



-power in control



## Datasheet



### Pitch Motor PMSM SP260B8

- Permanent Magnet
- Compact and light weight
- High peak torque
- Excellent efficiency
- Maintenance free, No fan
- 5 year warranty



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## 1 Application

The Pitch motor is a perfect choice for this specific application. The motor is based on state of the art technology for Permanent Magnet Synchronous Motors, PMSM. The motor has no external fan or additional components; therefore the robustness is high meaning low maintenance.

This motor is primary for on shore applications, it can also be ordered by special request as a low temperature and/or off shore model.

The high peak torque capability makes the PMSM unique for pitch applications, which make the motor size smaller than other motor types.

The motor have a built electro static and fail safe brake. The brake is supplied with 24 V, having a total energy consumption of 160 W.

The motor is also equipped with a high precision resolver for closed loop control system and high accuracy positioning.

The build in KTY and PT100 sensors are used for the monitoring of the motor state.

## 2 Characteristics

- Compact motor with the smallest design of all motor types usable for the pitch system.
- Rear Earth magnets on the rotor.
- Build in 24 V brake
- Built in pt100 in the rotor windings.
- Built in KTY in rotor winding.
- IP65 complete motor
- Easy snap motor cables.

### 3 Technical information

#### 3.1 Data

			Note
Ke(pk)	V	180, 260	At 1000 rpm
Peak torque	Nm	350	
Stall torque	Nm	150	
Number of poles		8	4 pole pairs
Operation		S1	
Insulation		Class F	

#### 3.2 Motor ratings

Field weakening can be applied to the motor, in order to achieve higher speeds at low terminal voltage.

Motor types			180 V	260 V	Note
Operation speed	Power	Torque	Current	Current	
[RPM]	[kW]	[Nm]	[Arms]	[Arms]	
1000	14,1	135	67,5	47,3	50°C max ambient
1500	16,5	104	54,0	41,0	
2000	19,4	92	51,3	36,2	
<b>Max speed</b>	<b>RPM @300Vdc</b>		1600	1150	50°C max ambient
<b>Max speed</b>	<b>RPM @560Vdc</b>		3000	2700	
<b>Kt</b>	<b>[Nm/A]</b>		2,10	3,03	
<b>Peak current</b>	<b>[Arms] 3 sec.</b>		210	300	
<b>Resistance</b>	<b>[Ω]</b>		0,08	0,14	
<b>Inductance</b>	<b>[mH]</b>		2,0	4,0	

#### 3.3 Derating

Derating of the motor power and nominal motor torque as a function of height above sea level and ambient temperature. Peak torque is not derated.

Above sea level	Ambient temperature (°C)						
	< 30	30-40	45	50	55	60	65
0	1.12	1.08	1.04	1.00	0.95	0.88	0.80
1000	1.07	1.00	0.96	0.92	0.87	0.82	0.77
1500	1.04	0.97	0.93	0.89	0.84	0.79	0.74
2000	1.00	0.94	0.90	0.86	0.82	0.77	0.72
2500	0.96	0.90	0.86	0.83	0.78	0.74	0.69
3000	0.92	0.86	0.82	0.79	0.75	0.70	0.66

### 3.4 General

Environment		Note
Temperatures	Operating: -20...50 °C, free natural convection Storage: -40...55 °C	IEC 60068-2-1 IEC 60068-2-2 IEC 60255-1
Humidity	97% condensation at +55 °C	IEC 60068-2-30, test Db IEC 60255-1
Altitude	3000 m over sea-level, reduced maximum temperature according IEC standard, including derating.	
Bearing system	Bearing system lubricated with grease for total life time 30,000 hours.	
Rotor balance level	G1.0	
EMC/CE	Immunity	IEC 61000-6-2 IEC 60255-26
	Emission	IEC 61000-6-4 IEC 60255-26
Vibration	3...13.2 Hz: 6 mmpeak-peak 13.2...50 Hz: 2.1 g 3...13.2 Hz: 2 mmpeak-peak 13.2...100 Hz: 0.7 g	IEC 60068-2-6, DNV C  IEC 60068-2-6, DNV A IEC 60255-21-1
Bump	25 g, 6 ms, half sine. Tested with 1000 bumps in each direction in all 3 axes. A total of 6000 bumps per test.	IEC 60068-2-27, test Ea IEC 60255-21-2
<b>Safety and protection</b>		
Protection	IP 65, Class I	IEC/EN 60529
Safety	Installation category III, 600 V, pollution degree 2	EN 61010-1 IEC 60255-27 IEC 60255-1 IEC EN 60950
Lightning protection	Class 2	IEC 61400-24CDV
Electrical equipment of machines.	IEC 60204-1	

### 3.5 Sensors and Brake

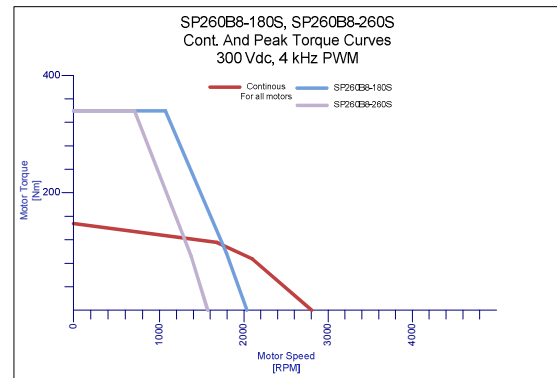
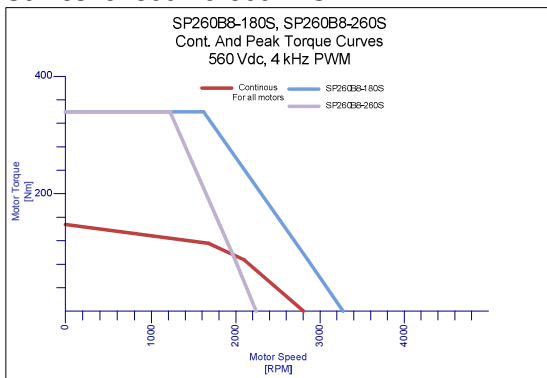
Resolver Data			Note
Number of poles		2	
Transformation ratio		0,5 ± 10%	
Accuracy		±6' or ±0,10°	
Input current		58 mA	7V, 5 kHz
Phase shift		8° ±3°	7V, 5 kHz
<b>Brake</b>			
Voltage	V DC	24	
Power consumption	W	95	± 7% at 20°C
Holding Torque	Nm	232	Spring applied
<b>Temperature</b>			
Thermistor		PTC / Philips KTY84-130	
PT100		2 wire	

### 3.6 Physical ID

Environment		Note
Case	Cast aluminum, painted mat black.	
Shaft	Nitrile seal	
Weight	180 kg	With feedback device & brake
Inertia	0,0510 kgm <sup>2</sup>	With feedback device & brake
Dimensions	Flanch: Outer diameter: 350 mm or square. Spigot diameter: 250 mm  Body (WxHxD): 260x260x515 mm Including speed sensor.	More details se the section: "Mechanical outline". All values for IEC 160 and IEC 180.
Maintenance	None	
Mounting	4 pcs. Ø19 mm holes for screw or bolt mounting on 300 mm diameter.	
Shaft dimensions	IEC 160: Diameter: 42 mm Length: 110 mm Keyway (WxHxL) 12x 8x100 mm  IEC 180: Diameter: 48 mm Length: 110 mm Keyway (WxHxL) 14x 9x100 mm	More details se the section: "Mechanical outline".
Terminals	M40 M23	Power feedback

## 4 Performance curve

Curves for 300V & 560VDC



## **5 Mechanical outline**

N/A

## **6 Electrical termination**

N/A

## **7 Ordering information**

### **7.1 Order specifications**

PMSM-SP260B8-180S

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PMSM-SP260B8-260S

please ask DEIF directly.

Cable

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