SEW EURODRIVE

Adapts easily, is full of torque and very dynamic:

The DS/CM synchronous servomotors from SEW-EURODRIVE

For a variety of combinations in different applications and economical performance

In addition to dynamic performance and precision, it is the ability of drive components to easily adapt to an application that represents a decisive factor for implementation of an economical solution in mechanical and plant engineering. SEW-EURODRIVE provides the ideal candidate for such a performance: The reliable and economical servomotors of the DS/CM series. These come with a housing and convection cooling; they cover a wide range of standstill torques from 1 Nm to 68 Nm with peak performance ratings of up to 238 Nm. These servomotors come with a high overload capacity and almost cover a complete power range.

The SEW-EURODRIVE modular design makes for a number of different combinations and installations even in servo applications. The DS/CM synchronous servomotors can be mounted directly to the machine or can be integrated as direct gearmotor in connection with gear units. Gear units in standard and reduced backlash design can be installed as well as planetary servo gear units and angular servo gear units that can be mounted directly to the motor, i.e. without adapter. You have the choice to either install 24V holding brakes for the DS series or powerful servo brakes for the CM series.

Their optional design makes for either standard feedback with 2-pole resolver as well as installation of absolute single and multi-turn encoders with HIPERFACE® interface. The optional working brake of the CM series provides a high torque and represents the optimum application solution, for example in hoists. A further advantage is the optional HIPERFACE® encoder. Its “electronic nameplate” provides all drive information automatically for startup and in case of a service call.

Driving the world – with innovative drive solutions for all branches of industry and for every application. Products and systems from SEW-EURODRIVE for any application – worldwide. SEW-EURODRIVE products can be found in a variety of industries, e.g. automotive, building materials, food and beverage as well as metal-processing. The decision to use drive technology “made by SEW-EURODRIVE” stands for safety regarding functionality and investment.

DS/CM synchronous servomotors for highly dynamic applications

Highly dynamic applications are the favorite playground of our synchronous servomotors. The **CM motor series** is available in three sizes with three lengths for each size; it covers the torque range from 5 ... 70 Nm static torque. These motors come equipped with high-energy NdFeB magnets that offer a very high overload behavior of 400 % standstill current as standard. The modern technology of the magnetic circuit makes for high rotational accuracy and low cogging.

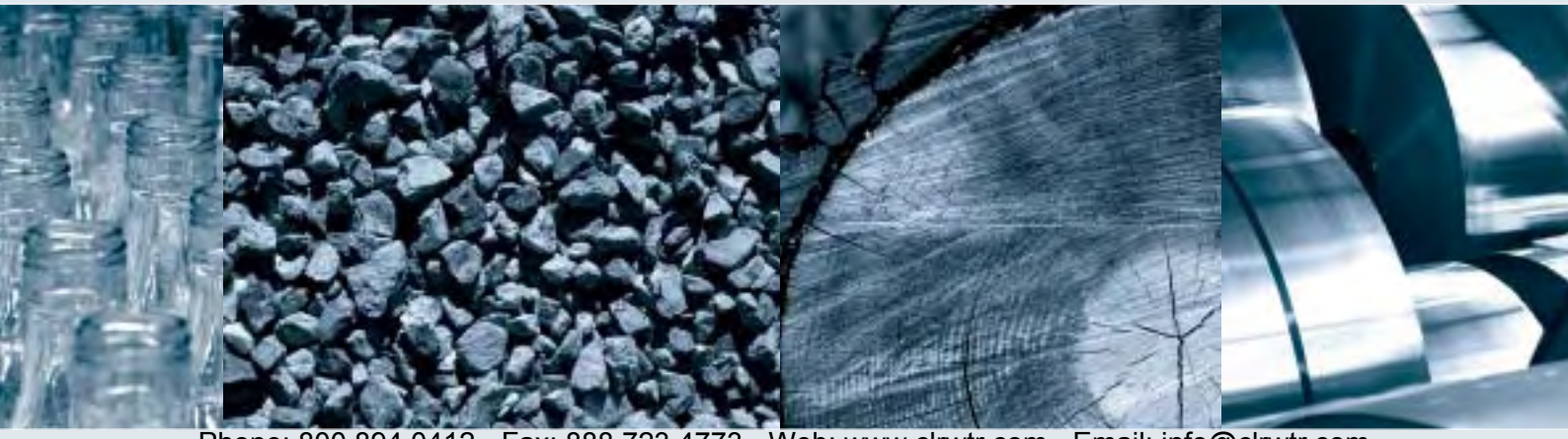
For static torques of 1 ... 4 Nm, the **DS series** completes the low range with three lengths. The acceleration torques of the motors are three to four times the static torque for all sizes. All motors come equipped with standard thermal motor protection and resolver feedback for motor control.

An overview of the properties of the DS/CM series

- Very dynamic and powerful
- Large torque range
- Stepped speed classes
- Direct drive technology or geared servomotors
- Standard gear unit or servo gear unit with direct mounting
- Servo brake with hoist capability
- Resolver or high-resolution absolute encoder
- High overload capacity throughout
- High quality of concentricity properties
- High degree of protection
- Plug solution or terminal box
- Servo cable for fixed or trailing installation
- Optional motor equipment:
  Terminal box and forced cooling fan
- All motors with UL or CSA approval

An overview of the advantages of system solutions with DS/CM synchronous servomotors

- Servomotors from 1 ... 68 Nm
- Electronic nameplate with HIPERFACE® absolute encoders
- MOVIDRIVE® servo controllers
- MOVITOOLS® operating software with startup functions
- Calibration function for external mass moments of inertia
- Technology functions
- Engineering support
- After sales support
- CAD files for all motors
- Technical documentation, available online



DS/CM synchronous servomotors series

Motor type	n_N [min^{-1}]	M_0 [Nm]	I_0 [A]	M_{dyn} [Nm]
CFM71S	2,000	5	2.2	16.5
CFM71M		6.5	3	21.5
CFM71L		9.5	4.2	31.4
CFM90S		11	4.9	39.6
CFM90M		14.5	6.9	52.2
CFM90L		21	9.9	75.6
CFM112S		23.5	10	82.3
CFM112M		31	13.5	108.5
CFM112L		45	20	157.5
CFM112H		68	30.5	238
DFS56M	3,000	1	1.65	3.8
DFS56L		2	2.4	7.6
DFS56H		4	2.8	15.2
CFM71S		5	3.3	16.5
CFM71M		6.5	4.3	21.5
CFM71L		9.5	6.2	31.4
CFM90S		11	7.3	39.6
CFM90M		14.5	10.1	52.2
CFM90L		21	14.4	75.6
CFM112S		23.5	15	82.3
CFM112M		31	20.5	108.5
CFM112L		45	30	157.5
CFM112H		68	43	238
DFS56M	4,500	1	1.65	3.8
DFS56L		2	2.4	7.6
DFS56H		4	4	15.2
CFM71S		5	4.9	16.5
CFM71M		6.5	6.6	21.5
CFM71L		9.5	9.6	31.4
CFM90S		11	11.1	39.6
CFM90M		14.5	14.7	52.2
CFM90L		21	21.6	75.6
CFM112S		23.5	22.5	82.3
CFM112M		31	30	108.5
CFM112L		45	46	157.5
CFM112H		68	66	238
DFS56M	6,000	1	1.65	3.8
DFS56L		2	2.75	7.6
DFS56H		4	5.3	15.2
CFM71S		5	6.5	16.5
CFM71M		6.5	8.6	21.5
CFM71L		9.5	12.5	31.4
CFM90S		11	14.5	39.6
CFM90M		14.5	19.8	52.2
CFM90L		21	29.5	75.6

I_{max} [A]	J_{mot} [10^{-4} kg m²]	J_{bmot} [10^{-4} kg m²]	m_{mot} [kg]	m_{bmot} [kg]
8.8	4.89	6.65	9.5	11.8
12	6.27	8.03	10.8	13
16.8	9.02	10.8	13	15.3
19.6	17.4	21.2	15.7	19.6
28	22.3	26.1	17.8	21.6
40	32.1	35.9	21.9	26.5
40	68.4	84	26.2	31.8
54	88.2	104	30.5	36
80	128	143	39.3	44.9
122	190	209	54.2	59.8
6.6	0.48	0.83	2.8	2.9
9.6	0.83	1.18	3.5	3.6
11.2	1.53	1.88	4.8	5.3
13.2	4.89	6.65	9.5	11.8
17.2	6.27	8.03	10.8	13
25	9.02	10.8	13	15.3
29	17.4	21.2	15.7	19.6
40	22.3	26.1	17.8	21.6
58	32.1	35.9	21.9	26.5
60	68.4	84	26.2	31.8
82	88.2	104	30.5	36
120	128	143	39.3	44.9
172	190	209	54.2	59.8
6.6	0.48	0.83	2.8	2.9
9.6	0.83	1.18	3.5	3.6
16	1.53	1.88	4.8	5.3
19.6	4.89	6.65	9.5	11.8
26	6.27	8.03	10.8	13
38	9.02	10.8	13	15.3
44	17.4	21.2	15.7	19.6
59	22.3	26.1	17.8	21.6
86	32.1	35.9	21.9	26.5
90	68.4	84	26.2	31.8
120	88.2	104	30.5	36
184	128	143	39.3	44.9
264	190	209	54.2	59.8
6.6	0.48	0.83	2.8	2.9
11	0.83	1.18	3.5	3.6
21	1.53	1.88	4.8	5.3
26	4.89	6.65	9.5	–
34	6.27	8.03	10.8	–
50	9.02	10.8	13	–
58	17.4	21.2	15.7	–
79	22.3	26.1	17.8	–
118	32.1	35.9	21.9	–

n_N : Rated speed
M_0 : Static torque
I_0 : Standstill current
M_{dyn} : Dynamic limit torque of the servomotor
I_{max} : Max. permitted motor current
J_{mot} : Mass moment of inertia of the motor
J_{bmot} : Mass moment of inertia of the brake motor
m_{mot} : Weight of the motor
m_{bmot} : Weight of the brake motor

Operating conditions

Ambient temperature	-20°C up to 40°C, max. up to 60°C with derating
Installation altitude	up to 1,000 m above sea level
Thermal classification	F

Standard type

Feedback system	2-pole resolver
Enclosure	IP65
Connection	Power and feedback connectors
Coating	Surface coating RAL 9005, black

Options for DS/CM servomotors

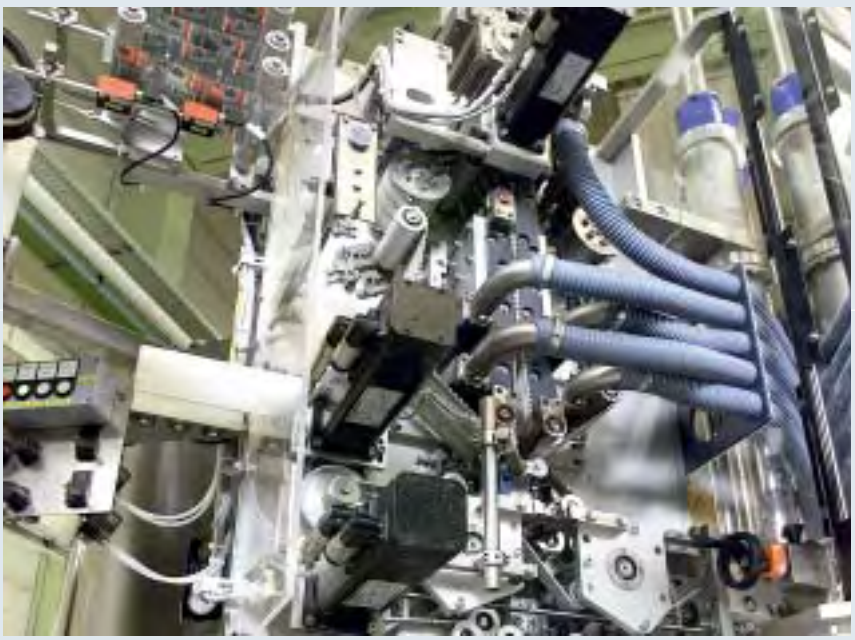
UL / CSA certification NEMA	– There is a UL or CSA certificate for DS/CM motors – All servomotors are available in NEMA design
Brake	– 24V holding brake for DS servomotors – 24V, 110V, 230V, 400V, 460V brakes with high braking power for CM servomotors; excellent emergency stop properties – Manual brake release for CM motor brake
Feedback systems	– Single-turn and multi-turn absolute encoders with Hiperface® interface and electronic nameplate – SSI multi-turn absolute encoder – Resolvers with more poles
Connection	Terminal box
Forced cooling fan	With an increase of the static torque up to factor 1.45 x M_0
2nd shaft end	Second shaft end with high torque rating for CM motors
Cables	Prefabricated power and feedback cables for fixed or trailing installation as well as extension cables (all cables with UL listing)
Surface protection coating	Increased surface protection through special coating OS1 to OS4
Gear unit	Servo and standard gear units as gearmotor or with installation via adapter

Full of torque, very dynamic and easy to adapt: DS/CM synchronous servomotors at work

Precision, dynamics and optimum control characteristics do not represent a challenge for servomotors from SEW-EURODRIVE, as can be seen here in bottle control. More than 10,000 bottles per hour are turned and checked by planetary gearmotors in phase-synchronous operation and in coordination with MOVIDRIVE® drive inverters.

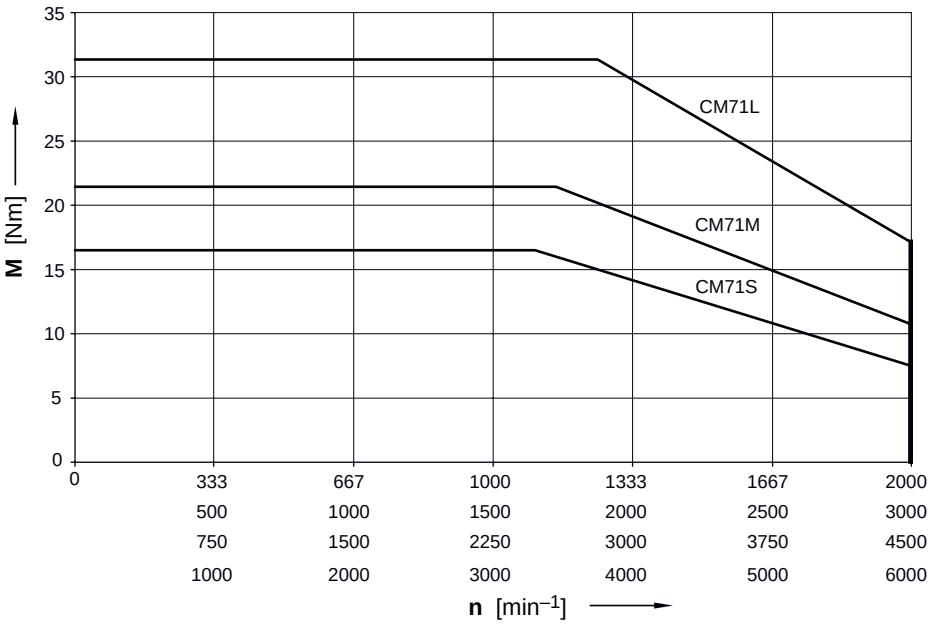
Servomotors from SEW-EURODRIVE meet their ideal operating conditions in materials handling and logistics applications. The weight distributions are not important because DS/CM servomotors can handle almost any mass moment of inertia with exact precision. It does not matter if the motors are used in a gantry robot or a storage and retrieval system.

There are different tasks for servomotors from SEW-EURODRIVE in packaging machines. Regardless if used in the food industry or for secondary packaging: High performance and reliability are always important. Servo drives from SEW-EURODRIVE easily coordinate processes, such as the one seen here in a labeling system at maximum output.

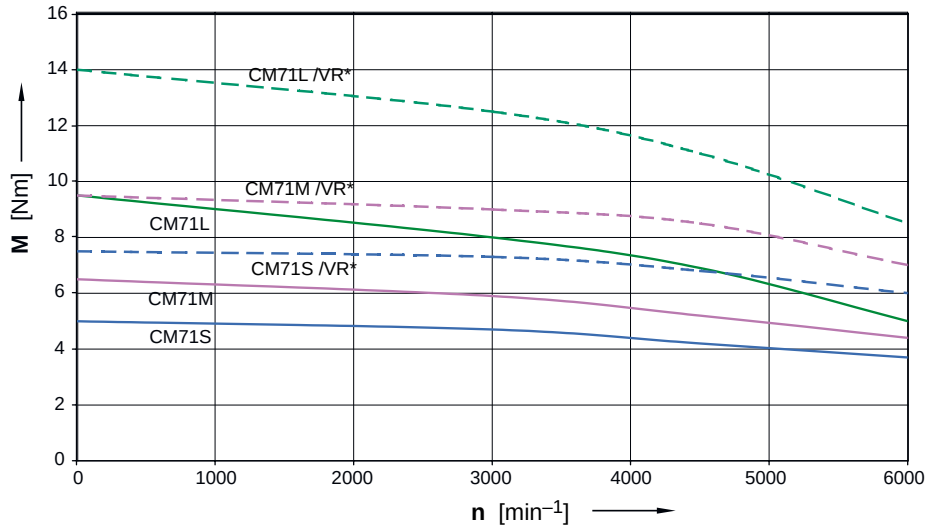


Motor characteristics using the CMD71 series as an example

Limit torque characteristics
Dynamic for 400V system voltage



Limit torque characteristics
Thermal for 400V system voltage (derating)



*/VR : Thermal characteristics with forced cooling fan

Torque-current characteristics