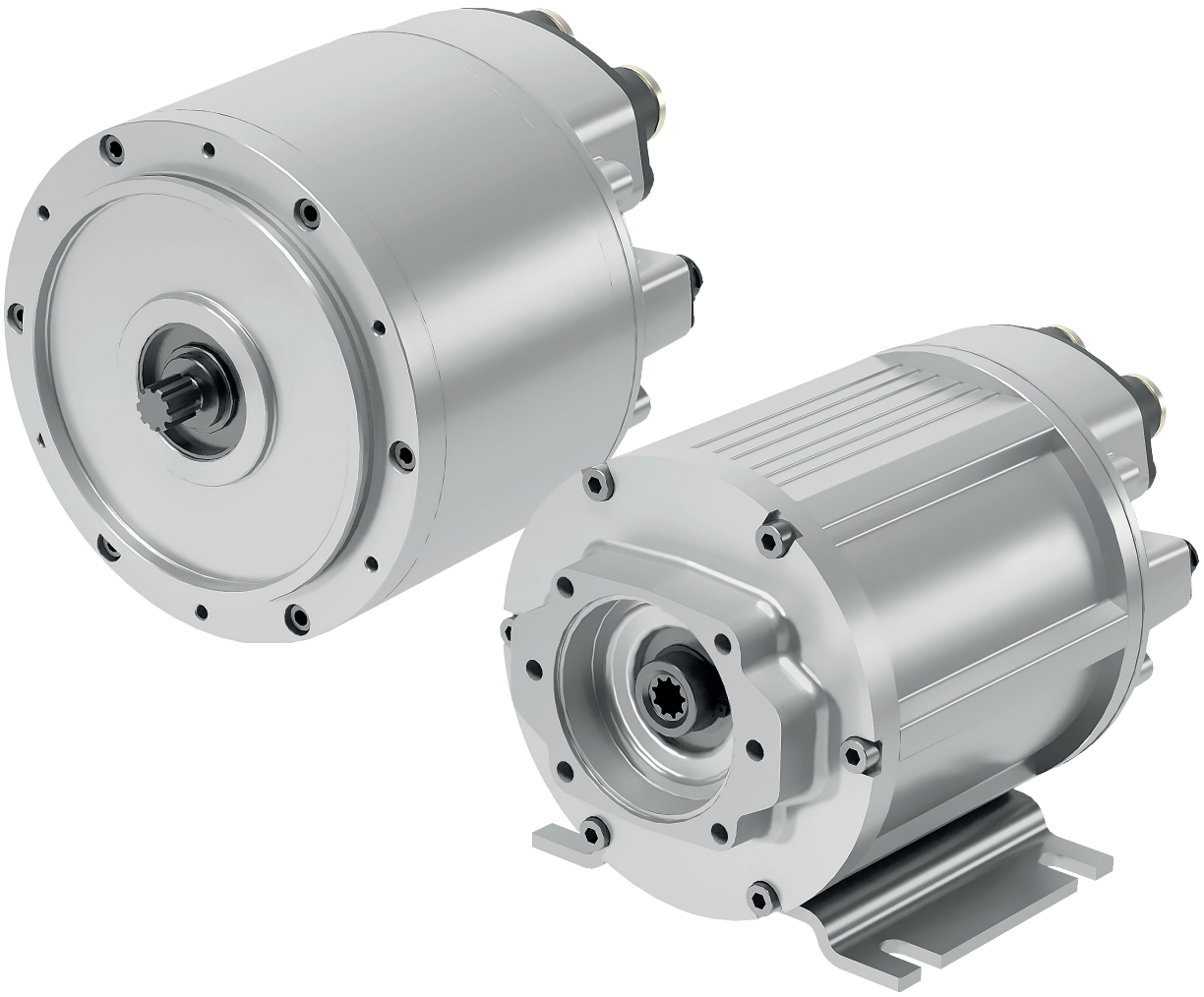
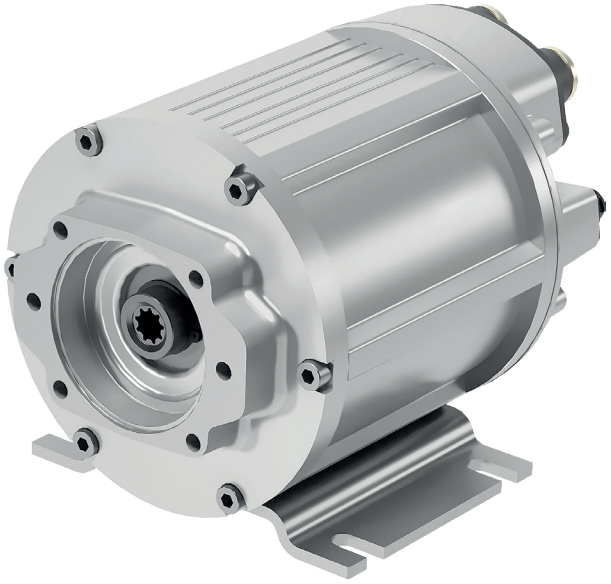
MSB series



Index

MSB Series	3
MSB 050	4
MSB 075	6
MSB 100	8
Dimensions	10
Flanges for motorwheels	12
Flanges for pumps	13
Brake - Connection - Thermal Sensor, Signal Pinout	14
Instructions for ordering	16



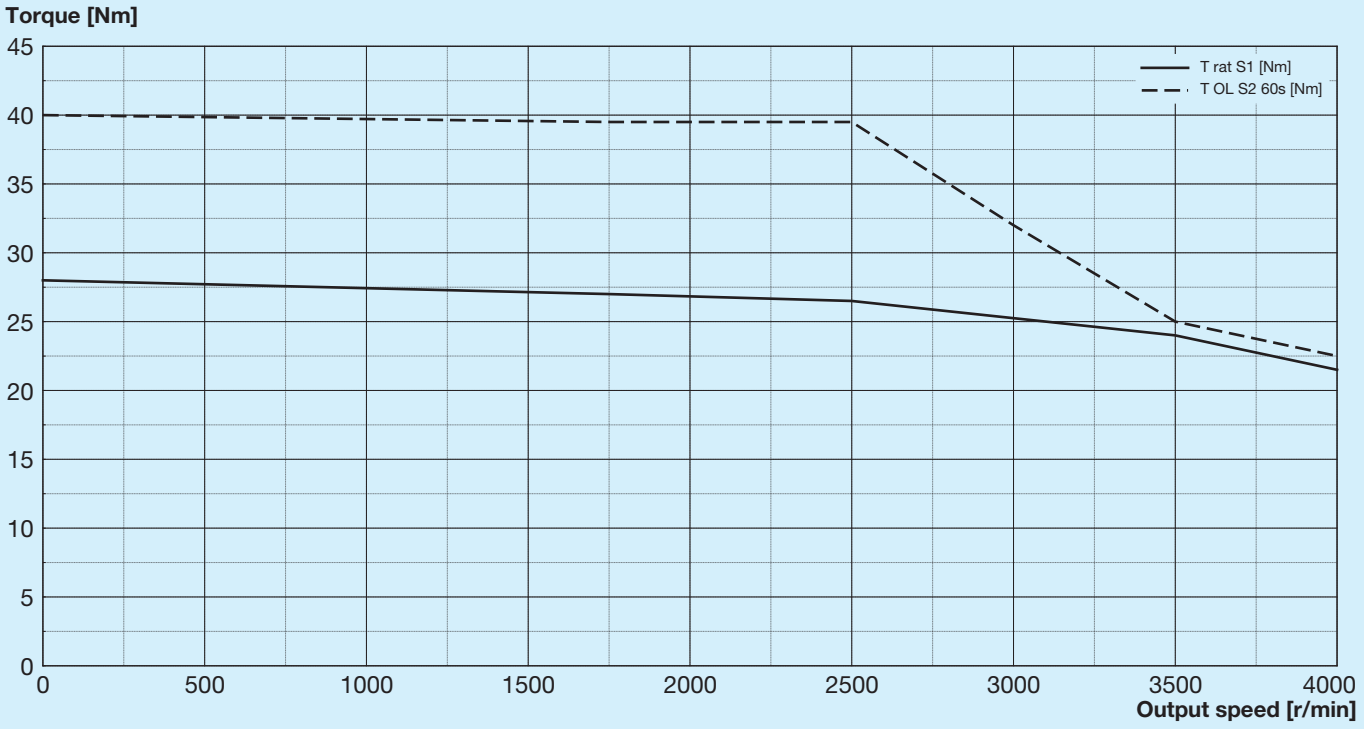


Brushless Motors for Off-Highway and Industrial Applications

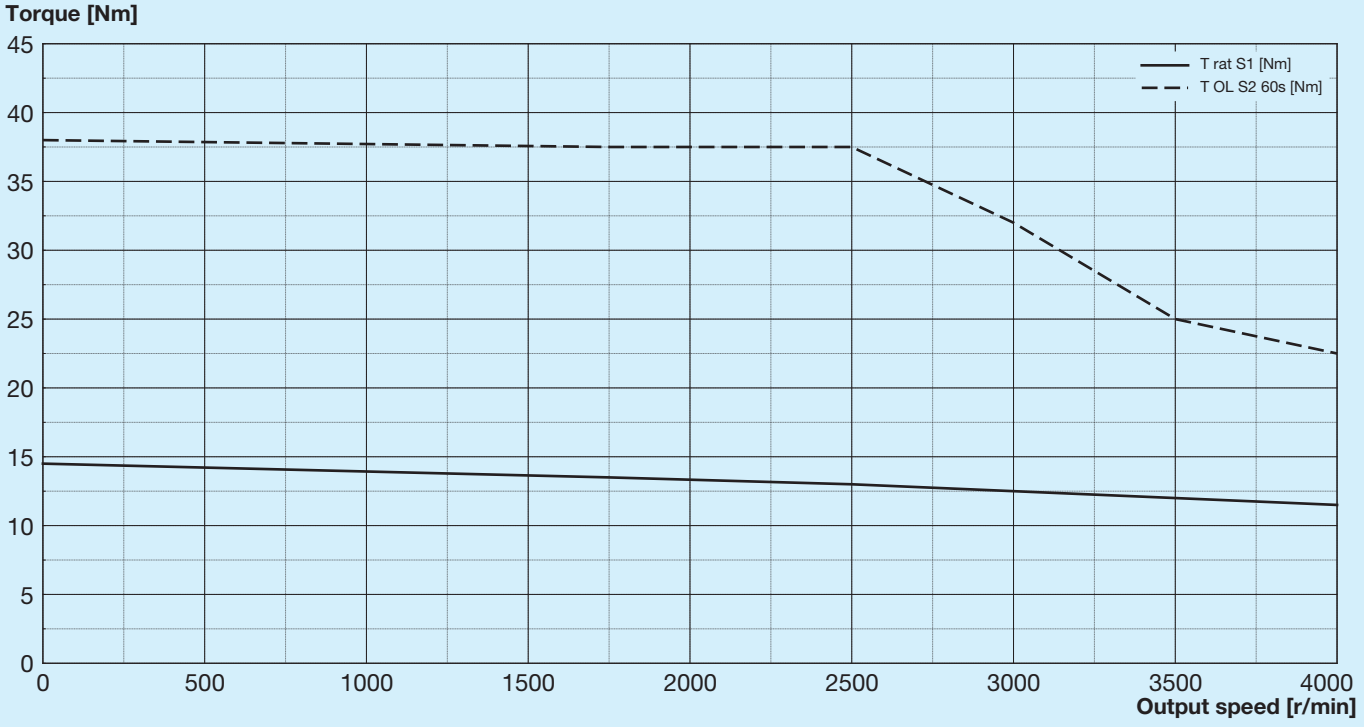
Designed for rugged environments, our new range of **low-voltage brushless motors** (3.5 kW to 16 kW) is ideal for **off-highway vehicles**, **construction machinery**, and **industrial automation**. Featuring **IPM (Interior Permanent Magnet)** technology, the motors deliver high torque density, efficiency, 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, 96V) 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



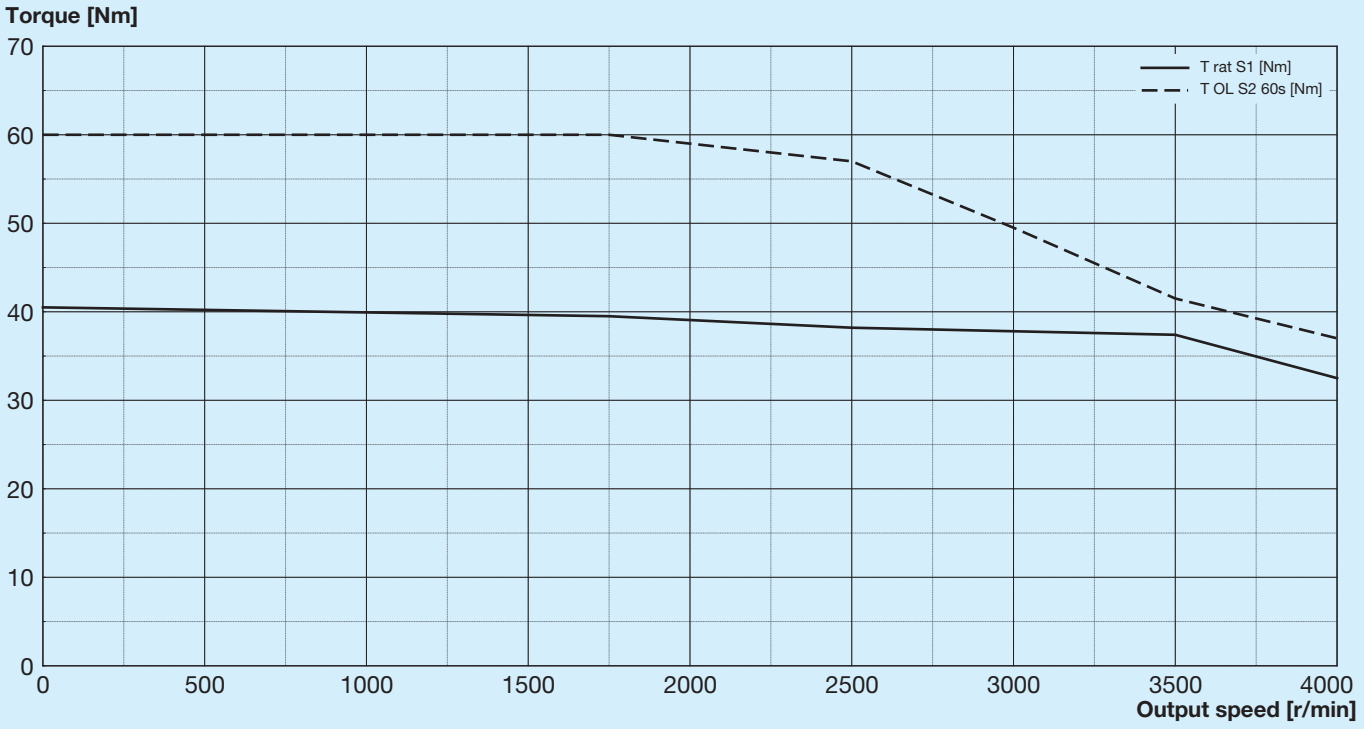
Technical Specifications

Performance and specifications

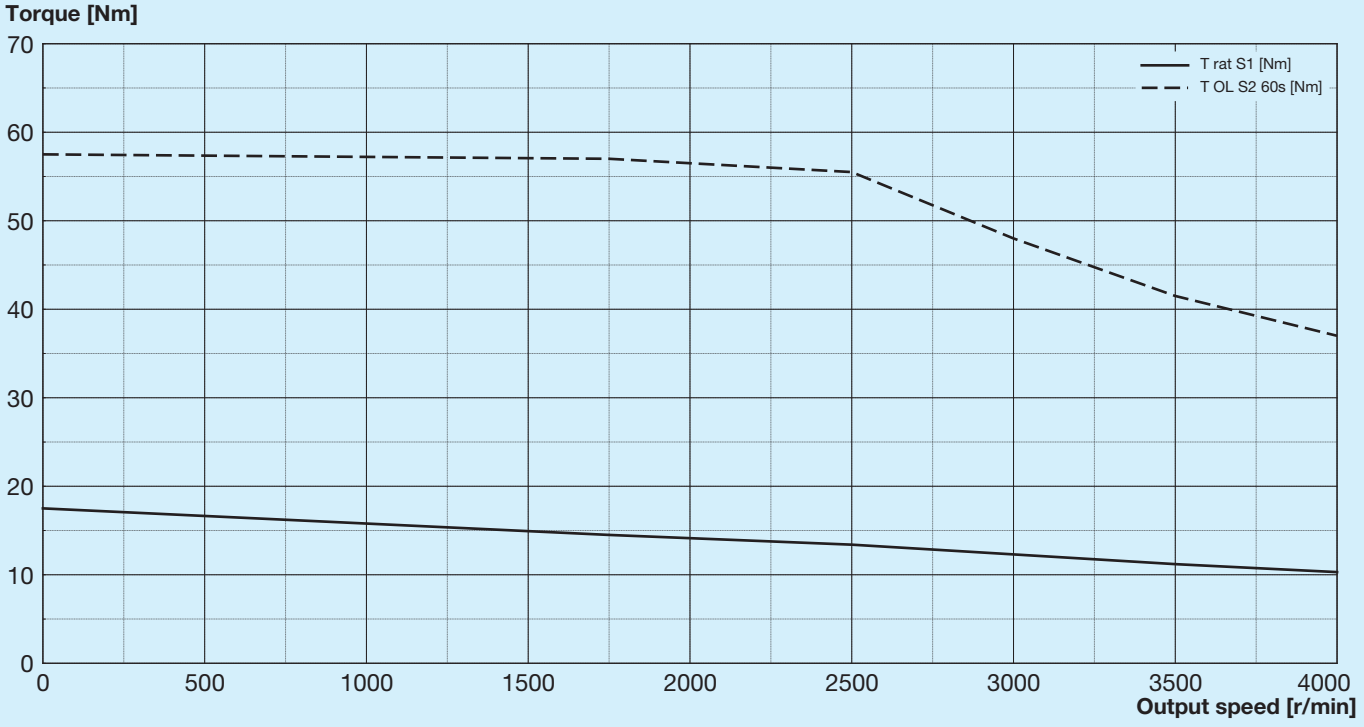
MOTOR MODEL		**MSB 050**			
Winding code		MSB187A	MSB187B	MSB182A	MSB182B
ELECTRICAL DATA					
Cooling		Liquid		Air	
Voltage Supply	**V_{dc}**	**48**	**96**	**48**	**96**
Stall torque	**Nm**	28		14	
Stall current	**A_{rms}**	209	116	116	58
Rated power	**kW**	8		3,5	
Rated speed	**r/min**	3000			
Rated torque	**Nm**	25		12	
Rated current	**A_{rms}**	204	104	102	50
Peak torque	**Nm**	40		35	
Peak current	**A_{rms}**	316	166	296	145
Torque costant ±5% (at 25°C)	**Nm/A_{rms}**	0,12	0,24	0,12	0,24
Voltage constant ±5%	**V_{rms}/[k(r/min)]**	8	14,6	8	14,6
Winding Resistance Phase Phase ±5% (at 25°C)	**mOhm**	8,6	28,5	8,6	28,5
Winding Inductance Phase Phase ±5%	**mH**	0,1	0,358	0,1	0,358
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



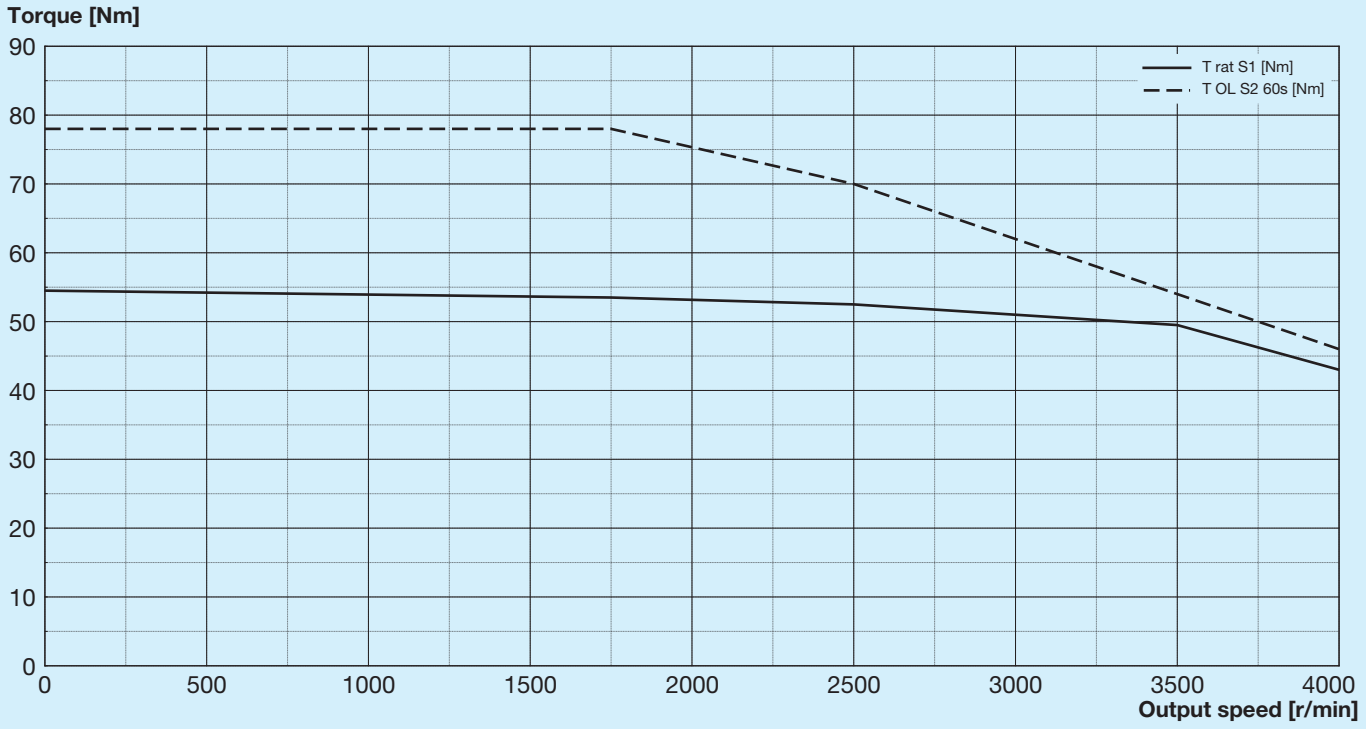
Technical Specifications

Performance and specifications

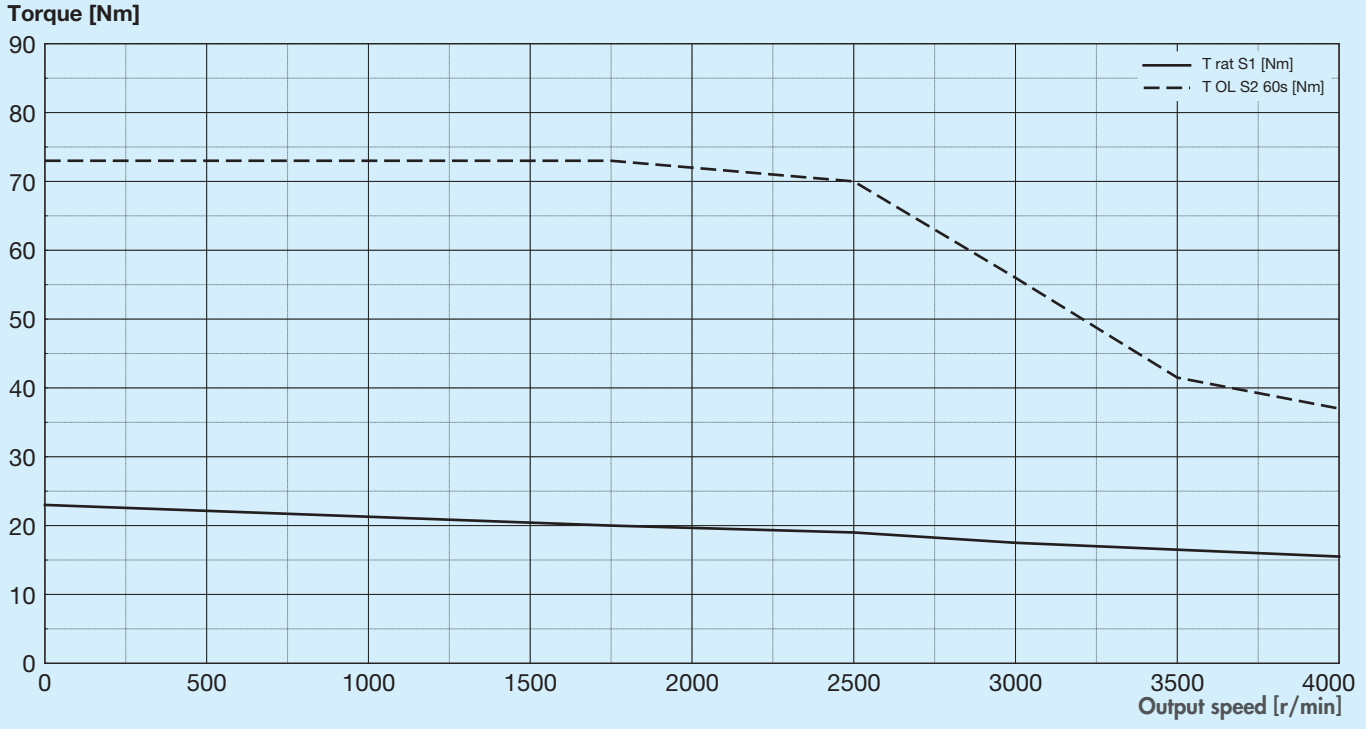
MOTOR MODEL		**MSB 075**			
Winding code		MSB188A	MSB188B	MSB183A	MSB183B
ELECTRICAL DATA					
Cooling		Liquid		Air	
Voltage Supply	**V_{dc}**	**48**	**96**	**48**	**96**
Stall torque	**Nm**	40		17	
Stall current	**A_{rms}**	325	166	150	70
Rated power	**kW**	11		4	
Rated speed	**r/min**	3000			
Rated torque	**Nm**	35		13	
Rated current	**A_{rms}**	314	145	111	54
Peak torque	**Nm**	60		55	
Peak current	**A_{rms}**	495	250	470	230
Torque costant ±5% (at 25°C)	**Nm/A_{rms}**	0,12	0,24	0,12	0,24
Voltage constant ±5%	**V_{rms}/[k(r/min)]**	7,75	15,9	7,75	15,9
Winding Resistance Phase Phase ±5% (at 25°C)	**mOhm**	4,9	20,6	4,9	20,6
Winding Inductance Phase Phase ±5%	**mH**	0,06	0,284	0,06	0,284
Pole number		10			
ΔT_{MAX} Winding	**°C**	105			
MECHANICAL DATA					
Rotor moment of inertia	**$Kg \cdot m^2 x10^{-4}$**	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	**$Kg \cdot m^2 x10^{-4}$**	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

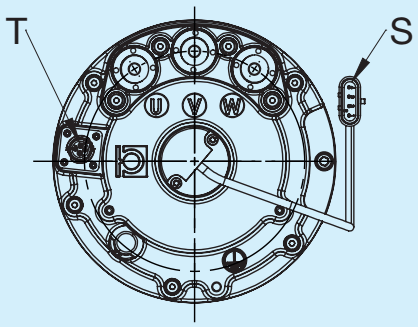


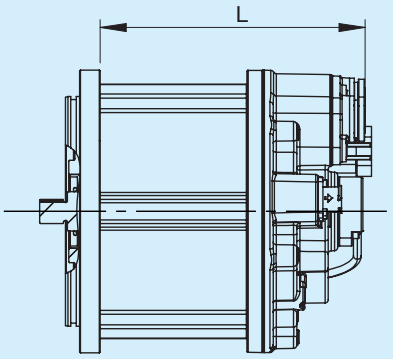
Performance and specifications

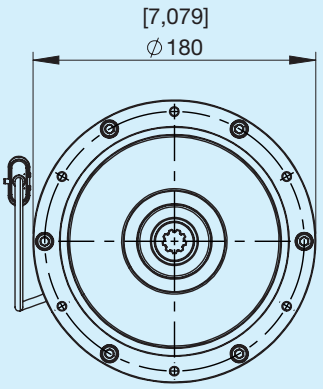
MOTOR MODEL		**MSB 100**			
Winding code		MSB189A	MSB189B	MSB184A	MSB184B
ELECTRICAL DATA					
Cooling		Liquid		Air	
Voltage Supply	**V_{dc}**	**48**	**96**	**48**	**96**
Stall torque	**Nm**	54		23	
Stall current	**A_{rms}**	406	224	183	96
Rated power	**kW**	16		5,5	
Rated speed	**r/min**	3000			
Rated torque	**Nm**	50		17	
Rated current	**A_{rms}**	396	208	147	70
Peak torque	**Nm**	70			
Peak current	**A_{rms}**	607	291	557	291
Torque costant ±5% (at 25°C)	**Nm/A_{rms}**	0,12	0,24	0,12	0,24
Voltage constant ±5%	**V_{rms}/[k(r/min)]**	8,25	15,9	8,25	15,9
Winding Resistance Phase Phase ±5% (at 25°C)	**mOhm**	3,8	13,9	3,8	13,9
Winding Inductance Phase Phase ±5%	**mH**	0,05	0,204	0,05	0,204
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

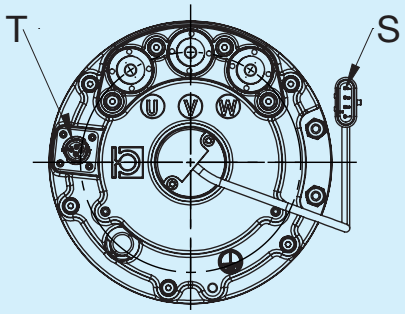
AIR COOLING

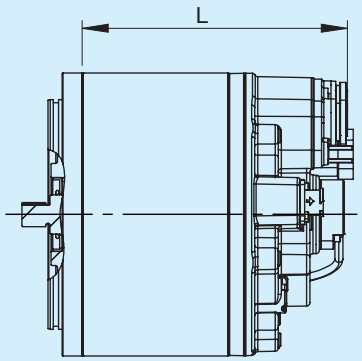


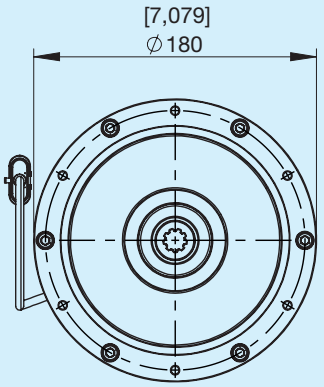




LIQUID COOLING







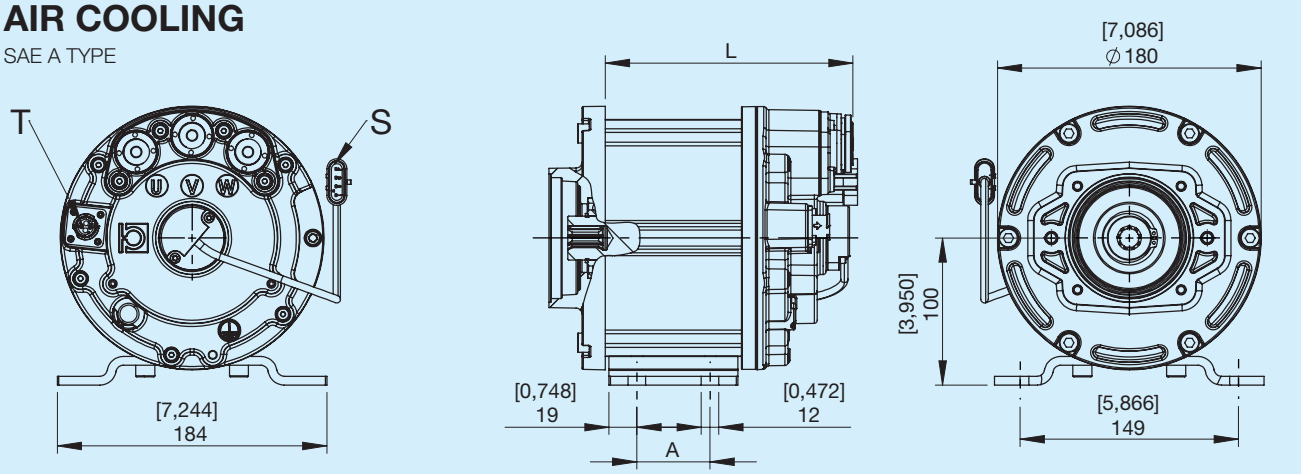
	L	
	mm	**inch**
MSB 050	168,5	6,628
MSB 075	193,4	7,613
MSB 100	218,4	8,597

Dimensions

For pumps

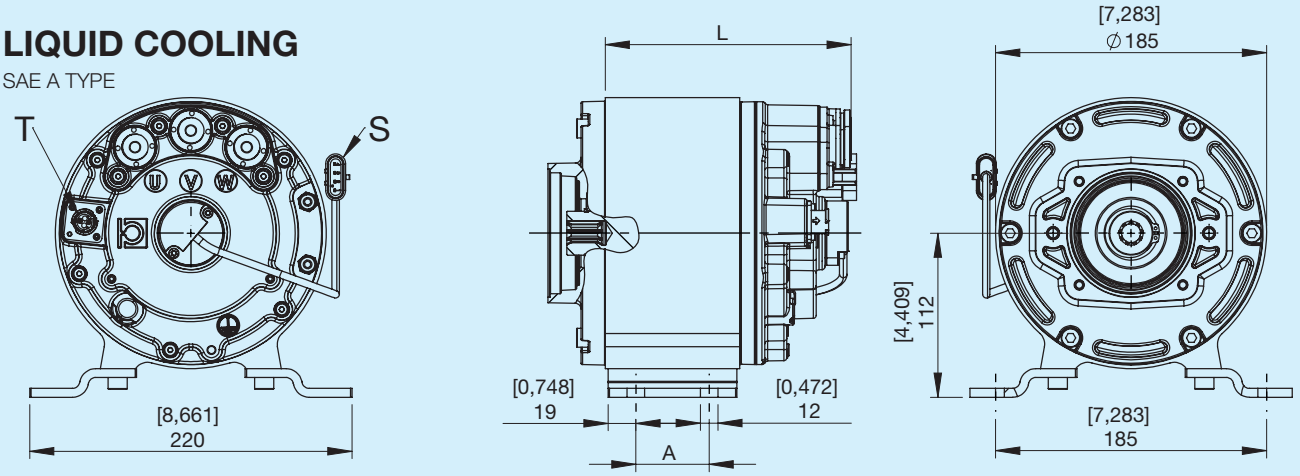
AIR COOLING

SAE A TYPE



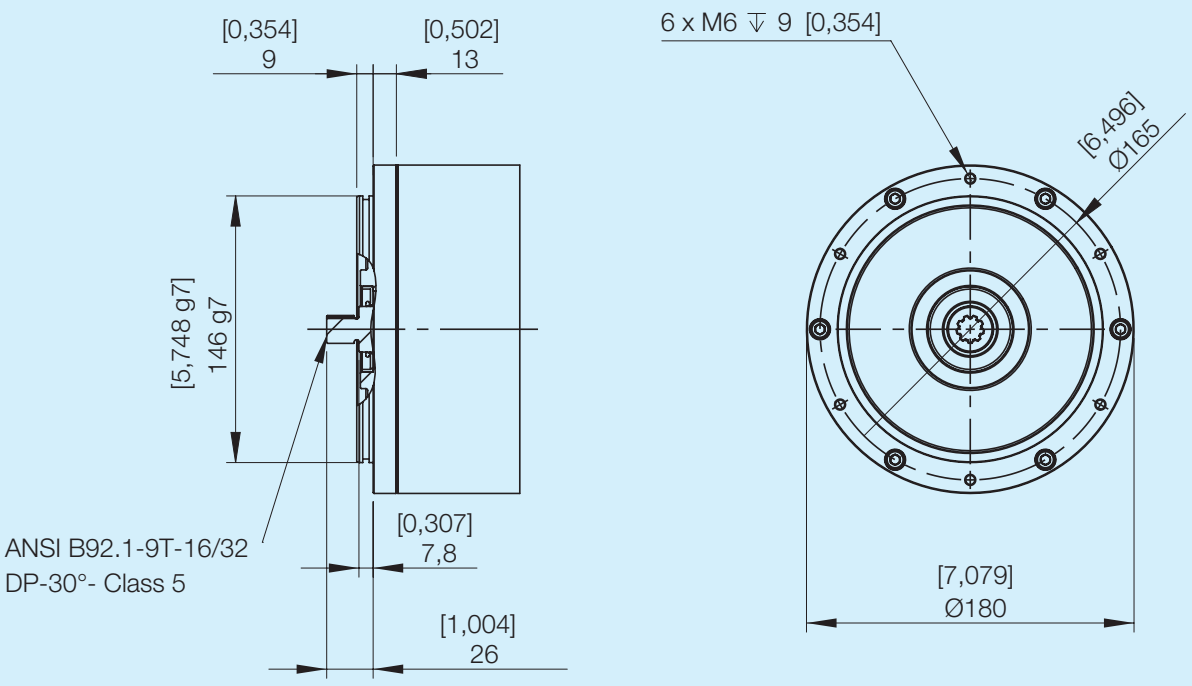
LIQUID COOLING

SAE A TYPE



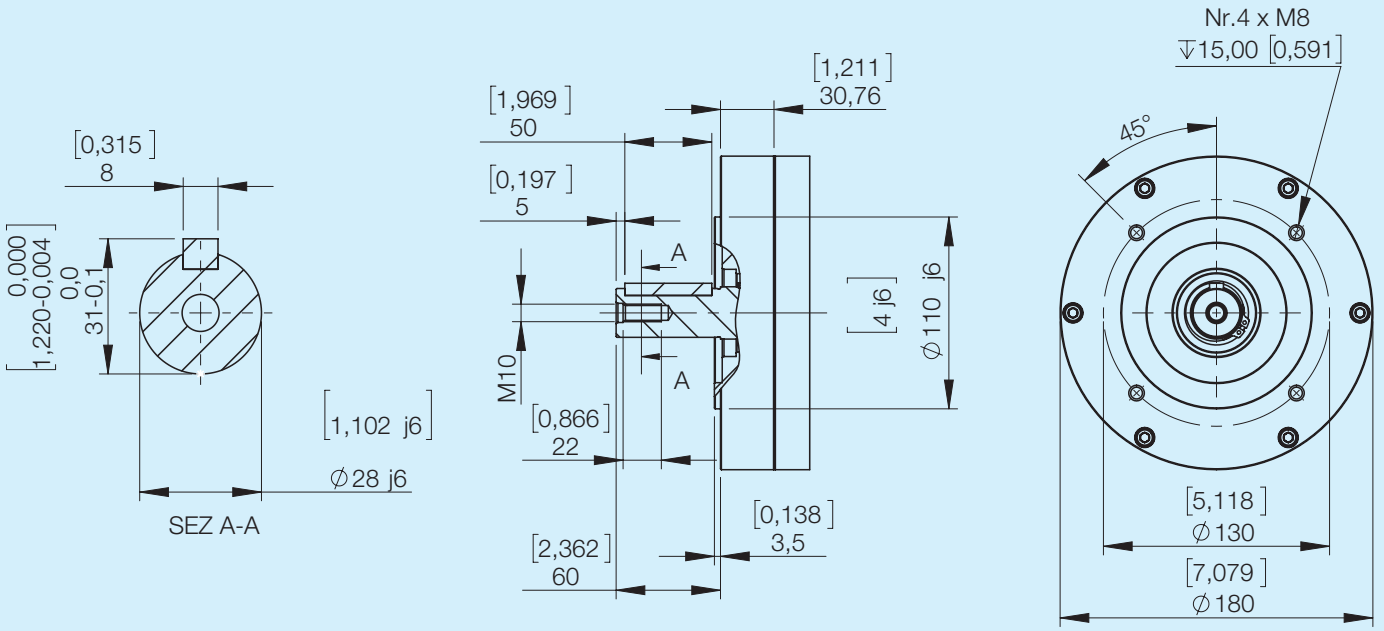
	L		A	
	mm	**inch**	**mm**	**inch**
MSB 050	168,5	6,628	50	1,969
MSB 075	193,4	7,613	75	2,953
MSB 100	218,4	8,597	100	3,937

0 146 - 165 6xM6 holes / **0** 9-tooth male

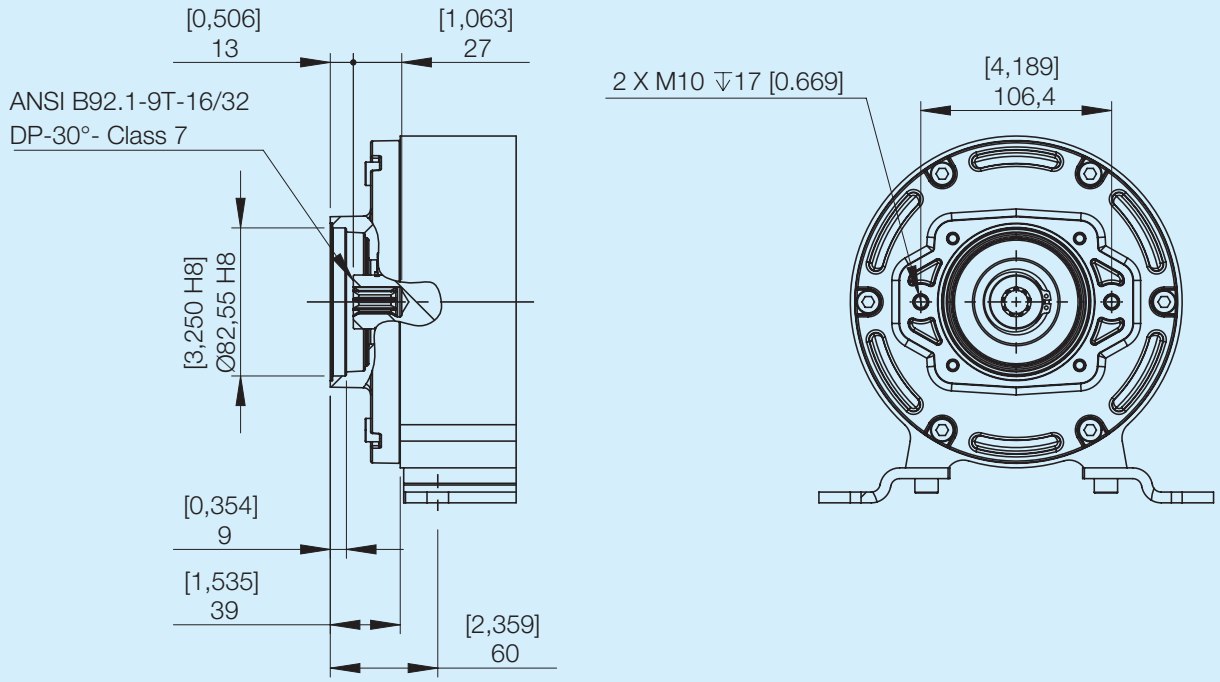


Use EP + MoS_2 additive high preformance grease on spline joint

S Industrial B14-100 / **2** Industrial 28j6 x60

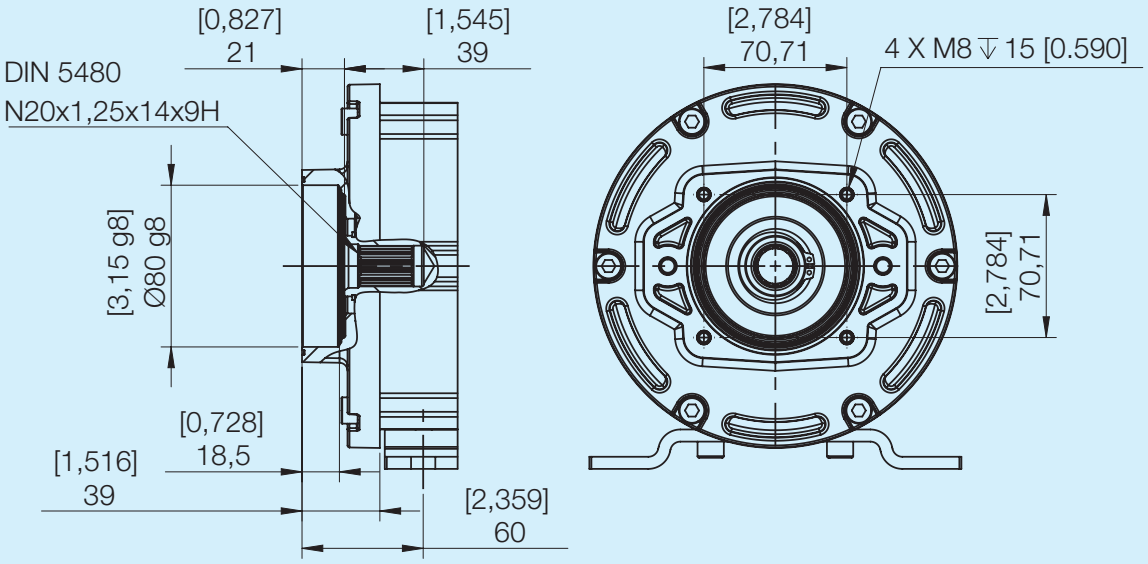


A SAE A / **V** 9-tooth female



Use EP + MoS_2 additive high preformance grease on spline joint
Mount 82.27x1.78 NBR o-ring between pump and motor

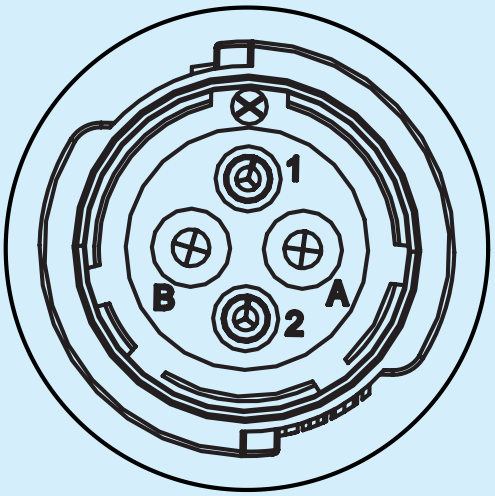
1 ISO 3019-2 / **1** 14-tooth female



Use EP + MoS_2 additive high preformance grease on spline joint
Mount 82.27x1.78 NBR o-ring between pump and motor

Brake - connection - thermal sensor

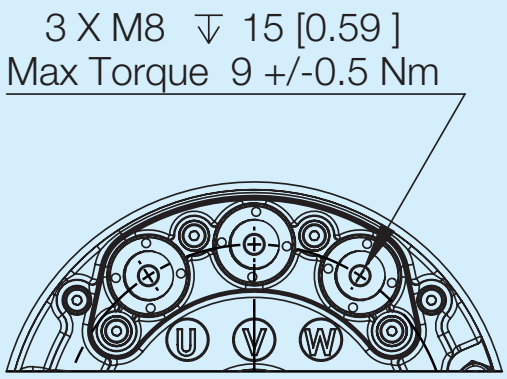
T connector



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

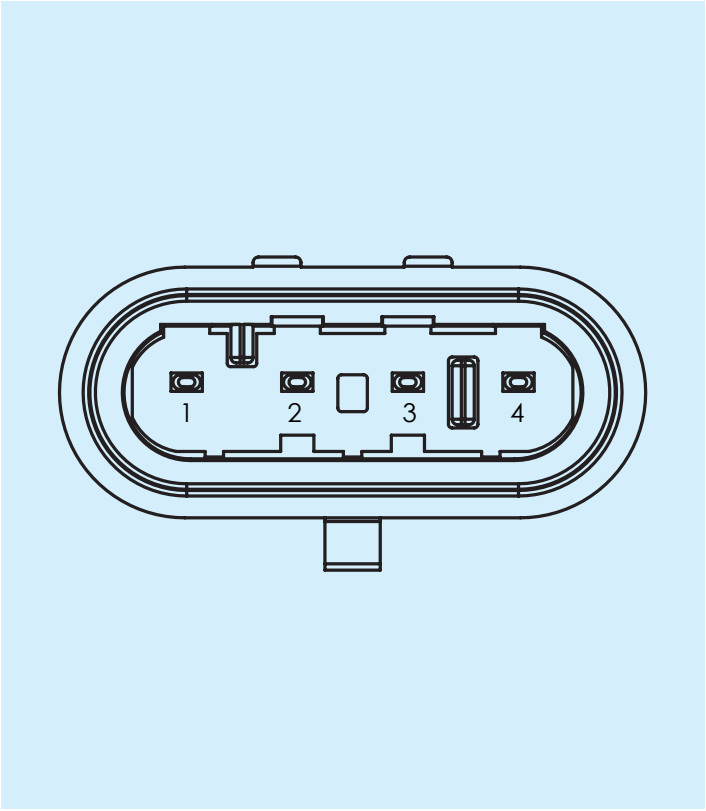
Mating kit for motors without brake MS5CON001R
Mating kit for motors with brake MS5CON002R

P connector



Signal pinout

S connector



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

Superseal 4 poles sin/cos encoder AMP 282106-1
Mating Female Plug Housing AMP 282088-1

Instructions for ordering

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

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	**B**	96V

5

Encoder

1	Sin/Cos

6

Cable outlet

A	Rear

7

Flange

0	146-165 6xM6 holes	**S**	Industrial IEC 60072-1 B14-100	**A**	SAE A	**1**	ISO 3019-2

8

Shaft

0	9-tooth male (only for motorwheel connection)	**2**	Industrial IEC 60072-1 28j6 x60	**V**	9-tooth female (only for pump connection to SAE A flange)	**1**	14-tooth female (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	Standard (P-S-T connectors)

13 14 15

Customization

001	No varnishing