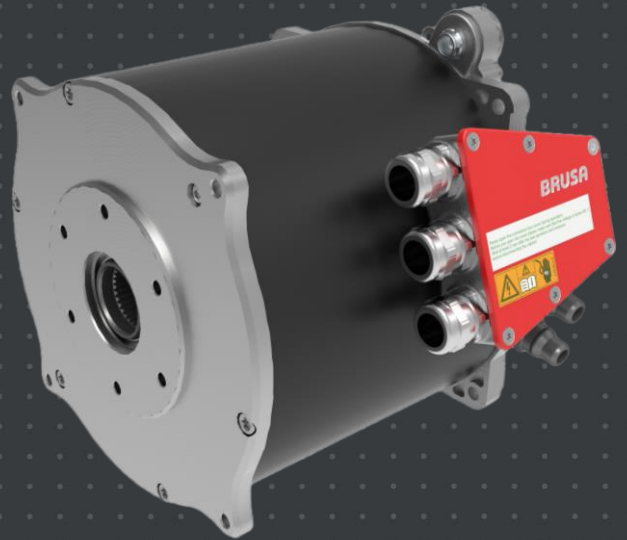


**BRUSA**  
**TECHNOLOGY**

# HSM1-10.18.13-W7

## 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

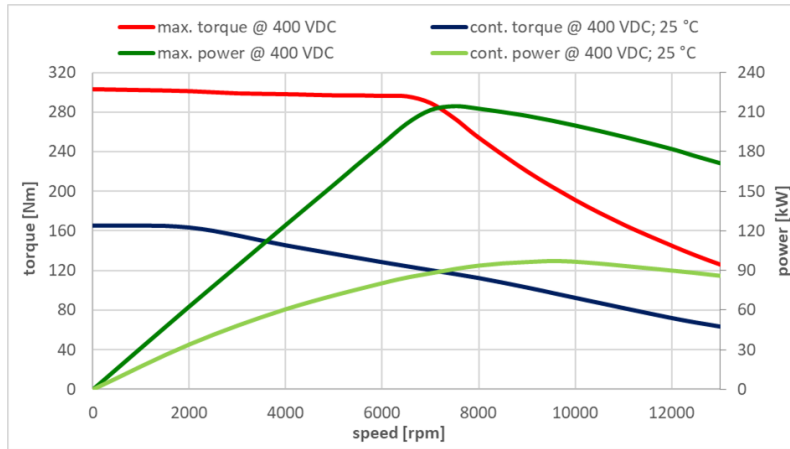
Minimal drag losses

Constant power over a very  
wide speed range

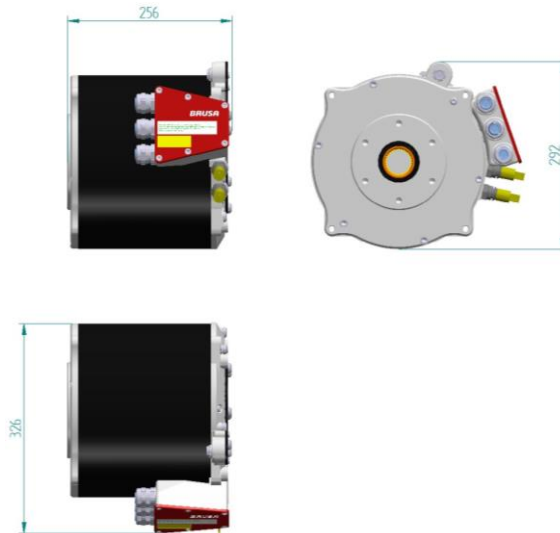
High efficiency over a wide  
speed and torque range

Performance data at 400V <sub>DC</sub>		HSM1-10.18.13-W7	
Nominal speed	6'700	rpm	
Continuous torque	163	Nm	
Maximum torque (at max. inverter current)	302	Nm	
Continuous power (acc. S1) at 25°C	96	kW	
Continuous power (acc. ECE R85) at 25°C	103	kW	
Maximum power	214	kW	
Maximum speed	13'000	rpm	
Typical efficiency	96.5	%	
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-W7-D04 efficiency @ 400 V <sub>DC</sub> (measured with DMC544-C02)																	
torque [Nm]	300	280	260	240	220	200	180	160	140	120	100	80	60	40	20	10	5
	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	12500				
300	84.7	90.6	92.8	93.7	94.1	94.5											
280	85.5	91.3	93.2	94.0	94.4	94.6	94.5										
260	86.6	91.9	93.7	94.4	94.9	95.1	94.9	93.8									
240	87.7	92.5	94.1	94.8	95.2	95.4	95.3	94.3	92.9								
220	88.6	93.1	94.6	95.2	95.5	95.6	95.7	95.0	93.5	92.6							
200	89.6	93.7	94.9	95.5	95.8	95.8	95.9	95.5	94.3	92.5							
180	90.5	94.2	95.3	95.8	96.0	96.0	96.0	95.9	95.1	93.9							
160	91.3	94.5	95.6	96.1	96.2	96.1	96.2	96.1	95.6	94.8	93.5						
140	92.1	95.1	95.9	96.3	96.3	96.3	96.2	96.3	95.9	95.5	94.6	93.3	92.7				
120	92.8	95.3	96.1	96.4	96.4	96.4	96.2	96.3	96.0	95.7	95.0	94.5	94.1				
100	93.5	95.8	96.3	96.5	96.6	96.4	96.3	96.3	96.2	95.9	95.5	94.9	94.8				
80	94.2	96.0	96.5	96.6	96.6	96.5	96.2	96.1	96.0	95.9	95.5	95.4	95.1				
60	94.8	96.3	96.7	96.6	96.6	96.3	96.1	95.8	95.7	95.6	95.4	95.1	95.0				
40	95.4	96.6	96.6	96.5	96.5	96.3	95.7	95.6	95.2	94.8	94.6	94.1	94.2				
20	95.7	96.4	96.3	96.1	94.8	94.6	94.6	94.0	93.3	92.5	91.3	90.4	90.5				
10	95.4	94.1	94.4	93.1	92.6	91.9	91.8	90.5	89.2	86.9	85.9	84.8	82.9				
5	90.0	90.1	88.3	88.5	87.5	84.7	84.8	83.0	83.3	80.5	78.4	74.2	73.3				
<b>Q1</b>	Speed [rpm]																