

# Data sheet

## VECTOMOTOR VM616-18W0040

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The illustration may contain optional equipment.

### Mechanical motor characteristics

#### Motor

|                |        |
|----------------|--------|
| Weight         | 75 kg  |
| Outer diameter | 305 mm |
| Length         | 314 mm |

#### Shaft

|                       |                         |
|-----------------------|-------------------------|
| Diameter of the shaft | 38 mm                   |
| Length of the shaft   | 66.5 mm                 |
| Moment of inertia     | 0.079 kg*m <sup>2</sup> |

For details see technical drawing

### Typical applications

Motor for traction and functional tasks.  
Can be used as a direct drive or with gearbox.

### Features

PM-RSM with high efficiency (up to 95.6 % depending on operating point) and compact design.

Perfectly matched to form a drive system with the VP600 inverters.

High level of safety thanks to minimal braking torques in the so-called all-phase short circuit, which the VECTOPOWER inverters offer as a safety-relevant function.

### Certifications

The motor complies with the following European directives:

2014/35/EU

The following standards have been applied:

EN 60034-1:2010 + Cor.:2010

EN IEC 60034-5:2020/AC:2024-01

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### Electrical motor characteristics

|   |                                      |
|---|--------------------------------------|
| Torque constant <sup>1)</sup>           | 1.05 Nm / Arms                       |
| Voltage constant                        | 62 Vrms / 1000 rpm                   |
| Pole pair number                        | 5                                    |
| Nominal speed <sup>2)</sup>             | 6000 rpm                             |
| Max. speed <sup>2)</sup>                | 6500 rpm                             |
| Nominal torque <sup>3)</sup>            | 110 Nm                               |
| Peak moment <sup>4)</sup><br>10 seconds | 400 Nm                               |
| Nominal current                         | 104 Arms                             |
| Peak current<br>10 seconds              | 410 Arms                             |
| Circuit type                            | Stern / Star                         |
| Encoder                                 | Resolver Yingshuang<br>YS J52XU9735A |
| Temperature sensors                     | PTC Drilling 1k, PT100               |

### Technical information

<sup>1)</sup> The torque constant is only valid up to the corner point.

<sup>2)</sup> At 670 VDC, depends on the available DC voltage.

<sup>3)</sup> Rated torque at 6000 rpm, 670VDC, 15 l/min cooling water flow at 35 °C and 25 °C ambient temperature.

<sup>4)</sup> Maximum torque at < 4800 rpm, 670 VDC, 15 l/min cooling water flow at 35 °C and 25 °C ambient temperature.

Electrical motor data may deviate from the motor nameplate.

### Operating conditions

The following ambient conditions apply to operation.

|   |        |
|---|--------|
| Max. humidity according to EN 61800-5-1, non-condensing | 90 %   |
| Min. ambient temperature                                | -25 °C |
| Max. ambient temperature                                | +65 °C |
| Protection class according to EN 60529                  | IP65   |

### Cooling

|   |   |
|---|---|
| Liquid cooling                            | yes   |
| Coolant connection                        | G 3/4"  |
| Coolant flow rate min.                    | 15 l/min  |
| Max. coolant pressure                     | 2 bar   |
| Max. coolant temperature with Derating    | +65 °C  |
| Max. coolant temperature without Derating | +35 °C  |
| Coolant                                   | Water and Glycol 50:50 with corrosion inhibitor |

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## Motor characteristics

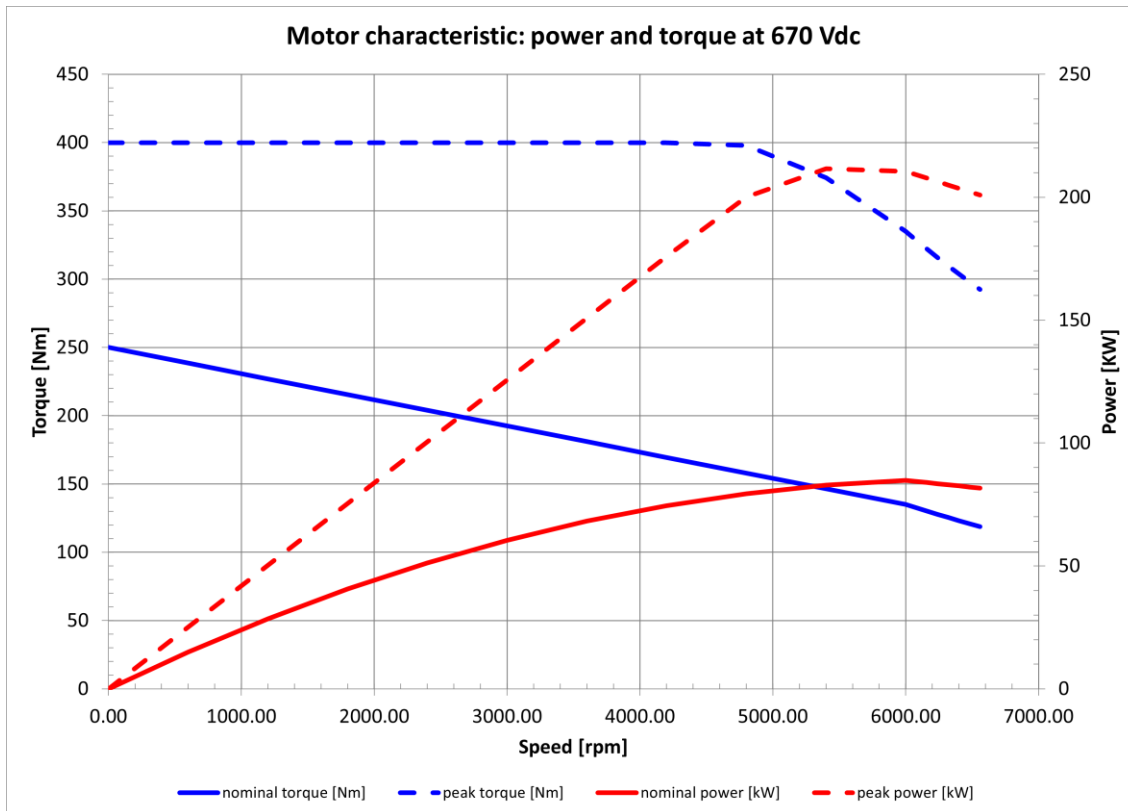


Figure 1: Motor characteristic curves 670 Vdc

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## Pressure drop in the cooling system

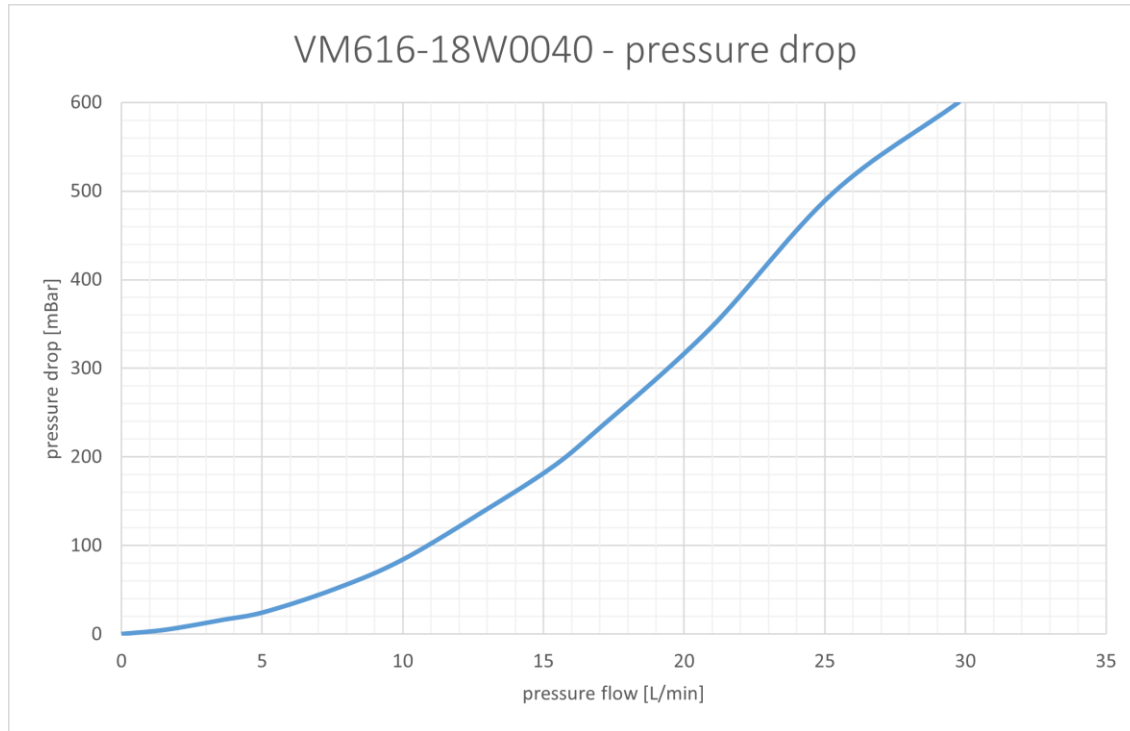


Figure 2: Pressure drop in the cooling system

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## VECTOMOTOR VM616-18W0040

### Plug assignment

#### Signal connection

Plug type: TE Connectivity Intercontec ADFA015MR04000151000 : 17 pol., type "E"

Assignment:

| PIN no. | Function  | Assignment |
|---------|-----------|------------|
| 1       | P+        | male       |
| 2       | P-        | male       |
| 3       | A+        | male       |
| 4       | A-        | male       |
| 5       | B+        | male       |
| 6       | B-        | male       |
| 7       | N.C.      | N.C.       |
| 8       | N.C.      | N.C.       |
| 9       | N.C.      | N.C.       |
| 10      | N.C.      | N.C.       |
| 11      | N.C.      | N.C.       |
| 12      | Interlock | male       |
| 13      | Interlock | male       |
| 14      | PT100     | male       |
| 15      | PT100 GND | male       |
| 16      | PTC       | male       |
| 17      | PTC GND   | male       |

#### Power connection

Plug type: Amphenol PowerLok301 PL00U-301-10D10; PL00V-301-10D10; PL00W-301-10D10

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## VECTOMOTOR VM616-18W0040

### Motor-inverter combinations

| Combined inverters            | VP600-18W340 | VP600-28W344<br>VP600-28W345 | VP600-28WA44 |
|-------------------------------|--------------|------------------------------|--------------|
| Continuous power<br>670VDC    | 69 kW        | 69 kW                        | 69 kW        |
| Nominal torque<br>670VDC      | 110 Nm       | 110 Nm                       | 110 Nm       |
| Overload torque<br>10 minutes | 125 Nm       | 125 Nm                       | 125 Nm       |
| Peak moment<br>60 seconds     | 400 Nm       | 400 Nm                       | 400 Nm       |
| Peak moment<br>10 seconds     | 400 Nm       | 400 Nm                       | 400 Nm       |

### Accessories

Mating connector, coolant nozzle, connecting cable between VECTOPOWER and engine.

### More information

Further information can be found under [www.aradex.com](http://www.aradex.com) or can be requested at [sales@aradex.com](mailto:sales@aradex.com).