

The illustration may contain optional equipment, Copyright: ARADEX AG

# 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

ARADEX is your partner for exceptional solutions in electric drive technology.

For reference reports go to:  
[www.aradex.com/en/electric-mobility](http://www.aradex.com/en/electric-mobility)



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>	615 Nm
Rated speed	1530 1/min
Max. speed $n_{max}$ <sup>4)</sup>	4500 1/min
Nominal current UVW, per phase	227 A <sub>rms</sub>
Rated power <sup>3)</sup>	98 kW
Terminal voltage (AC)	270 V
Torque constant	2.7 Nm/A <sub>rms</sub>
Peak current UVW, per phase	500 A <sub>rms</sub>
Max. overload for 10 sec <sup>2)</sup>	1200 Nm
Max. overload for 1 min <sup>2)</sup>	1050 Nm
Max. overload for 10 min <sup>2)</sup>	640 Nm
Voltage constant	157 V/1000 rpm
Efficiency at continuous load (up to)	94.8 %
Efficiency at 50% load (up to)	92 %
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: 1530 rpm, 400VDC, 15l/min coolant flow rate at 35°C and 25°C ambient <sup>2)</sup> Max. torque at: < 1000 rpm, 400VDC, 15l/min coolant flow rate at 35°C and 25°C ambient <sup>3)</sup> Rated power valid for 30 min. <sup>4)</sup> dependent on available 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

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

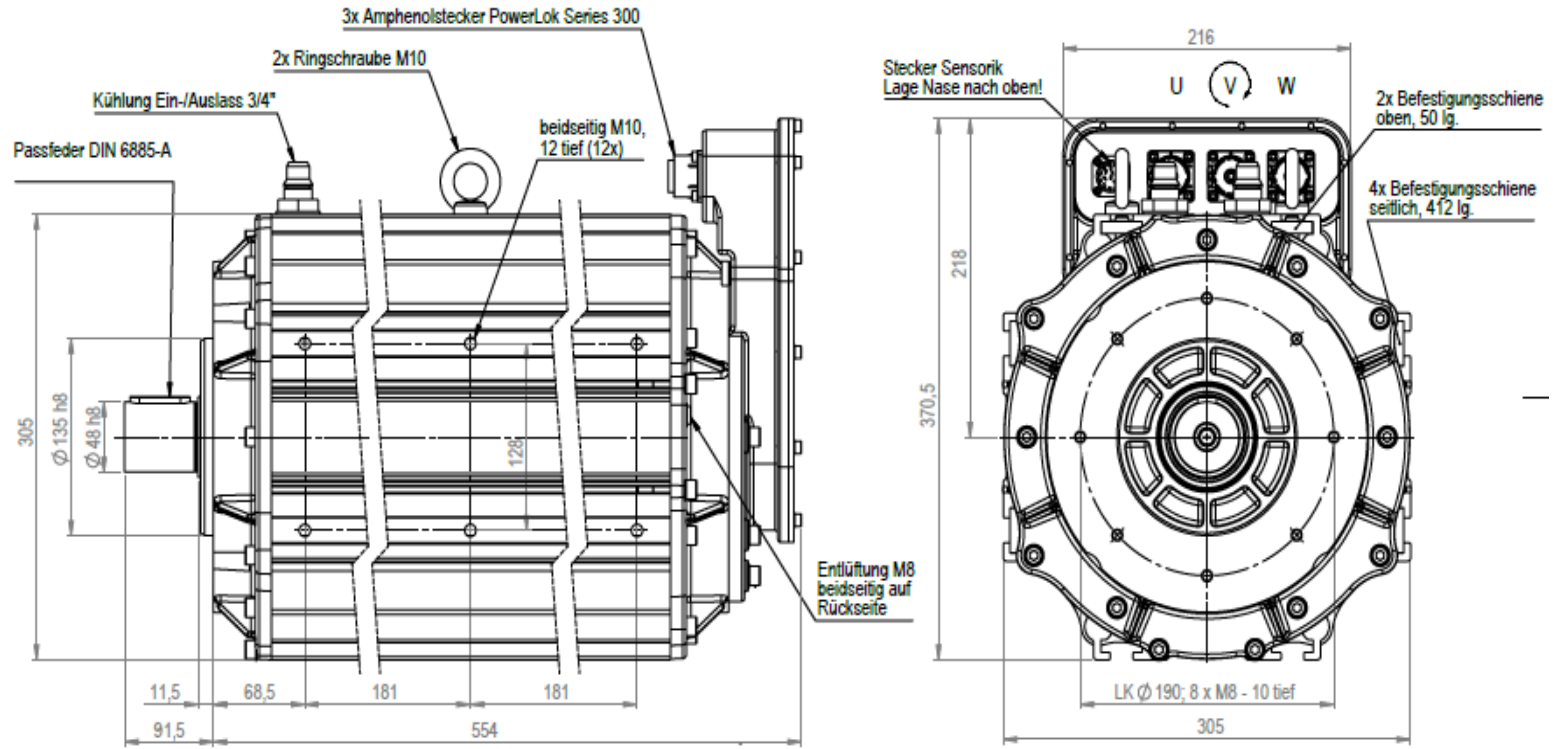


Illustration: Dimensions

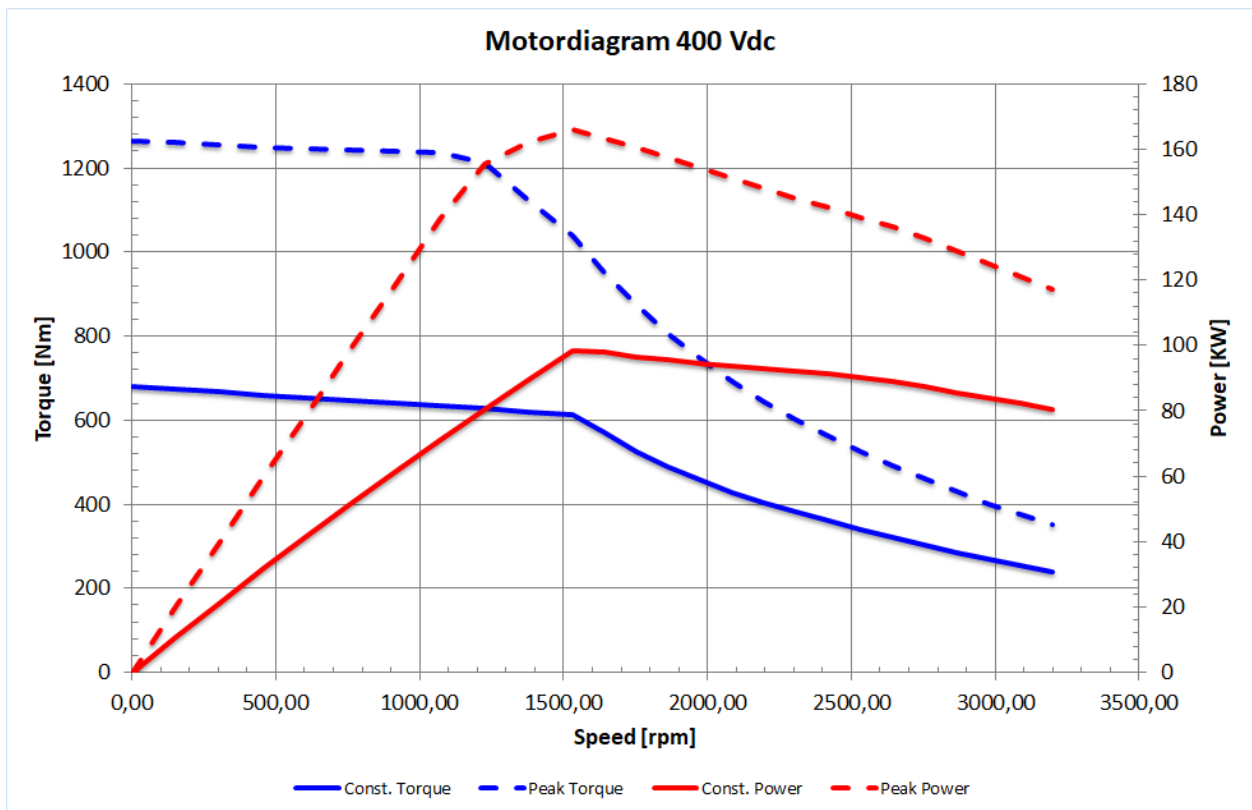


Illustration: S1 torque and power curve

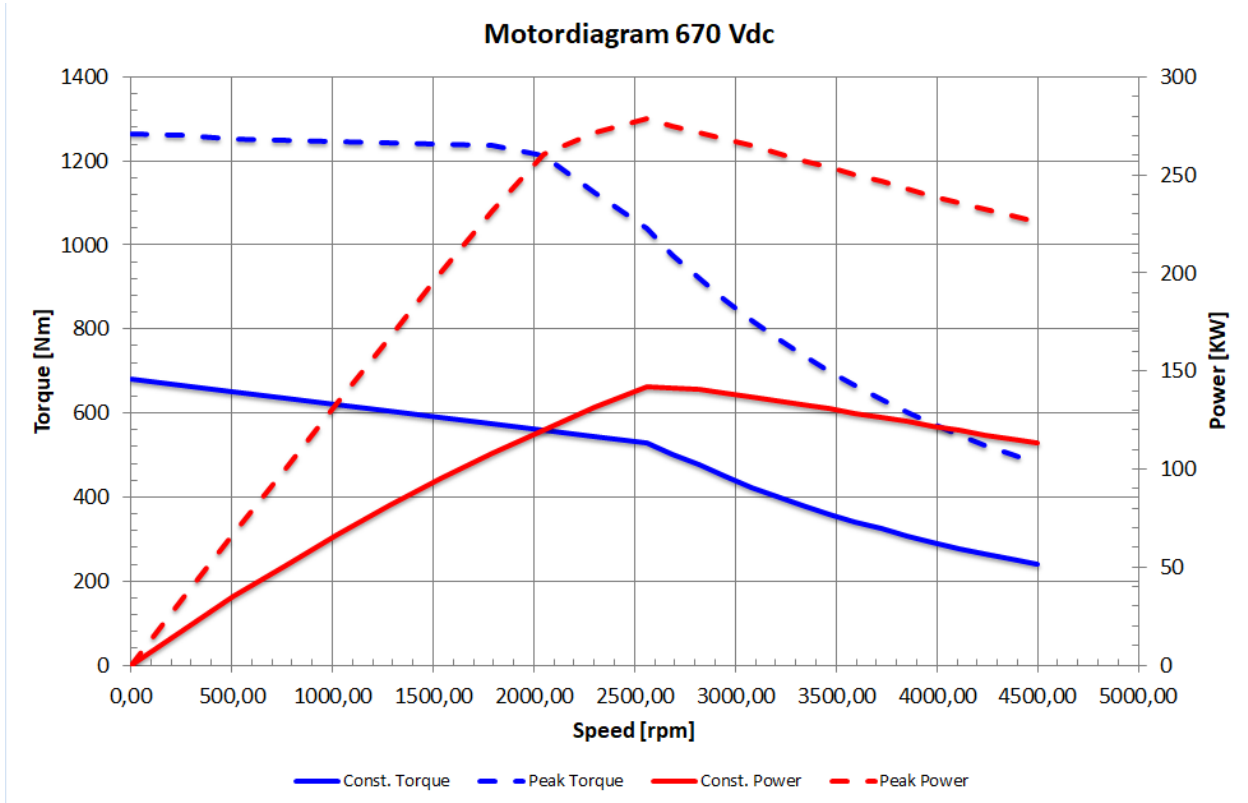


Illustration: S2 torque and power curve

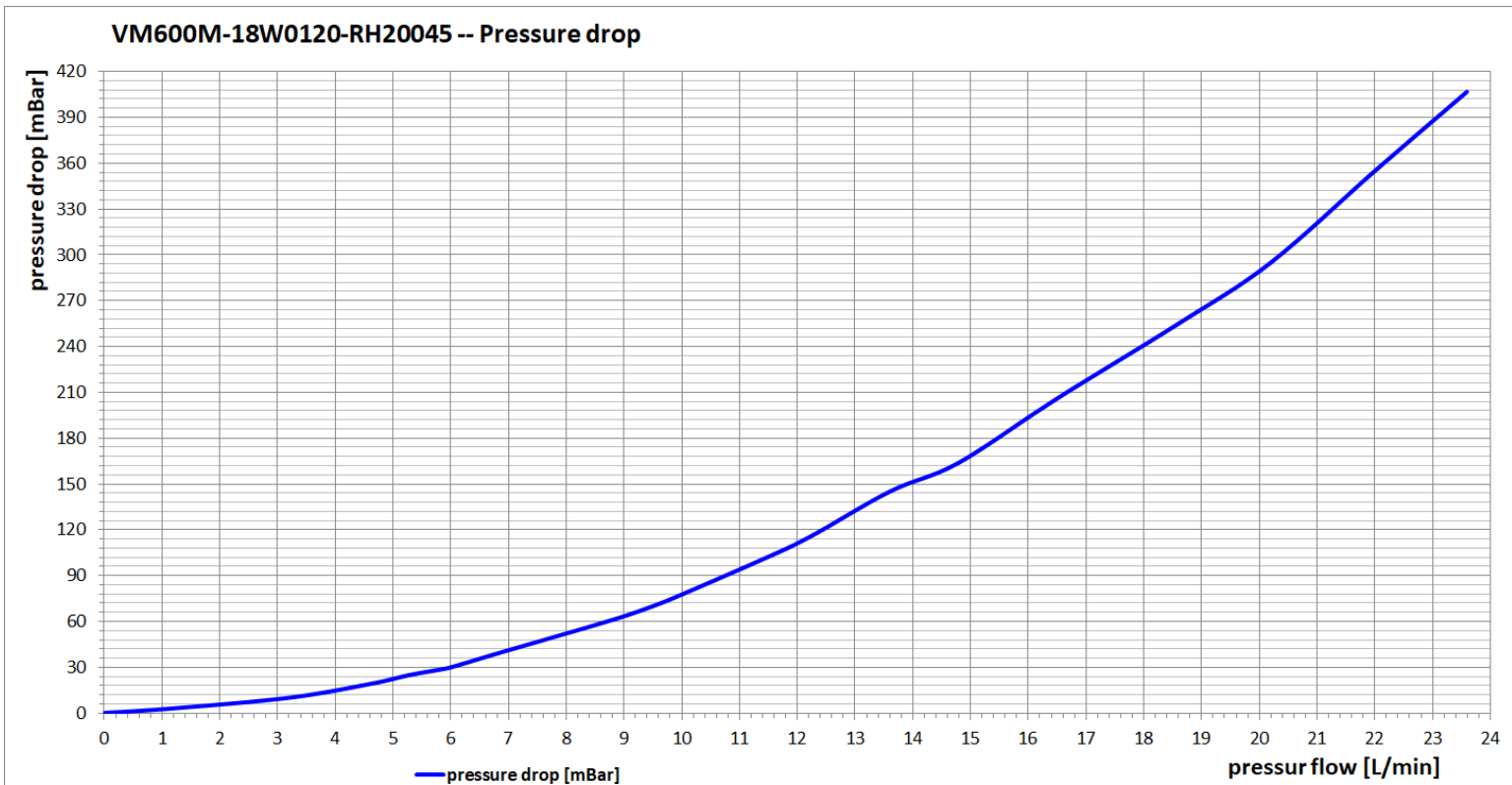


Illustration: pressure loss vs coolant flow