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# Datasheet VM616-18W0120

Art.-No: VM616-18W0120-RH20045-0210

## VM600M - Expert eMotors

Synchronous electric motors and generators for mobile applications perfectly matched to the VP600 inverter product line.

### VM600M Features

- maximum lifetime
- high efficiency especially at partial load
- scalable performance and easy implementation of redundancy

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Product overview	
Article no.	VM6 16-18W0120-RH20045-0210
Motor topology	PM synchronous motor

Size	
Weight	147 kg
Diameter shaft	48 mm
Length shaft	80 mm
Total length	645.5 mm
Length	554 mm
External diameter	305 mm

Technical data	
Noiminal torque <sup>1)</sup>	750 Nm
Rated speed	2100 1/min
Max. speed $n_{max}$ <sup>4)</sup>	6000 1/min
Nominal current UVW, per phase	227 A <sub>rms</sub>
Rated power <sup>3)</sup>	163 kW
Terminal voltage (AC)	450 V
Torque constant	3.3 Nm/A <sub>rms</sub>
Peak current UVW, per phase	406 A <sub>rms</sub>
Max. overload for 10 sec <sup>2)</sup>	1280 Nm
Max. overload for 1 min <sup>2)</sup>	1100 Nm
Max. overload for 10 min <sup>2)</sup>	800 Nm
Voltage constant	195 V/1000 rpm
Efficiency at continuous load (up to)	96.1 %
Number of pole pairs	5
Rotor moment of inertia	0.196 kgm <sup>2</sup>
Electrical wiring	Star connection
Rotary encoder	<ul style="list-style-type: none"> <li>• Resolver</li> </ul>
Encoder manufacturer name	Yingshuang
Encoder manufacturer type	YS J52XU9735A
Shaft design	Cylindric
Temperature sensors	Triplets PTC 1k, PT100

## Technical data

### Technical notes

- <sup>1)</sup>Rated torque at: 2100 rpm, 670VDC, 15l/min cooling medium at 35°C supply and 35°C ambient. Derating data available upon request.
- <sup>2)</sup>Max. torque at: < 1400 rpm, 670VDC, 15l/min cooling medium at 35°C and 35°C ambient.
- <sup>3)</sup>Rated power is for 30 min, S1 power and overload capability on request.
- <sup>4)</sup>Dependent on DC voltage.

## Cooling

Liquid cooling	yes
Cooling medium	Water/glycol (50:50)
Cooling water connection (screw thread)	3/4"
Min. coolant throughput	15 l / min
Max. coolant pressure	2 bar
Min. coolant pressure	0.5 bar
Max. coolant temperature without derating	35 °C
Max. coolant temperature with derating	65 °C

## Properties

Plug type	Amphenol PowerLok 301
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## Environment

Max. ambient temperature in operation	65 °C
Min. ambient temperature in operation	-25 °C
Protection class according to EN 60529	IP65

## Pin settings

## ENC

### Properties

Plug type	A DF A 015
Plug design	17 pol., type "E"

pin-no.	operation	type	I/O
1	P+	male	
2	P-	male	
3	A+	male	
4	A-	male	
5	B+	male	

pin-no.	operation	type	I/O
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	

Attachments

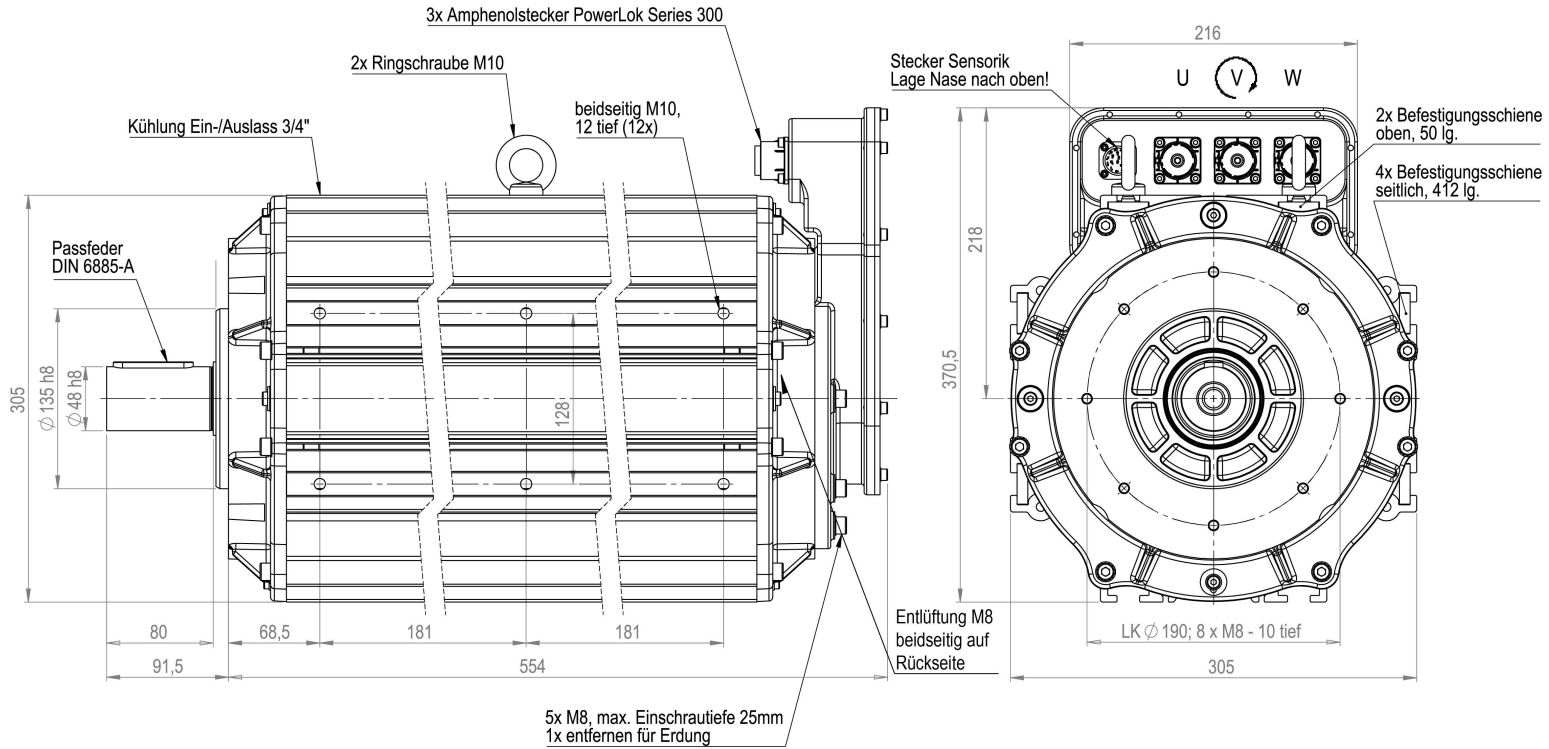


Illustration: Dimensions

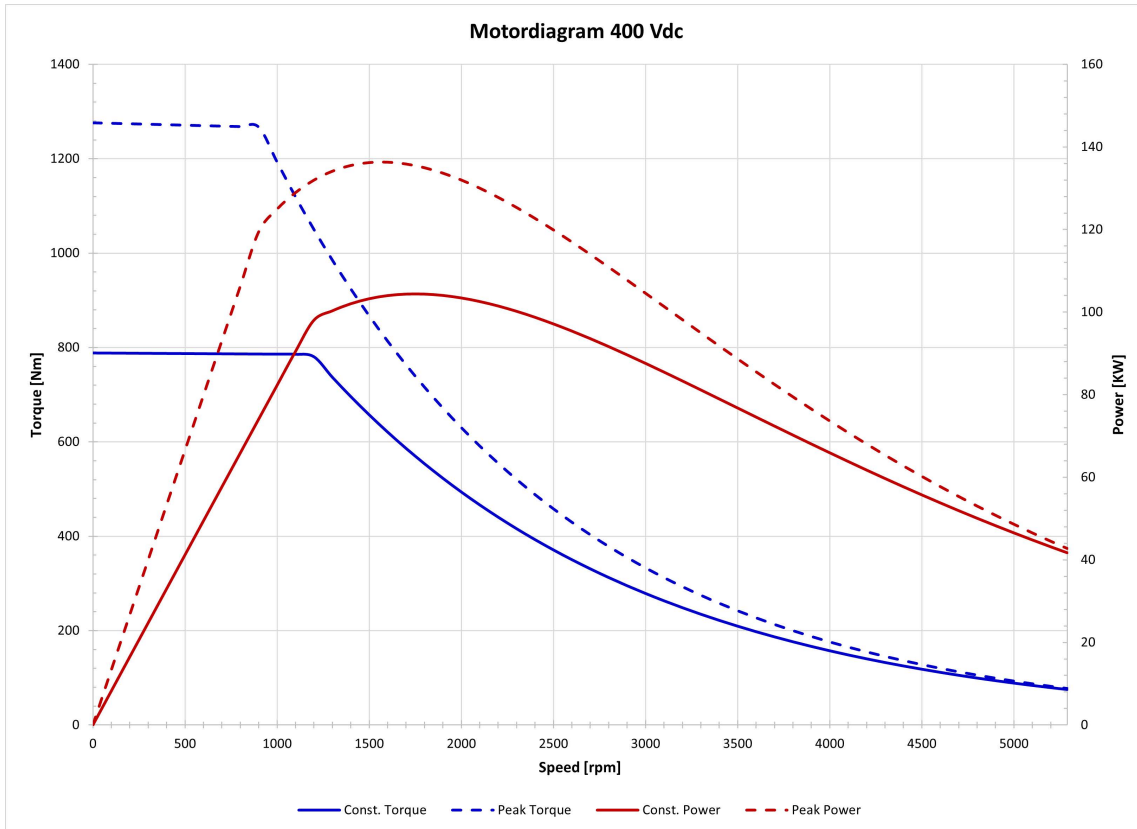


Illustration: S1 torque and power curve

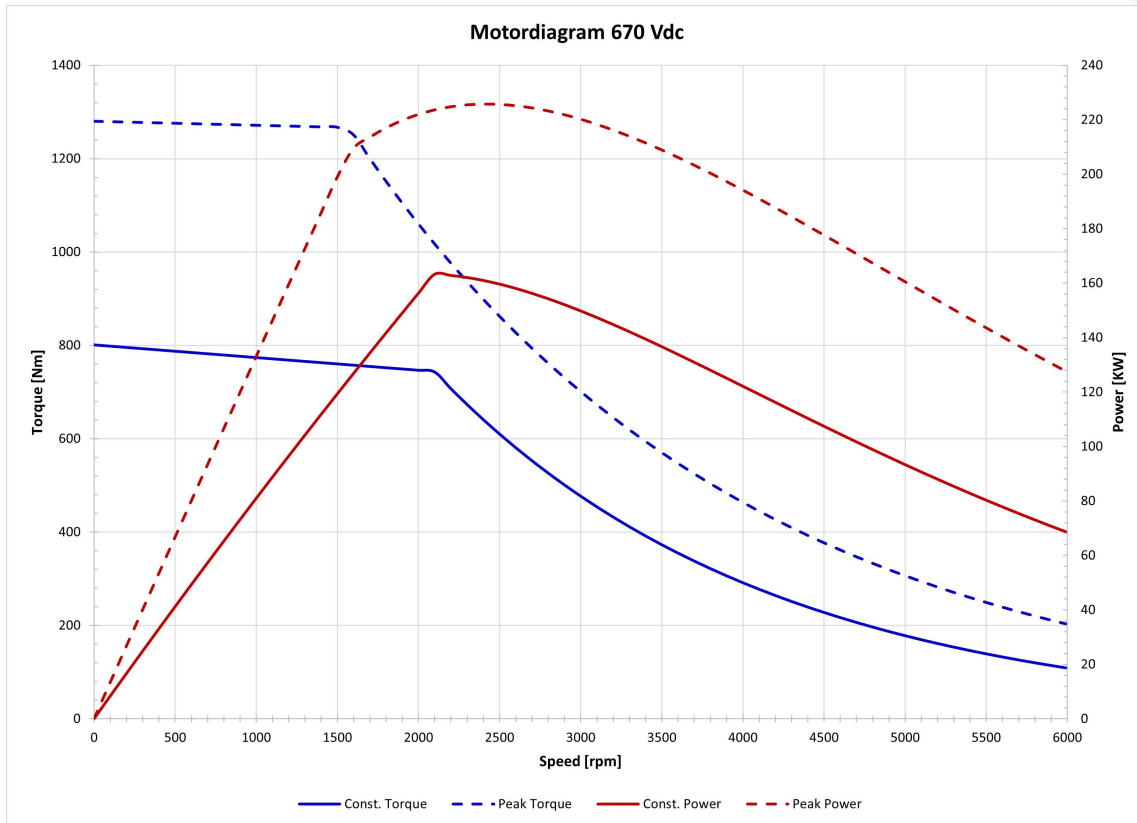


Illustration: S2 torque and power curve

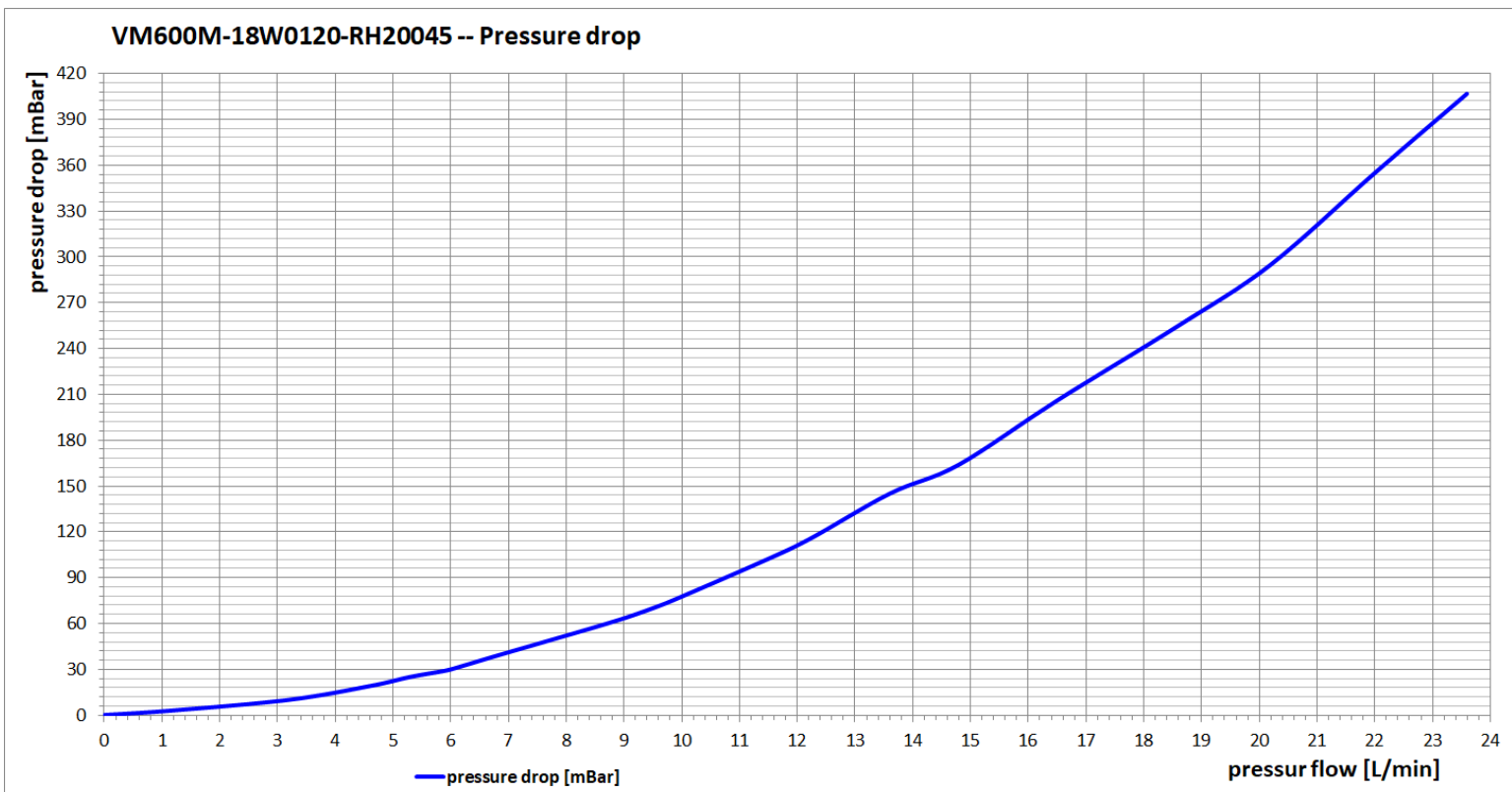


Illustration: pressure loss vs coolant flow