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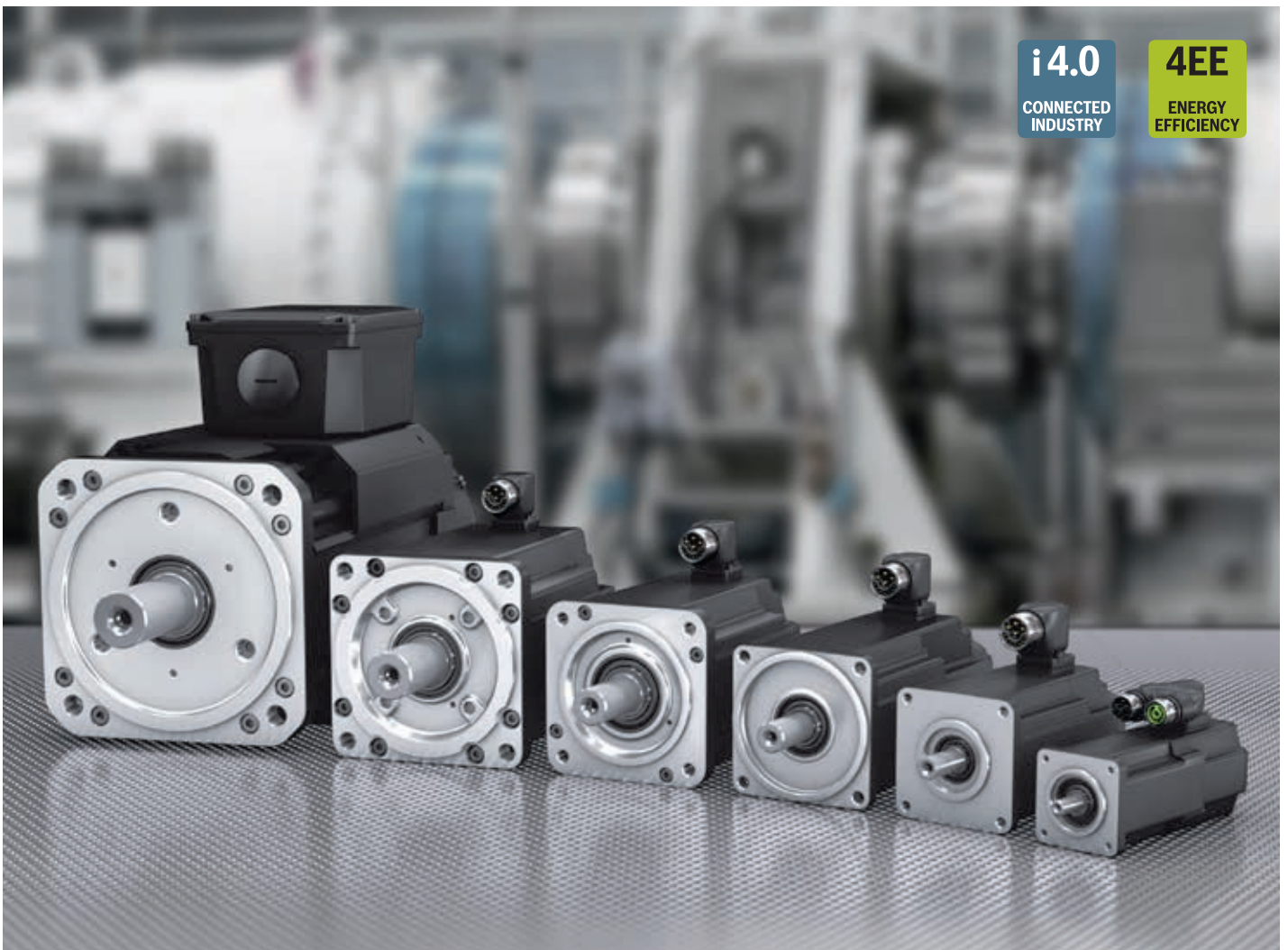
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IndraDyn S – Synchronous servo motors MS2N

intelligent | powerful | flexible



Future-proof with power density, functionality and availability

More torque, higher rotational speeds, the practical single-cable connection, and an extensive option program: Rexroth's new MS2N generation of motors connects ultimate dynamics with compact dimensions and the best of energy efficiency. Offering a selection of rotors with lower and medium inertia is available for optimal mass adaptation. The MS2N motors become a data source for intelligent solutions in the Industry 4.0 environment.

The new generation of servo motors

Rexroth's MS2N range of motors was redeveloped from the ground up and, with more than 50 types of motors, covers a maximum torque of up to 360 Nm and maximum rotational speeds of up to 9,000 rpm.

A high power density is achieved through this new motor construction and optimized electromagnetic design. With a finely graduated range of torques and rotational speeds, application-oriented encoder options, and optional single-cable connection, the motors flexibly meet the diverse requirements of modern automation.

Intelligence in the system

In the new MS2N product line, intelligence progresses all the way up to the motor by storing the individual readings of every single motor as well as the saturation and temperature data into the motor data memory.

IndraDrive drive controllers process these values in real time, increasing the torque precision significantly and reducing the tolerance range during operation to a fraction of the values that had been standard up to now. Thus the servo motor can be used as a reliable sensor and as a data source. In this way, applications within the Industry 4.0 environment can be realized cost-effectively and without additional components.

Reliability with completely digital engineering

A new dynamic temperature model in the IndraDrive drive controller device ensures reliable operation without limiting performance. The same temperature model is loaded onto the IndraSize design tool. In this way, mechanical engineers can design drives to the limit and, in doing so, can trust that these operation points are reached in real process.

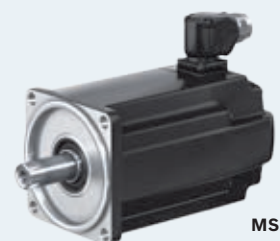
More than 50 motor types in
6 sizes with up to 5 lengths



MS2N03
0,9 ... 1,5 Nm



MS2N04
2,0 ... 4,5 Nm



MS2N05
4,5 ... 9,4 Nm

Single-cable connection

- ▶ Cable length of up to 75 m without additional components
- ▶ Plug with quick-lock
- ▶ Optional dual-cable connection

Powerful

- ▶ Compact motors
- ▶ High torque density
- ▶ Broader speed range
- ▶ High energy efficiency

Flexible configuration

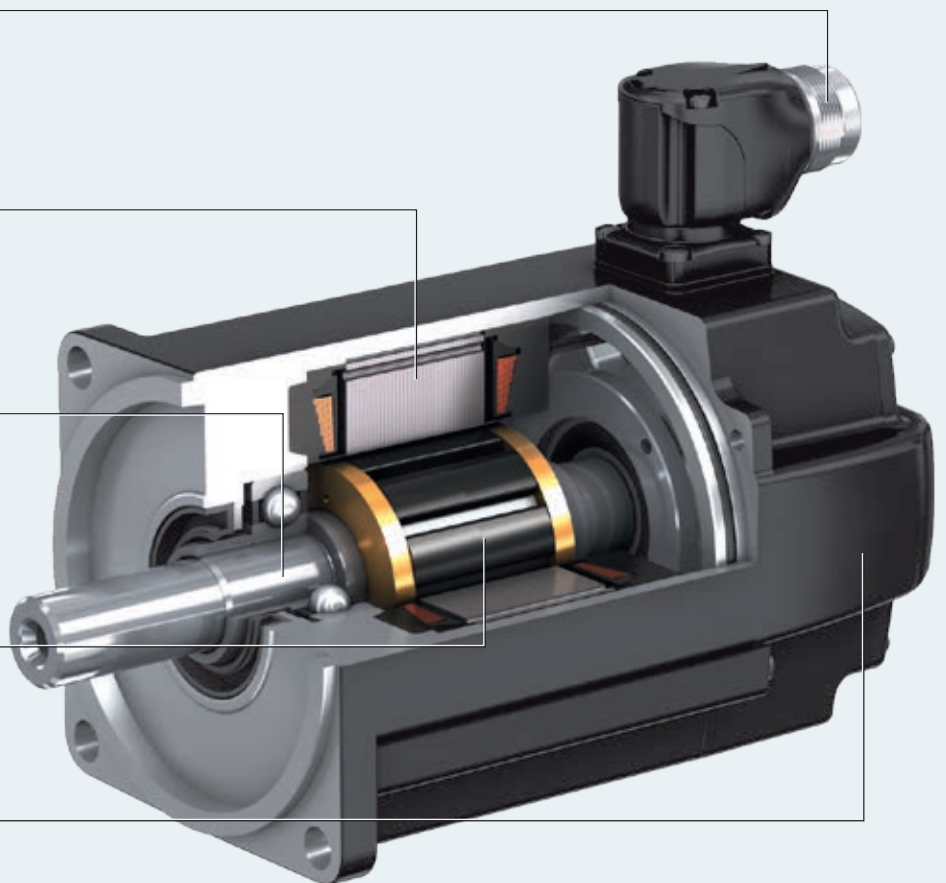
- ▶ Smooth shaft or with keyway
- ▶ With optional shaft seal
- ▶ Energy-saving holding brake
- ▶ With optional fan (MS2N07/10)
- ▶ Many additional options

Two motor designs

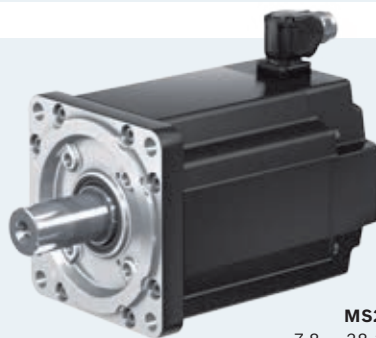
- ▶ Low rotor inertia for all sizes
- ▶ Medium rotor inertia beginning with MS2N06

Encoder types

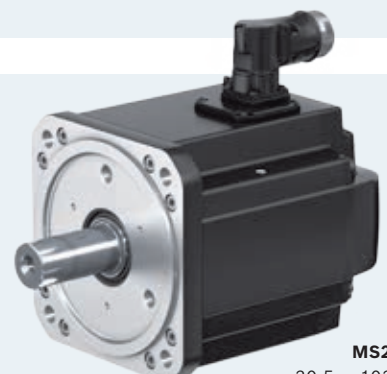
- ▶ Three accuracy classes
- ▶ Motor data memory
- ▶ Singleturn/Multiturn



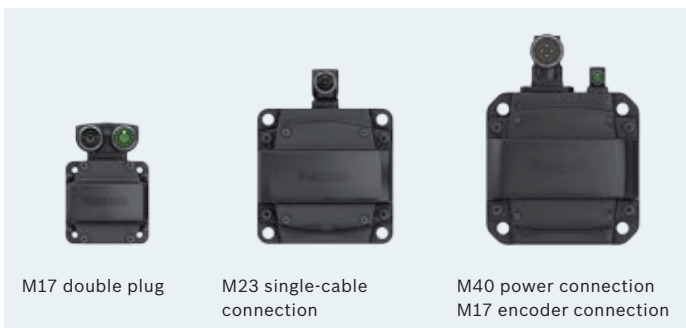
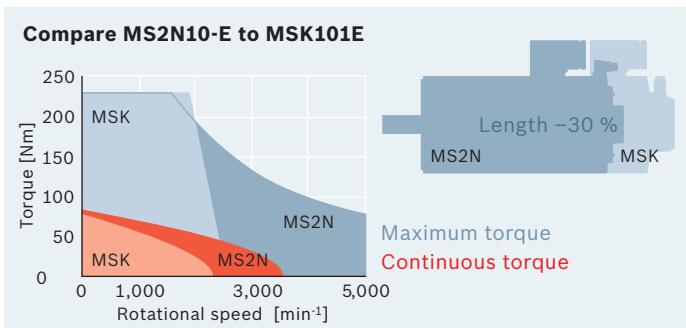
MS2N06
3,8 ... 16,3 Nm



MS2N07
7,8 ... 38,2 Nm



MS2N10
30,5 ... 103 Nm



Connection technology

The single-cable connection is continuously available in M23 up to size MS2N07. This reduces the installation work and spatial requirements significantly.

The MS2N03, MS2N04 and MS2N05 are fitted with compact M17-double plugs for conventional wiring. A M23 power connector is used for an MS2N06. Starting at size MS2N07, the size of the power connector conforms to the motor current. Thus the MS2N07 is completed with plugs in M23 or M40 and the MS2N10 is completed with M40, M58, or with a terminal box. The encoder plug connection for all motors with a dual-cable connection is completed in M17. All plugs up to and including size M40 are turnable and equipped with comfortable quick locking.

More torque and higher rotational speeds

Short coil heads and high-performance motors enable compact dimensions with minimal power loss. This leads to a significant improvement in energy efficiency and reduces operating costs over the long term. The available field weakening operation in conjunction with IndraDrive drive controllers extends the usable torque speed range beyond the voltage limit.



Self-cooled or force-ventilated

The motors are optionally available with integrated fans starting at size MS2N07. The nominal torque is increased significantly in the same construction size.

With protection category IP65 the fan motors are also suitable for use in harsh environments and have an integrated temperature sensor. The certified intrinsic safety ("Thermally Protected F" as per UL) safeguards the power supply using an external motor protection switch.

The motor fans can be optionally selected for 115 V~ or 230 V~ supply voltages.

Type Code

MS2N 05-C0BNN-ASDH0-NNANN-NN

Size

03, 04, 05, 06, 07, 10

Length*

B, C, D, E, F

Rotor inertia

0 – Low inertia
1 – Average inertia*

Winding*

BD – 1,000 min⁻¹ BQ – 4,000 min⁻¹
BF – 1,500 min⁻¹ BR – 4,500 min⁻¹
BH – 2,000 min⁻¹ BT – 6,000 min⁻¹
BN – 3,000 min⁻¹ BY – 9,000 min⁻¹

Cooling type*

N – Self-cooling
A – Forced ventilation, Axial fan 230 V
B – Forced ventilation, Axial fan 115 V

Encoder performance

A – BASIC: 16 signal periods, analog, Hiperface
C – ADVANCED: 2,048 signal periods, digital 20 bit, Safety4Wire
D – HIGH*: 2,048 signal periods, digital 24 bit, Safety4Wire

Encoder design

S – Singleturn, absolute 1 revolution
M – Multiturn, absolute 4,096 revolutions

Coating

N – Standard

Construction

A – IM B5/IM 3001

Bearing

N – Standard

Flange perfection

N – Standard
R – Increased precision*

Holding brake

0 – No holding brake
1, 2, 3 – With holding brake*

Shaft

H – Smooth, no shaft seal
G – Smooth, with shaft seal
L – Keyway, no shaft seal
K – Keyway, with shaft seal

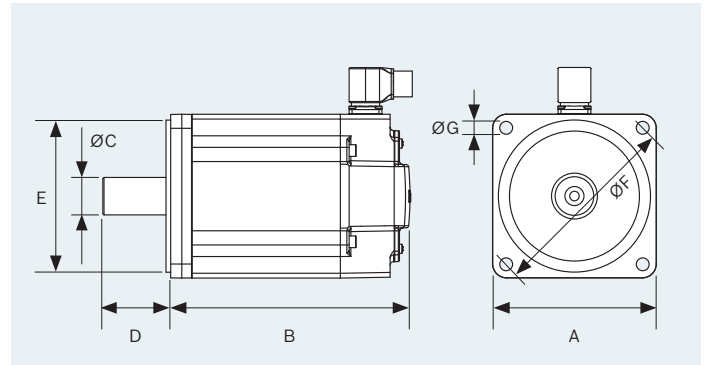
Electrical connection*

D – M17 double plug, turnable
S – M23 single-cable connection, turnable
U – M23 angle plug, turnable
V – M40 angle plug, turnable
A – M58 angle plug, side A
B – M58 angle plug, side B
T – Terminal box, side A or B

* See product documentation for available options and technical data

Technical Data

		Rotational Speed [min ⁻¹]	Torque [Nm]				Current [A]				Moment of inertia [kgm ²]	
Type		n _{Max}	M _{0 60K}	M _{0 100K}	M _{0 Fan}	M _{Max}	I _{0 60K}	I _{0 100K}	I _{0 Fan}	I _{Max}	without brake	with brake
03	MS2N03-B0BY	9000	0.73	0.90	-	3.75	1.30	1.60	-	7.25	0.000023	0.000030
	MS2N03-D0BY	9000	1.15	1.45		7.40	2.05	2.60		14.5	0.000037	0.000044
04	MS2N04-B0BN	6000	1.65	2.0	-	6.4	1.10	1.35	-	4.9	0.00007	0.00011
	MS2N04-B0BT	6000					2.25	2.75		9.8		
	MS2N04-C0BN	6000	2.70	3.35		1.85	2.30	9.7				
	MS2N04-C0BT	6000				3.30	4.10	17.3				
	MS2N04-D0BH	4000	3.65	4.5		1.65	2.05	9.7		0.00016	0.00020	
	MS2N04-D0BQ	6000				2.95	3.60	17.3				
05	MS2N05-B0BN	6000	3.75	4.45	-	11.5	2.30	2.70	-	8.4	0.00017	0.00028
	MS2N05-B0BT	6000					4.55	5.45		16.8		
	MS2N05-C0BN	6000	6.10	7.15		3.55	4.15	15.1				
	MS2N05-C0BT	6000				7.10	8.35	30.2				
	MS2N05-D0BH	4000	7.90	9.35		3.05	3.65	15.2		0.00040	0.00051	
	MS2N05-D0BR	6000				6.05	7.20	30.3				
06	MS2N06-B1BN	6000	3.15	3.75	-	10.2	2.15	2.55	-	7.8	0.00048	0.00059
	MS2N06-C0BN	6000	6.0	7.1			3.75	4.50		12.8		
	MS2N06-C0BT	6000				17.3	7.50	9.00		25.5		
	MS2N06-D1BN	6000	9.1	11.2		42.5	4.90	6.00		25.5	0.00140	0.00154
	MS2N06-D0BN	6000	9.7	11.9		34.8	6.10	7.55		25.4	0.00065	0.00079
	MS2N06-D0BR	6000				7.85	9.75	32.7				
	MS2N06-E0BH	4000	13.0	16.3		53.4	5.4	6.80		25.4	0.00089	0.00103
	MS2N06-E0BR	6000				10.9	13.7	50.8				
07	MS2N07-B1BN	6000	6.7	7.8	-	22.8	3.8	4.5	-	14.8	0.00197	0.00223
	MS2N07-C1BN	6000	11.4	14.2	16.9	46.0	6.5	8.2	9.7	29.5	0.00305	0.00331
	MS2N07-C1BR	6000					9.4	11.8	14.0	42.7		
	MS2N07-C0BN	6000	12.8	16.0	19.0	38.8	7.2	9.2	11.0	25.9	0.00120	0.00146
	MS2N07-C0BQ	6000					10.1	12.9	15.4	36.4		
	MS2N07-D1BH	4000	18.9	23.8	30.3	92.5	7.8	9.9	12.6	42.7	0.00529	0.00570
	MS2N07-D1BN	6000					9.9	12.5	15.9	54.1		
	MS2N07-D0BH	4000	22.0	28.2	35.2	79.7	8.6	11.1	14.0	36.4	0.00210	0.00251
	MS2N07-D0BN	6000					12.2	15.8	19.9	51.8		
	MS2N07-D0BR	6000	25.2	32.5	43.1	140	17.1	22.3	28.0	72.7	0.00752	0.00793
	MS2N07-E1BH	4000					8.8	11.4	14.9	54.1		
	MS2N07-E1BN	6000	29.2	38.2	49.5	120	13.8	17.9	23.5	85.4	0.00300	0.00341
	MS2N07-E0BH	4000					10.8	14.2	18.5	51.8		
	MS2N07-E0BN	6000	29.2	38.2	49.5	120	15.1	20.0	26.2	72.7	0.00300	0.00341
MS2N07-E0BQ	6000	19.1					25.3	33.3	92.3			
10	MS2N10-C1BH	4000	27.2	30.5	38.7	86.5	11.1	12.6	16.2	40.9	0.00920	0.01067
	MS2N10-C1BN	6000					16.4	18.6	24.1	60.8		
	MS2N10-C0BH	4000	30.2	34.0	43.2	76.8	12.6	14.4	18.8	38.5	0.00480	0.00627
	MS2N10-C0BN	6000					16.8	19.3	25.1	51.3		
	MS2N10-D1BF	3000	45.7	54.0	73.0	174	13.8	16.5	22.6	60.7	0.01710	0.01857
	MS2N10-D1BN	6000					27.6	32.9	45.3	122		
	MS2N10-D0BH	4000	51.0	60.5	82.4	155	19.1	23.1	32.4	70	0.00810	0.00957
	MS2N10-D0BN	6000					28.1	34.0	48.0	103		
	MS2N10-E1BF	3000	63.2	75.0	107.5	266	16.8	20.1	29.2	81	0.02500	0.02770
	MS2N10-E1BN	6000					33.5	40.1	58.4	162		
	MS2N10-E0BH	4000	69.0	83.0	119.0	234	25.4	31.0	46.1	103	0.01140	0.01410
	MS2N10-E0BN	6000					34.7	42.4	62.9	140		
	MS2N10-F1BD	2000	78.5	93.5	138.0	360	15.5	18.6	27.7	81	0.03290	0.03560
	MS2N10-F1BH	4000					30.9	37.1	55.4	162		
MS2N10-F0BD	2000	85.0	103.0	148.0	313	16.0	19.6	29.3	70	0.01470	0.01740	
MS2N10-F0BH	4000					31.9	39.2	58.6	140			



Dimensions [mm]											Mass[kg] Self-cooling						
A	B					C	D	E	F	G	without brake	with brake					
Flange	Base length	Encoder "C" length	Encoder "D" length	Brake length	Forced ventilation	Shaft	Shaft length	Centering collar	Bolt circle	Mounting hole							
58	148	+15	-	+29	-	9	20	40	63	4,5	1.4	1.8					
	188						11				23	2.0	2.4				
82	147	+15	-	+32,5	-	14	30	50	95	6,6	2.7	3.4					
	179										14	30	50	95	6,6	3.7	4.4
	211										14	30	50	95	6,6	4.7	5.4
98	170	+18	-	+30	-	19	40	95	115	9	4.0	5.1					
	206										19	40	95	115	9	5.9	7.0
	242										19	40	95	115	9	7.3	8.4
116	164	+0	+18	+37	-	24	50	95	130	9	5.1	6.1					
	184										24	50	95	130	9	6.4	7.4
	224										24	50	95	130	9	9.0	10.5
	264										24	50	95	130	9	11.5	13.0
140	176	+0	+16	+54	-	32	58	130	165	11	9.5	11.5					
	205										32	58	130	165	11	12.0	14.0
	263										32	58	130	165	11	17.5	20.0
140	321	+0	+16	+54	+121	32	58	130	165	11	23.0	26.0					
	321										32	58	130	165	11	23.0	26.0
196	238	+0	+0	+60	+98	38	80	180	215	14	23.5	28.5					
	296										38	80	180	215	14	34.0	39.0
	354										38	80	180	215	14	45.0	52.0
	412										38	80	180	215	14	55.0	62.0

Bosch Rexroth AG

Bgm.-Dr.-Nebel-Str. 2
97816 Lohr, Germany
www.boschrexroth.com

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