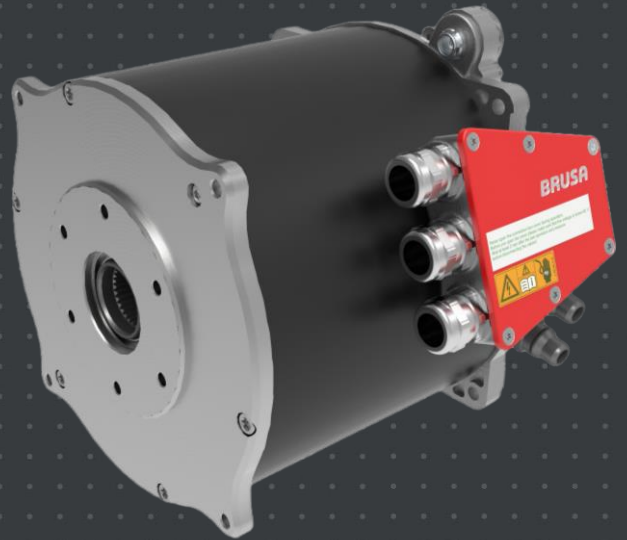


**BRUSA**  
**TECHNOLOGY**

**HSM1-10.18.13**  
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

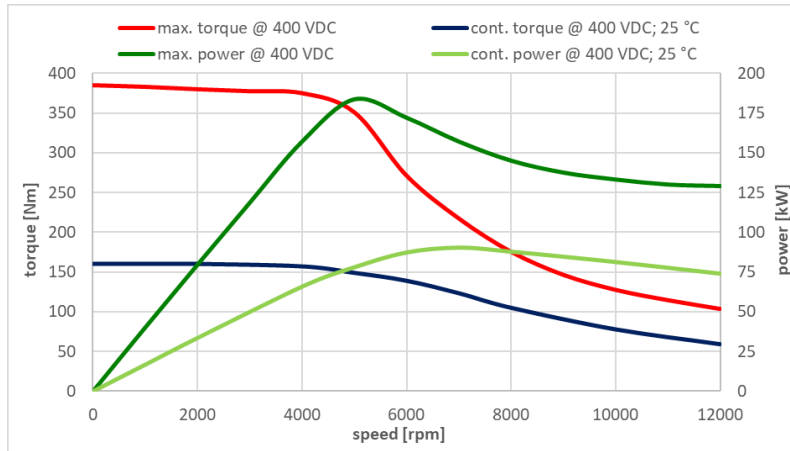
Minimal drag losses

Constant power over a very  
wide speed range

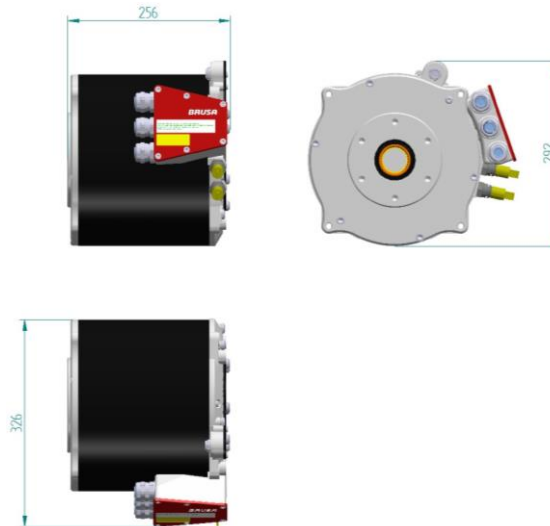
High efficiency over a wide  
speed and torque range

Performance data at 400V <sub>DC</sub>		HSM1-10.18.13	
Nominal speed	4'600	rpm	
Continuous torque	160	Nm	
Max. torque (at max. inverter current)	380	Nm	
Continuous power (acc. S1) at 25°C	90	kW	
Continuous power (acc. ECE R85) at 25°C	93	kW	
Maximum power	183	kW	
Maximum speed	12'000	rpm	
Typical efficiency	96	%	
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	256	mm	
Stator diameter	240	mm	
Weight (dry)	49.7	kg	
Moment of inertia (rotor)	0.065	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	0.5	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)	225	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*			
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 [%]**

HSM1-10.18.13-D04 efficiency @ 400 V <sub>DC</sub> (measured with DMC544-C02)												
torque [Nm]	speed [rpm]											
	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
380	83.0	89.2	91.5	92.7								
360	83.9	89.8	91.8	93.1	92.9							
340	85.1	90.5	92.4	93.5	93.2							
320	86.1	91.2	92.9	93.9	93.9							
300	87.0	91.7	93.3	94.3	94.5	92.7						
280	87.9	92.3	93.8	94.6	94.8	92.9						
260	88.7	92.8	94.2	94.9	95.1	94.2						
240	89.5	93.2	94.5	95.2	95.4	94.9	92.7					
220	90.3	93.7	94.8	95.4	95.6	95.4	93.2					
200	91.0	94.1	95.1	95.7	95.9	95.8	94.5	92.4				
180	91.6	94.5	95.3	95.8	96.0	96.0	95.1	93.4	91.9			
160	92.2	94.7	95.6	96.0	96.0	96.2	95.6	94.5	92.1	91.6		
140	92.8	95.1	95.8	96.1	96.2	96.2	95.8	95.2	94.0	91.8	91.3	
120	93.4	95.4	95.9	96.2	96.2	96.2	96.0	95.5	94.8	93.6	92.3	90.4
100	93.8	95.6	96.0	96.3	96.1	96.2	96.1	95.7	95.1	94.3	93.6	92.8
80	94.2	95.6	95.9	96.0	96.3	95.9	95.7	95.7	95.3	94.6	94.1	93.5
60	94.5	95.6	95.8	95.7	95.5	95.6	95.4	95.2	95.0	94.8	94.1	93.7
40	94.3	94.9	95.2	94.7	94.8	94.7	94.3	94.0	94.1	93.8	93.1	92.5
20	93.3	93.3	93.3	93.2	92.4	91.8	91.5	90.9	91.0	90.8	89.8	90.1
<b>Q1</b>												