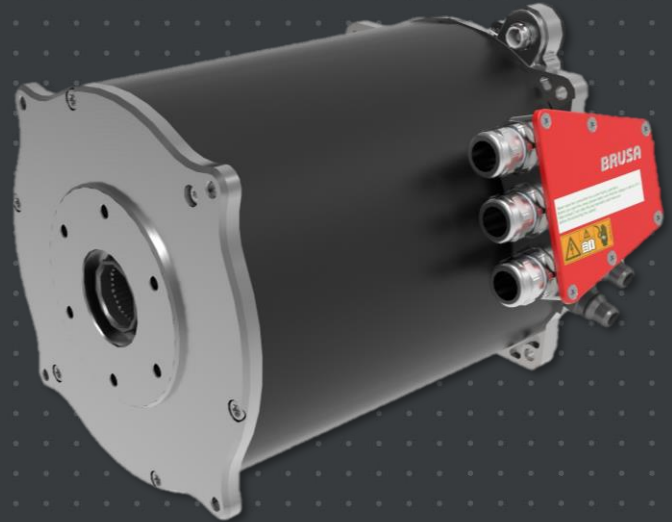


**BRUSA**  
**TECHNOLOGY**

**HSM1-10.18.22**  
Hybrid  
Synchronous  
Motor



**Optimal performance  
from zero speed**

**Safety first**

Intrinsically safe

Low short circuit torque

Integrated overload  
protection against  
overheating

**Cutting-Edge Technology**

High power density

Minimal torque ripple

Minimal drag losses

Constant power over a very  
wide speed range

High efficiency over a wide  
speed and torque range

Performance data at 400V <sub>DC</sub>		HSM1-10.18.22	
Nominal speed	4'600	rpm	
Continuous torque	270	Nm	
Maximum torque (at max. inverter current)	440	Nm	
Continuous power (acc. S1) at 25°C	128	kW	
Continuous power (acc. ECE R85) at 25°C	135	kW	
Maximum power	210	kW	
Maximum speed	10'800	rpm	
Typical efficiency	97	%	

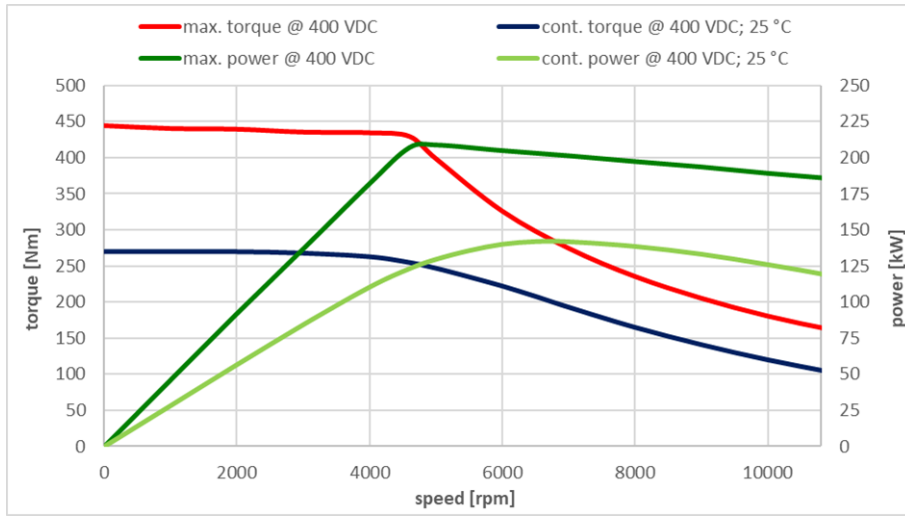
Basic electrical data			
Compatible inverter	DMC544-C02		
Recommended input voltage	300 - 450	V	
Maximum inverter current	600	A <sub>RMS</sub>	
Insulation class	H		

Mechanical data / Cooling system / Environment			
Diameter (cooling jacket)	270	mm	
Length	344	mm	
Stator diameter	240	mm	
Weight (dry)	73.1	kg	
Moment of inertia (rotor)	0.11	kg*m <sup>2</sup>	
Ingress protection	IP67		
Ambient temperature range (operation)	-40 to +85	°C	
Ambient temperature range (storage)	-40 to +85	°C	
Amount of coolant in device	0.69	L	
Coolant water mixture water / glycol	50/50	%	
Coolant input temperature range	-20 to +65	°C	
Coolant flow rate	6 to 10	L/min	
Max. pressure drop (8 L/min, T <sub>coolant</sub> = 25°C)	254	mbar	
Maximum coolant pressure	1.5	bar	
Maximum altitude	4000	m	

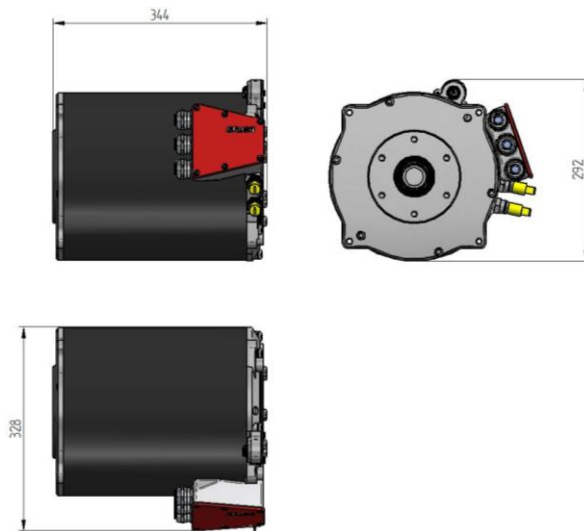
Connections		
Phases U, V, W: M6 cable lugs, recommended cross section (Cu)	70	mm <sup>2</sup>
Ground GND: M8 cable lug, recommended cross section (Cu)	70	mm <sup>2</sup>

Key reference standards*	
Certifications and type approval (pre-tests)	ECE-R10
EMC	CISPR25
Environmental	ISO 16750 ISO 20653 EN 60034-5 LV124
Electrical Safety	IEC 60664-1 LV123
Additional relevant standards	EN 60034-1

**Performance**



**Dimensions [mm]**



**Efficiency [%]**

HSM1-10.18.22-B03 efficiency @ 400 V <sub>DC</sub> (measured with DMC544-C02)											
Torque [Nm]	440	90.6	94.4	95.6	96.3						
	420	90.9	94.6	95.7	96.4						
	400	91.4	94.8	95.9	96.5	96.7					
	380	91.8	95.1	96.1	96.6	96.8					
	360	92.2	95.3	96.2	96.7	96.8					
	340	92.5	95.5	96.3	96.8	96.9	96.6				
	320	92.9	95.6	96.5	96.9	97.1	96.7				
	300	93.2	95.8	96.6	96.9	97.1	96.9	96.3			
	280	93.5	95.9	96.7	97.0	97.2	97.0	96.3			
	260	93.8	96.1	96.8	97.0	97.1	97.1	96.6	95.9		
	240	94.1	96.2	96.9	97.1	97.2	97.1	96.7	95.8		
	220	94.4	96.4	96.9	97.1	97.2	97.2	96.9	96.2	95.4	
	200	94.6	96.5	97.0	97.2	97.1	97.2	96.9	96.4	95.7	94.8
	180	94.9	96.6	97.1	97.2	97.2	97.2	97.0	96.5	96.1	95.2
	160	95.2	96.7	97.1	97.2	97.0	97.2	97.0	96.6	96.1	95.5
	140	95.4	96.7	97.1	97.1	97.1	97.0	97.0	96.7	96.2	95.7
120	95.6	96.8	97.0	97.0	97.0	96.8	96.8	96.6	96.3	95.7	
100	96.0	96.8	97.0	96.9	96.8	96.6	96.6	96.4	95.9	95.7	
80	95.9	96.7	96.8	96.7	96.3	96.3	96.2	96.1	95.8	95.6	
60	96.1	96.5	96.5	96.4	95.9	95.8	95.4	95.4	95.2	94.9	
40	95.7	95.8	95.8	95.6	95.0	94.5	94.1	94.0	93.7	93.4	
20	94.5	92.7	93.7	93.2	92.1	92.0	91.0	90.4	89.3	88.7	
<b>Q1</b>	<b>1000</b>	<b>2000</b>	<b>3000</b>	<b>4000</b>	<b>5000</b>	<b>6000</b>	<b>7000</b>	<b>8000</b>	<b>9000</b>	<b>10000</b>	<b>10800</b>
	Speed [rpm]										