Catalog

ABB servo motors
9C series
for ABB high performance machinery drives

Power and productivity
for a better world™

Contents

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ABB servo motors

The 9C series servo motor and the ABB high performance machinery drive ACSM1 provide a compact and powerful package for machine building and other applications requiring high precision.

The 9C series of ABB servo motors is ideal for operation with the ABB high performance machinery drives. The motors are manufactured using the most advanced technology:

- Concentrated windings
- Encapsulation of windings with epoxy resin under vacuum
- Motors' yoke is made of Soft Magnetic Composite (SMC) material
- Modular structure
- Smart solution on connections
- Low cogging torque

ABB high performance machinery drives

ABB high performance machinery drives provide speed, torque and motion control for demanding applications. They can control induction, synchronous and asynchronous servo and high torque motors with a variety of feedback devices. The compact hardware and various control arrangements ensure optimum solutions for many different needs.

Feature	Advantage	Benefit
9C series AC synchronous servo motors		
Concentrated windings	Low energy consumption Extremely compact	Reduced running costs Space savings, easy to fit in restricted spaces
Encapsulation of windings with epoxy resin under vacuum	Motor winding partial discharge free up to 3 kV Uniform temperature on the motor windings	High product reliability
Motors' yoke made of Soft Magnetic Composite (SMC) material	Mechanical and electrical characteristics are better than standard laminated steel	Lower iron losses and higher nominal speed at high frequencies without loosing performance
Modular structure	More variants with standard components	Short delivery time
Flexible connection methods	Connectors easy to turn back to front Easy-to-use plug-in connectors or cost-effective internal connections	Maximum connection flexibility Time savings Cost savings
High stall and rated torque	Excellent torque/dimensions ratio	Efficient space usage
Very low rotor inertia	High dynamic performance	High acceleration in very heavy duty cycle
Most common feedback devices available	Resolver Optical multiturn SinCos encoder, Endat 2.1	Cost-effective and very reliable solution in harsh environmental conditions Very high performance
Optional integrated holding brake with high dynamic characteristics	Permanent magnet brake Spring holding brake	Holding brake without any backlash Suitable for dynamic emergency braking
Shaft with keyway - delivery contains half and full key	Full key for belt and pulley transmission or half key for friction coupling transmission	Wide flexibility, one motor for two different applications
Ready-made power and feedback cables	Complete package solution	Guaranteed quality of final installation
Motors delivered from centralized stock	Well organized logistics	Motors available on customer site in a few days

Technical specifications

9C series technical details

Type	Continuous torque at zero speed [5] T_{cs} [Nm]	Current at continuous torque [1) 3) 5)] I_{cs} [A]	Rated torque [5] T_{rat} [Nm]	Rated current [1) 3) 5)] I_{rat} [A]	Rated speed n_{rat} [r/min]	Rated frequency f_{rat} [Hz]	Mechanical rated power [5] P_{rat} [kW]	Peak torque T_{pk} [Nm]	Current at peak torque [1) 3)] I_{pk} [A]	Torque constant [1) 2) 3)] k_T [Nm/A]	B.e.m.f. between phases at rated speed [1) 2) 3)] V [V]	Moment of inertia of rotor [3] J_M [kgcm^2]	Moment of inertia of rotor + brake [3] J_M with brake [kgcm^2]	Weight [3) 4)] W [kg]
9C1.1.30.. ..M	1.4	1.3	1.3	1.4	3000	250.0	0.41	4.1	4.5	1.147	208	0.57	0.62	3.0
9C1.2.30.. ..M	2.3	1.8	2	1.7	3000	250.0	0.63	6.9	6.1	1.440	261	1.04	1.09	4.0
9C1.3.30.. ..M	3.2	2.7	2.8	2.5	3000	250.0	0.88	9.6	9.0	1.350	245	1.51	1.56	5.0
9C1.4.30.. ..M	4.2	3.3	3.5	2.9	3000	250.0	1.10	12.6	11.1	1.440	261	1.99	2.04	6.0
9C1.1.60.. ..M	1.4	2.1	1.2	2.0	6000	500.0	0.75	4.1	7.1	0.720	261	0.57	0.62	3.0
9C1.2.60.. ..M	2.3	3.6	1.6	2.7	6000	500.0	1.01	6.9	12.1	0.720	261	1.04	1.09	4.0
9C1.3.60.. ..M	3.2	5.2	2.3	3.9	6000	500.0	1.45	9.6	17.3	0.702	255	1.51	1.56	5.0
9C1.4.60.. ..M	4.2	6.5	2.5	4.1	6000	500.0	1.57	12.6	21.6	0.738	268	1.99	2.04	6.0
9C4.1.30.. ..M	4.3	3.0	3.9	2.8	3000	250.0	1.23	12.9	9.8	1.654	300	4.0	4.7	5.6
9C4.2.30.. ..M	7.5	5.0	6.1	4.3	3000	250.0	1.92	22.5	16.7	1.704	309	7.6	8.3	7.9
9C4.3.30.. ..M	9.4	6.0	6.9	4.6	3000	250.0	2.17	28.2	19.9	1.786	324	11.1	11.8	10.2
9C4.4.30.. ..M	12.0	8.2	7.5	5.4	3000	250.0	2.36	36.0	27.3	1.665	302	14.7	15.4	12.5
9C4.1.40.. ..M	4.3	4.0	3.7	3.6	4000	333.3	1.55	12.9	13.2	1.232	298	4.0	4.7	5.6
9C4.2.40.. ..M	7.5	6.9	5.4	5.2	4000	333.3	2.26	22.5	23.1	1.232	298	7.6	8.3	7.9
9C4.3.40.. ..M	9.4	7.8	5.8	5.1	4000	333.3	2.43	28.2	26.1	1.365	330	11.1	11.8	10.2
9C4.4.40.. ..M	12.0	10.0	6.3	5.5	4000	333.3	2.64	36.0	33.3	1.365	330	14.7	15.4	12.5
9C5.2.20.. ..M	12.3	6.1	10.3	5.3	2000	166.7	2.16	36.9	20.2	2.307	279.0	21.8	23.6	15.5
9C5.3.20.. ..M	18.4	9.2	14.8	7.8	2000	166.7	3.10	55.2	30.7	2.272	274.7	31.6	33.4	19.2
9C5.4.20.. ..M	23.5	11.9	17.1	9.1	2000	166.7	3.58	70.5	39.6	2.249	272.0	41.4	43.2	22.9
9C5.5.20.. ..M	26.0	12.0	20.0	9.8	2000	166.7	4.19	78.0	40.2	2.452	296.5	51.2	53.0	26.6
9C5.6.20.. ..M	30.0	13.1	22.0	10.1	2000	166.7	4.61	90.0	43.8	2.596	313.9	61.0	62.8	30.3
9C5.2.30.. ..M	12.3	9.2	9.0	7.1	3000	250.0	2.83	36.9	30.8	1.515	274.7	21.8	23.6	15.5
9C5.3.30.. ..M	18.4	12.4	12.4	8.8	3000	250.0	3.90	55.2	41.3	1.688	306.1	31.6	33.4	19.2
9C5.4.30.. ..M	23.5	15.4	14.0	9.7	3000	250.0	4.40	70.5	51.4	1.731	313.9	41.4	43.2	22.9
9C5.5.30.. ..M	26.0	17.1	17.0	11.8	3000	250.0	5.34	78.0	56.9	1.731	313.9	51.2	53.0	26.6
9C5.6.30.. ..M	30.0	19.7	18.0	12.4	3000	250.0	5.65	90.0	65.7	1.731	313.9	61.0	62.8	30.3

1) Voltage and current values shown in table are RMS values.
2) All parts of motor at 20 °C.
3) Tolerance ±10%.
4) Weight without a holding brake. Please refer to table on page 5 for additional weight of the brake option.
5) Duty type S1, ambient temperature 40 °C, mounted on steel flange (dim. 300 x 300 x 20 mm), altitude ≤ 1000 m above sea level.

Technical specifications

General specifications

9C series AC synchronous servo motors	
Mounting	IMB5, V1, V3
Cooling	IC-0041 (EN 60034-6)
Motor pole pairs	5
Operating temperature range	0 to 40 °C, up to 50 °C (derating of 1% per 1 °C must be applied above 40 °C)
Storage temperature range	-30 to 85 °C
Operating humidity range	85% max w/o condensation
Insulation class	F
Thermal protection	PTC
Compliance	CE, UL recognized
Degree of protection	Body: IP65 Shaft: IP54 standard, IP64 with oil seal
Motor feedback	Resolver, one pole pair, size 15. Optical SinCos encoder, 1 V_{pp}, 512 signal periods/revolution, absolute multiturn position (Endat), 4096 revolutions. Inductive encoder, 1 V_{pp}, 32 signal periods/revolution, absolute multiturn position (Endat), 4096 revolutions.

Optional holding brake specification

Motor type	Rated voltage [VDC]	Input power [W]	Input current [A]	Braking torque [Nm]	Armature release time [ms]	Armature pull-in time [ms]	Inertia [kgcm^2]	Additional weight with brake [kg]
9C1	24	6.3	0.26	2.5	30	50	0.102	0.6
9C4	24	19.5	0.81	16	30	70	0.73	1.5
9C5	24	28.0	1.17	30	30	75	1.82	2.2

Note: Release and pull-in time values apply with ABB varistor 5248 122-256 wired into electrical circuit.

Ordering information

9C series type code

9	C	x	x	x	x	0	x	x	0	0	0	x	1	M	0	0
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

			Made-to-stock			Made-to-order			
Character	Explanation	Alternatives	9C1	9C4	9C5	9C1	9C4	9C5	Notes
1 - 2	Product series	9C	x	x	x	x	x	x	
3	Motor size	1	x			x			
		4		x			x		
		5			x			x	
4	Motor length	1	x	x		x	x		
		2		x	x	x	x	x	
		3	x		x	x	x	x	
		4		x		x	x	x	
		5						x	
		6			x			x	
5 - 6	Rated speed	20						x	2000 r/min
		30	x	x	x	x	x	x	3000 r/min
		40					x		4000 r/min
		60				x			6000 r/min
7	Flange	0	x			x			F100
		0		x			x		F115
		0			x			x	F165
8 - 9	Feedback device	R0	x	x	x	x	x	x	Relsolver size 15
		E0	x	x	x	x	x	x	Optical encoder EQN1325, 1 V_{pp}, 512 signal periods, absolute multiturn position
		E1				x	x	x	Inductive encoder EQI1331, 1 V_{pp}, 32 signal periods, absolute multiturn position
10	Connector	0	x	x	x	x	x	x	Signal connector 17 pins and power connector 8 pins
		2				x	x	x	Cable glands for signal and power connections
11	Mechanical and vibration tolerances	0	x	x	x	x	x	x	Class “N” DIN 42955 - “N” DIN 45665
12	Shaft details	0	x	x	x	x	x	x	Shaft with keyway - half key fitted, full key included in the shipment
13	Brake	0	x	x	x	x	x	x	No brake
		1	x	x	x	x	x	x	Spring holding brake
14	Thermal switch	1	x	x	x	x	x	x	PTC type
15	DC bus voltage	M	x	x	x	x	x	x	560 V (drive supply 400 V)
16 - 17	Special execution	00	x	x	x	x	x	x	No special execution

Ordering information for stock items

Resolver motor without brake

Motor type code	Product ordering code
9C1.1.30.0.R0.0.0.0.0.1.M.00	68881358
9C1.3.30.0.R0.0.0.0.0.1.M.00	68881366
9C4.1.30.0.R0.0.0.0.0.1.M.00	68881374
9C4.2.30.0.R0.0.0.0.0.1.M.00	68881382
9C4.4.30.0.R0.0.0.0.0.1.M.00	68959951
9C5.2.30.0.R0.0.0.0.0.1.M.00	68881412
9C5.3.30.0.R0.0.0.0.0.1.M.00	68881421
9C5.6.30.0.R0.0.0.0.0.1.M.00	68881439

Resolver motor with brake

Motor type code	Product ordering code
9C1.1.30.0.R0.0.0.0.1.1.M.00	68881528
9C1.3.30.0.R0.0.0.0.1.1.M.00	68881544
9C4.1.30.0.R0.0.0.0.1.1.M.00	68881552
9C4.2.30.0.R0.0.0.0.1.1.M.00	68881561
9C4.4.30.0.R0.0.0.0.1.1.M.00	68959985
9C5.2.30.0.R0.0.0.0.1.1.M.00	68881587
9C5.3.30.0.R0.0.0.0.1.1.M.00	68881595
9C5.6.30.0.R0.0.0.0.1.1.M.00	68881609

Absolute encoder motor without brake

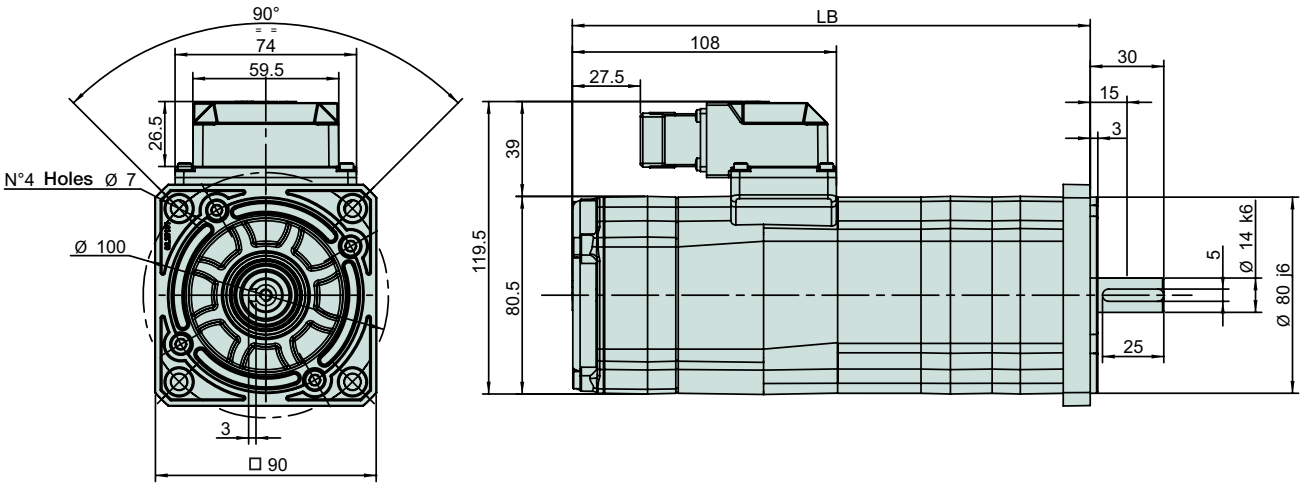
Motor type code	Product ordering code
9C1.1.30.0.E0.0.0.0.0.1.M.00	68881447
9C1.3.30.0.E0.0.0.0.0.1.M.00	68881455
9C4.1.30.0.E0.0.0.0.0.1.M.00	68881463
9C4.2.30.0.E0.0.0.0.0.1.M.00	68881471
9C4.4.30.0.E0.0.0.0.0.1.M.00	68959969
9C5.2.30.0.E0.0.0.0.0.1.M.00	68881498
9C5.3.30.0.E0.0.0.0.0.1.M.00	68881501
9C5.6.30.0.E0.0.0.0.0.1.M.00	68881510

Absolute encoder motor with brake

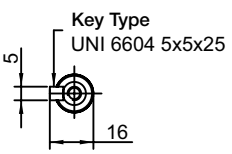
Motor type code	Product ordering code
9C1.1.30.0.E0.0.0.0.1.1.M.00	68881633
9C1.3.30.0.E0.0.0.0.1.1.M.00	68881650
9C4.1.30.0.E0.0.0.0.1.1.M.00	68881668
9C4.2.30.0.E0.0.0.0.1.1.M.00	68881676
9C4.4.30.0.E0.0.0.0.1.1.M.00	68959993
9C5.2.30.0.E0.0.0.0.1.1.M.00	68881692
9C5.3.30.0.E0.0.0.0.1.1.M.00	68881706
9C5.6.30.0.E0.0.0.0.1.1.M.00	68881714

Dimensions

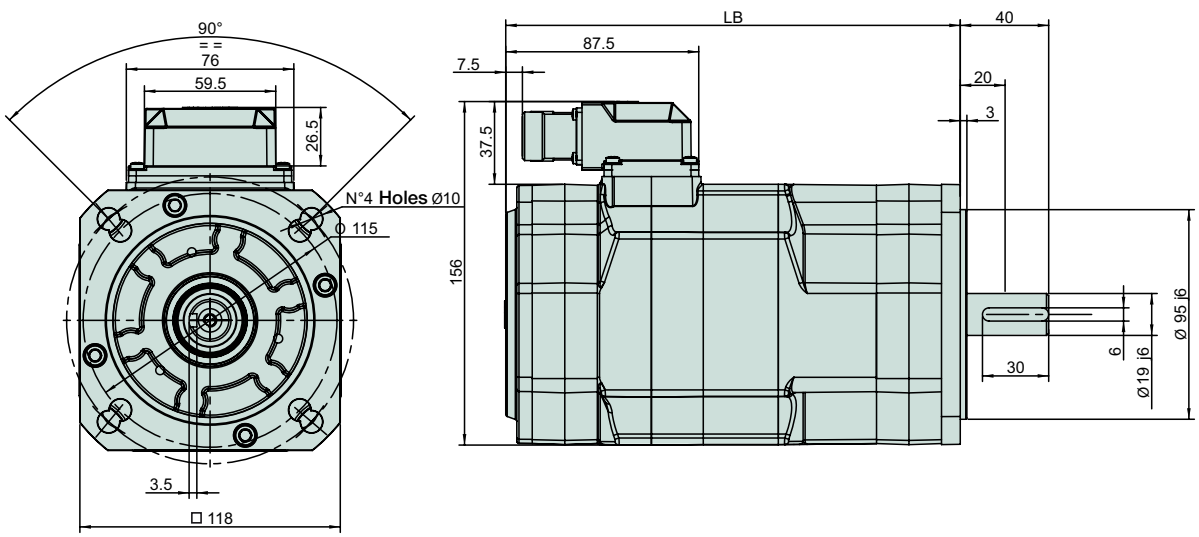
9C1



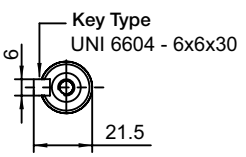
Motor Size	9C1.1	9C1.2	9C1.3	9C1.4
LB with resolver [mm]	152	186	220	254
LB with encoder [mm]	181	215	249	283
LB with brake [mm]	181	215	249	283
LB with brake + encoder [mm]	210	244	278	312



9C4

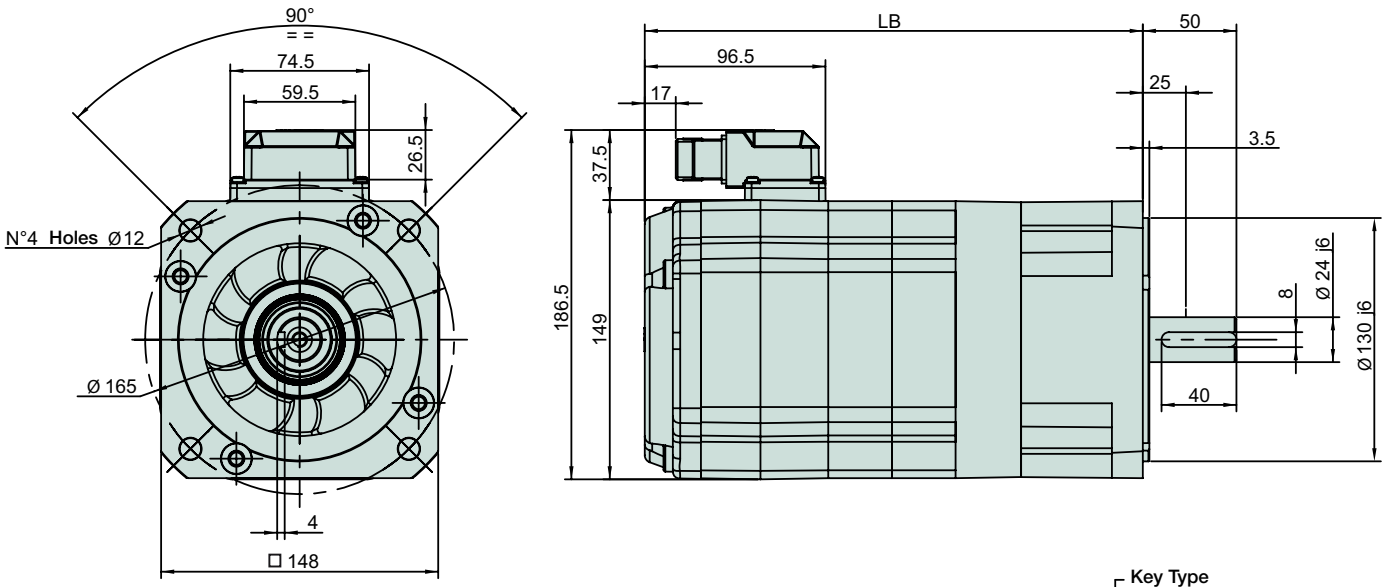


Motor Size	9C4.1	9C4.2	9C4.3	9C4.4
LB with resolver [mm]	147	181	215	249
LB with encoder [mm]	176.5	210.5	244.5	278.5
LB with brake [mm]	176.5	210.5	244.5	278.5
LB with brake + encoder [mm]	206	240	274	308

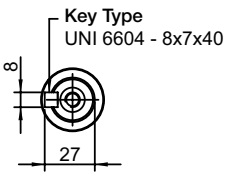


Dimensions

9C5



Motor Size	9C5.2	9C5.3	9C5.4	9C5.5	9C5.6
LB [mm] with resolver/encoder with/without brake	266	300	334	368	402



Combined motor and drive performance

Combined motor and drive performance

The following two tables show which ACSM1 drives match which 9C series servo motor. The combined motor and drive performance helps to identify the best combination for your application. The first table lists the made-to-stock models, while the second table lists the made-to-order models of the 9C series of ABB servo motors.

Highlights of ACSM1

- For demanding applications
- For synchronous and asynchronous motors
- Wide range of feedback interfaces
- Memory unit for easy drive management
- Safe torque-off function as standard

Made-to-stock models

Motor type	T_{rat} [1] [Nm]	T_{pk} [2] [Nm]	I_{rat} [3] [A]	I_{pk} [4] [A]	Drive type	$I_{2cont8k}$ [6] cyclic load	I_{2max} [7] [A]	Combined T_{rat} [8] [Nm]	Combined T_{pk} [9] [Nm]
9C1.1.30	1.3	4.1	1.4	4.6	ACSM1-04Ax[5]-02A5-4	1.9	5.3	1.3	4.1
9C1.3.30	2.8	9.6	2.5	9.3	ACSM1-04Ax[5]-02A5-4	1.9	5.3	2.1	5.5
	2.8	9.6	2.5	9.3	ACSM1-04Ax[5]-03A0-4	2.3	6.3	2.5	6.5
	2.8	9.6	2.5	9.3	ACSM1-04Ax[5]-04A0-4	3.0	8.4	2.8	8.7
	2.8	9.6	2.5	9.3	ACSM1-04Ax[5]-05A0-4	3.8	10.5	2.8	9.6
9C4.1.30	3.9	12.9	2.8	9.8	ACSM1-04Ax[5]-03A0-4	2.3	6.3	3.1	8.3
	3.9	12.9	2.8	9.8	ACSM1-04Ax[5]04A0-4	3.0	8.4	3.9	11.1
	3.9	12.9	2.8	9.8	ACSM1-04Ax[5]-05A0-4	3.8	10.5	3.9	12.9
9C4.2.30	6.1	22.5	4.3	16.7	ACSM1-04Ax[5]-04A0-4	3.0	8.4	4.3	11.3
	6.1	22.5	4.3	16.7	ACSM1-04Ax[5]-05A0-4	3.8	10.5	5.3	14.1
	6.1	22.5	4.3	16.7	ACSM1-04Ax[5]-07A0-4	4.1	14.7	5.9	19.8
	6.1	22.5	4.3	16.7	ACSM1-04Ax[5]09A5-4	7.1	16.6	6.1	22.4
9C4.4.30	7.5	36.0	5.4	27.3	ACSM1-04Ax[5]-012A-4	9.0	21.0	7.5	27.7
	7.5	36.0	5.4	27.3	ACSM1-04Ax[5]-016A-4	9.8	28.0	7.5	36.0
	7.5	36.0	5.4	27.3	ACSM1-04Ax[5]-024A-4	18.0	42.0	7.5	36.0
9C5.2.30	9.0	36.9	7.1	30.8	ACSM1-04Ax-09A5-4	7.1	16.6	9.0	19.9
	9.0	36.9	7.1	30.8	ACSM1-04Ax-012A-4	9.0	21.0	9.0	25.2
	9.0	36.9	7.1	30.8	ACSM1-04Ax-016A-4	9.8	28.0	9.0	33.5
	9.0	36.9	7.1	30.8	ACSM1-04Ax-024A-4	18.0	42.0	9.0	36.9
9C5.3.30	12.4	55.2	8.8	41.3	ACSM1-04Ax-09A5-4	7.1	16.6	10.0	22.2
	12.4	55.2	8.8	41.3	ACSM1-04Ax-012A-4	9.0	21.0	12.4	28.1
	12.4	55.2	8.8	41.3	ACSM1-04Ax-016A-4	9.8	28.0	12.4	37.4
	12.4	55.2	8.8	41.3	ACSM1-04Ax-024A-4	18.0	42.0	12.4	55.2
9C5.6.30	18.0	90.0	12.4	65.7	ACSM1-04Ax-016A-4	9.8	28.0	14.2	38.4
	18.0	90.0	12.4	65.7	ACSM1-04Ax-024A-4	18.0	42.0	18.0	57.5
	18.0	90.0	12.4	65.7	ACSM1-04Ax-031A-4	23.3	54.0	18.0	74.0
	18.0	90.0	12.4	65.7	ACSM1-04Ax-040A-4	26.3	70.0	18.0	90.0

1) Rated torque of the motor
2) Intermittent peak torque of the motor
3) Rated current of motor
4) Intermittent peak current of the motor
5) Control type (torque, speed, motion) of the drive
6) Continuous output current of ACSM1 at a switching frequency of 8 kHz at 40 °C (104 °F)
7) Maximum short time output current of ACSM1
8) Combined rated torque
9) Combined intermittent peak torque

Note!
The combined motor and drive performance in the table assumes 8 kHz switching frequency with cyclic load. The combined values are subject to ACSM1 supply voltage, ambient temperature and installation altitude de-ratings.

Combined motor and drive performance

Made-to-order models

Motor type	T_{rat} [1] [Nm]	T_{pk} [2] [Nm]	I_{rat} [3] [A]	I_{pk} [4] [A]	Drive type	$I_{2cont8k}$ [6] cyclic load	I_{2max} [7] [A]	Combined T_{rat} [8] [Nm]	Combined T_{pk} [9] [Nm]
9C1.1.60	1.2	4.1	2.0	7.3	ACSM1-04Ax[5]-02A5-4	1.9	5.3	1.1	3.0
	1.2	4.1	2.0	7.3	ACSM1-04Ax[5]-03A0-4	2.3	6.3	1.2	3.5
	1.2	4.1	2.0	7.3	ACSM1-04Ax[5]-04A0-4	3.0	8.4	1.2	4.1
9C1.2.30	2.0	6.9	1.7	6.3	ACSM1-04Ax[5]-02A5-4	1.9	5.3	2.0	5.8
	2.0	6.9	1.7	6.3	ACSM1-04Ax[5]-03A0-4	2.3	6.3	2.0	6.9
9C1.2.60	1.6	6.9	2.7	12.5	ACSM1-04Ax[5]-02A5-4	1.9	5.3	1.1	2.9
	1.6	6.9	2.7	12.5	ACSM1-04Ax[5]-03A0-4	2.3	6.3	1.3	3.5
	1.6	6.9	2.7	12.5	ACSM1-04Ax[5]-04A0-4	3.0	8.4	1.6	4.6
	1.6	6.9	2.7	12.5	ACSM1-04Ax[5]-05A0-4	3.8	10.5	1.6	5.8
	1.6	6.9	2.7	12.5	ACSM1-04Ax[5]-07A0-4	4.1	14.7	1.6	6.9
9C1.3.60	2.3	9.6	3.9	17.9	ACSM1-04Ax[5]-04A0-4	3.0	8.4	1.8	4.5
	2.3	9.6	3.9	17.9	ACSM1-04Ax[5]-05A0-4	3.8	10.5	2.2	5.6
	2.3	9.6	3.9	17.9	ACSM1-04Ax[5]-07A0-4	4.1	14.7	2.3	7.9
	2.3	9.6	3.9	17.9	ACSM1-04Ax[5]-09A5-4	7.1	16.6	2.3	8.9
	2.3	9.6	3.9	17.9	ACSM1-04Ax[5]-012A-4	9.0	21.0	2.3	9.6
9C1.4.30	3.5	12.6	2.9	11.4	ACSM1-04Ax[5]-03A0-4	2.3	6.3	2.7	7.0
	3.5	12.6	2.9	11.4	ACSM1-04Ax[5]-04A0-4	3.0	8.4	3.5	9.3
	3.5	12.6	2.9	11.4	ACSM1-04Ax[5]-05A0-4	3.8	10.5	3.5	11.6
	3.5	12.6	2.9	11.4	ACSM1-04Ax[5]-07A0-4	4.1	14.7	3.5	12.6
9C1.4.60	2.5	12.6	4.1	22.3	ACSM1-04Ax[5]-04A0-4	3.0	8.4	1.8	4.7
	2.5	12.6	4.1	22.3	ACSM1-04Ax[5]-05A0-4	3.8	10.5	2.3	5.9
	2.5	12.6	4.1	22.3	ACSM1-04Ax[5]-07A0-4	4.1	14.7	2.5	8.3
	2.5	12.6	4.1	22.3	ACSM1-04Ax[5]-09A5-4	7.1	16.6	2.5	9.4
	2.5	12.6	4.1	22.3	ACSM1-04Ax[5]-012A-4	9.0	21.0	2.5	11.9
	2.5	12.6	4.1	22.3	ACSM1-04Ax[5]-016A-4	9.8	28.0	2.5	12.6
9C4.1.40	3.7	12.9	3.6	13.2	ACSM1-04Ax[5]-04A0-4	3.0	8.4	3.1	8.2
	3.7	12.9	3.6	13.2	ACSM1-04Ax[5]-05A0-4	3.8	10.5	3.7	10.3
	3.7	12.9	3.6	13.2	ACSM1-04Ax[5]-07A0-4	4.1	14.7	3.7	12.9
9C4.3.30	6.9	28.2	4.6	19.9	ACSM1-04Ax[5]-05A0-4	3.8	10.5	5.6	14.9
	6.9	28.2	4.6	19.9	ACSM1-04Ax[5]-07A0-4	4.1	14.7	6.2	20.8
	6.9	28.2	4.6	19.9	ACSM1-04Ax[5]-09A5-4	7.1	16.6	6.9	23.5
	6.9	28.2	4.6	19.9	ACSM1-04Ax[5]012A-4	9.0	21.0	6.9	28.2
9C4.2.40	5.4	22.5	5.2	23.1	ACSM1-04Ax[5]-07A0-4	4.1	14.7	4.3	14.3
	5.4	22.5	5.2	23.1	ACSM1-04Ax[5]-09A5-4	7.1	16.6	5.4	16.2
	5.4	22.5	5.2	23.1	ACSM1-04Ax[5]-012A-4	9.0	21.0	5.4	20.5
	5.4	22.5	5.2	23.1	ACSM1-04Ax[5]-016A-4	9.8	28.0	5.4	22.5
9C4.3.40	5.8	28.2	5.1	26.1	ACSM1-04Ax[5]-07A0-4	4.1	14.7	4.7	15.9
	5.8	28.2	5.1	26.1	ACSM1-04Ax[5]-09A5-4	7.1	16.6	5.8	17.9
	5.8	28.2	5.1	26.1	ACSM1-04Ax[5]-012A-4	9.0	21.0	5.8	22.7
	5.8	28.2	5.1	26.1	ACSM1-04Ax[5]-016A-4	9.8	28.0	5.8	28.2
9C4.4.40	6.3	36.0	5.5	33.3	ACSM1-04Ax[5]-07A0-4	4.1	14.7	4.7	15.9
	6.3	36.0	5.5	33.3	ACSM1-04Ax[5]-09A5-4	7.1	16.6	6.3	17.9
	6.3	36.0	5.5	33.3	ACSM1-04Ax[5]-012A-4	9.0	21.0	6.3	22.7
	6.3	36.0	5.5	33.3	ACSM1-04Ax[5]-016A-4	9.8	28.0	6.3	30.3
	6.3	36.0	5.5	33.3	ACSM1-04Ax[5]-024A-4	18.0	42.0	6.3	36.0
9C5.2.20	10.3	36.9	5.3	20.2	ACSM1-04Ax-07A0-4	4.1	14.7	8.0	26.9
	10.3	36.9	5.3	20.2	ACSM1-04Ax-09A5-4	7.1	16.6	10.3	30.3
	10.3	36.9	5.3	20.2	ACSM1-04Ax-012A-4	9.0	21.0	10.3	36.9
9C5.3.20	14.8	55.2	7.8	30.7	ACSM1-04Ax-09A5-4	7.1	16.6	13.5	29.8
	14.8	55.2	7.8	30.7	ACSM1-04Ax-012A-4	9.0	21.0	14.8	37.8
	14.8	55.2	7.8	30.7	ACSM1-04Ax-016A-4	9.8	28.0	14.8	50.3
	14.8	55.2	7.8	30.7	ACSM1-04Ax-024A-4	18.0	42.0	14.8	55.2
9C5.4.20	17.1	70.5	9.1	39.6	ACSM1-04Ax-012A-4	9.0	21.0	16.9	37.4
	17.1	70.5	9.1	39.6	ACSM1-04Ax-016A-4	9.8	28.0	17.1	49.8
	17.1	70.5	9.1	39.6	ACSM1-04Ax-024A-4	18.0	42.0	17.1	70.5
9C5.5.20	20.0	78.0	9.8	40.2	ACSM1-04Ax-012A-4	9.0	21.0	18.4	40.7
	20.0	78.0	9.8	40.2	ACSM1-04Ax-016A-4	9.8	28.0	19.9	54.3
	20.0	78.0	9.8	40.2	ACSM1-04Ax-024A-4	18.0	42.0	20.0	78.0
9C5.5.30	17.0	78.0	11.8	56.9	ACSM1-04Ax-016A-4	9.8	28.0	14.0	38.4
	17.0	78.0	11.8	56.9	ACSM1-04Ax-024A-4	18.0	42.0	17.0	57.6
	17.0	78.0	11.8	56.9	ACSM1-04Ax-031A-4	23.3	54.0	17.0	74.0
	17.0	78.0	11.8	56.9	ACSM1-04Ax-040A-4	26.3	70.0	17.0	78.0
9C5.6.20	22.0	90.0	9.9	42.7	ACSM1-04Ax-016A-4	9.8	28.0	21.7	59.0
	22.0	90.0	9.9	42.7	ACSM1-04Ax-024A-4	18.0	42.0	22.0	88.5
	22.0	90.0	9.9	42.7	ACSM1-04Ax-031A-4	23.3	54.0	22.0	90.0

1) Rated torque of the motor
2) Intermittent peak torque of the motor
3) Rated current of motor
4) Intermittent peak current of the motor
5) Control type (torque, speed, motion) of the drive
6) Continuous output current of ACSM1 at a switching frequency of 8 kHz at 40 °C (104 °F)
7) Maximum short time output current of ACSM1
8) Combined rated torque
9) Combined intermittent peak torque

Note!
The combined motor and drive performance in the table assumes 8 kHz switching frequency with cyclic load. The combined values are subject to ACSM1 supply voltage, ambient temperature and installation altitude de-ratings.

Cables

Ready-made motor cables for ACSM1

Cable properties

- Polyurethane (PUR) outer sheath with good flexibility and low adhesion
- Flame retardant and halogen-free
- Resistant to abrasion and oil
- Conformity to the DESINA® -standard
- Motor power cables include brake control leads

Motor power cable

Product code	Conductor diameter [mm²]	Cable diameter [mm]	Length [m]	Cable	Cable ratings [1] [A]
68822742	1.5	11.5	5	(4x1,5+(2x1,0))	16
68823285	1.5	11.5	10	(4x1,5+(2x1,0))	16
68823307	1.5	11.5	15	(4x1,5+(2x1,0))	16
68823323	1.5	11.5	20	(4x1,5+(2x1,0))	16
68823331	1.5	11.5	25	(4x1,5+(2x1,0))	16
68867029	2.5	12.0	5	(4x2,5+(2x1,0))	22
68867037	2.5	12.0	10	(4x2,5+(2x1,0))	22
68867053	2.5	12.0	15	(4x2,5+(2x1,0))	22
68867061	2.5	12.0	20	(4x2,5+(2x1,0))	22
68867070	2.5	12.0	25	(4x2,5+(2x1,0))	22
68867088	4.0	14.0	5	(4x4,0+(2x1,0))	30
68867096	4.0	14.0	10	(4x4,0+(2x1,0))	30
68867100	4.0	14.0	15	(4x4,0+(2x1,0))	30
68867118	4.0	14.0	20	(4x4,0+(2x1,0))	30
68867126	4.0	14.0	25	(4x4,0+(2x1,0))	30

[1] The cable current ratings are for reference only and subject to local regulations and method of installation.

Electrical properties	
Working voltage	
Power cables	1000 V
Feedback cables	300 V
Insulation resistance min	20 MΩ x km at 20 °C

Mechanical properties	
Minimum bending radius	12 x cable diameter
Minimum endurance	5 million bending cycles
Maximum travelling speed	180 m/min
Maximum acceleration	10 m/s²

Environmental properties	
Temperature range	
Static applications	-40 to +80 °C
Dynamic applications	-30 to +80 °C
Flame resistance	According IEC 60332.1 and VDE 0472-804 test B and VW1 (UL 1581)
Oil resistance	According VDE 0472-803 test B
Halogen free	According VDE 0742-815 and IEC 754-1

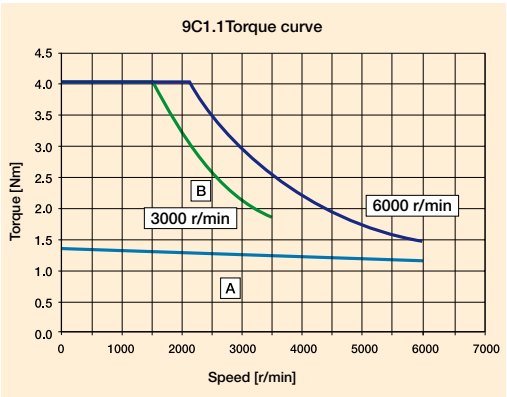
Resolver feedback cable

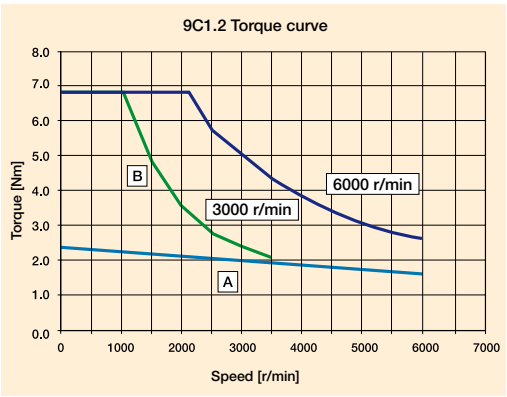
Product code	Length [m]	Cable diameter [mm]	Cable
68861721	5	8.5	(3x(2x0,14)+(2x0,14))
68861730	10	8.5	(3x(2x0,14)+(2x0,14))
68861748	15	8.5	(3x(2x0,14)+(2x0,14))
68861756	20	8.5	(3x(2x0,14)+(2x0,14))
68861764	25	8.5	(3x(2x0,14)+(2x0,14))

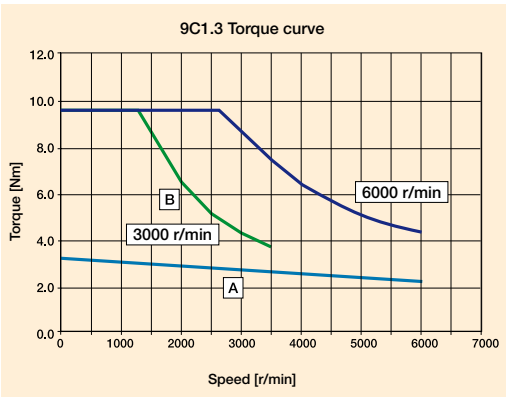
Encoder feedback cable

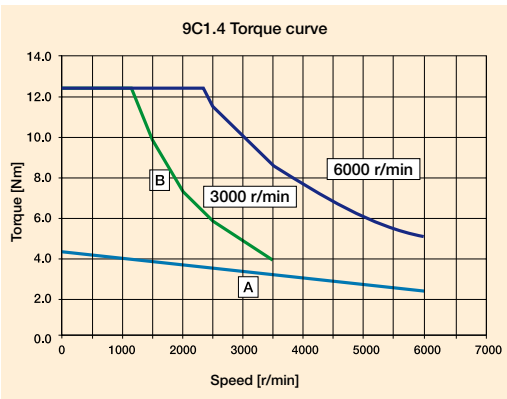
Product code	Length [m]	Cable diameter [mm]	Cable
68959187	5	8.7	(8x2x0,25)
68959209	10	8.7	(8x2x0,25)
68959217	15	8.7	(8x2x0,25)
68959225	20	8.7	(8x2x0,25)
68959233	25	8.7	(8x2x0,25)

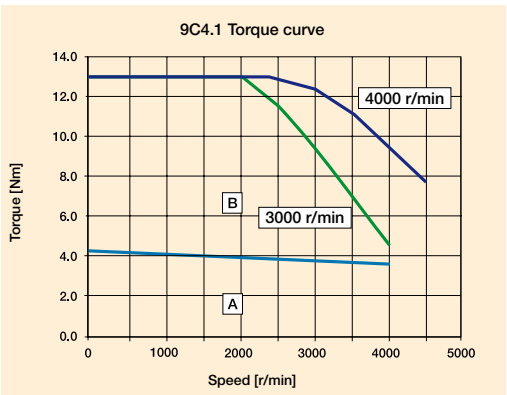
Motor speed/torque curves

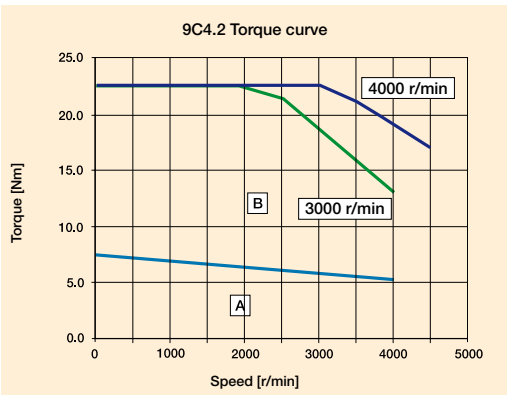










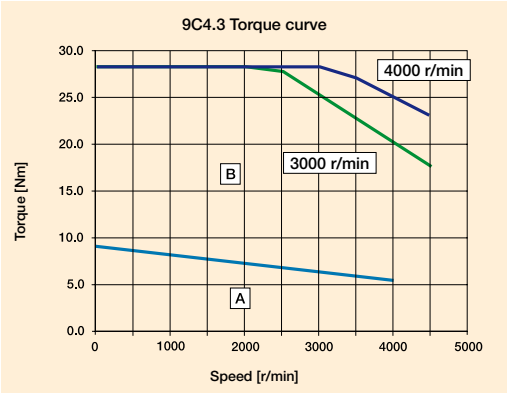


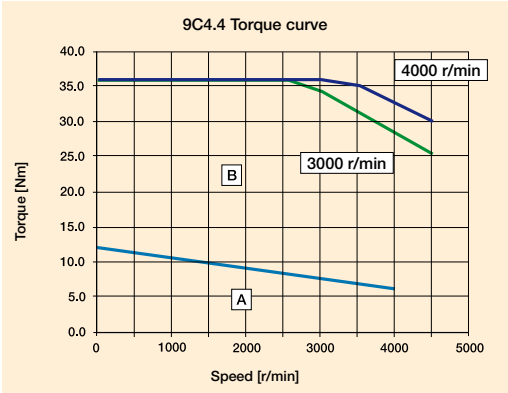
A Continuous operation zone

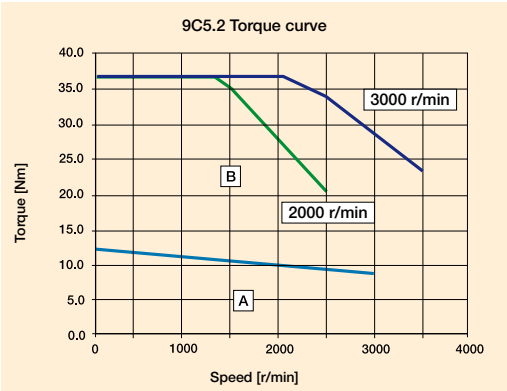
B Intermittent operation zone

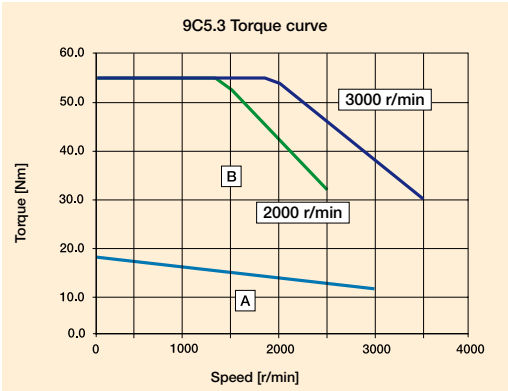
Note!
All performance data is measured at duty type S1, ambient temperature 40 °C, mounted on steel flange (dim. 300 x 300 x 20 mm), altitude ≤ 1000 m above sea level.

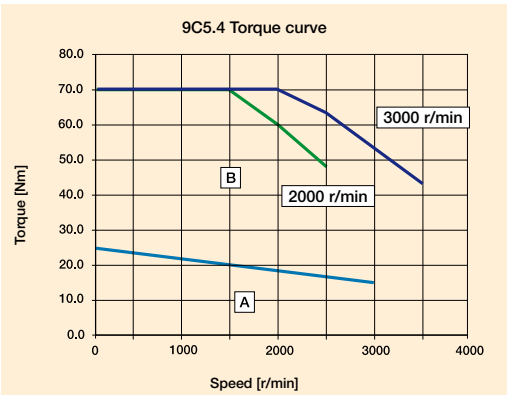
Motor speed/torque curves

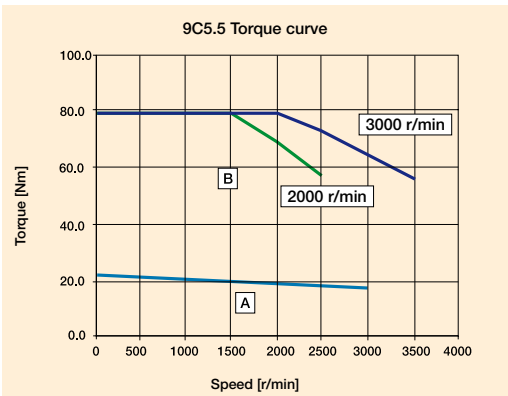


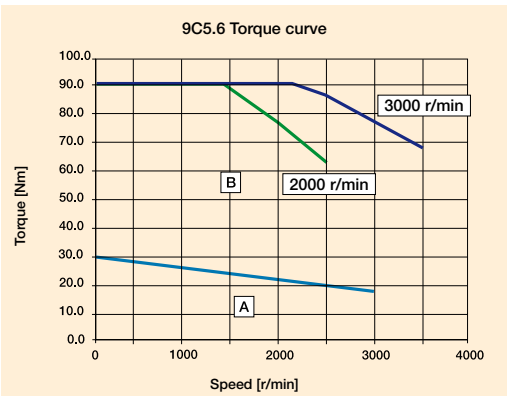












A Continuous operation zone

B Intermittent operation zone

Note!
All performance data is measured at duty type S1, ambient temperature 40 °C, mounted on steel flange (dim. 300 x 300 x 20 mm), altitude ≤ 1000 m above sea level.

Contact and web information

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