MSY series



Index

MSY Series	**3**
MSY 050	**4**
MSY 075	**6**
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Flanges	**17**
Brake - Connection - Thermal Sensor, Signal Pinout	**18**
Instructions for ordering	**20**

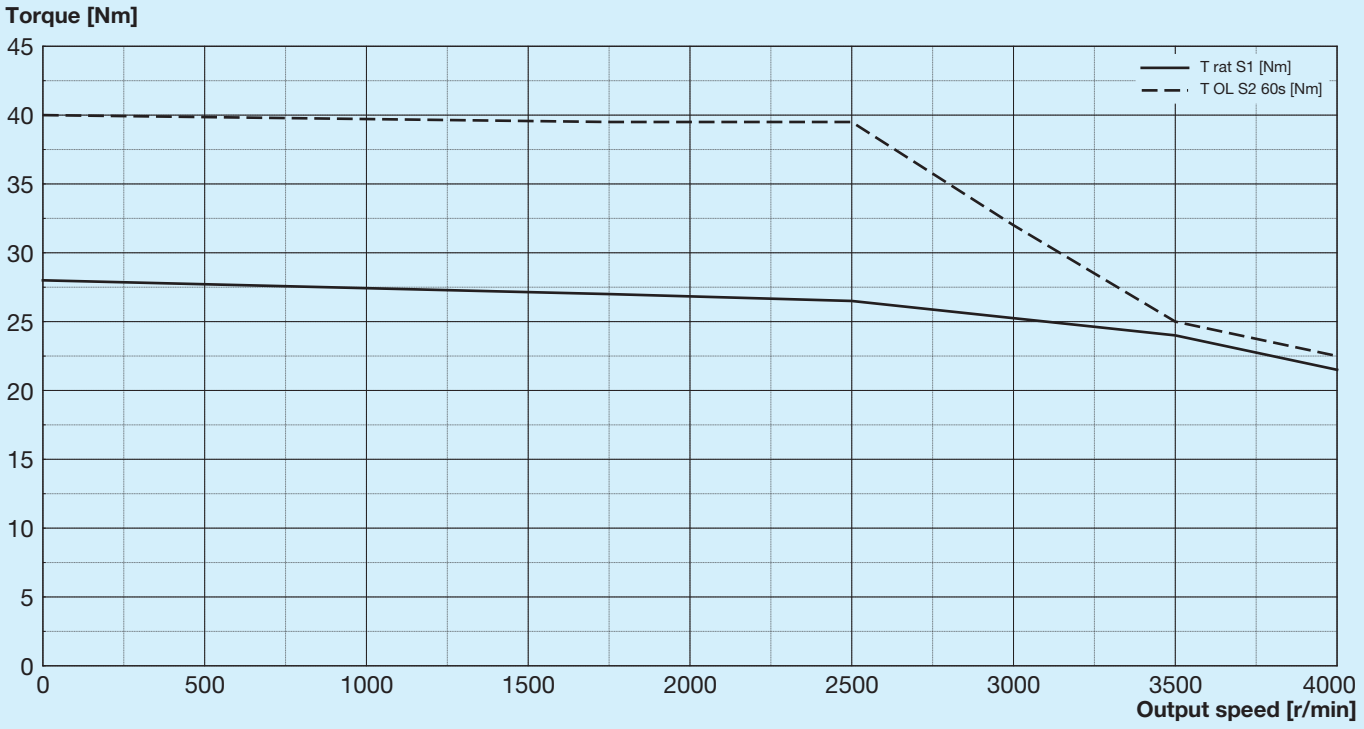


Electric Motor-Pump Systems for Off-Highway Applications

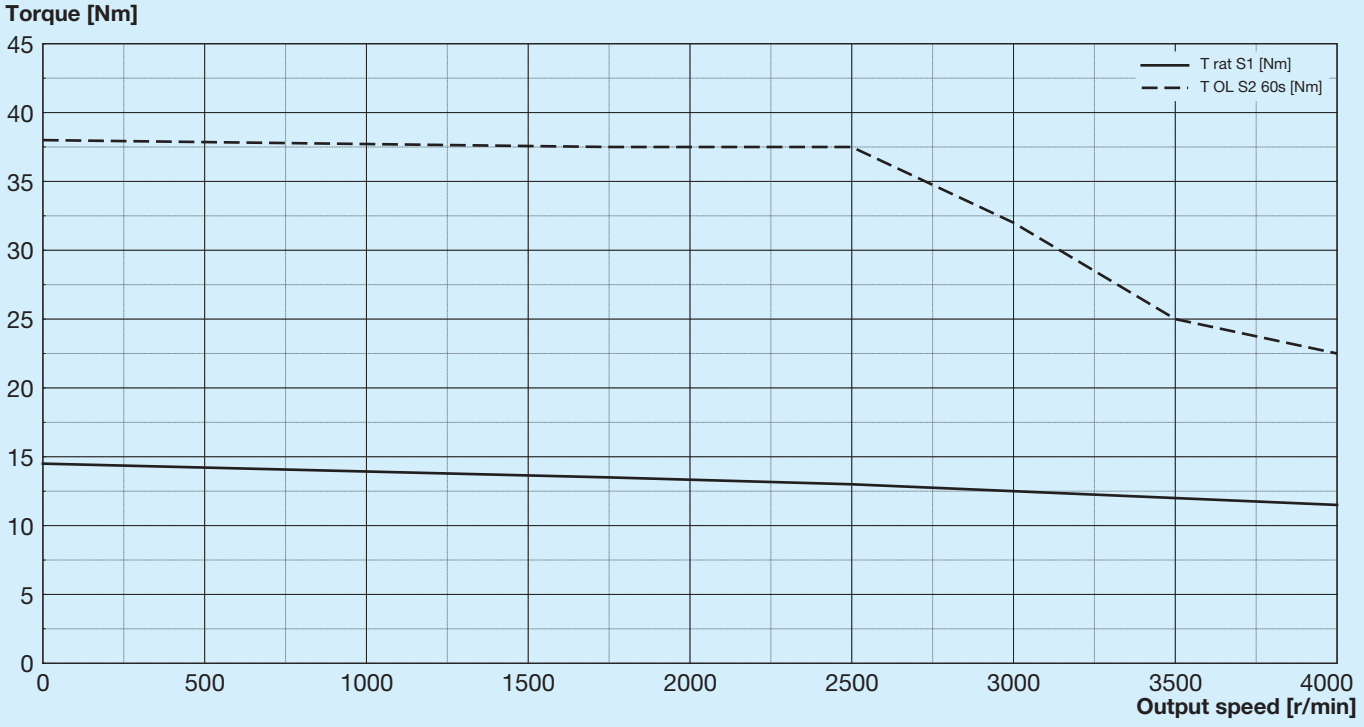
Our **electric motor-pump units** represent a cutting-edge solution for the electrification of hydraulic systems in the **off-highway sector**.
Designed to replace traditional combustion-driven pumps, these systems provide a reliable and efficient answer to the needs of **agriculture**, **municipal vehicles**, and **construction machinery**.
At the core of the product is a **brushless electric motor**, engineered for high efficiency and long service life.
Coupled with a hydraulic pump, the unit delivers **precise flow and pressure control**, ensuring optimal performance across a wide range of duty cycles.
This integration not only minimizes installation space but also simplifies system design, offering manufacturers a compact and versatile solution.
Built with **robustness and a high protection rating**, the motor-pump systems withstand the most demanding working environments, including dust, moisture, and extreme operating conditions.
Their design guarantees **reliability**, **low maintenance**, **and extended operating times**, making them ideal for heavy-duty applications.
The motor-pumps operate within a **48V-96V supply range**, perfectly suited for battery-powered equipment.
They are the enabler for electrifying hydraulic functions, whether used as **primary hydraulic power units or as generators**, supporting a transition toward more sustainable and efficient machinery.
These solutions set a benchmark for **electric hydraulics**, combining power, resilience, and flexibility for the future of off-highway applications.

Torque/Speed Characteristics

Liquid Cooling



Air Cooling

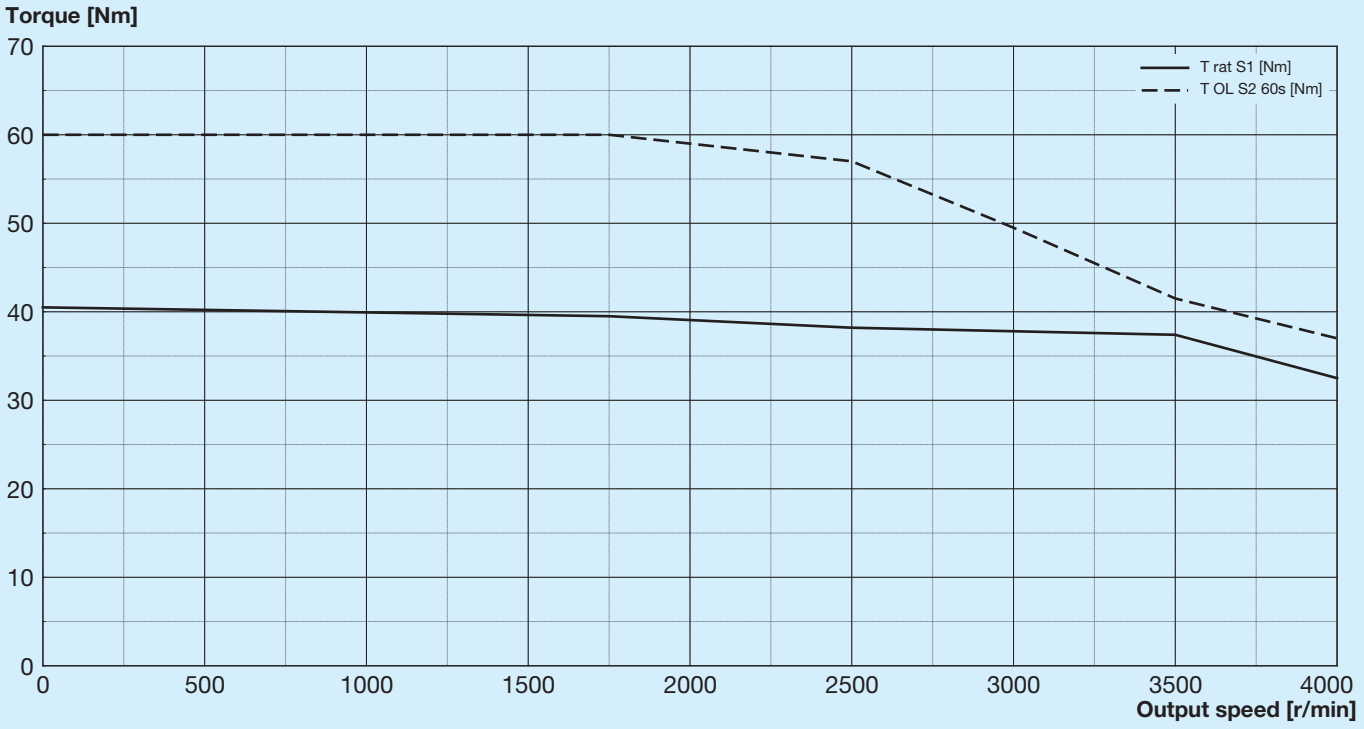


Performance and specifications

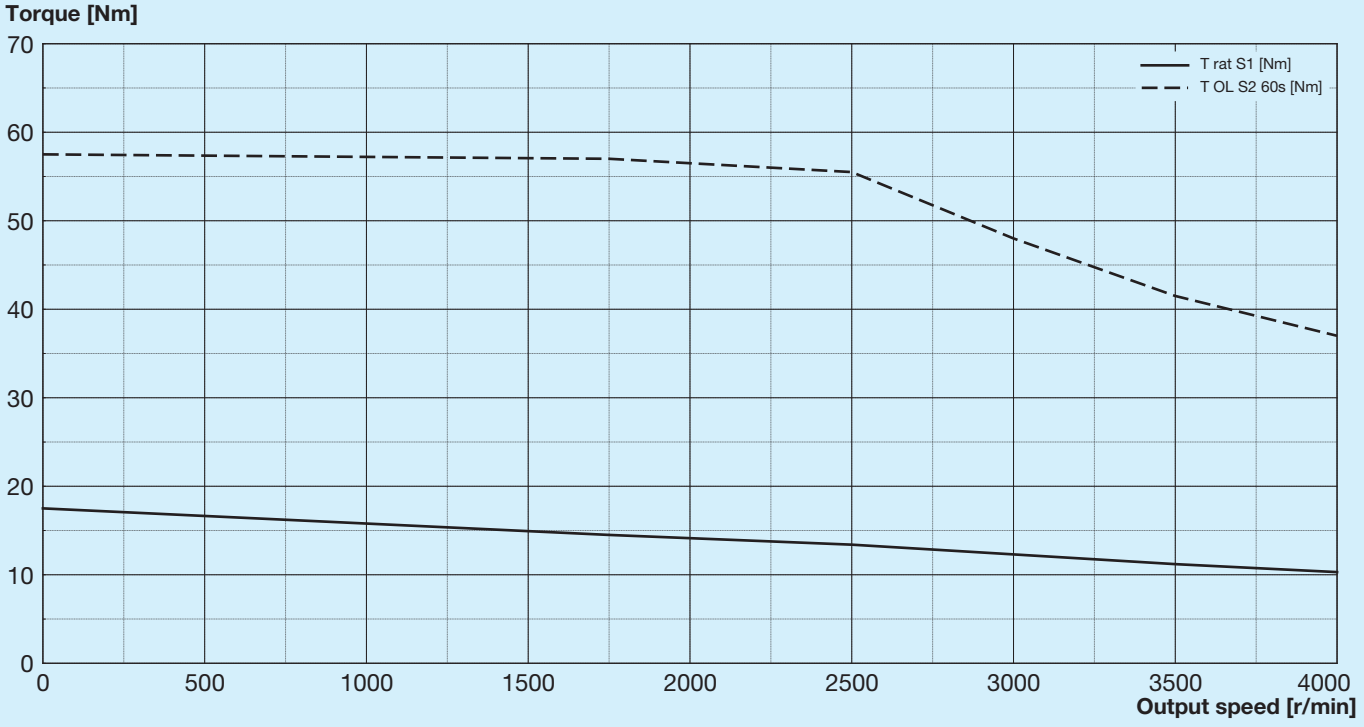
MOTOR MODEL		**MSY 050**			
Winding code		MSB187A	MSB187B	MSB182A	MSB182B
ELECTRICAL DATA					
Cooling		Liquid		Air	
Voltage Supply	**V_{dc}**	48	96	48	96
Stall torque	**Nm**	28		14	
Stall current	**A_{rms}**	209	116	116	58
Rated power	**kW**	8		3,5	
Rated speed	**rev/min**	3000			
Rated torque	**Nm**	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(rev/min)]**	8	14,6	8	14,6
Winding Resistance Phase Phase ±5% (at 25°C)	**ohm**	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			
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

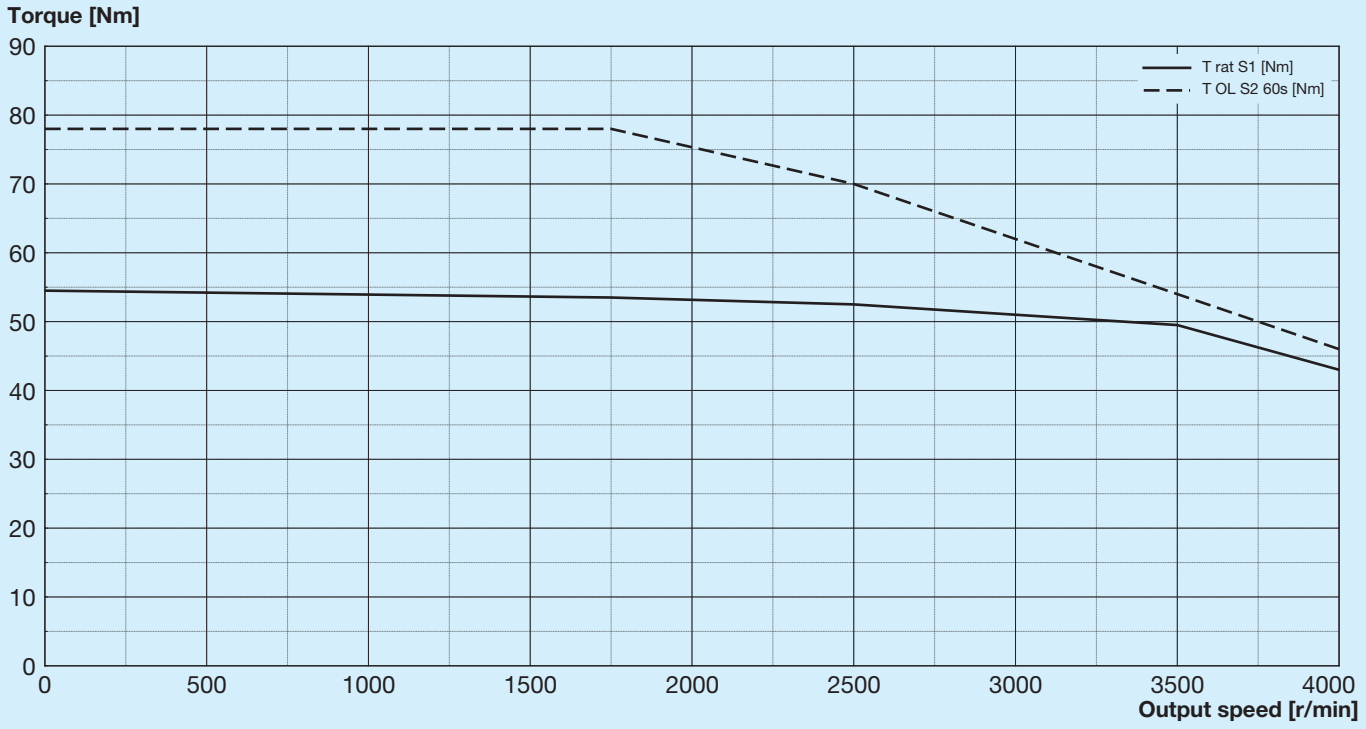


Performance and specifications

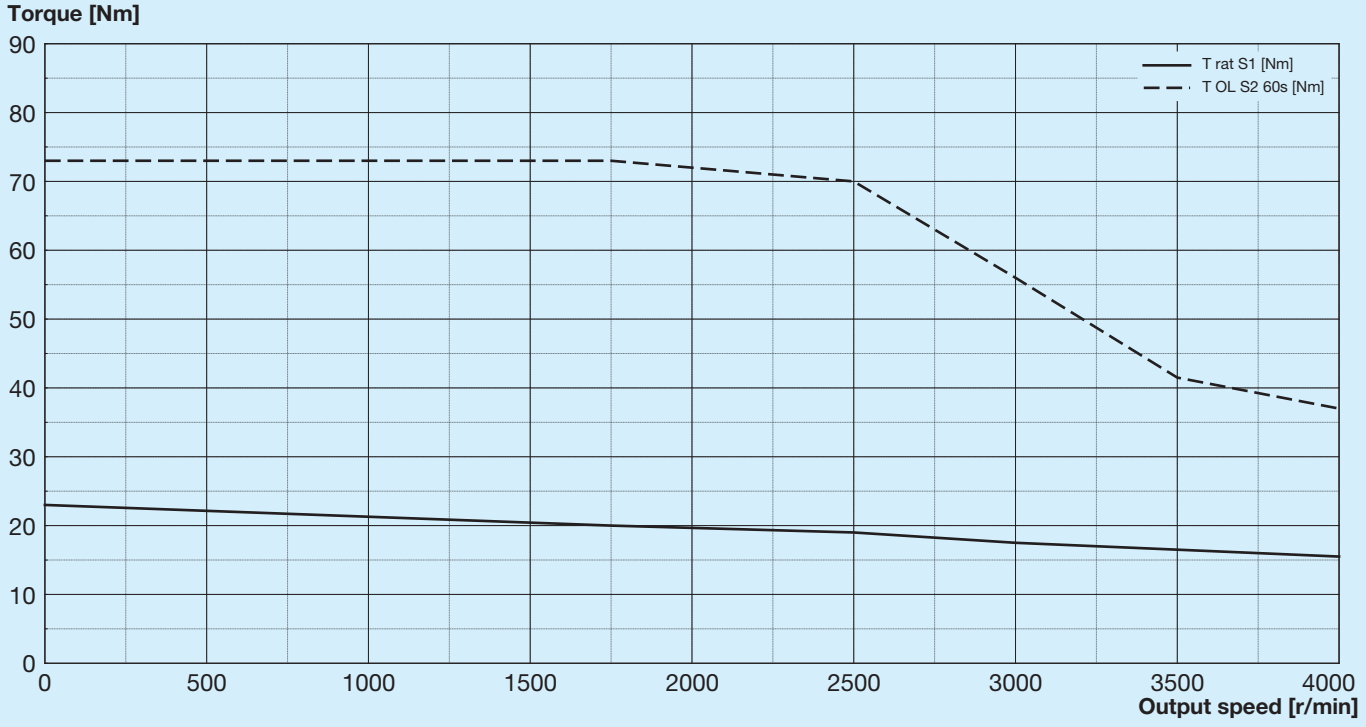
MOTOR MODEL		**MSY 075**			
Winding code		MSB188A	MSB188B	MSB183A	MSB183B
ELECTRICAL DATA					
Cooling		Liquid		Air	
Voltage Supply	**V_{dc}**	48	96	48	96
Stall torque	**Nm**	40		17	
Stall current	**A_{rms}**	325	166	150	70
Rated power	**kW**	11		4	
Rated speed	**rev/min**	3000			
Rated torque	**Nm**	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(rev/min)]**	7,75	15,9	7,75	15,9
Winding Resistance Phase Phase ±5% (at 25°C)	**ohm**	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			
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		**MSY 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	**rev/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(rev/min)]**	8,25	15,9	8,25	15,9
Winding Resistance Phase Phase ±5% (at 25°C)	**ohm**	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			
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)			

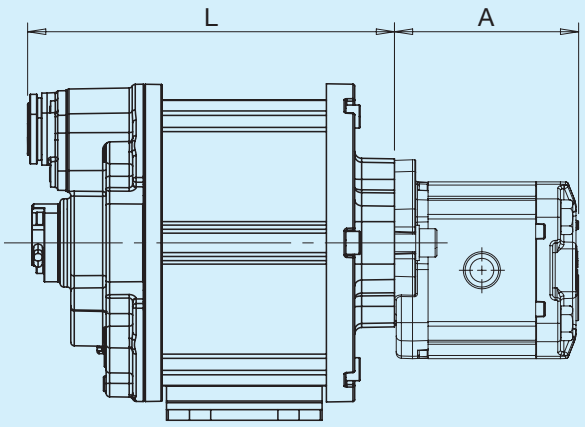
Pumps combinations

Please contcat Bondioli & Pavesi for precise calculation on specific Duty Cycle, if not available please refer to following charts:

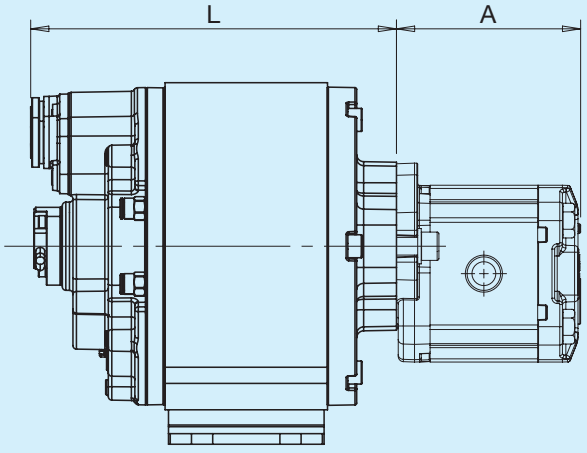
Displ. cm³/rev	MOTORI 48V - 96V												Max rev/min
	LIQUID COOLED						AIR COOLED						
	MSY 050		MSY 075		MSY 100		MSY 050		MSY 075		MSY 100		
	Cont. Press. (bar)	Int. Press. (bar)	Cont. Press. (bar)	Int. Press. (bar)	Cont. Press. (bar)	Int. Press. (bar)	Cont. Press. (bar)	Int. Press. (bar)	Cont. Press. (bar)	Int. Press. (bar)	Cont. Press. (bar)	Int. Press. (bar)	
PL / PG Gear pump													
05	240	260	240	260	240	260	145	260	150	260	200	260	3500
06	220	260	240	260	240	260	110	260	115	260	150	260	3500
08	160	240	240	260	240	260	75	210	80	260	110	260	3500
11	120	190	180	250	230	250	55	150	60	220	85	250	3500
14	95	150	145	210	195	250	45	120	50	180	65	230	3500
17	75	125	115	180	160	220			40	150	55	190	3500
20	70	105	105	155	140	190					45	185	3500
26	50	80	80	115	105	145							3000
MP Closed circuit Axial piston pump HMPZA													
07	190	260	240	260	240	260	90	240	100	260	135	260	3600
08	170	260	240	260	240	260	80	240	85	260	115	260	3600
10	135	210	200	260	240	260	65	190	70	260	95	260	3600
14	100	150	145	220	200	260	45	130	50	260	70	260	3600
16	85	135	130	190	170	230					60	220	3600
BF Bent axis Axial piston pump HPBF													
10	135	210	200	300	280	370	65	180	70	270	95	300	3000
12	115	175	170	250	230	310	50	150	60	200	75	220	3000
16	85	130	130	195	170	235					60	220	3000
PA Open circuit Axial piston pump HMA1A													
11	120	190	185	260	240	260	60	150	65	220	85	250	3100
13	100	160	150	220	200	260	50	120	55	180	70	230	3100
17	80	125	120	180	160	220					60	190	3100
19			110	160	145	195							3100
PA Open circuit Axial piston pump HMA0													
05	240	260	240	260	240	260	145	260	150	260	200	260	3300
10	120	190	185	260	240	260	60	160	65	220	85	250	3300
14	95	150	145	210	195	260	45	120	50	180	70	230	3300

PL For aluminium gear pump

AIR COOLING



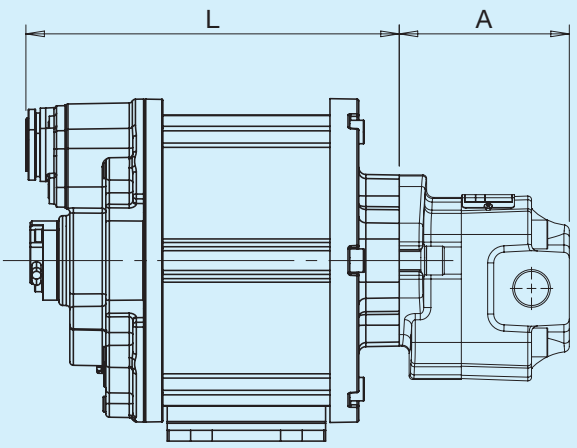
LIQUID COOLING



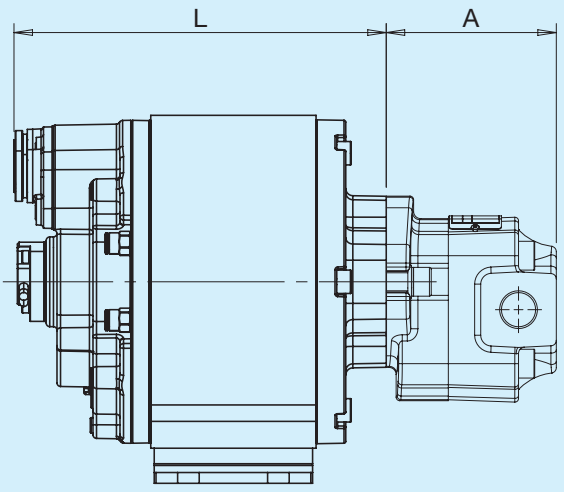
Size	L		DISPLACEMENT	A	
	mm	inch	cm³/rev	mm	inch
MSY 050	207	8,150	**05**	92,5	3,642
			06	95,2	3,748
			08	99,7	3,925
MSY 075	232	9,134	**11**	104,2	4,102
			14	110,6	4,354
			17	114,6	4,512
MSY 100	257	10,118	**20**	119,6	4,709
			26	129,9	5,114
			34	145,9	5,744
			40	158,4	6,236

PG For cast iron gear pump

AIR COOLING



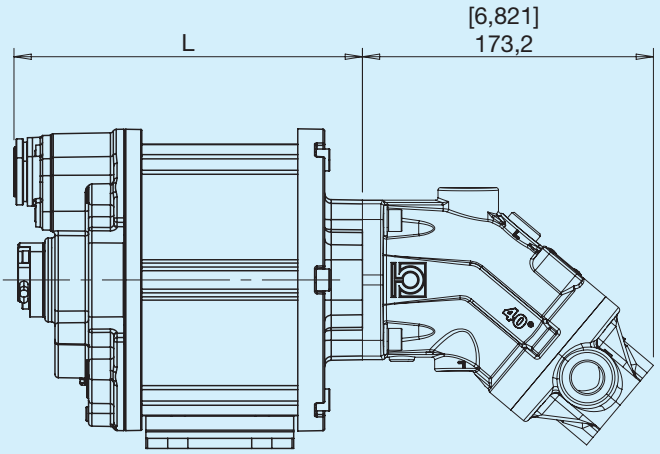
LIQUID COOLING



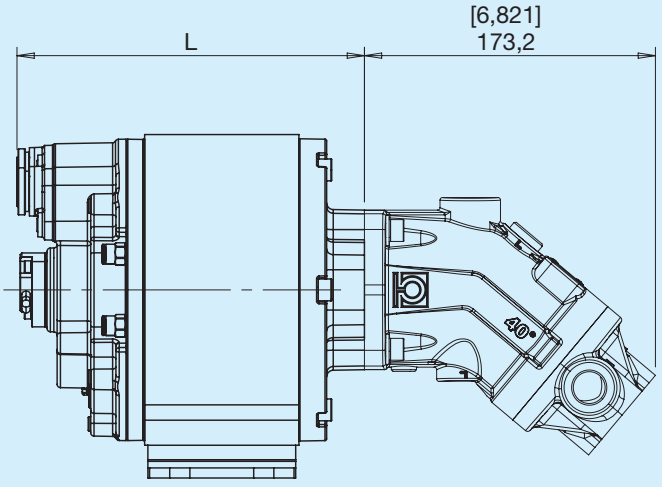
Size	L		DISPLACEMENT	A	
	mm	inch	cm^3/rev	mm	inch
MSY 050	207	8,150	**05**	82,8	3,260
			06	85,5	3,366
			08	90	3,543
MSY 075	232	9,134	**11**	94,5	3,720
			14	103,5	4,075
			17	108	4,252
MSY 100	257	10,118	**20**	119,2	4,693
			26	131,5	5,177
			31	140	5,512

BF For fixed bent axis piston pump

AIR COOLING



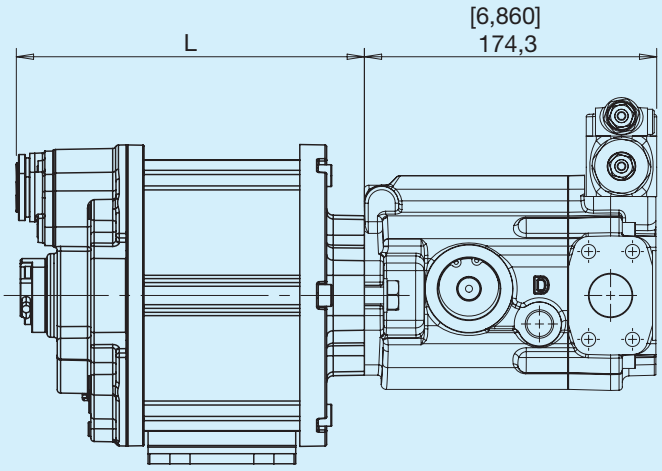
LIQUID COOLING



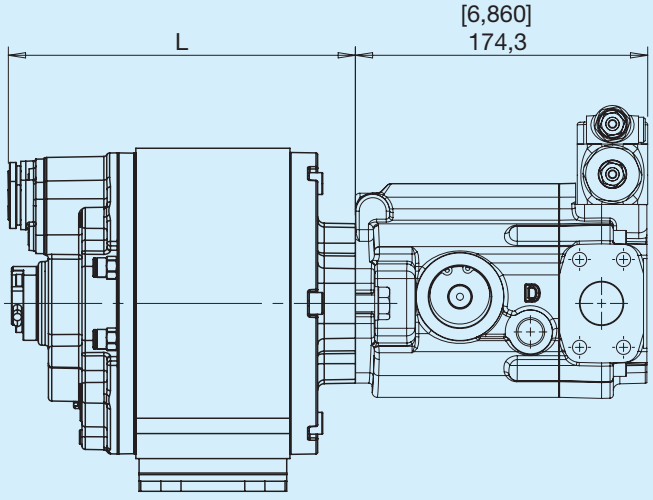
Size	L	
	mm	inch
MSY 050	207	8,150
MSY 075	232	9,134
MSY 100	257	10,118

A1 For variable open circuit piston pump

AIR COOLING



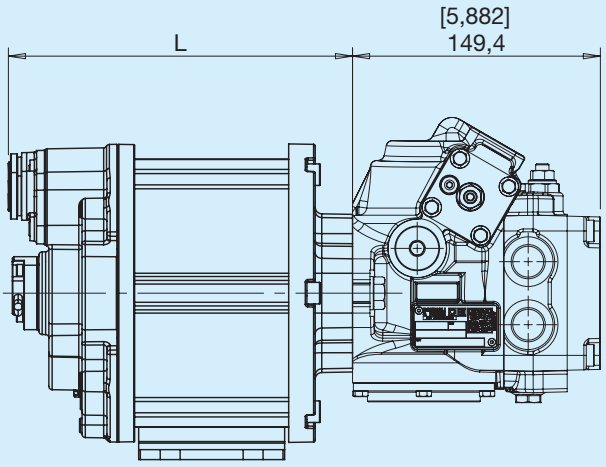
LIQUID COOLING



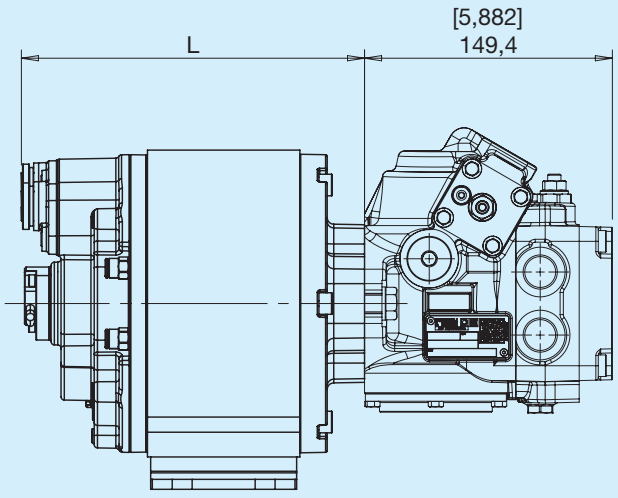
Size	L	
	mm	inch
MSY 050	207	8,150
MSY 075	232	9,134
MSY 100	257	10,118

MP For variable closed circuit piston pump

AIR COOLING

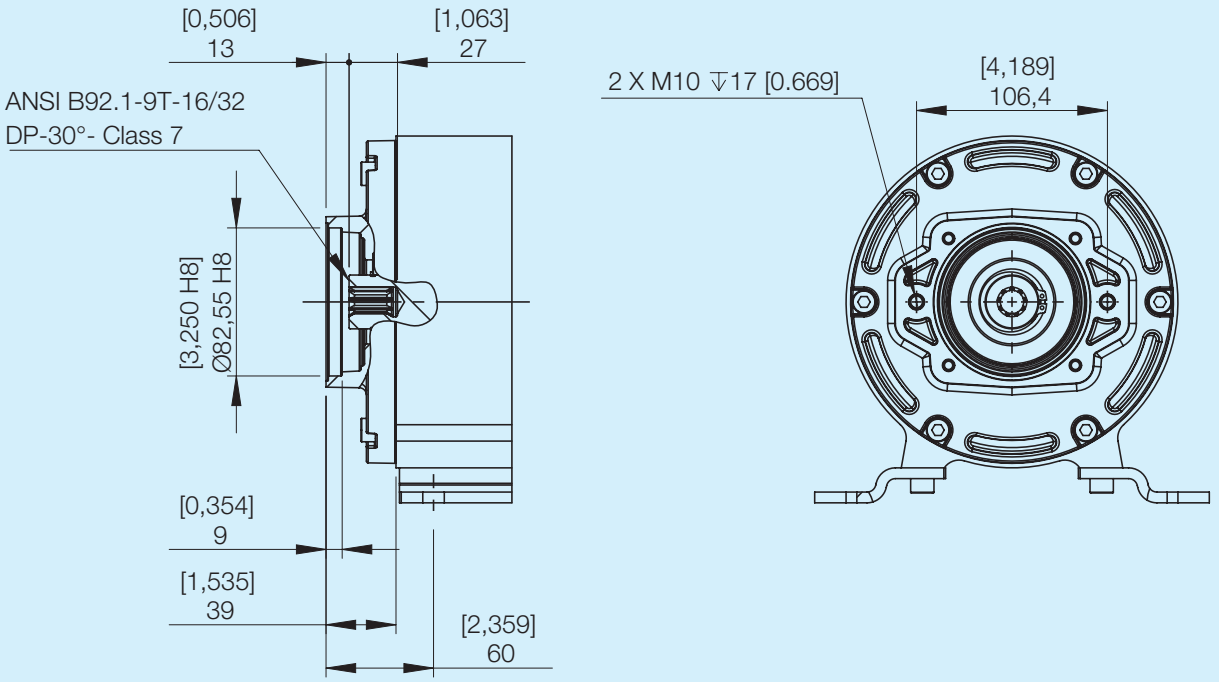


LIQUID COOLING



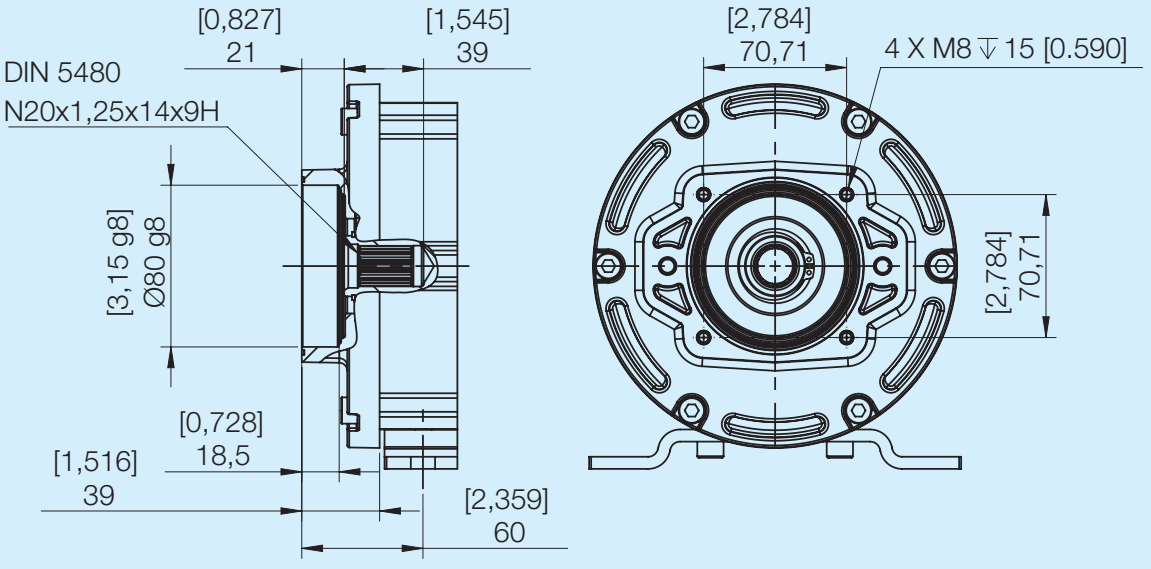
Size	L	
	mm	inch
MSY 050	207	8,150
MSY 075	232	9,134
MSY 100	257	10,118

SAE A / 9-tooth female



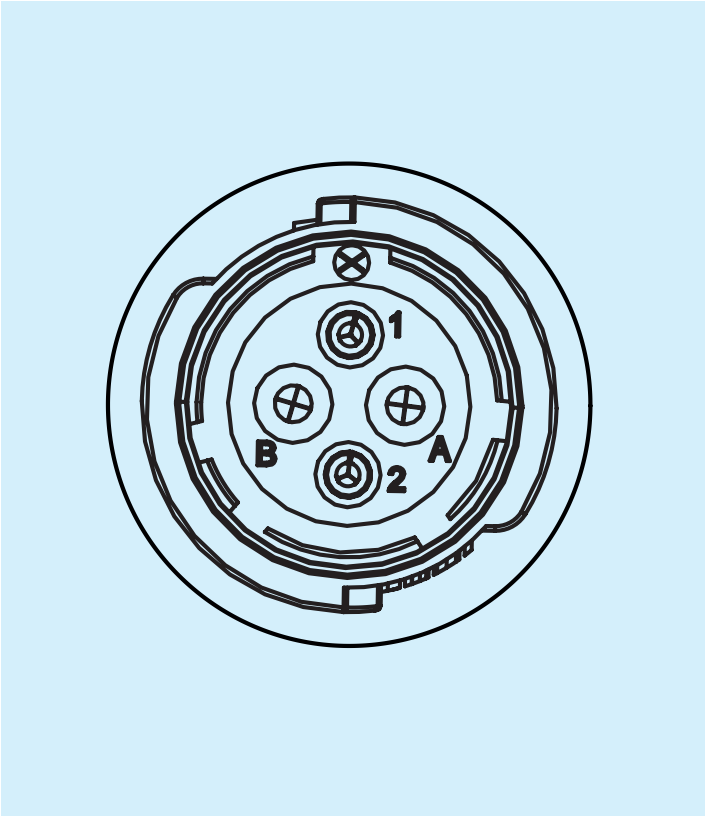
Use EP + MoS_2 additive high preformance grease on spline joint
Mount 82.27x1.78 NBR o-ring between pump and motor

ISO 3019-2 / 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

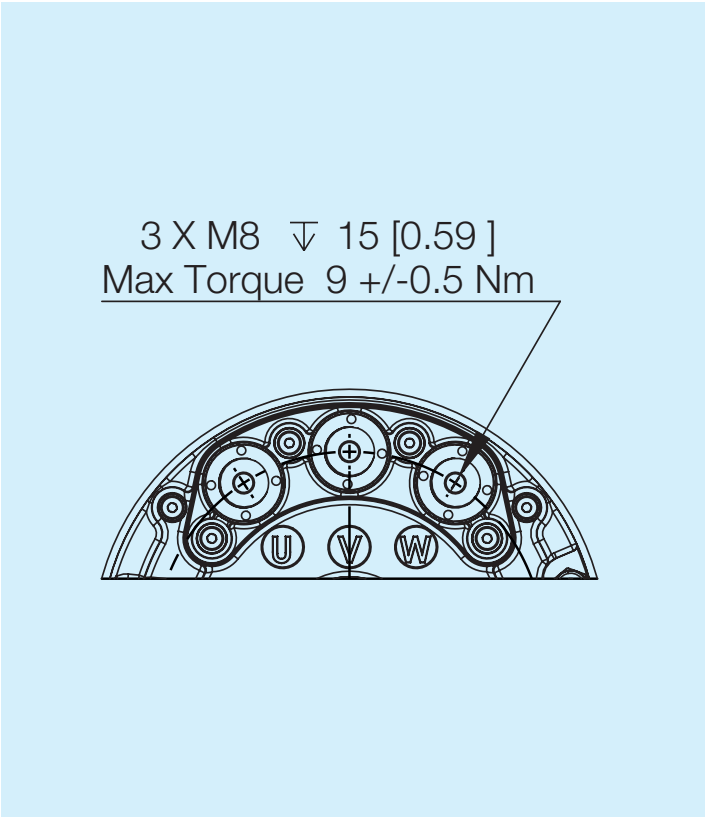
T connector



Pin	Signal
1	PT1000
3	
A	Dummy pin
B	Dummy pin

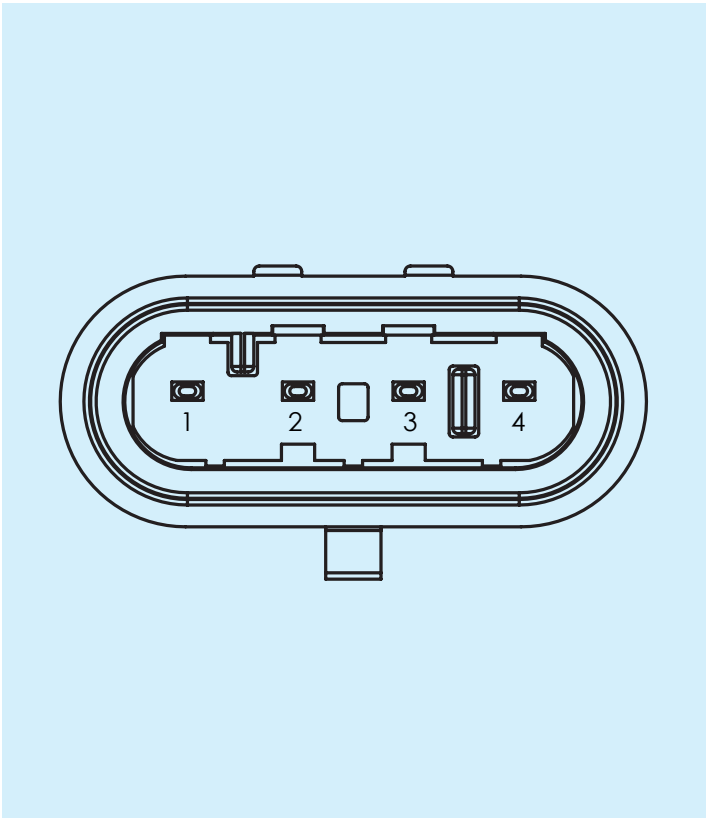
Mating kit for motors without brake MS5CON001R
Mating kit for motors with brake MS5CON002R

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
MSY										

1 2

Motor dimension

18

3

Motor/Cooling type

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

4

Power configuration

A	48V	**B**	96V

5

Encoder

1	Sin/Cos

6

Cable outlet

A	Rear

7 8

Pump Series

PL	Aluminium gear pump	**PG**	Cast iron gear pump	**BF**	Fixed bent axis piston pump	**MP**	Variable closed circuit piston pump
A1	Variable open circuit piston pump						

9 10

Displacement

See charts at page 12

11

Ports

G	GAS	**U**	UNF	**N**	SAE FLANGE

12

Pump controls

1	Fixed (PL/PG/BF)	**2**	Load Sensing (A1)	**3**	Constant pressure (A1)	**4**	Electronic Load Sensing (A1)
5	Elettroproportional (MP)	**6**	Hydraulic remote (MP)				

13 14 15

Customization

001	No varnishing	**...**	Others