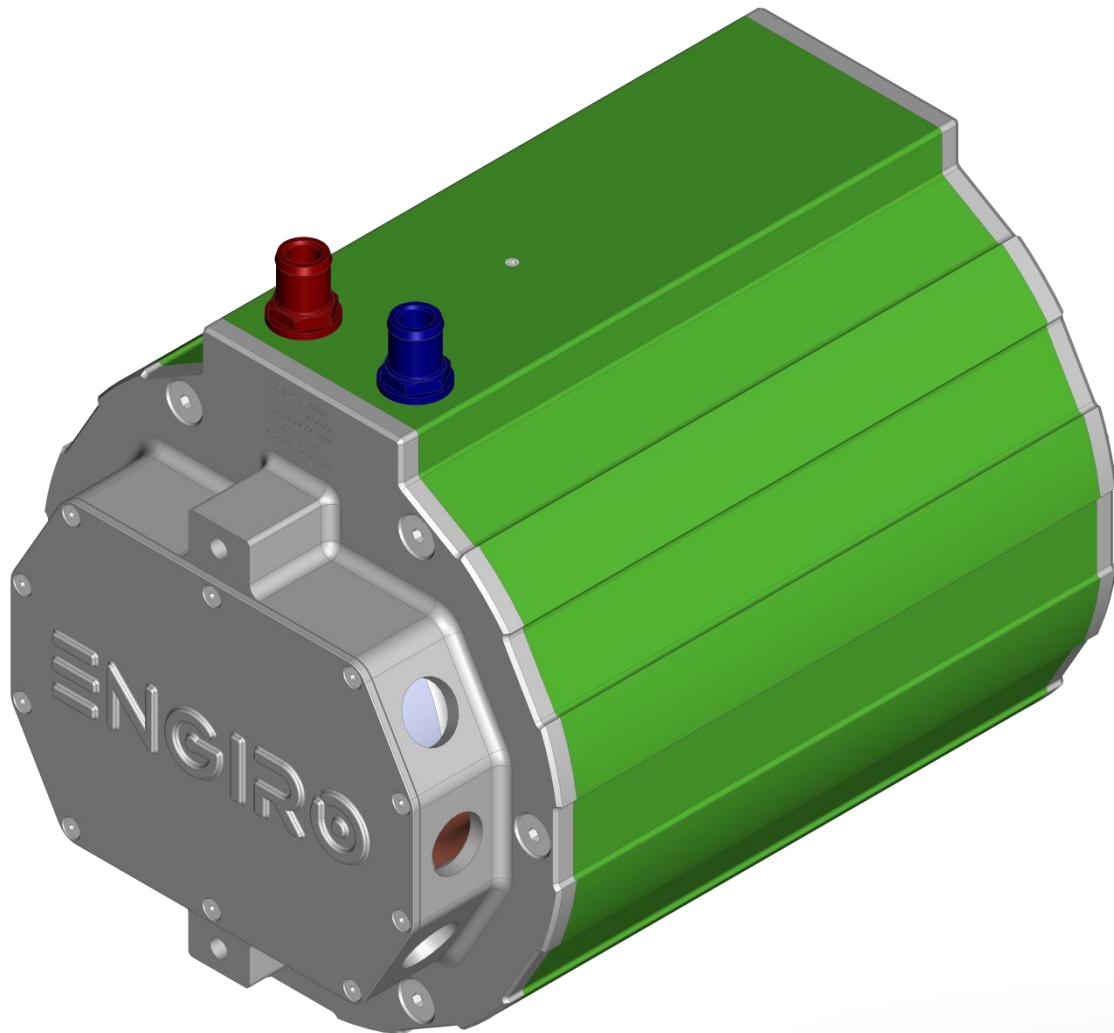


# 205W-12013-ABC

water-cooled motor / generator with up to 27 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 – 48 V | 5    |
| Characteristics Machine – 96 V | 6    |

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| Nominal Operation (S1, cooling as specified below)       |                 |                     |  |                                |
|--|-----------------|---------------------|--|--------------------------------|
| Torque   | $T_{nom}$       | 129                 | 120  | Nm                             |
| Power  | $P_{nom}$       | 14                  | 27   | kW                             |
| Speed  | $n_{nom}$       | 1080                | 2180   | rpm                            |
| Phase rms-current  | $I_{nom}$       | 359 <sup>1,2)</sup> | 339 <sup>1,2)</sup>                            | A                              |
| Battery voltage (DC)                                     | $U_{nom}$       | 48                  | 96   | V                              |
| Electric frequency                                       | $f_{el,nom}$    | 72                  | 145  | Hz                             |
| Power factor   | $\cos(\varphi)$ | 0.72                | 0.69   |                                |
| Maximal Values (S2, 10s, cooling as specified below)     |                 |                     |  |                                |
| Torque   | $T_{max}$       | 298                 | 284  | Nm                             |
| Power  | $P_{max}$       | 24                  | 52   | kW                             |
| Phase rms-current  | $I_{max}$       | 959 <sup>2)</sup>   | 959 <sup>2)</sup>                              | A                              |
| Battery voltage (DC)                                     | $U_{max}$       |                     | 200  | V                              |
| Speed  | $n_{max}$       |                     | 5700   | rpm                            |
| Electric frequency                                       | $f_{el,max}$    |                     | 380  | Hz                             |
| Electrical Data  |                 |                     |  |                                |
| Number of phases   |                 |                     | 3  |                                |
| Number of pole pairs                                     |                 |                     | 4  |                                |
| Maximal efficiency                                       |                 |                     | 96   | %                              |
| $T/I$ constant ( $I < I_{nom}$ )                         |                 |                     | 0.35   | Nm/A <sub>rms</sub>            |
| $U/n$ constant (AC) at a temperature of 30°C             | rms:            | 23.8                | peak:  | 40.5 V/(1000rpm)               |
| $K_e$ constant (AC) at a temperature of 30°C             | rms:            | 0.057               | peak:  | 0.097 V/(rad*s <sup>-1</sup> ) |
| Additional Data  |                 |                     |  |                                |
| Weight (w/o cables)                                      |                 |                     | see page 4                                     |                                |
| Rotor moment of inertia                                  |                 |                     | 0.0183   | kg*m <sup>2</sup>              |
| Protection category                                      |                 |                     | IP65 / IP69k                                   |                                |
| Maximal motor temperature                                |                 |                     | 140  | °C                             |
| Allowed ambient temperature                              |                 |                     | -20 ... 45 <sup>3)</sup>                       | °C                             |
| Cooling (medium, flow rate, inlet temperature, pressure) |                 |                     | water/glycol 50/50, 8 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 3/4" / 19 mm                               |                                |

<sup>1)</sup> Nominal current strongly dependent on cooling as specified below.

<sup>2)</sup> The cables must not exceed a temperature of 140 °C at any time. Temperature and service life depend on the installation condition.

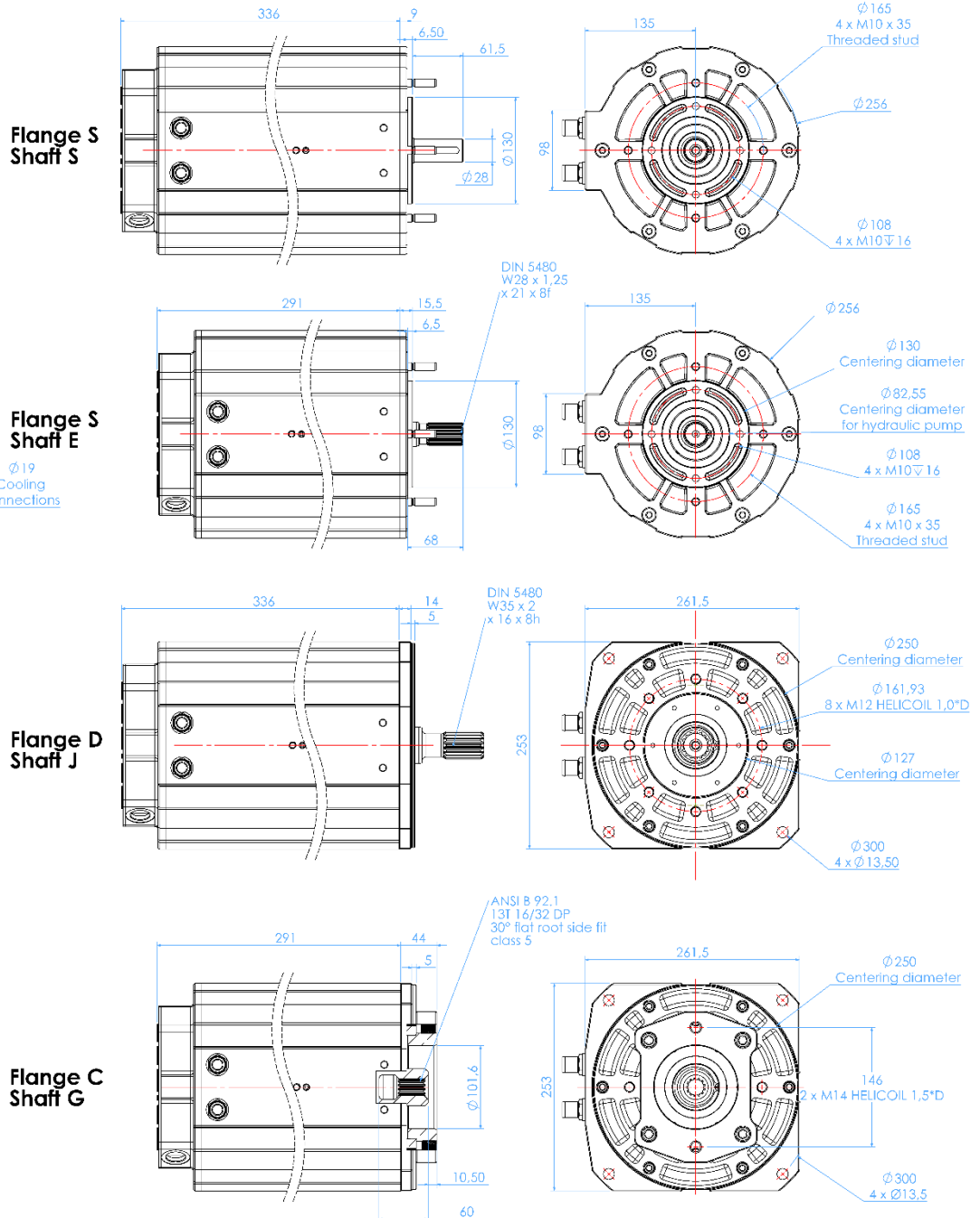
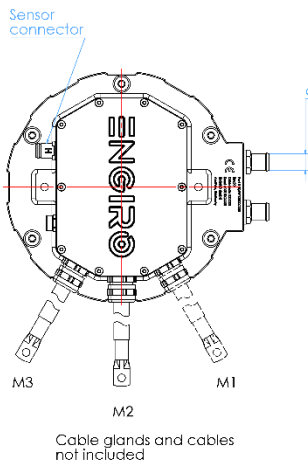
<sup>3)</sup> other range on request

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Available Type Variants

| type number | A: flange                                     | B: shaft  | C: position sensor |
|-------------|---|---|--------------------|
| 205W-12013- | S: standard                                   | S: cylindrical shaft with keyway Ø28mm            | R: resolver        |
|             | C: flange for fan with hydraulic pump adapter | E: external splines, DIN 5480                     | E: sin/cos encoder |
|             | D: flange for fan without insert              | J: external splines, DIN 5480                     | N: none            |
|             |   | G: hollow shaft with internal splines ANSI B 92.1 |                    |

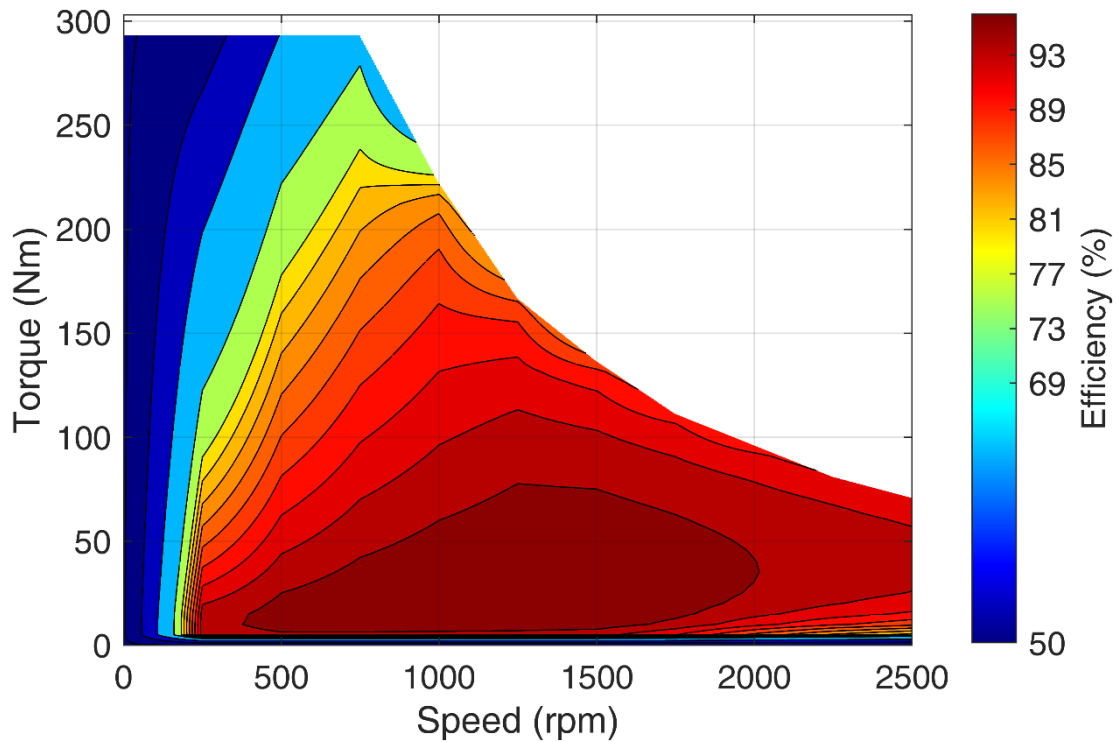
| Approximate machine weight |       |    |
|----------------------------|-------|----|
| flange                     | shaft | kg |
| S                          | S     | 47 |
| S                          | E     | 47 |
| D                          | J     | 47 |
| C                          | G     | 47 |



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## Simulated Efficiency of Motor Application

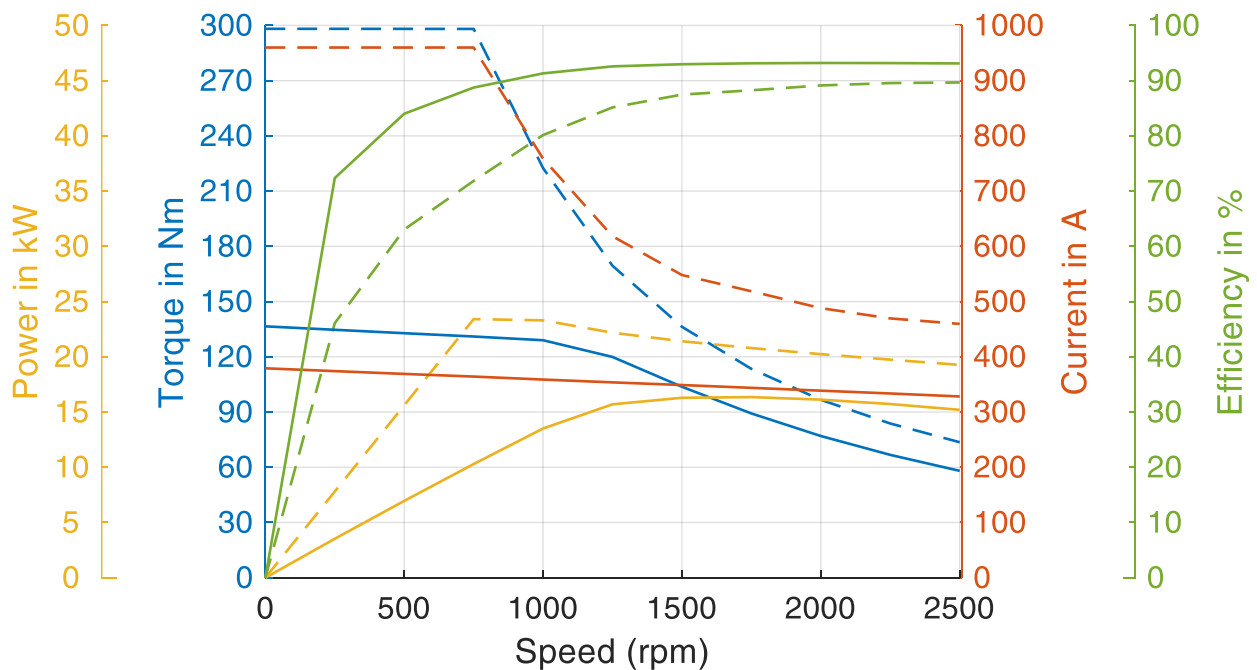
(electric machine only;  $U_{nom} = 48\text{ V}$ ; machine at  $140\text{ °C}$ ;)



## Simulated Characteristic Motor Parameters

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

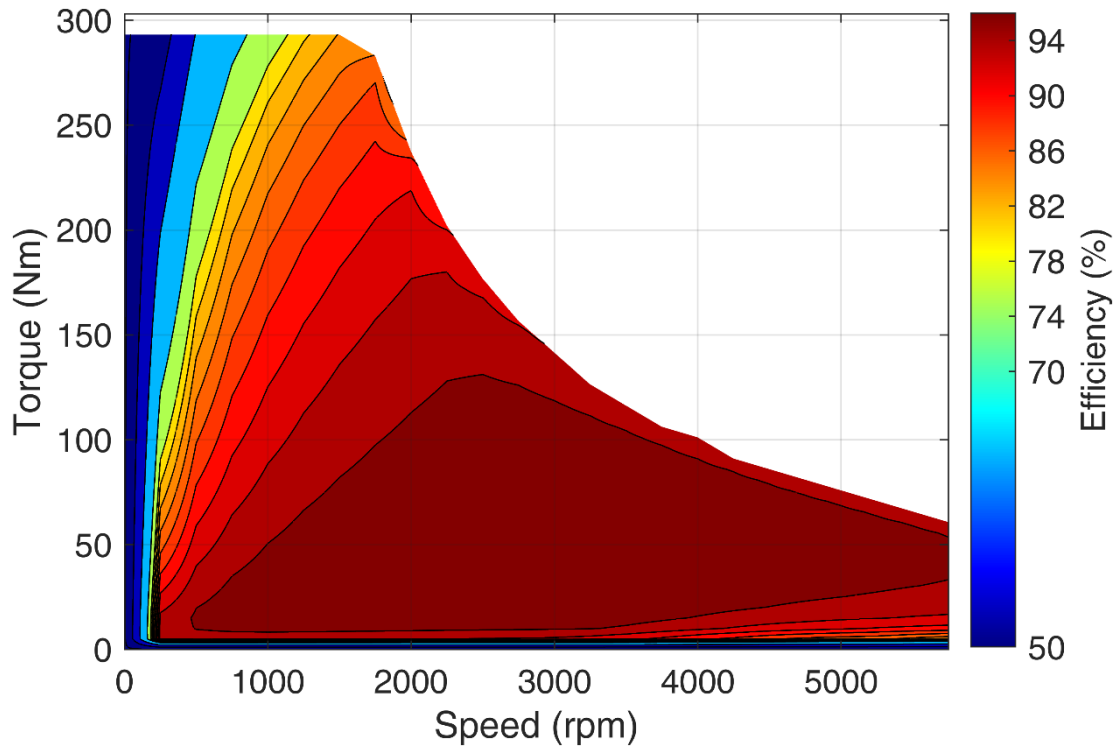
solid lines: continuous; dashed lines: maximum;



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## Simulated Efficiency of Motor Application

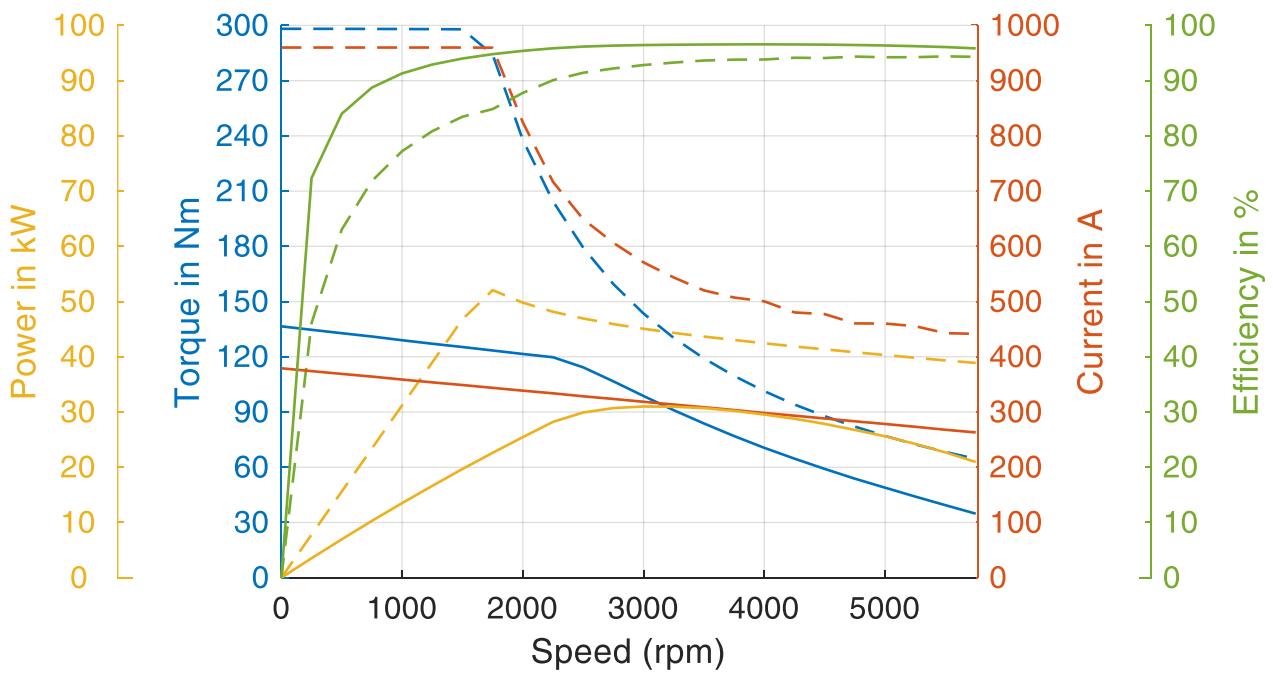
(electric machine only;  $U_{nom} = 96\text{ V}$ ; machine at  $140\text{ }^\circ\text{C}$ ;)



## Simulated Characteristic Motor Parameters

$U_{nom} = 96\text{ V}$

solid lines: continuous; dashed lines: maximum;



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