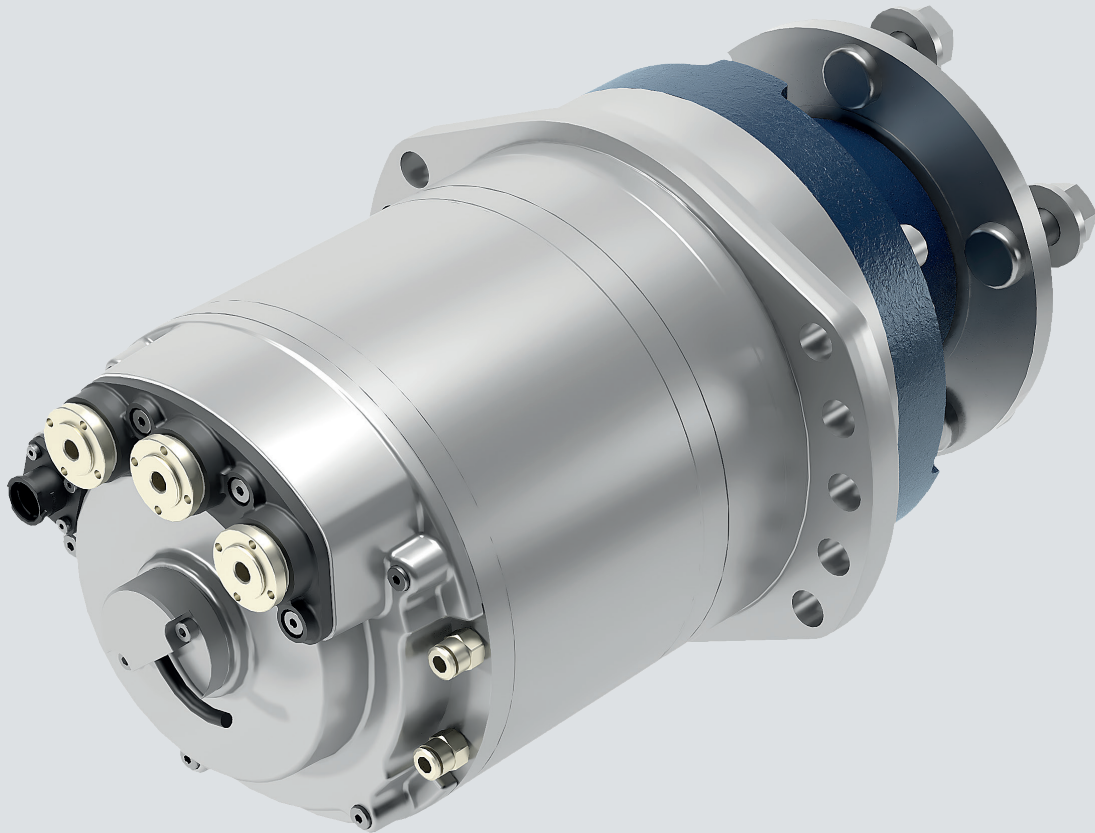


# MSM Series

## Electric motorwheels



**SIBONI**  
A BONDIOLI & PAVESI COMPANY

398SEM004EN01 - 19-01-2026



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Consequently data provided in previous publications may no longer be valid. Siboni reserves the right to change specifications without prior notice or obligation.



## Electric Wheel Hub Motor for Off-Highway Applications

Our **wheel hub motor** combines a high-performance brushless electric motor with an integrated gearbox, specifically designed to accelerate the electrification of the **off-highway sector**. This innovative solution addresses the growing demand for sustainable mobility across agriculture, municipal vehicles, and construction machinery.

The motor has been **engineered to fit seamlessly inside the wheel**, ensuring maximum space efficiency while delivering **optimal power density**.

Its compact architecture minimizes overall dimensions, offering manufacturers greater freedom in vehicle design without compromising on performance.

To enhance safety and reliability, the unit comes with a **built-in parking brake**, complete with a **mechanical release system** for emergency operation in the event of vehicle failure.

This feature ensures uninterrupted functionality even in the toughest working conditions.

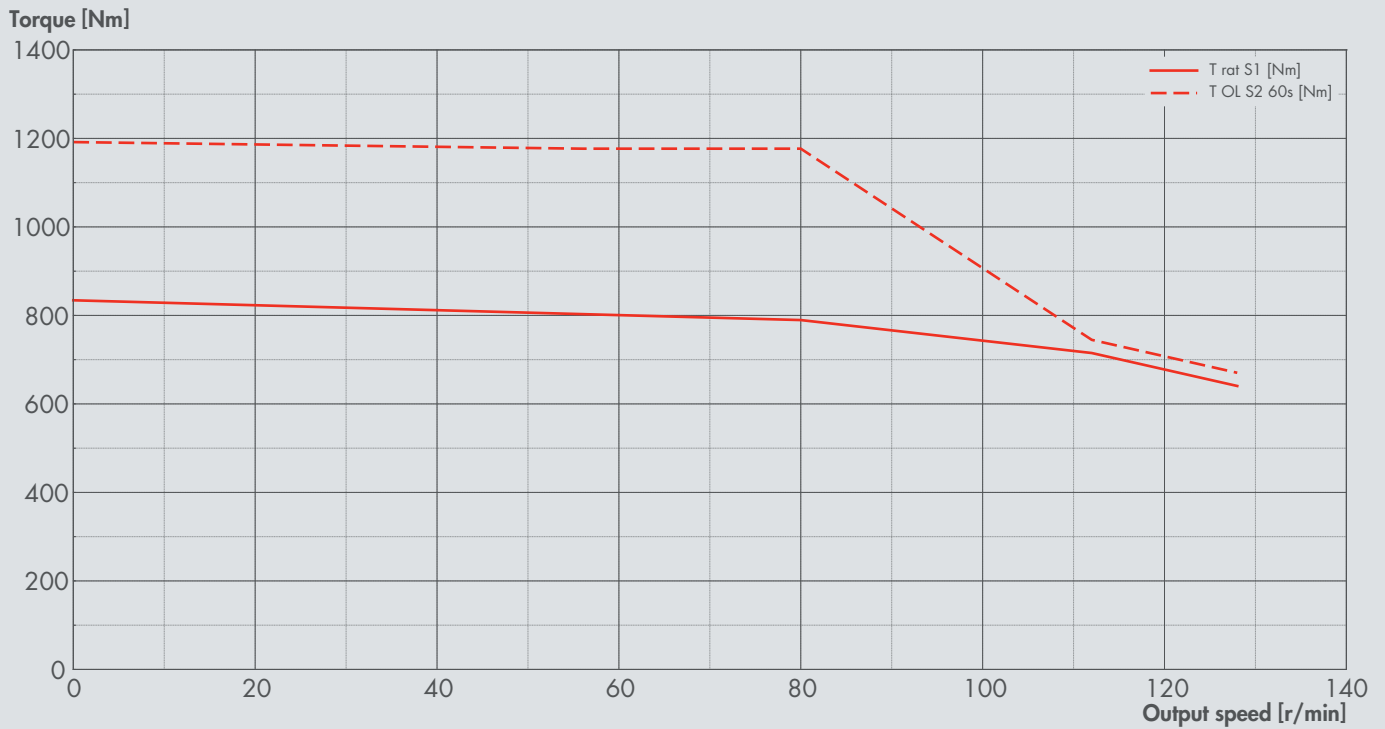
Designed for durability, the motor offers **robust construction and a high protection rating**, making it suitable for challenging environments where resistance to dust, water, and extreme conditions is essential.

Operating within a **48V power supply range**, the wheel hub motor is perfectly aligned with the needs of battery-powered equipment, combining efficiency, safety, and versatility.

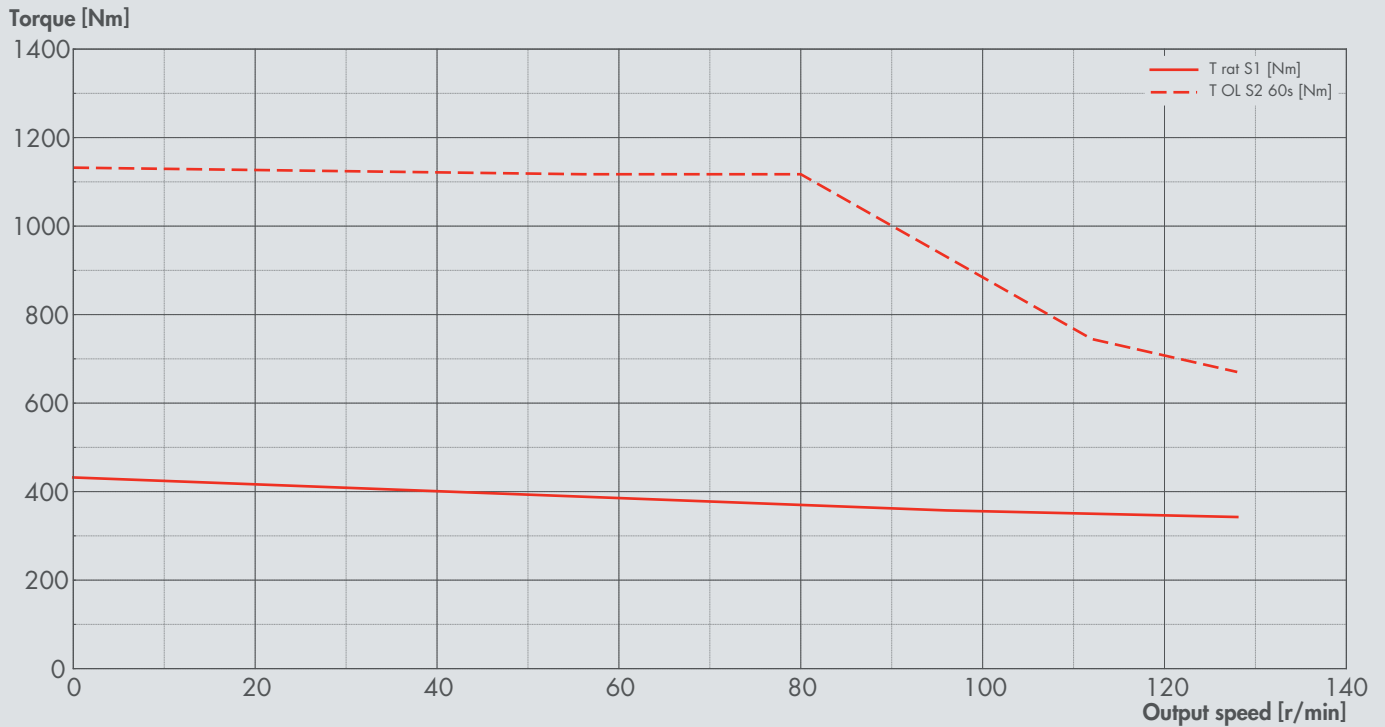
This product sets a new standard in **electric traction solutions**, helping industries move toward a cleaner, smarter, and more efficient future.

### Torque/Speed Characteristics

#### Liquid Cooling



#### Air Cooling

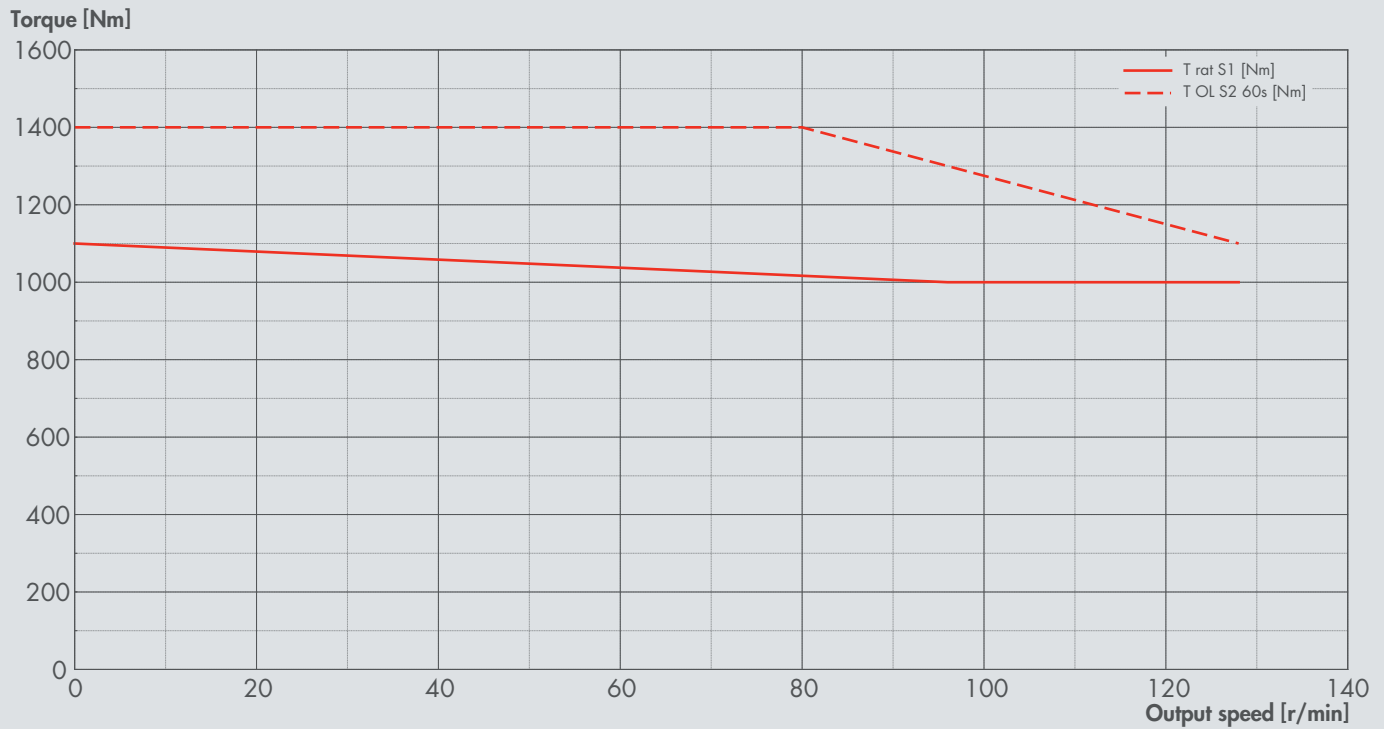


## Performance and specifications

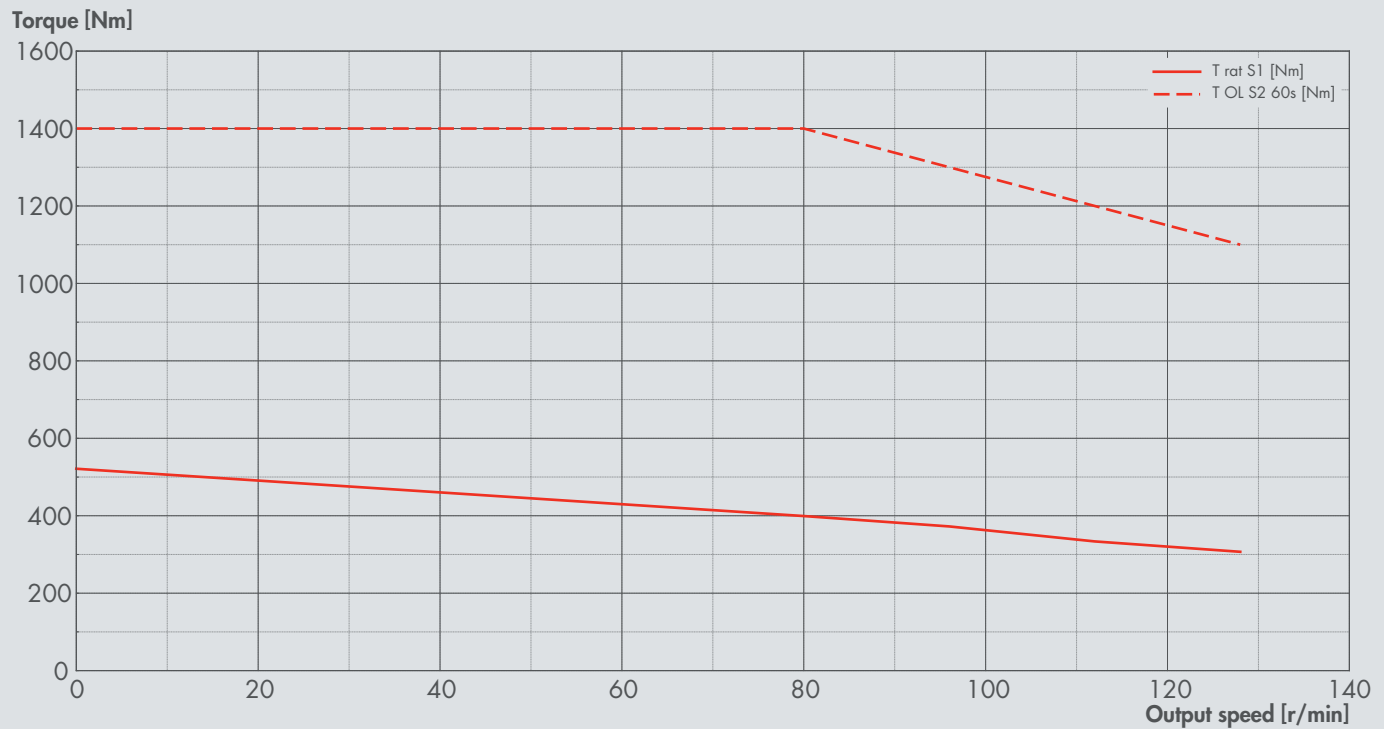
MOTOR MODEL		MSM 050	
Reduction ratio		31.36	
Winding code		MSM187A	MSM182A
GENERAL DATA			
Cooling		Liquid	Air
Voltage Supply	$V_{dc}$	48	
Stall torque	$Nm$	835	430
Stall current	$A_{rms}$	209	116
Rated power	$kW$	8	3,5
Rated speed	$r/min$	95	
Rated torque	$Nm$	750	350
Rated current	$A_{rms}$	204	102
Peak torque	$Nm$	1170	1115
Peak current	$A_{rms}$	316	296
Torque constant $\pm 5\%$ (at 25°C)	$Nm/A_{rms}$	3,7	
Voltage constant $\pm 5\%$	$V_{rms}/[k(r/min)]$	8	
Winding Resistance Phase Phase $\pm 5\%$ (at 25°C)	$ohm$	8,6	
Winding Inductance Phase Phase $\pm 5\%$	$mH$	0,1	
Pole number		10	
$\Delta T_{MAX}$ Winding	$^{\circ}C$	105	
MECHANICAL DATA			
Mineral gearbox oil type		ISO VG 150/220 EP	
Mineral gearbox oil quantity	$ml$	400	
Weight	$kg$	35,5	
PARKING BRAKE (option)			
Rated voltage +6 / -10%	$V_{dc}$	24	
Rated current at 20°C	$A$	1,1	
Weight	$Kg$	1,6	
Holding torque	$Nm$	1100	
ROTOR POSITION SENSOR SIN-COS (single ended)			
Supply	$V$	5V +/- 5%	
Max current consumption	$mA$	30	
Internal serial impedance	$Ohm$	100	
Amplitude	$V$	2.2 +/- 0.2 Vpp	
Signal offset	$V$	2.5 +/- 1%	
THERMAL SENSOR PT1000			
Type		PT1000-R8/2-2F	
Resistance at 20° / Resistance at 100°	$Ohm$	1078 / 1385	
Precision	$^{\circ}C$	+/- (0.3-0.005t)	

## Torque/Speed Characteristics

### Liquid Cooling



### Air Cooling

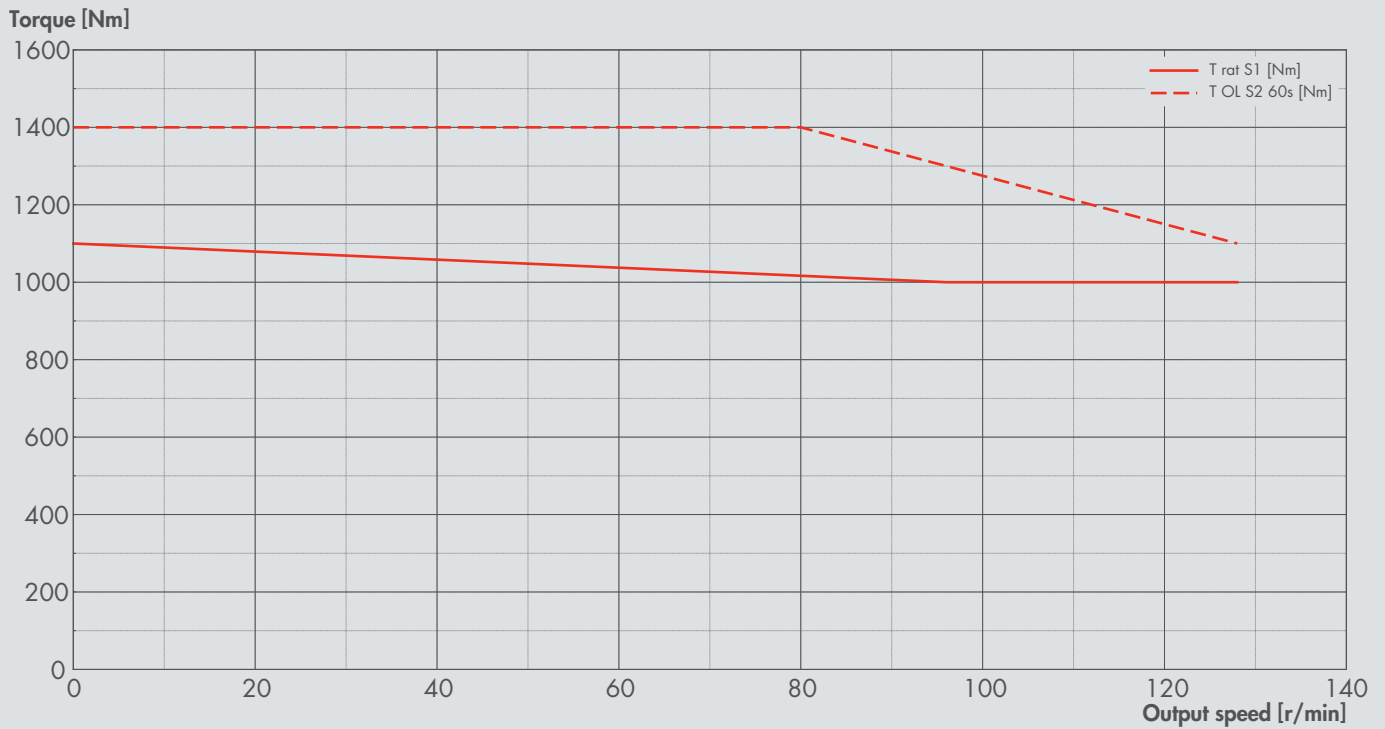


## Performance and specifications

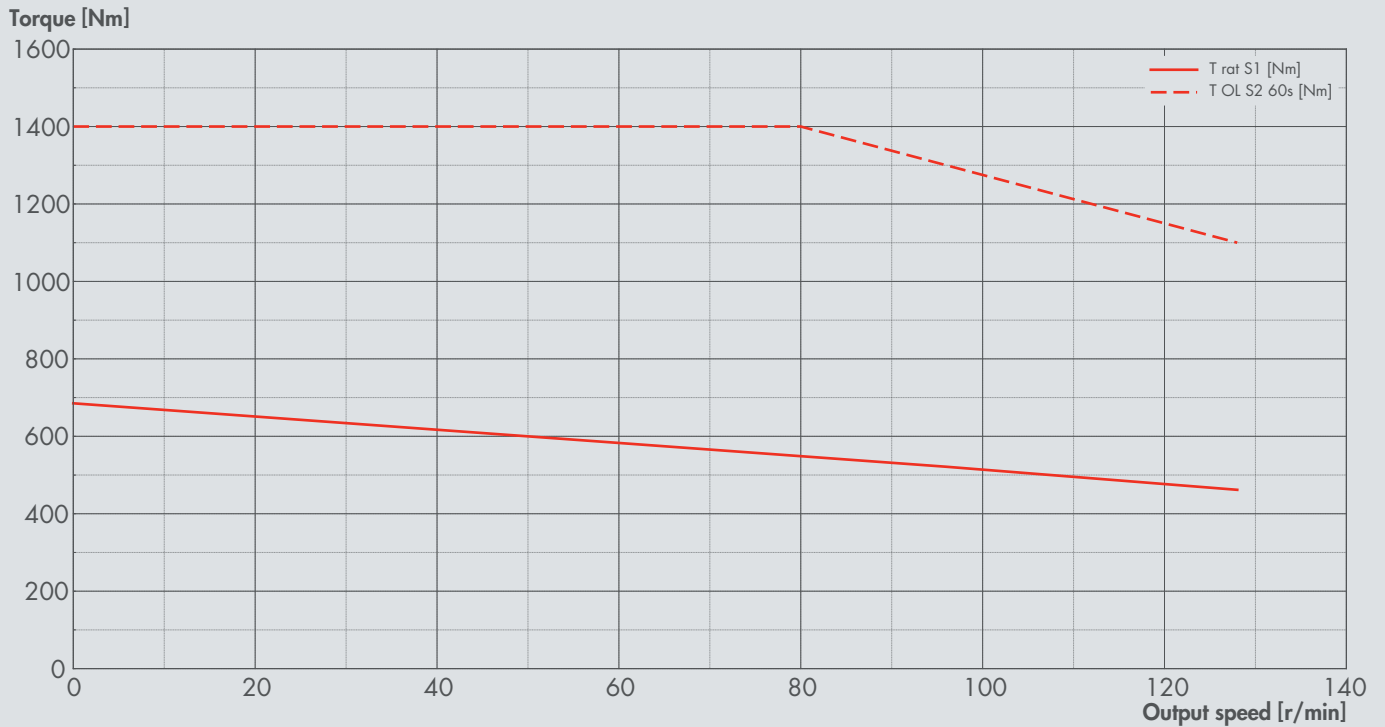
MOTOR MODEL		MSM 075	
Reduction ratio		31.36	
Winding code		MSM188A	MSM183A
GENERAL DATA			
Cooling		Liquid	Air
Voltage Supply	$V_{dc}$	48	
Stall torque	$Nm$	1100	520
Stall current	$A_{rms}$	295	150
Rated power	$kW$	11	4
Rated speed	$r/min$	96	
Rated torque	$Nm$	1000	370
Rated current	$A_{rms}$	314	111
Peak torque	$Nm$	1400	
Peak current	$A_{rms}$	390	
Torque constant $\pm 5\%$ (at 25°C)	$Nm/A_{rms}$	3,7	
Voltage constant $\pm 5\%$	$V_{rms}/[k(r/min)]$	7,75	
Winding Resistance Phase Phase $\pm 5\%$ (at 25°C)	$ohm$	4,9	
Winding Inductance Phase Phase $\pm 5\%$	$mH$	0,06	
Pole number		10	
$\Delta T_{MAX}$ Winding	$^{\circ}C$	105	
MECHANICAL DATA			
Mineral gearbox oil type		ISO VG 150/220 EP	
Mineral gearbox oil quantity	$ml$	400	
Weight	$kg$	38,5	
PARKING BRAKE (option)			
Rated voltage +6 / -10%	$V_{dc}$	24	
Rated current at 20°C	$A$	1,1	
Weight	$Kg$	1,6	
Holding torque	$Nm$	1100	
ROTOR POSITION SENSOR SIN-COS (single ended)			
Supply	$V$	5V +/- 5%	
Max current consumption	$mA$	30	
Internal serial impedance	$Ohm$	100	
Amplitude	$V$	2.2 +/- 0.2 Vpp	
Signal offset	$V$	2.5 +/- 1%	
THERMAL SENSOR PT1000			
Type		PT1000-R8/2-2F	
Resistance at 20° / Resistance at 100°	$Ohm$	1078 / 1385	
Precision	$^{\circ}C$	+/- (0.3-0.005t)	

## Torque/Speed Characteristics

### Liquid Cooling



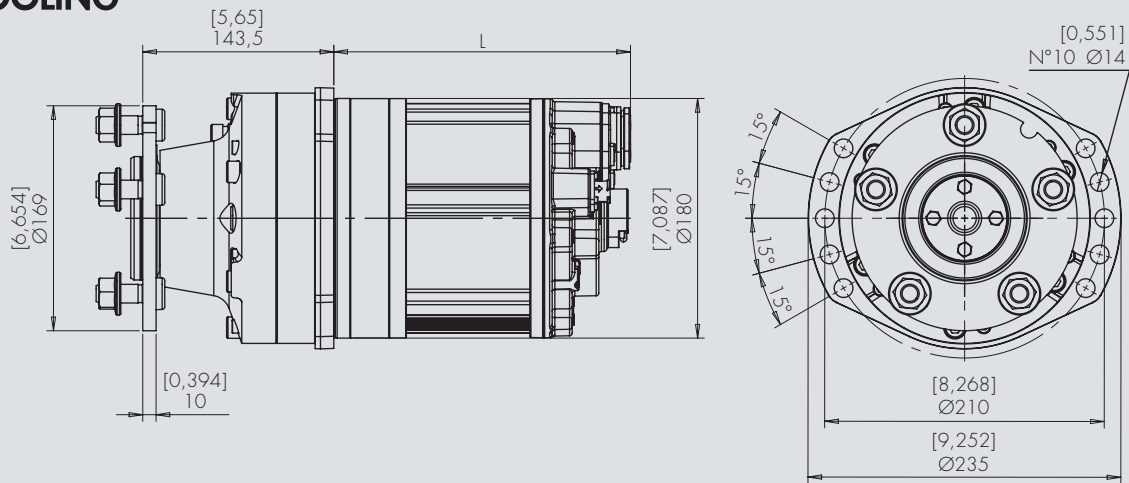
### Air Cooling



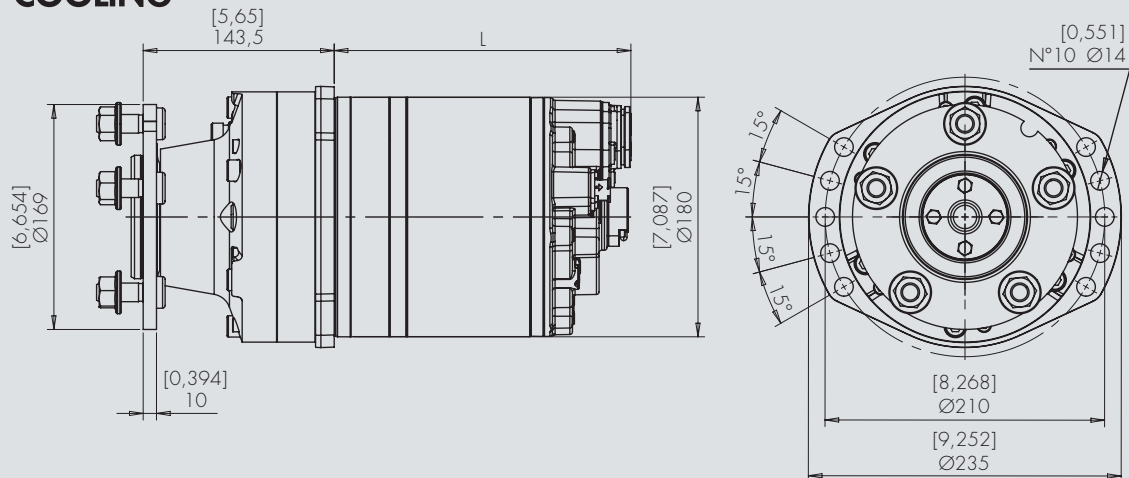
## Performance and specifications

MOTOR MODEL		MSM 100	
Reduction ratio		31.36	
Winding code		MSM189A	MSM184A
GENERAL DATA			
Cooling		Liquid	Air
Voltage Supply	$V_{dc}$	48	
Stall torque	$Nm$	1100	680
Stall current	$A_{rms}$	275	183
Rated power	$kW$	16	5,5
Rated speed	$r/min$	96	
Rated torque	$Nm$	1000	520
Rated current	$A_{rms}$	305	147
Peak torque	$Nm$	1400	
Peak current	$A_{rms}$	360	
Torque constant $\pm 5\%$ (at 25°C)	$Nm/A_{rms}$	3,7	
Voltage constant $\pm 5\%$	$V_{rms}/[k(r/min)]$	8,25	
Winding Resistance Phase Phase $\pm 5\%$ (at 25°C)	$ohm$	3,8	
Winding Inductance Phase Phase $\pm 5\%$	$mH$	0,05	
Pole number		10	
$\Delta T_{MAX}$ Winding	$^{\circ}C$	105	
MECHANICAL DATA			
Mineral gearbox oil type		ISO VG 150/220 EP	
Mineral gearbox oil quantity	$ml$	400	
Weight	$kg$	42,5	
PARKING BRAKE (option)			
Rated voltage +6 / -10%	$V_{dc}$	24	
Rated current at 20°C	$A$	1,1	
Weight	$Kg$	1,6	
Holding torque	$Nm$	1100	
ROTOR POSITION SENSOR SIN-COS (single ended)			
Supply	$V$	5V +/- 5%	
Max current consumption	$mA$	30	
Internal serial impedance	$Ohm$	100	
Amplitude	$V$	2.2 +/- 0.2 Vpp	
Signal offset	$V$	2.5 +/- 1%	
THERMAL SENSOR PT1000			
Type		PT1000-R8/2-2F	
Resistance at 20° / Resistance at 100°	$Ohm$	1078 / 1385	
Precision	$^{\circ}C$	+/- (0.3-0.005t)	

### AIR COOLING

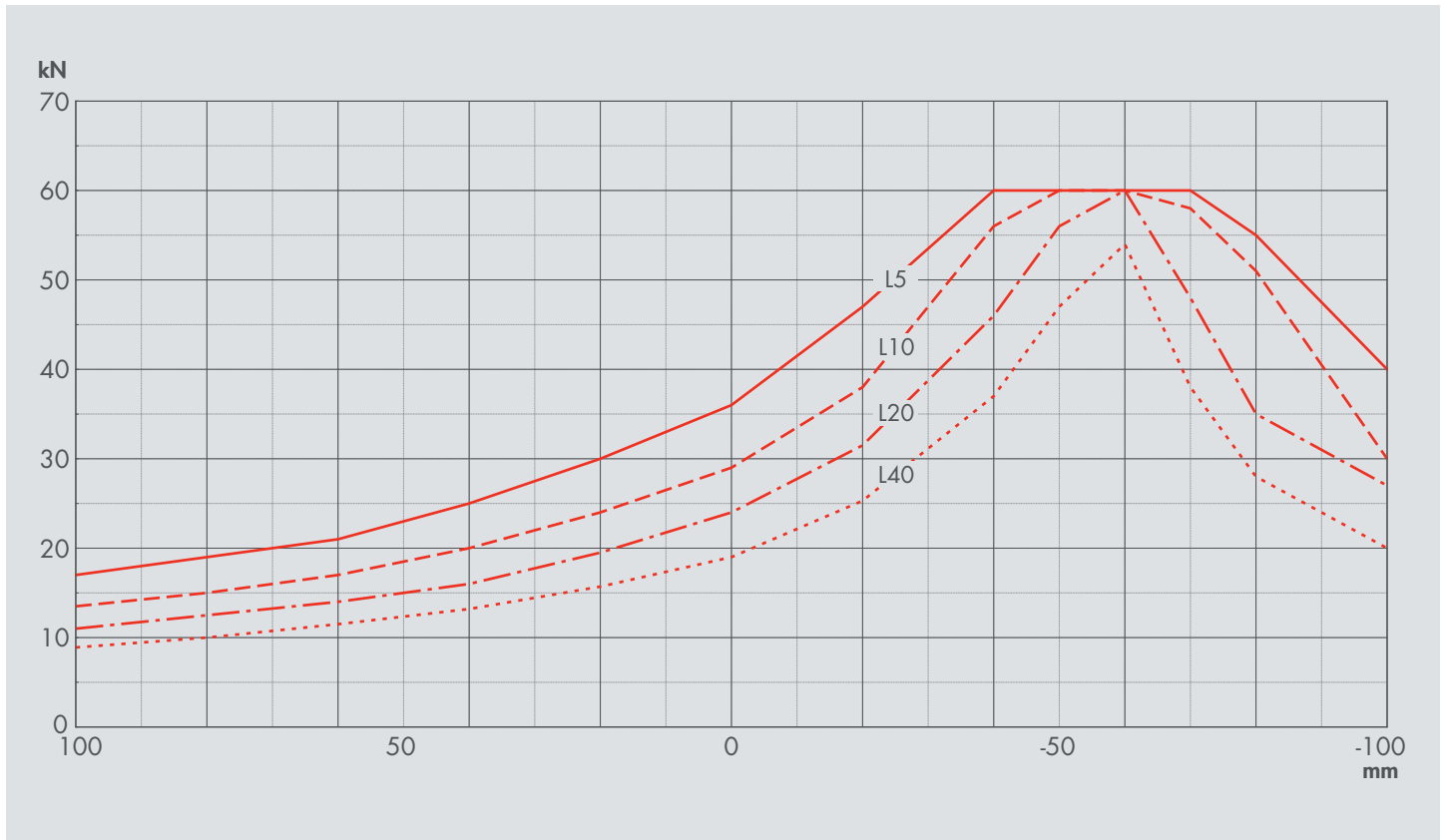


### LIQUID COOLING

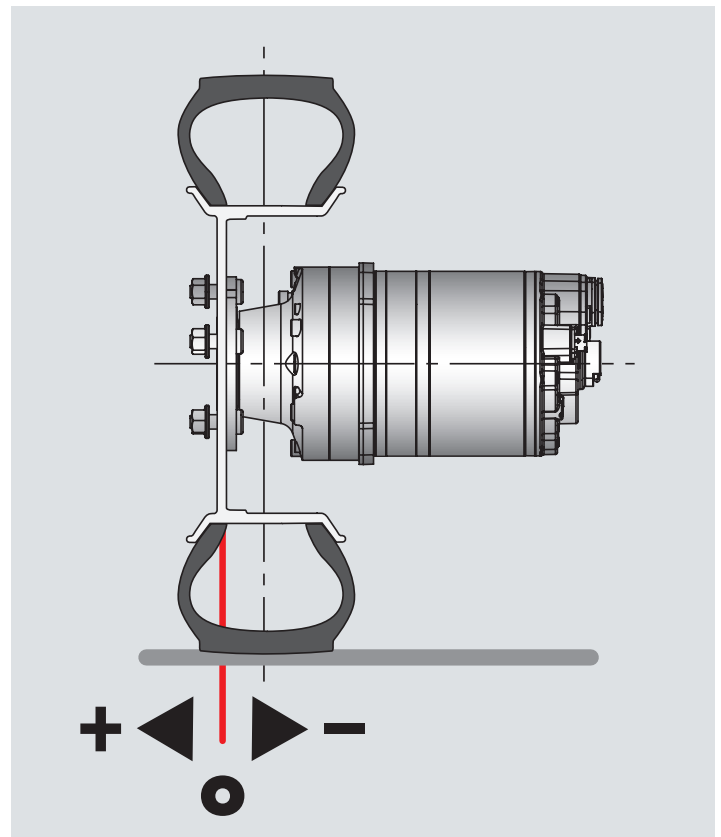


SIZE	L	
	mm	inch
EMX 050	223	8,8
EMX 075	248	9,8
EMX 100	273	10,7

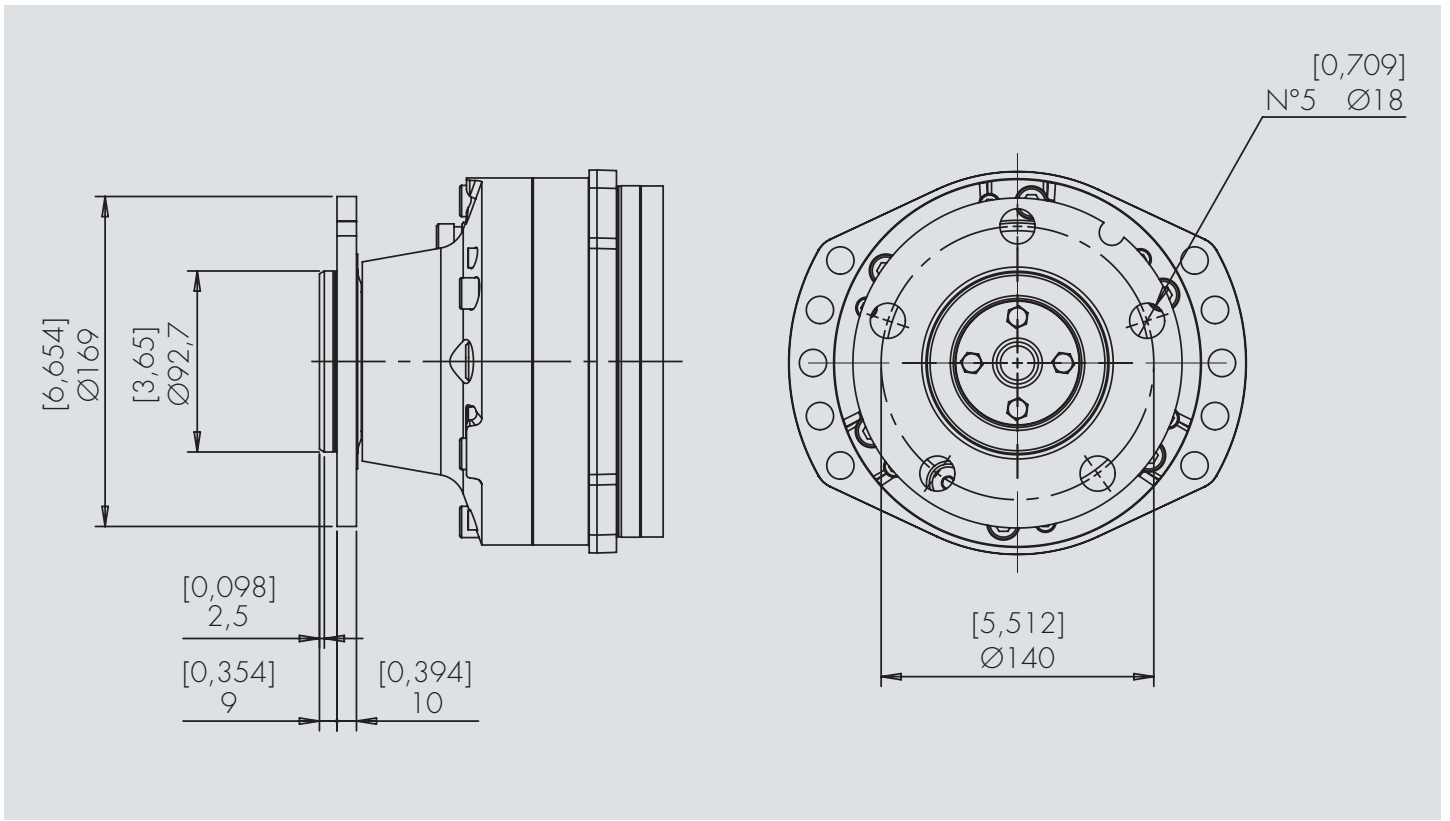
Radial load and service life of bearings



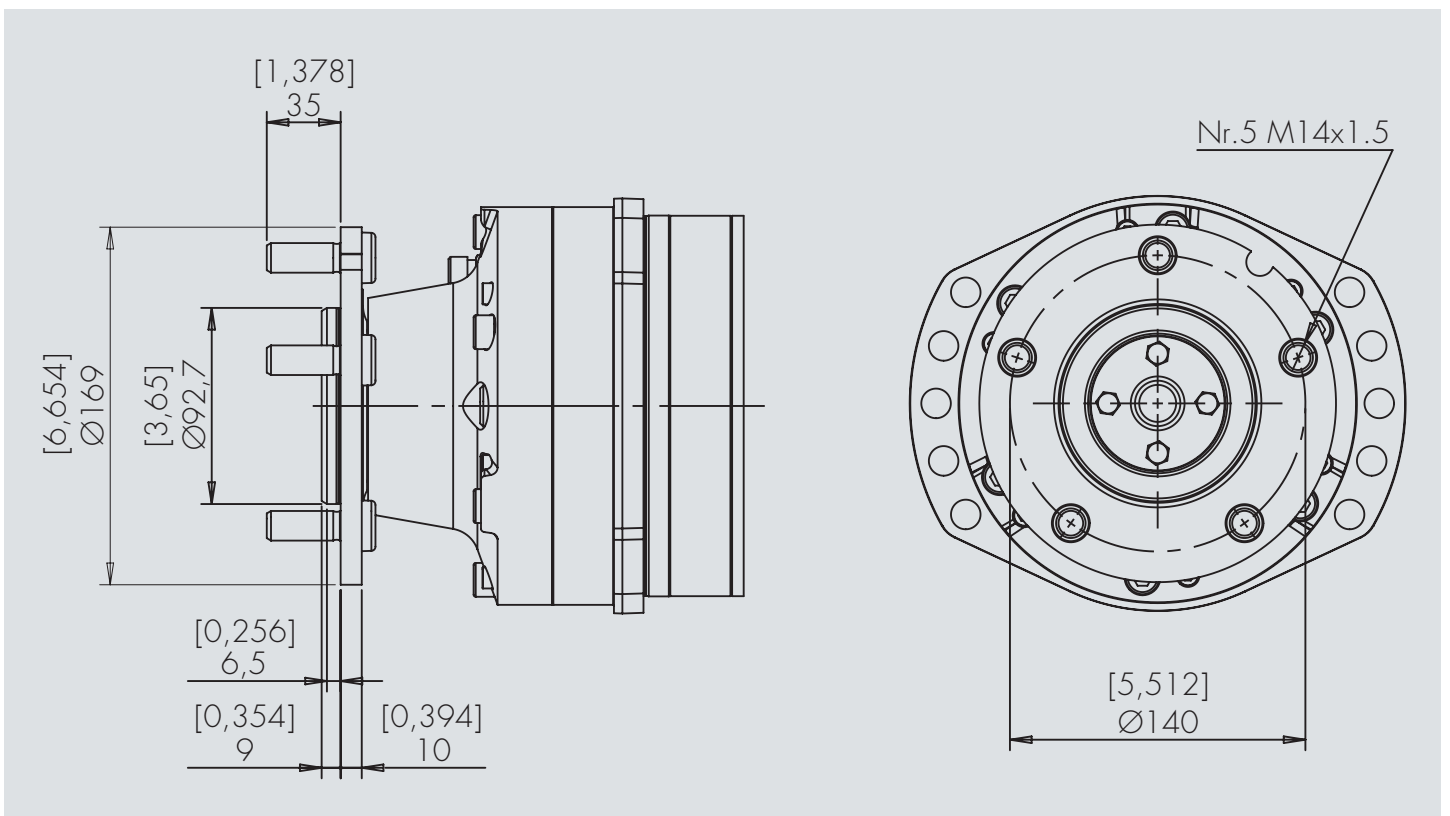
The curves of the permissible radial loads  $F_r$ , as a function of the abscissa  $x$  (distance from the wheel mounting surface), show the value corresponding to the service life  $L$  in millions of cycles of the bearings, calculated on the basis of ISO281.



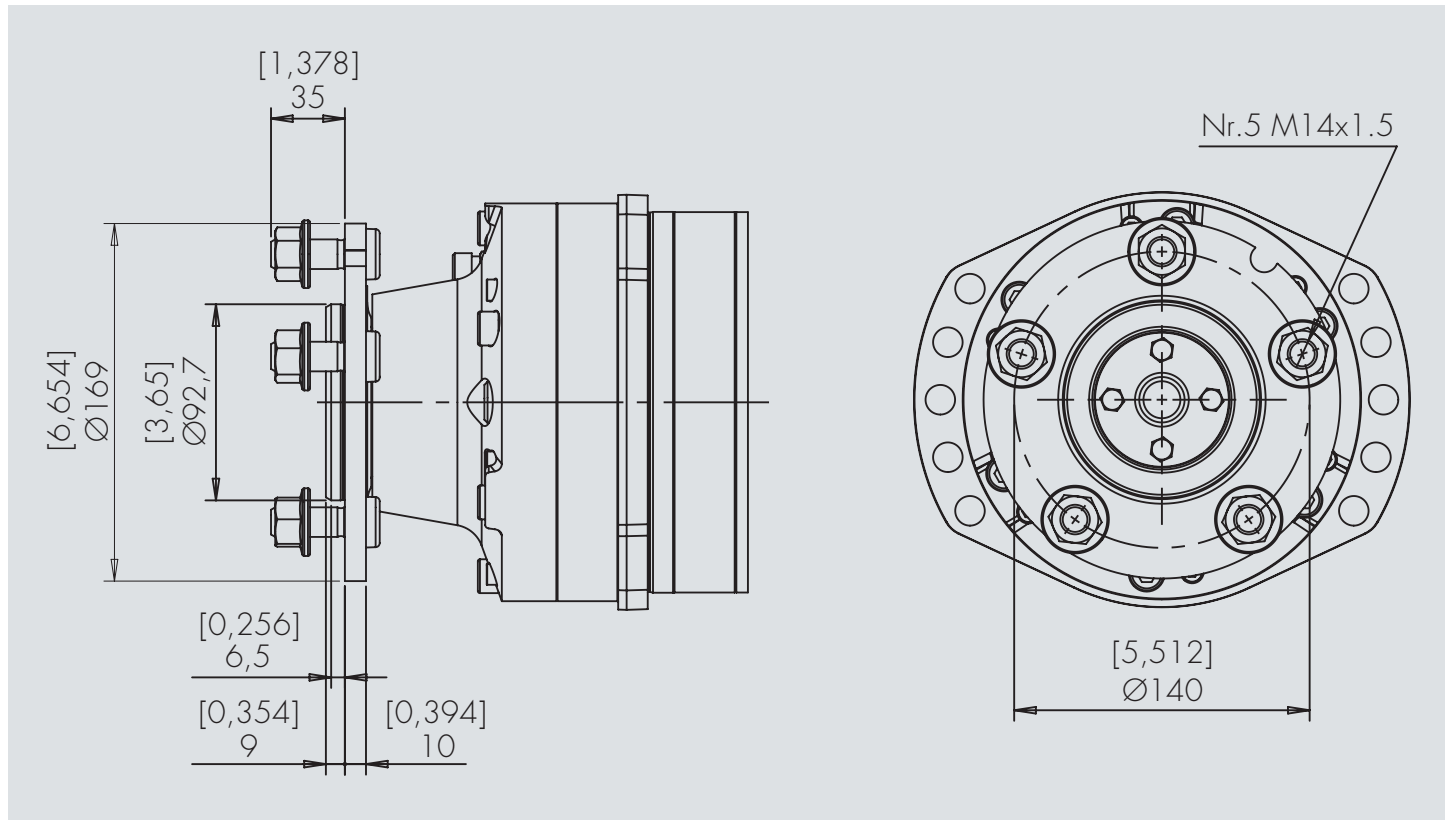
**R** Back (wheel)



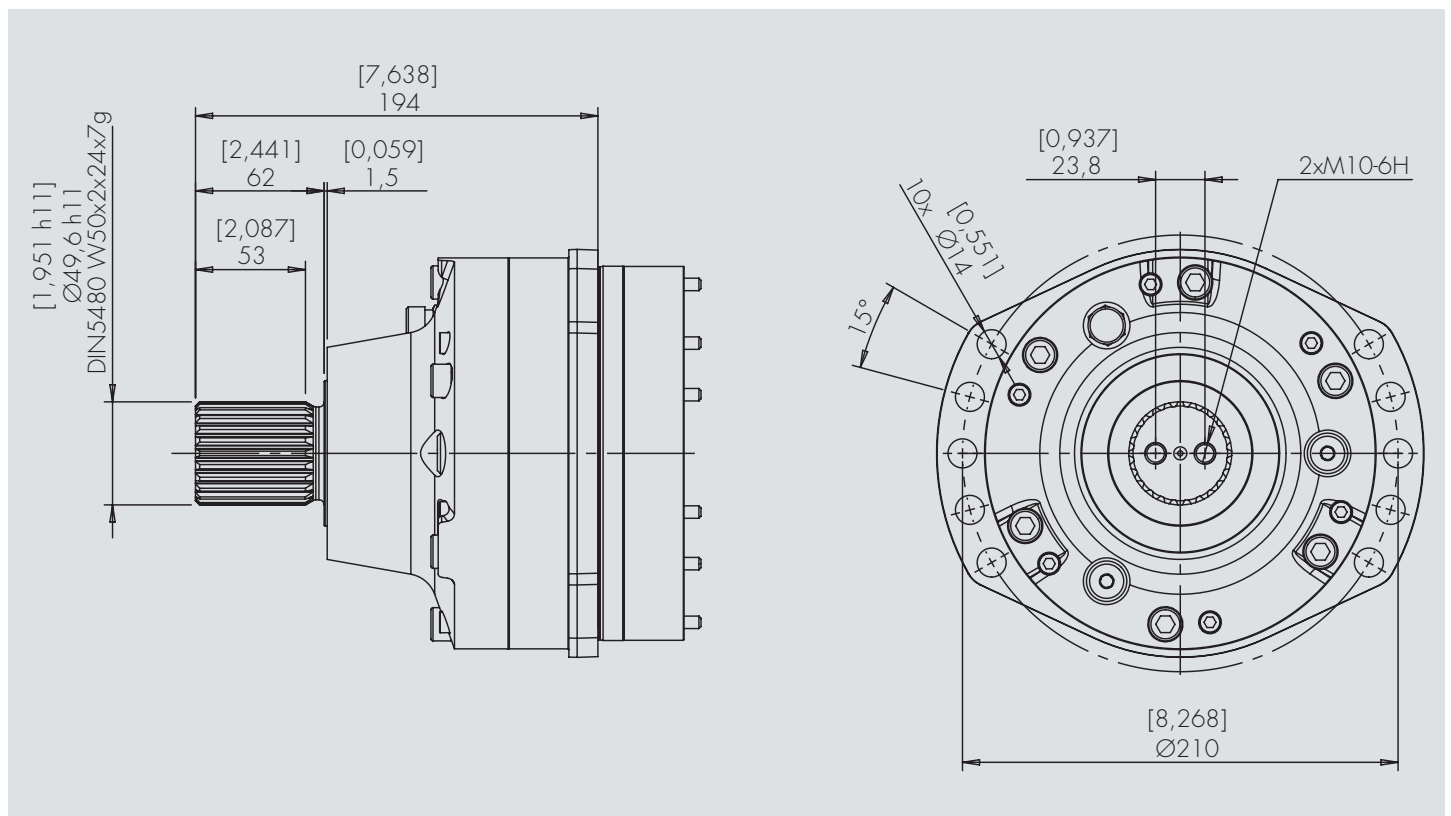
**1** Back (wheel with studs)



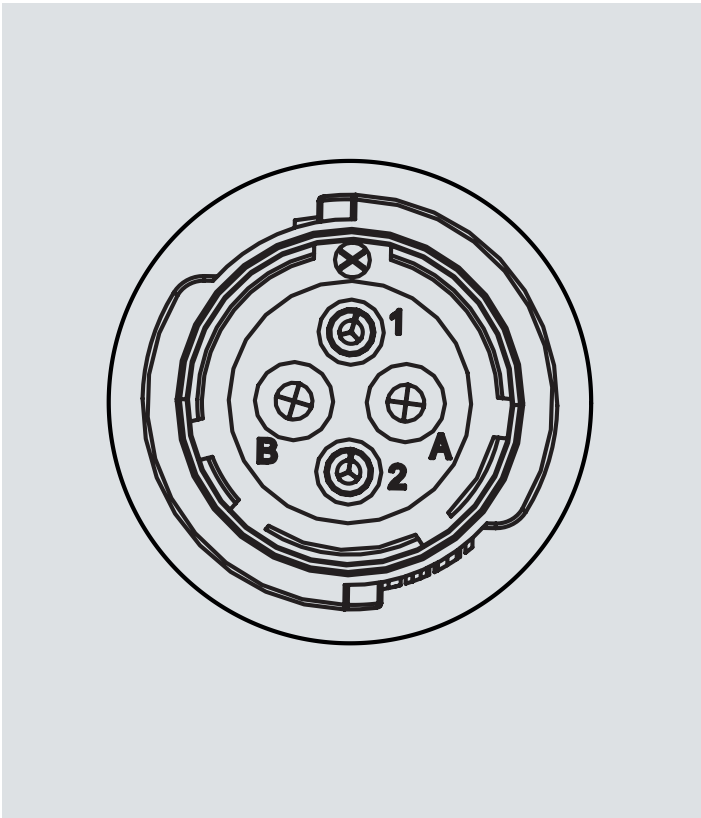
**2** Back (wheel with studs+bolts)



**E** Shaft DIN 5480 W50x2x30x24



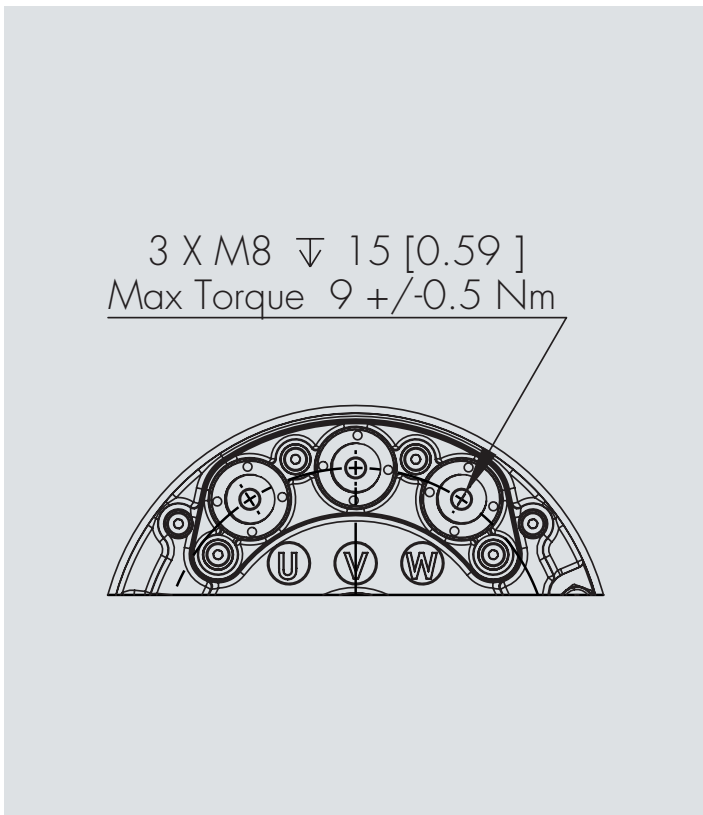
**0** Amphenol FLS010N2P03-PM



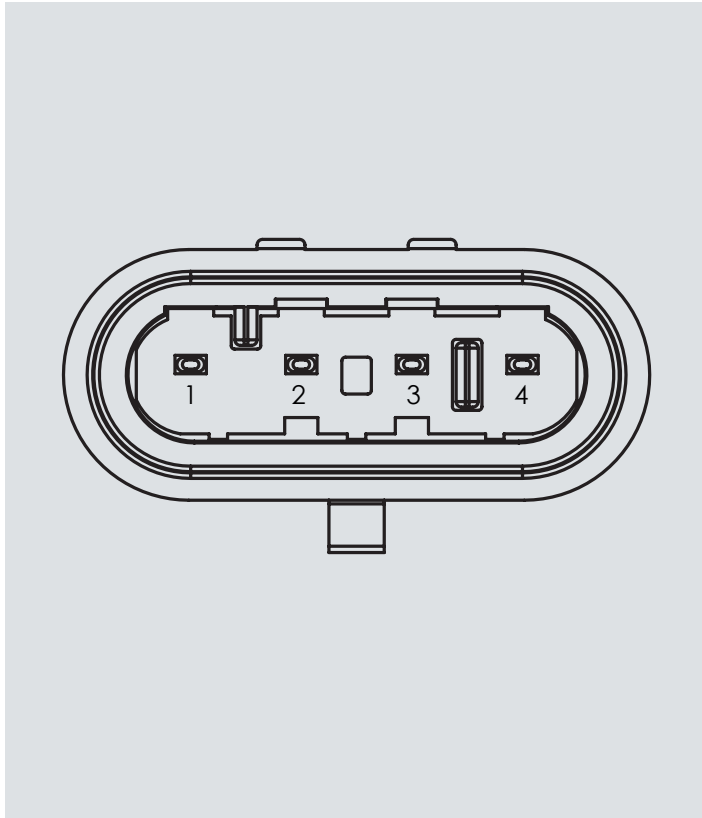
Pin	Signal
1	PT1000
3	
A	Brake V+
B	Brake V-

\*Counterpart Mating Female Plug Housing Amphenol FLS610N2SHEC03

Power connection



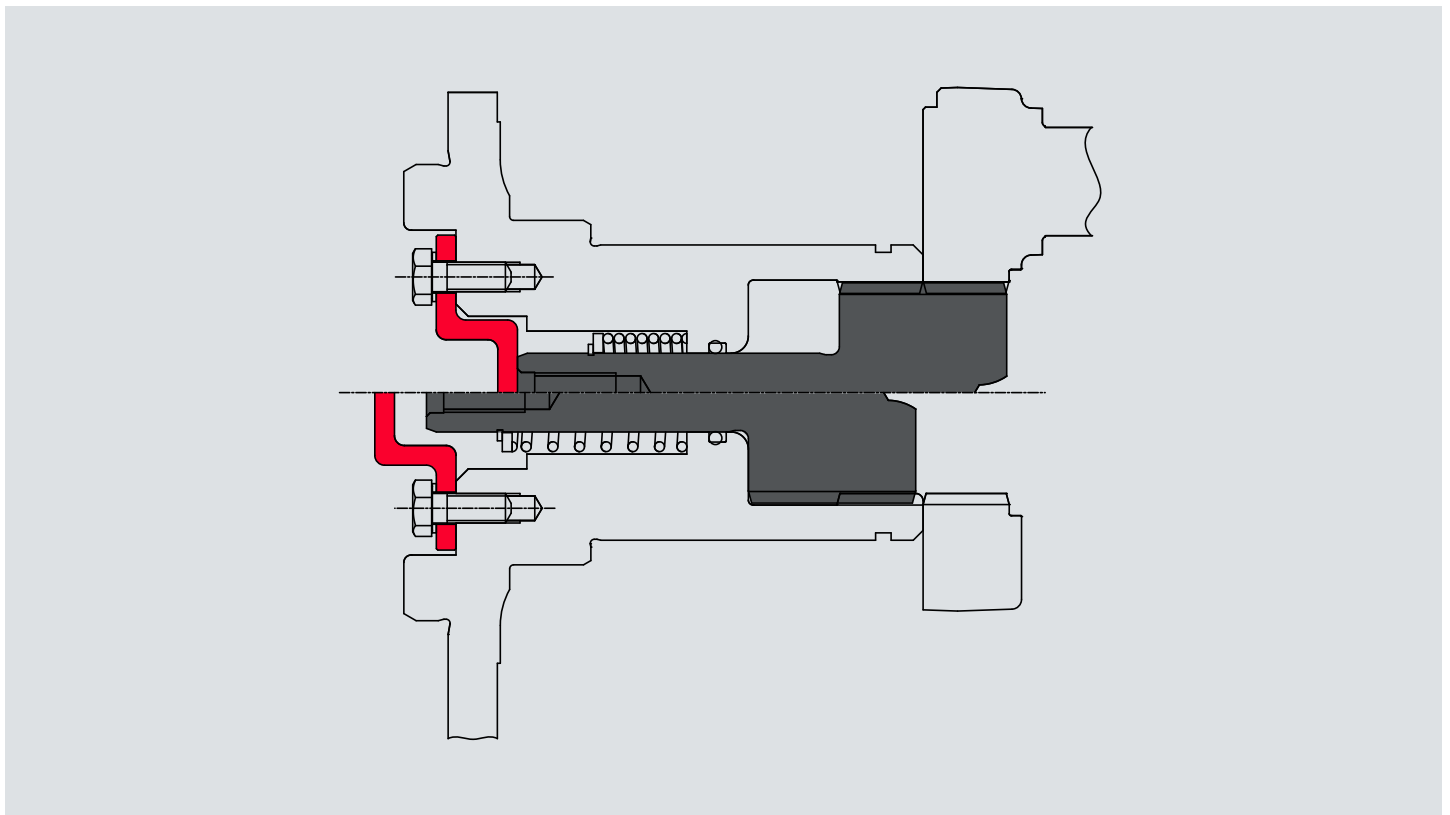
Superseal 4 poles sin/cos encoder AMP 282106-1\*

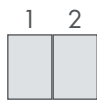


Pin	Signal
1	Vin+
2	COS out
3	SIN out
4	GND

\*Counterpart Mating Female Plug Housing AMP 282088-1

**Y** Towing disengagement





Motor dimension

**18**



Motor/Cooling type

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



Power configuration

**A** 48V



Encoder

**1** Sin/Cos



Cable outlet

**A** Rear



Reduction ratio

**A** 1:31 (3 planet gears)    **B** B = 1:31 (4 planet gear)



Output connection

**X** Rotary flange



Output Shaft

**R** Back (wheel)    **1** Back (wheel with studs)    **2** Back (wheel with studs+bolts)    **E** Shaft DIN 5480 W50x2x30x24

10

Parking brake

**A** 36Nm EM

**N** No brake

11

Dynamic brake

**N** No brake

12

Towing disengagement

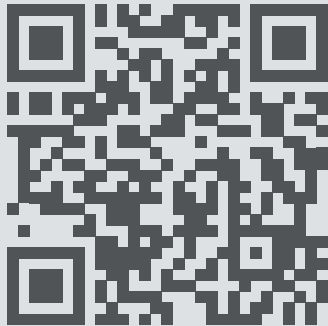
**Y**

13 14 15

Customization

**001** No varnishing



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