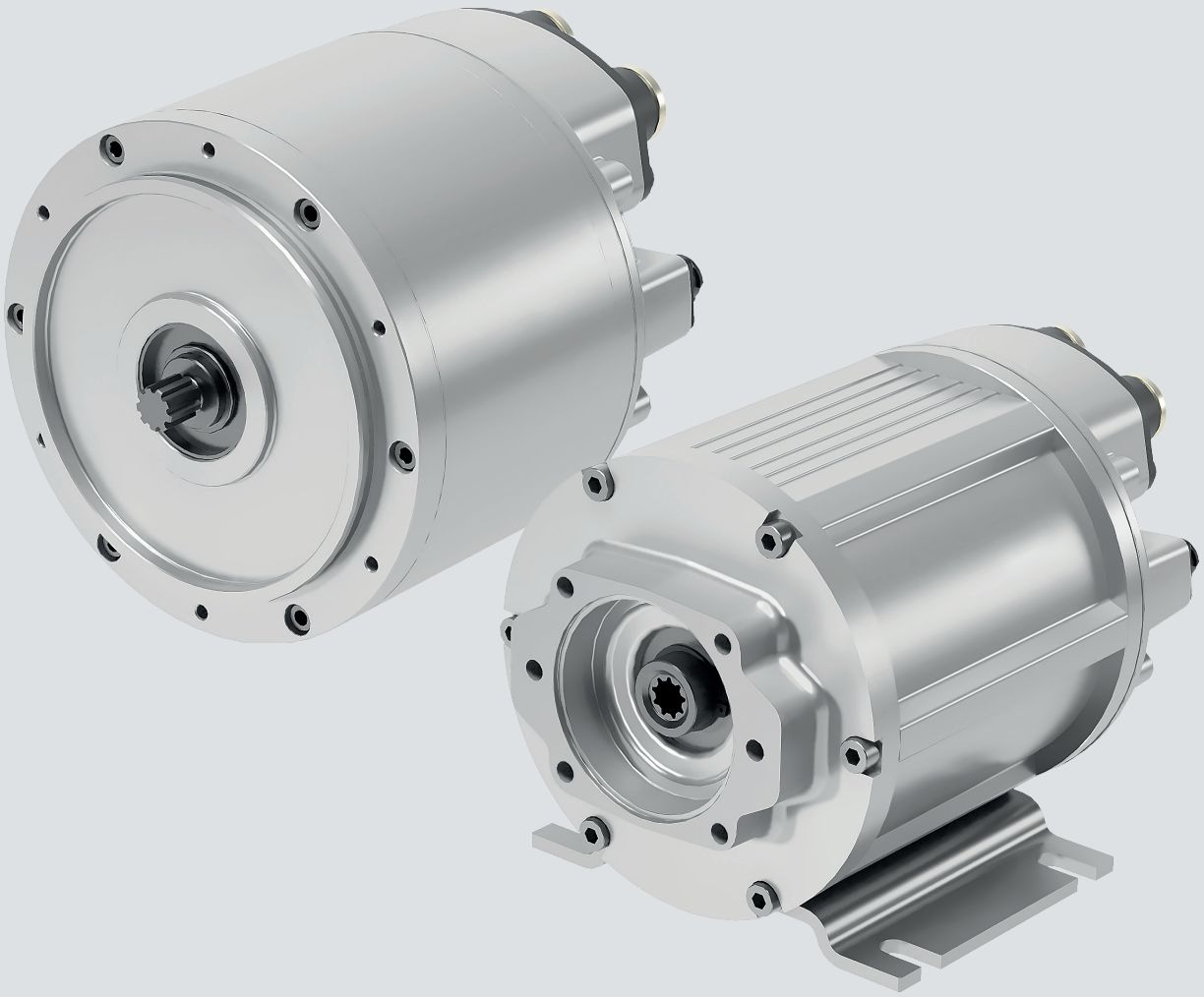
MSB Series

Electric motors



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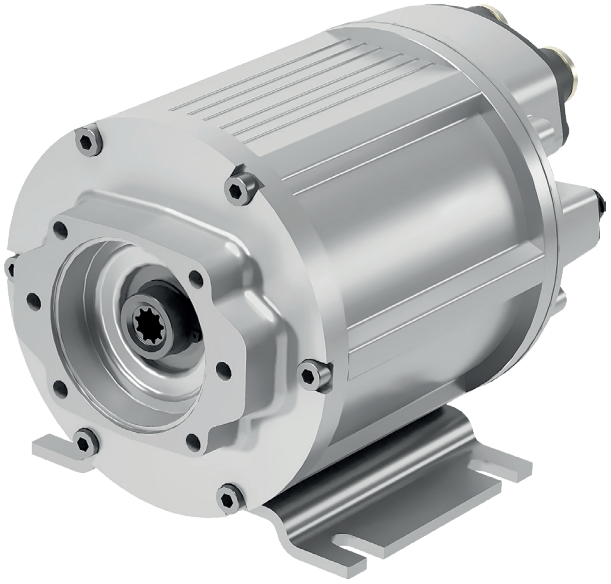
398SEM003EN01 - 19-01-2026



Brushless Motors for Off-Highway and Industrial Applications

Designed for rugged environments, our new range of **low-voltage brushless motors** (3.5 kW to 16 kW) is ideal for **off-highway vehicles**, **construction machinery**, and **industrial automation**. Featuring **IPM (Interior Permanent Magnet)** technology, the motors deliver high torque density, efficiency, and precision control.

With robust mechanical design, **reinforced connectors**, and **high IP protection**, these motors are built for harsh conditions: dust, moisture, vibration, and wide temperature swings. The **Sincos position sensor** ensures accurate, real-time feedback for advanced control, even in dynamic applications.

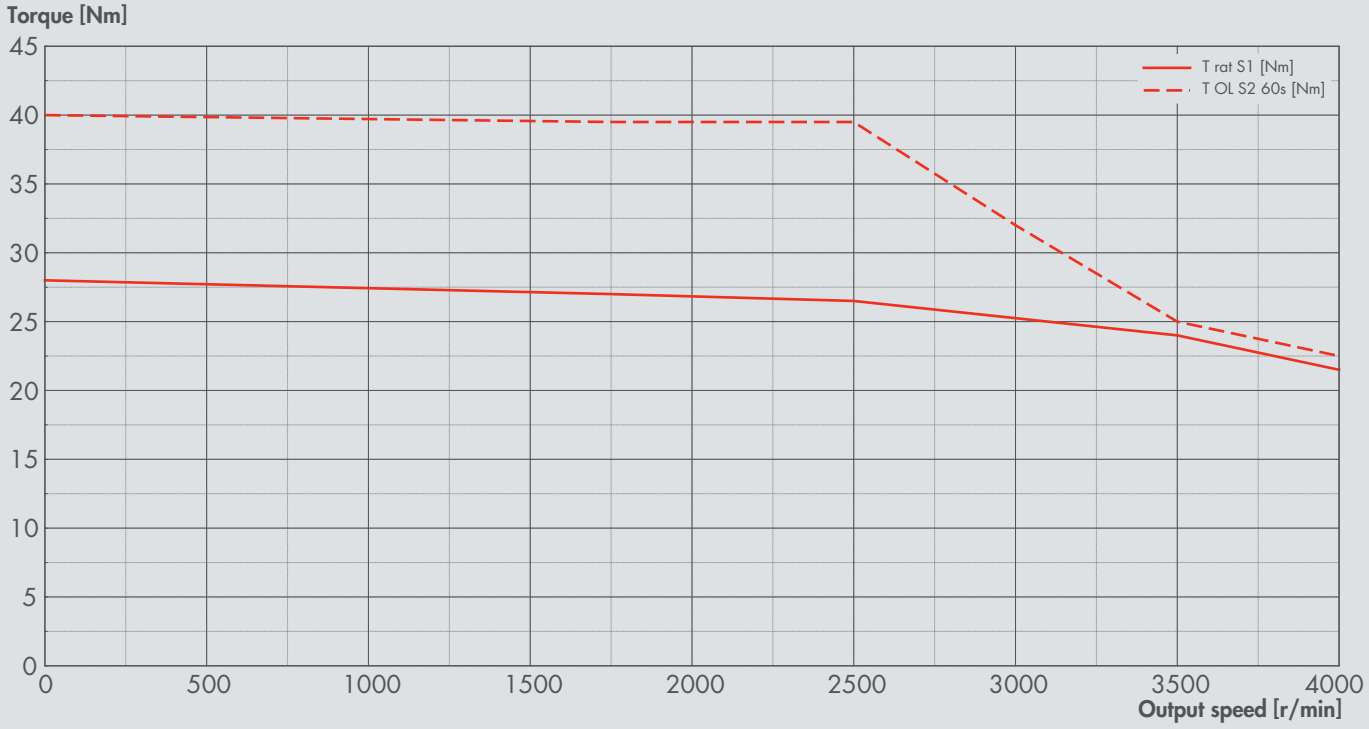
Available in **self-ventilated** or **liquid-cooled** versions, the motors can be paired with **gearboxes for traction** or **hydraulic pumps** for mobile applications—supporting both **motor** and **generator** use cases. Low-voltage compatibility (e.g., 48V) makes them perfect for battery-powered platforms.

Applications include **scissor lifts**, **telehandlers**, **harvesters**, and **electric power units**, where precision, power, and reliability are key. Their modular design supports integration with third-party inverters, enabling flexible system architecture.

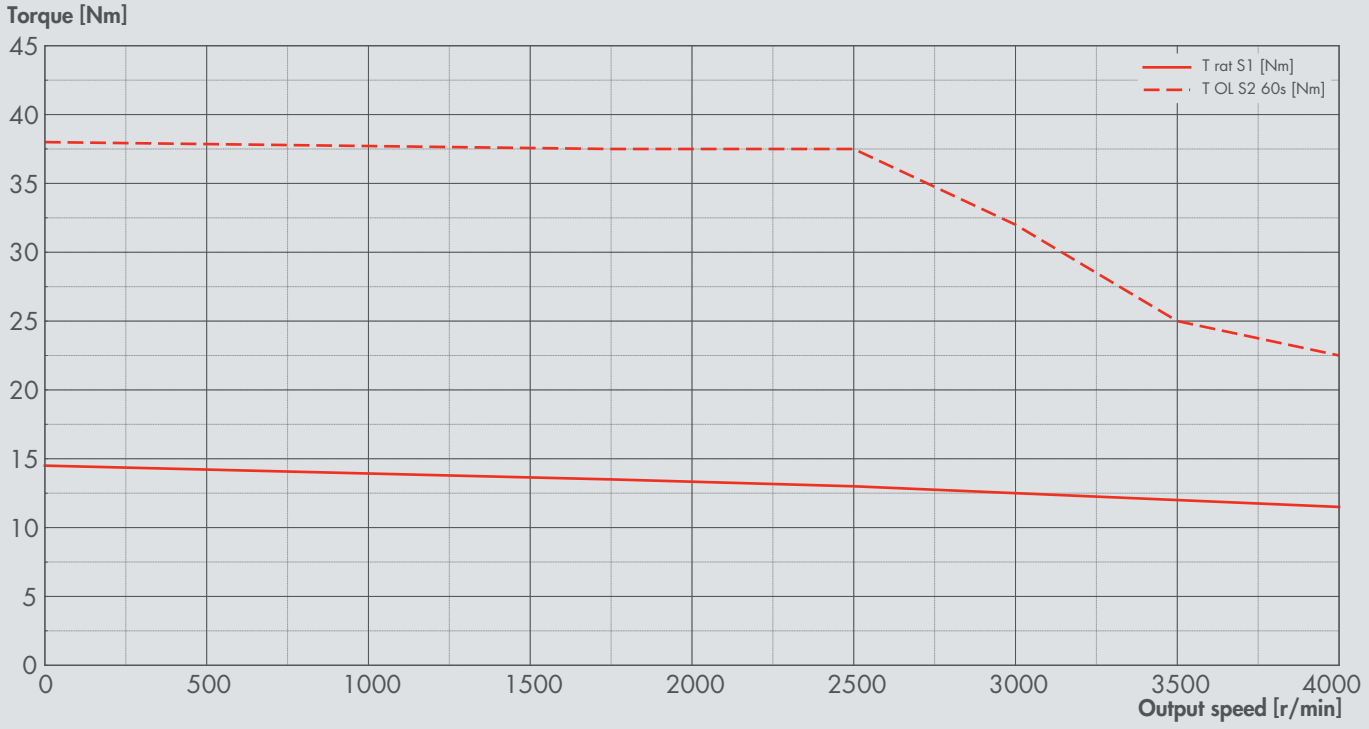
This motor family offers a rugged, scalable, and efficient solution for electrifying mobile and industrial equipment—where **medium-to-high power**, **position accuracy**, and **electromechanical integration** are needed.

Torque/Speed Characteristics

Liquid Cooling



Air Cooling

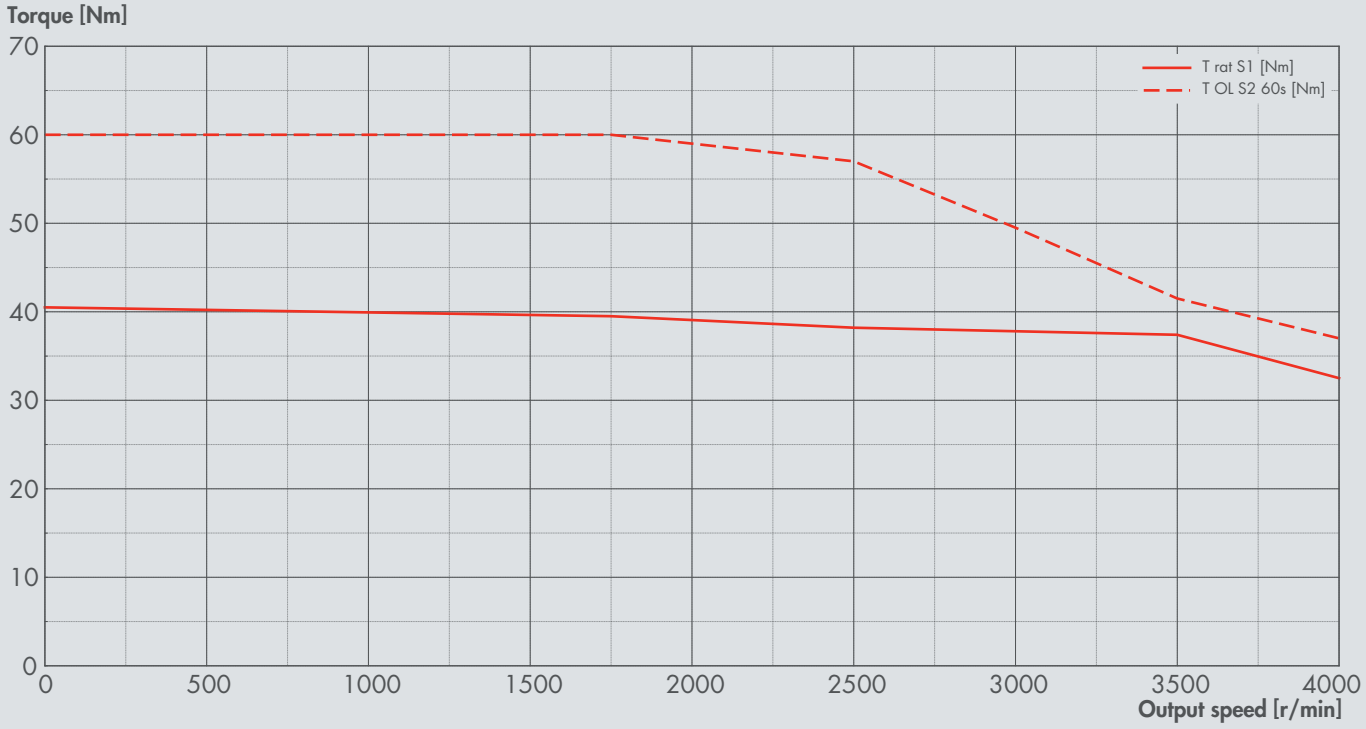


Performance and specifications

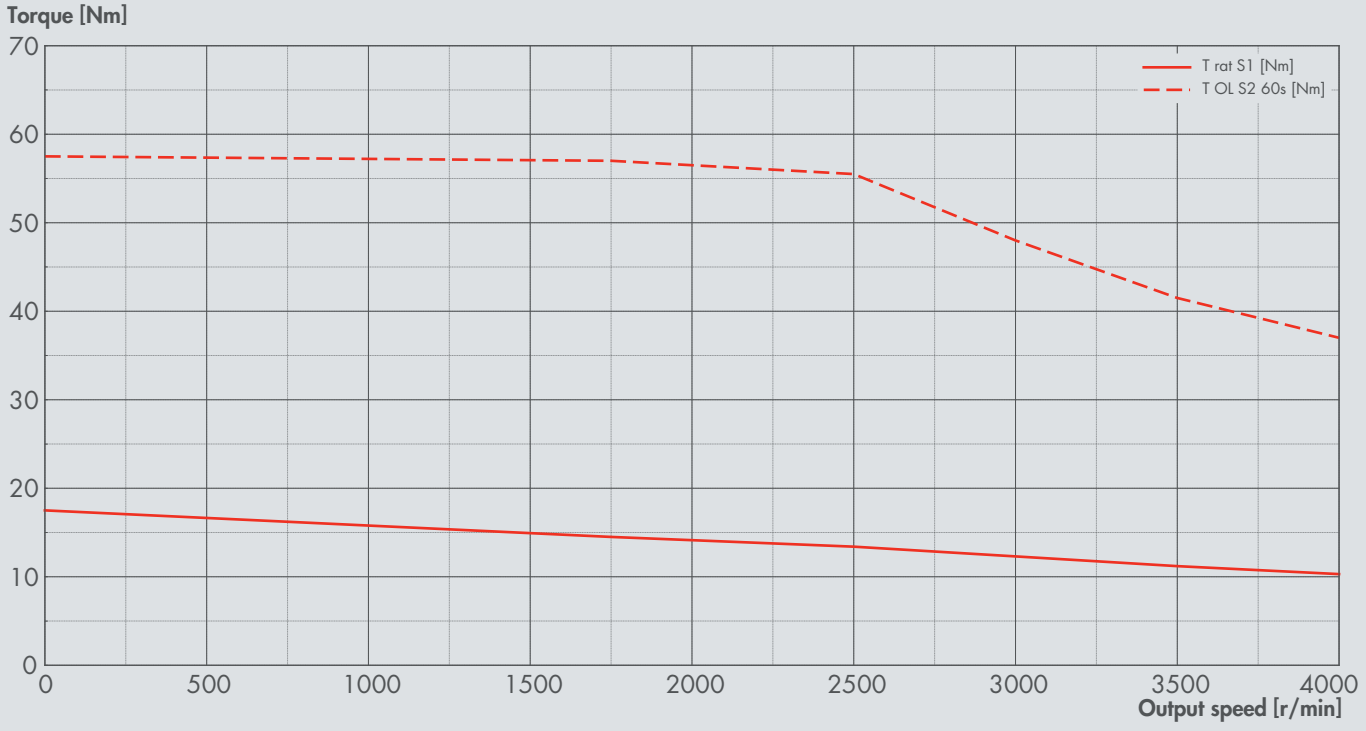
MOTOR MODEL		MSB 050	
Winding code		MSB187A	MSB182A
ELECTRICAL DATA			
Cooling		Liquid	Air
Voltage Supply	**V_{dc}**	48	
Stall torque	**Nm**	28	14
Stall current	**A_{rms}**	209	116
Rated power	**kW**	8	3,5
Rated speed	**r/min**	3000	
Rated torque	**Nm**	25	12
Rated current	**A_{rms}**	204	102
Peak torque	**Nm**	40	35
Peak current	**A_{rms}**	316	296
Torque costant ±5% (at 25°C)	**Nm/A_{rms}**	0,12	
Voltage constant ±5%	**V_{rms}/[k(r/min)]**	8	
Winding Resistance Phase Phase ±5% (at 25°C)	**mOhm**	8,6	
Winding Inductance Phase Phase ±5%	**mH**	0,1	
Pole number		10	
ΔT_{MAX} Winding	**°C**	105	
MECHANICAL DATA			
Rotor moment of inertia	**$Kg \cdot m^2 x10^{-4}$**	29	
Weight	**kg**	13	
PARKING BRAKE (option)			
Rated voltage +6 / -10%	**V_{dc}**	24	
Rated current at 20°C	**A**	1,1	
Moment of inertia	**$Kg \cdot m^2 x10^{-4}$**	5,5	
Weight	**Kg**	1,6	
Holding torque	**Nm**	37	
ROTOR POSITION SENSOR SIN-COS (single ended)			
Supply	**V**	5V +/- 5%	
Max current consumption	**mA**	30	
Internal serial impedence	**Ohm**	100	
Amplitude	**V**	2.2 +/- 0.2 Vpp	
Signal offset	**V**	2.5 +/- 1%	
THERMAL SENSOR PT1000			
Type		PT1000-R8/2-2F	
Resistence at 20° / Resistance at 100°	**Ohm**	1078 / 1385	
Precision	**°C**	+/- (0.3-0.005t)	

Torque/Speed Characteristics

Liquid Cooling



Air Cooling

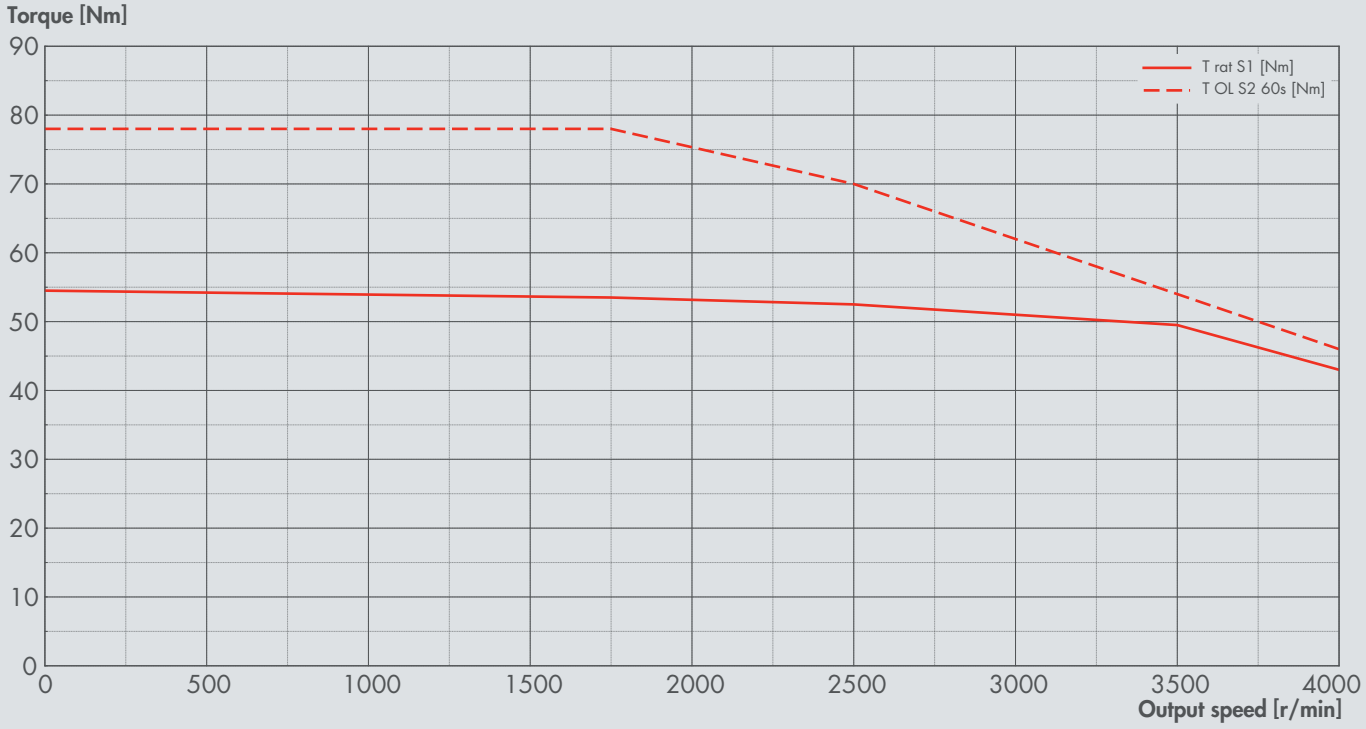


Performance and specifications

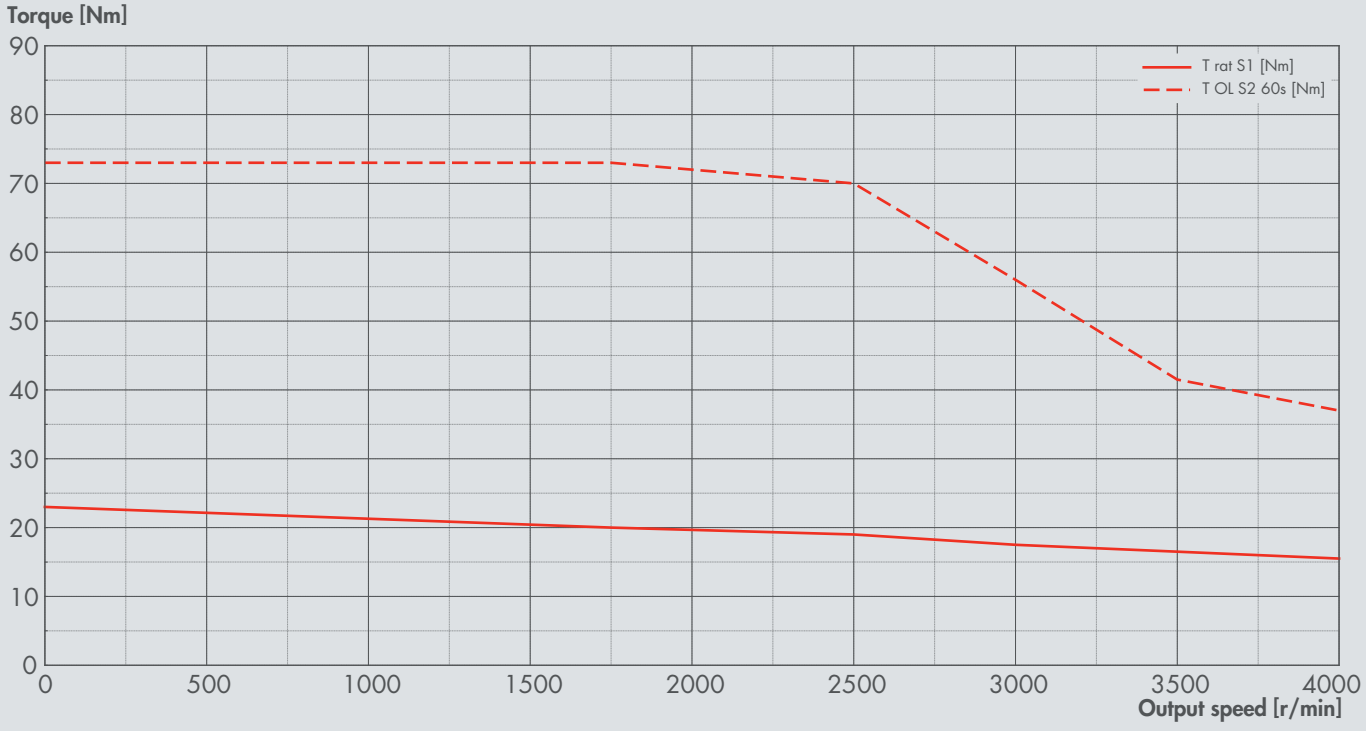
MOTOR MODEL		MSB 075	
Winding code		MSB188A	MSB183A
ELECTRICAL DATA			
Cooling		Liquid	Air
Voltage Supply	**V_{dc}**	48	
Stall torque	**Nm**	40	17
Stall current	**A_{rms}**	325	150
Rated power	**kW**	11	4
Rated speed	**r/min**	3000	
Rated torque	**Nm**	35	13
Rated current	**A_{rms}**	314	111
Peak torque	**Nm**	60	55
Peak current	**A_{rms}**	495	470
Torque costant ±5% (at 25°C)	**Nm/A_{rms}**	0,12	
Voltage constant ±5%	**V_{rms}/[k(r/min)]**	7,75	
Winding Resistance Phase Phase ±5% (at 25°C)	**mOhm**	4,9	
Winding Inductance Phase Phase ±5%	**mH**	0,06	
Pole number		10	
ΔT_{MAX} Winding	**°C**	105	
MECHANICAL DATA			
Rotor moment of inertia	**$Kg{\cdot}m^2x10^{-4}$**	43	
Weight	**kg**	16	
PARKING BRAKE (option)			
Rated voltage +6 / -10%	**V_{dc}**	24	
Rated current at 20°C	**A**	1,1	
Moment of inertia	**$Kg{\cdot}m^2x10^{-4}$**	5,5	
Weight	**Kg**	1,6	
Holding torque	**Nm**	37	
ROTOR POSITION SENSOR SIN-COS (single ended)			
Supply	**V**	5V +/- 5%	
Max current consumption	**mA**	30	
Internal serial impedence	**Ohm**	100	
Amplitude	**V**	2.2 +/- 0.2 Vpp	
Signal offset	**V**	2.5 +/- 1%	
THERMAL SENSOR PT1000			
Type		PT1000-R8/2-2F	
Resistence at 20° / Resistance at 100°	**Ohm**	1078 / 1385	
Precision	**°C**	+/- (0.3-0.005t)	

Torque/Speed Characteristics

Liquid Cooling



Air Cooling

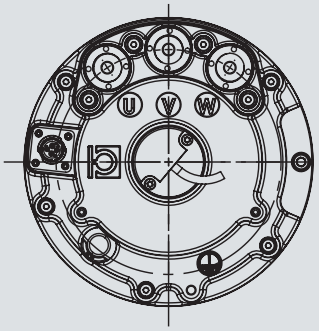


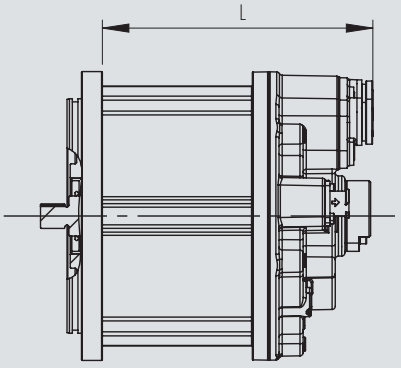
Performance and specifications

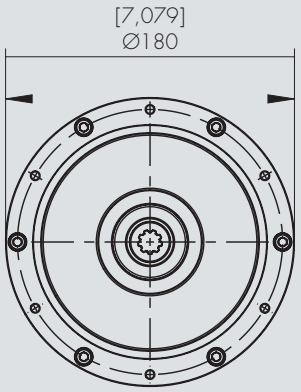
MOTOR MODEL		MSB 100	
Winding code		MSB189A	MSB184A
ELECTRICAL DATA			
Cooling		Liquid	Air
Voltage Supply	**V_{dc}**	48	
Stall torque	**Nm**	54	23
Stall current	**A_{rms}**	406	183
Rated power	**kW**	16	5,5
Rated speed	**r/min**	3000	
Rated torque	**Nm**	50	17
Rated current	**A_{rms}**	396	147
Peak torque	**Nm**	70	70
Peak current	**A_{rms}**	607	557
Torque costant ±5% (at 25°C)	**Nm/A_{rms}**	0,12	
Voltage constant ±5%	**V_{rms}/[k(r/min)]**	8,25	
Winding Resistance Phase Phase ±5% (at 25°C)	**mOhm**	3,8	
Winding Inductance Phase Phase ±5%	**mH**	0,05	
Pole number		10	
ΔT_{MAX} Winding	**°C**	105	
MECHANICAL DATA			
Rotor moment of inertia	**$Kg \cdot m^2 x10^{-4}$**	57	
Weight	**kg**	20	
PARKING BRAKE (option)			
Rated voltage +6 / -10%	**V_{dc}**	24	
Rated current at 20°C	**A**	1,1	
Moment of inertia	**$Kg \cdot m^2 x10^{-4}$**	5,5	
Weight	**Kg**	1,6	
Holding torque	**Nm**	37	
ROTOR POSITION SENSOR SIN-COS (single ended)			
Supply	**V**	5V +/- 5%	
Max current consumption	**mA**	30	
Internal serial impedence	**Ohm**	100	
Amplitude	**V**	2.2 +/- 0.2 Vpp	
Signal offset	**V**	2.5 +/- 1%	
THERMAL SENSOR PT1000			
Type		PT1000-R8/2-2F	
Resistence at 20° / Resistance at 100°	**Ohm**	1078 / 1385	
Precision	**°C**	+/- (0.3-0.005t)	

For motorwheels

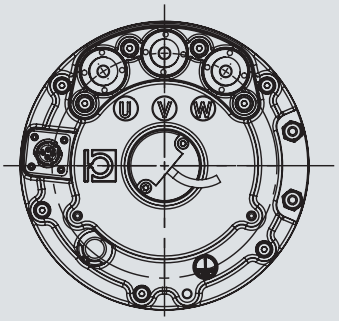
AIR COOLING

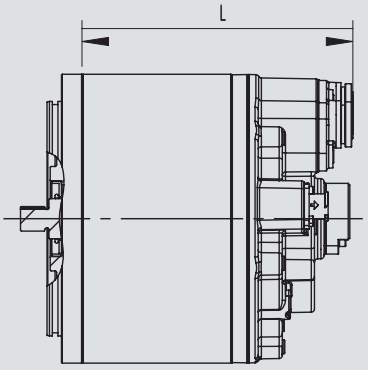


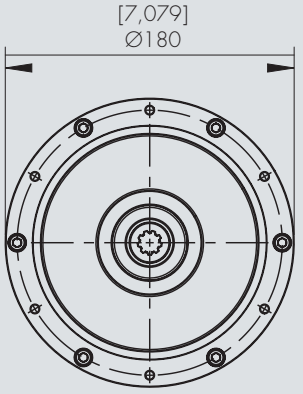




LIQUID COOLING





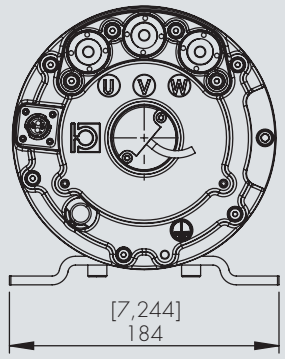


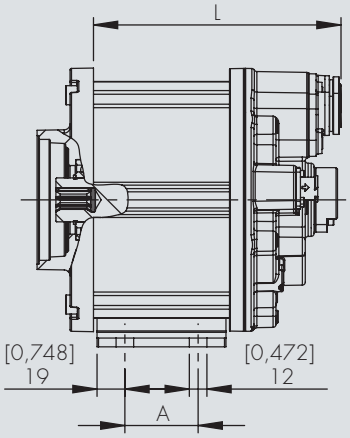
SIZE	L	
	mm	inch
EM 050	168,5	6,628
EM 075	193,4	7,613
EM 100	218,4	8,597

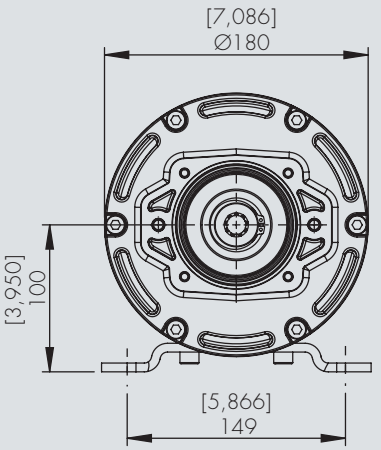
For pumps

AIR COOLING

SAE A TYPE

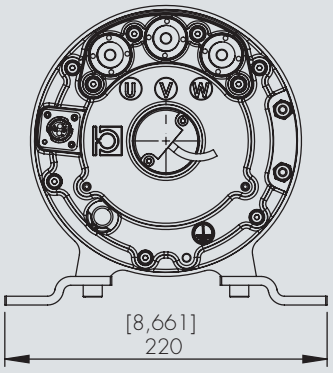


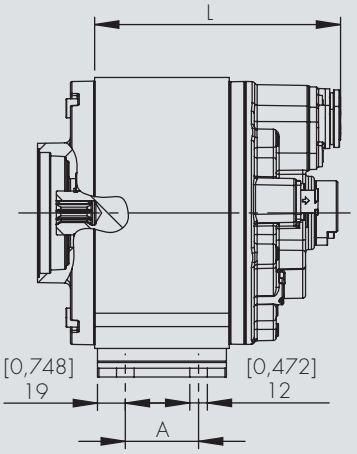


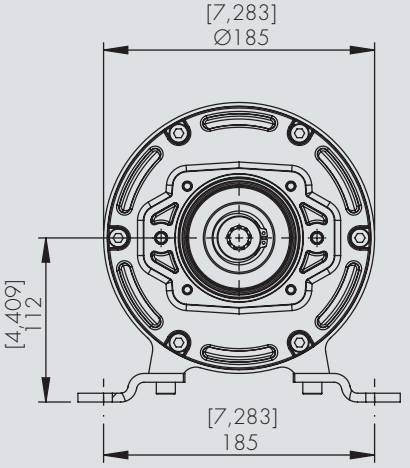


LIQUID COOLING

SAE A TYPE

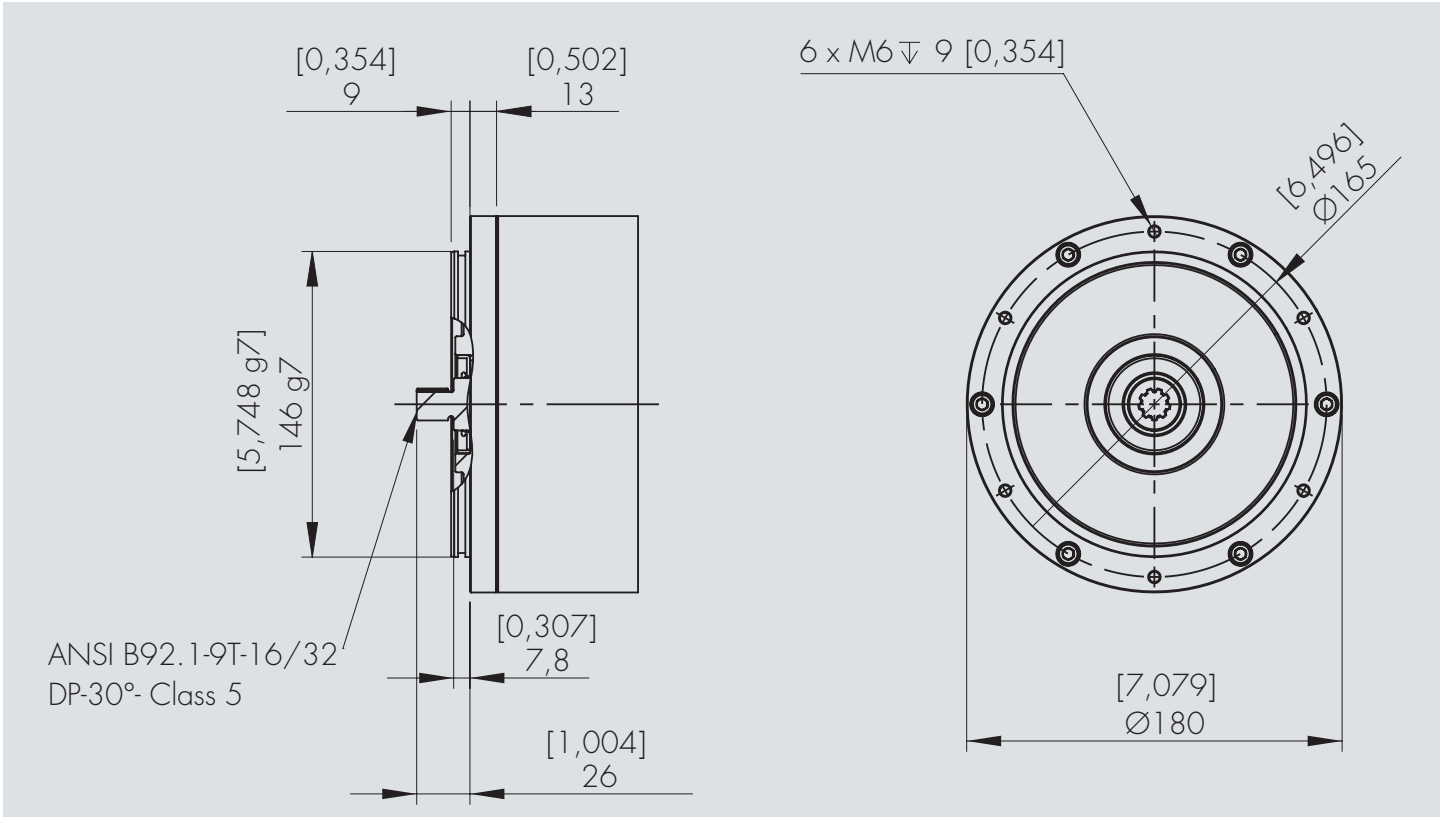




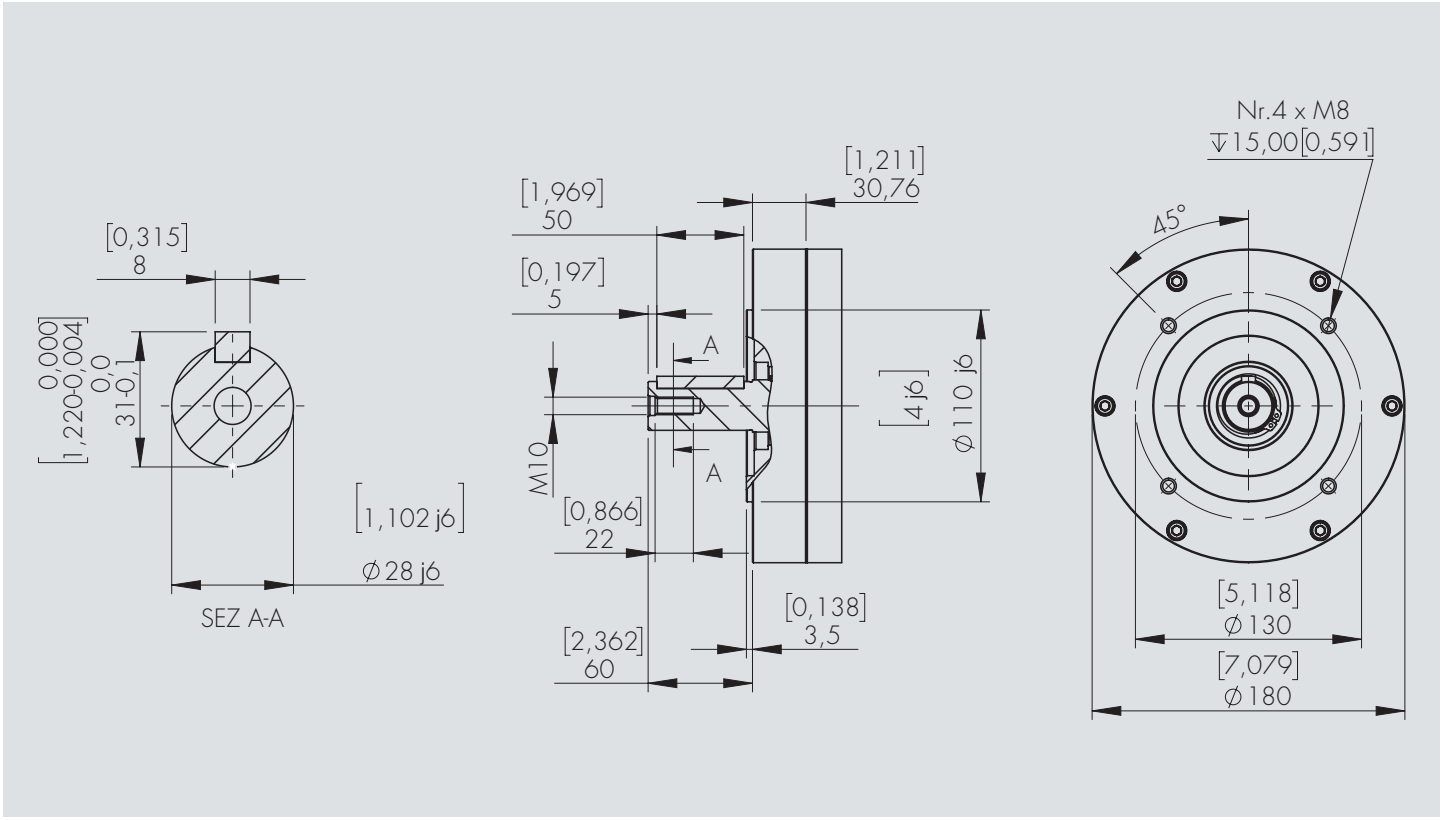


SIZE	L		A	
	mm	inch	mm	inch
EM 050	168,5	6,628	50	1,969
EM 075	193,4	7,613	75	2,953
EM 100	218,4	8,597	100	1,969

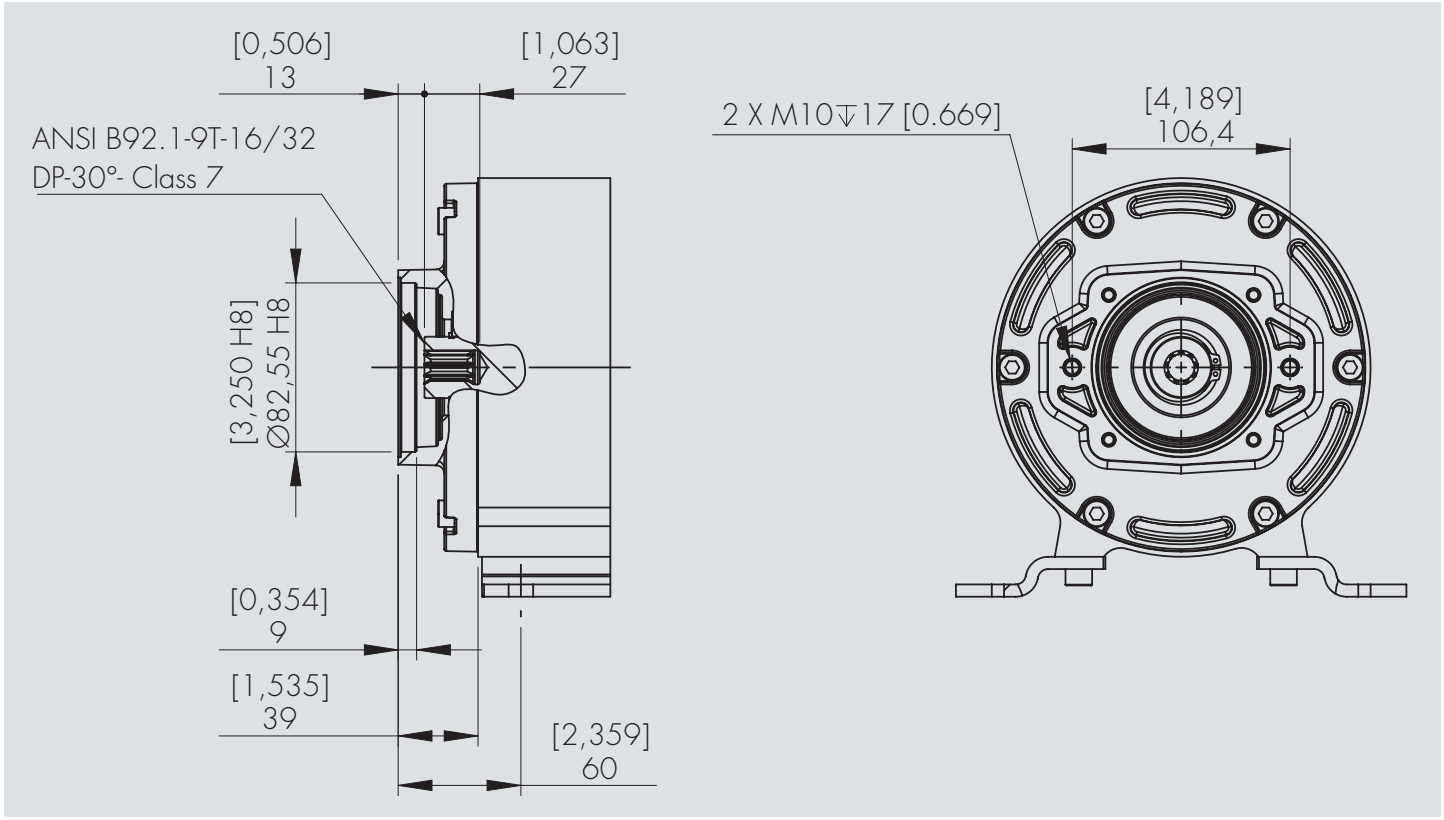
0 146-165 6xM6 holes



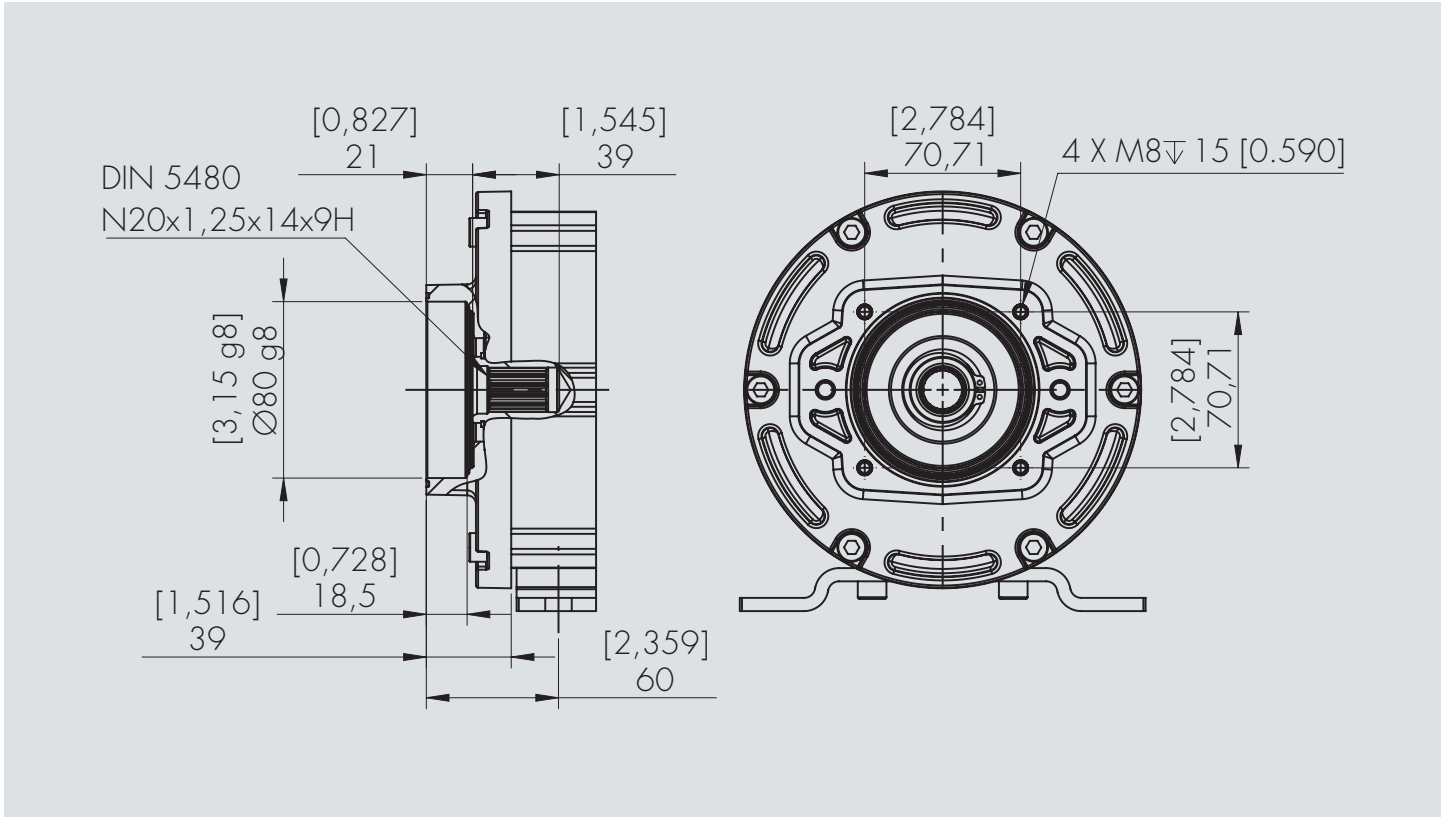
S Industrial



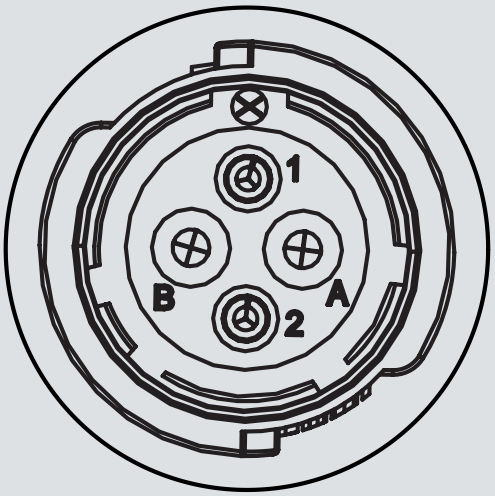
A SAE A



1 ISO 3019-2



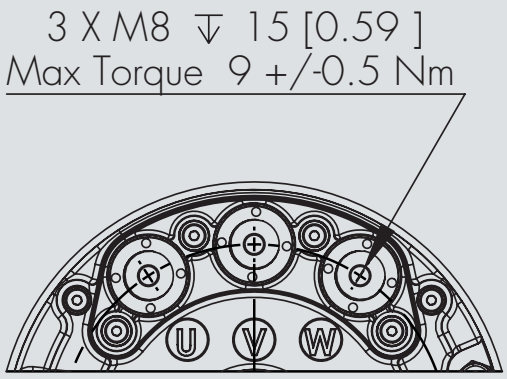
0 Amphenol FLS010N2P03-PM*



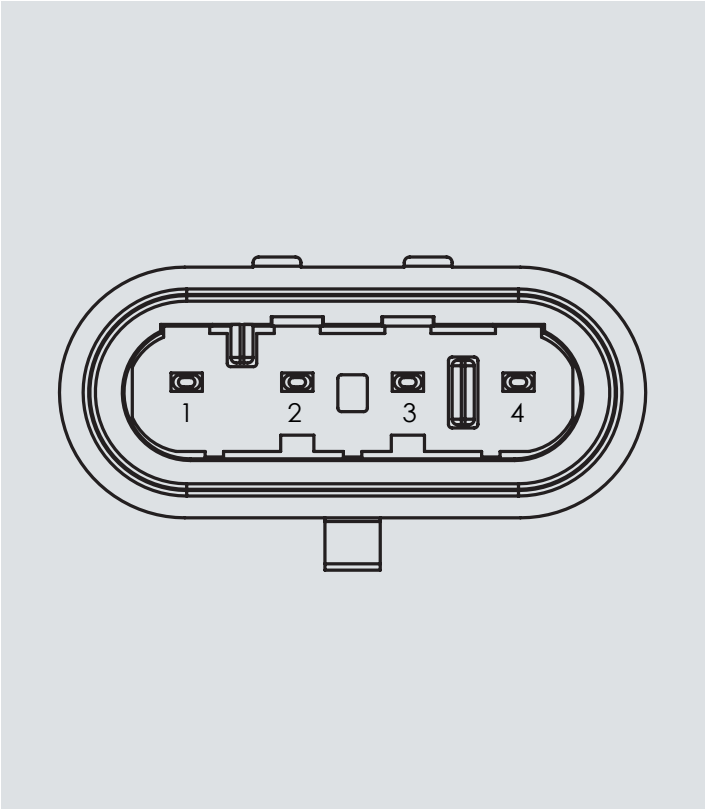
Pin	Signal	
1	1	PT1000
3		
A	A	Brake V+
B		Brake V-

*Counterpart Mating Female Plug Housing Amphenol FLS610N2SHEC03

Power connection



Superseal 4 poles sin/cos encoder AMP 282106-1*



Pin	Signal
1	Vin+
2	COS out
3	SIN out
4	GND

*Counterpart Mating Female Plug Housing AMP 282088-1

MSB	1 2	3	4	5	6	7	8	9	10	11	12	13 14 15

1 2

Motor dimension

18

3

Motor/Cooling type

2	MSB 050 - air cooled	**3**	MSB 075 - air cooled	**4**	MSB 100 - air cooled	**7**	MSB 050 - liquid cooled
8	MSB 075 - liquid cooled	**9**	MSB 100 - liquid cooled				

4

Power configuration

A 48V

5

Encoder

1 Sin/Cos

6

Cable outlet

A Rear

7

Flange

0	146-165 6xM6 holes	**A**	SAE A	**1**	ISO 3019-2	**S**	Industrial

8

Shaft

V	9-tooth female (only for pump connection to SAE A flange)	**0**	9-tooth male (only for motorwheal connection)	**1**	14-tooth male (only for pump connection to ISO 3019-2 flange)

9

Brushless IP protection

1 IP67

10

Brake

A	36Nm EM	**N**	No brake

11

Thermal sensor

1	PT1000

12

Connection

A	Amphenol

13 14 15

Customization

001	No varnishing

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