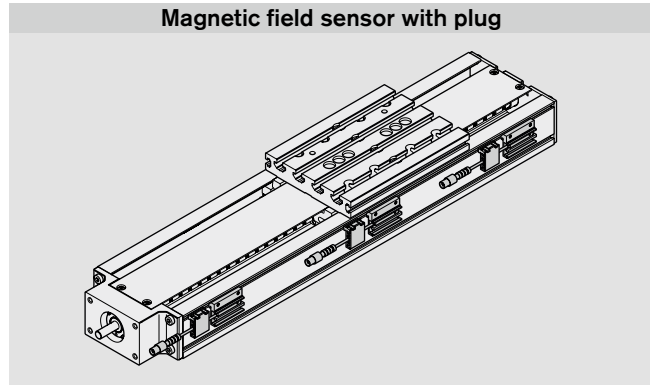
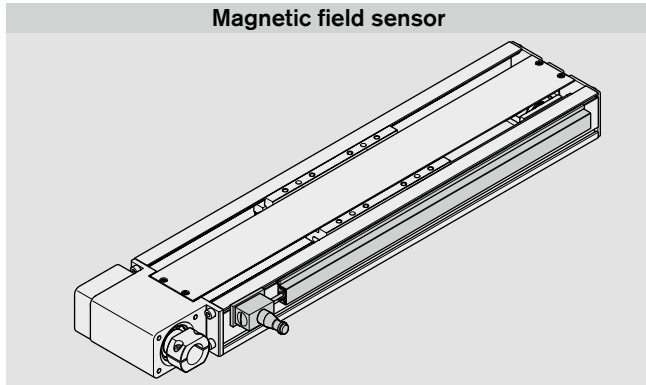


eLINE Compact Modules – Freely Configurable

## Switching Systems Overview

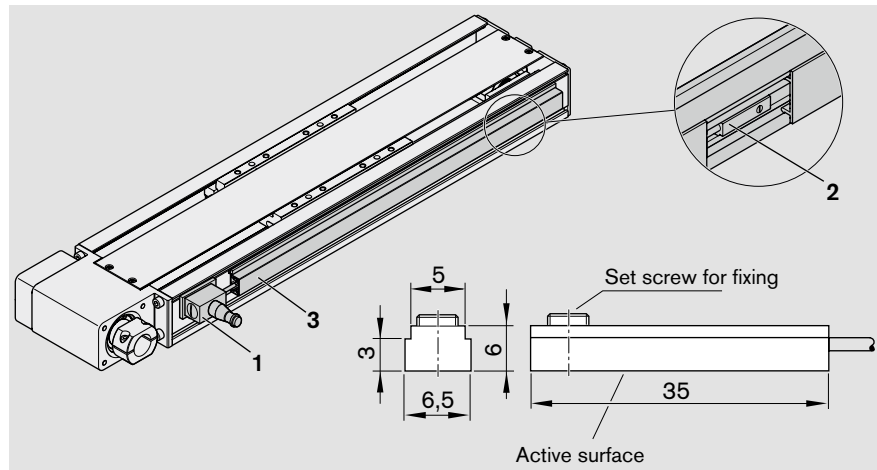


### Magnetic field sensor

Hall and Reed sensor

- 1 Socket and plug
- 2 Switch
- 3 Mounting duct  
(aluminum alloy, black anodized)

**⚠ The magnetic field sensors are suitable for travel speeds up to 2 m/s. Short stroke: Take the length of the switch and socket into consideration!**



Magnetic field sensors with potted cable.

Version:

- Hall sensor (NC) or
- Reed sensor (change-over)

Notes on mounting:

Switches (sensors) may only be installed after the eLINE Compact Module has been fixed to the mounting base.

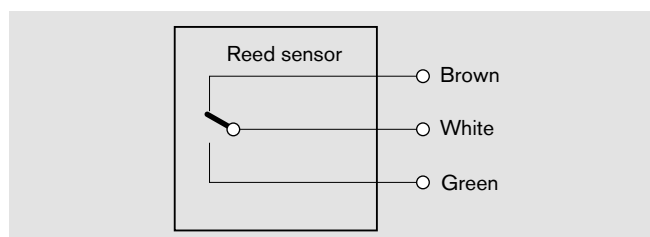
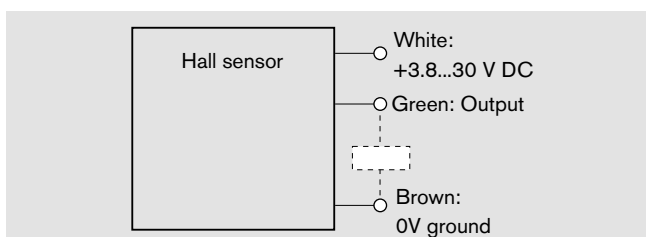
A mounting duct is required for installation of the switches.

Hall sensor	
Contact type	PNP NC
Operating voltage	3.8–30 V DC
Power consumption	max. 10 mA
Output current	max. 20 mA
Cable length	2 m (10 m upon request)
Housing protection class	IP 66
Short-circuit protection	No
Maximum travel speed	2 m/s

Reed sensor	
Contact type	Change-over
Switching voltage	max. 100 V DC
Switching current	max. 0.5 mA
Cable length	2 m (10 m upon request)
Housing protection class	IP 66
Maximum travel speed	2 m/s

### Pin assignment

Important: 2 switching points!



## Switch mounting arrangements

### Mounting duct

Function:

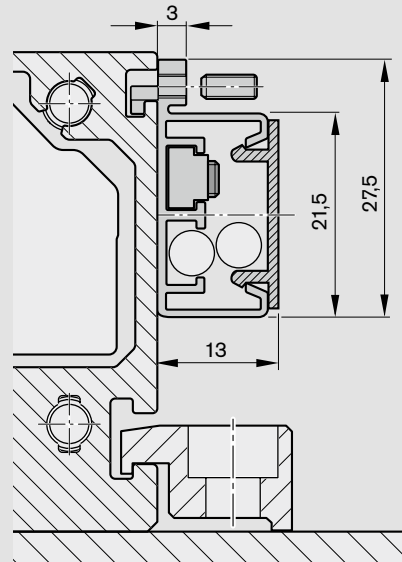
- To attach and secure magnetic field sensors
- Cable routing

Mounting instructions:

The mounting duct is hooked into the T-slots of the module frame and secured with set screws.

Set screws are provided.

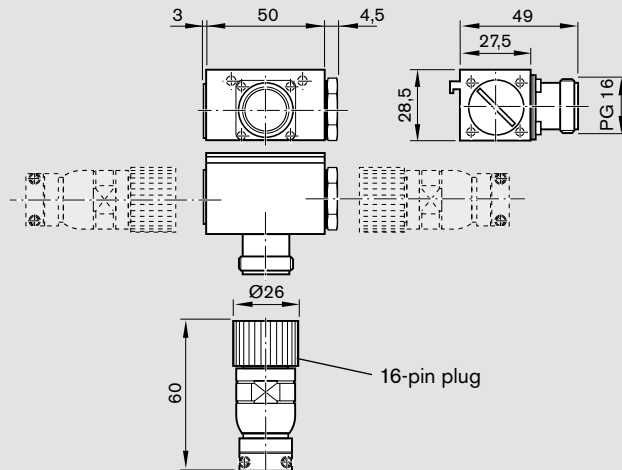
The switches are slid into the upper T-slot of the mounting duct and secured with set screws.



### Socket and plug

Attach the socket on the side with the magnetic field sensor.

The socket and plug have 16 pins.  
The socket and plug are not wired.  
This allows optimal assignment of switch positions during start-up.  
One plug is provided.  
The plug can be installed in three directions.



### Ordering the magnetic field sensors and accessories

Item		Part numbers
1	Socket-plug	R0375 400 00
2	Magnetic field sensor	
	- Reed sensor	R3476 009 03
	- Hall sensor (PNP NC)	R3476 010 03
3	Mounting duct	R0396 620 18

eLINE Compact Modules – Freely Configurable

## Switching Systems Overview

### Magnetic field sensor with plug

With magnetic field sensors, switch activation is direct (without switching cam). The switch positions can be adjusted freely over the entire travel range. The sensor should only be mounted after the eLINE Compact Module has been fastened to the mounting base.

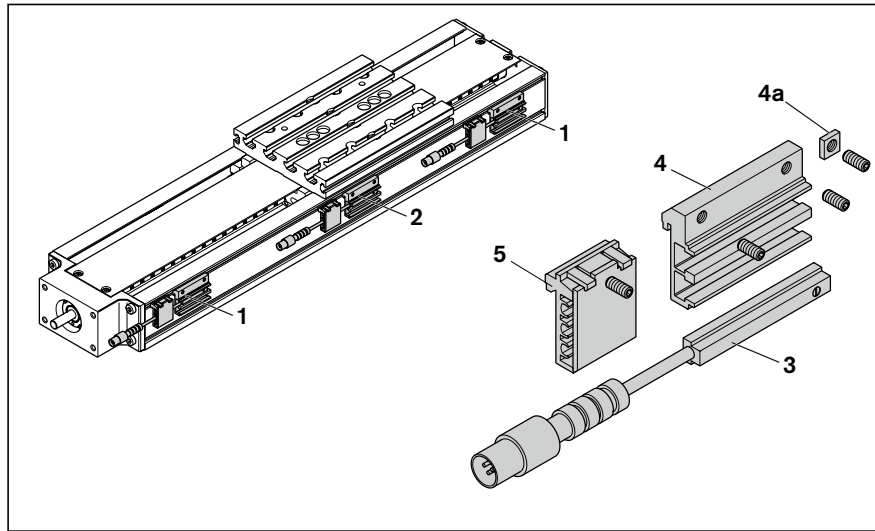
#### Switch positions:

- 1 Limitation at end of stroke (recommendation: Reed or Hall sensor)
- 2 Reference point at middle of stroke (recommendation: Hall sensor)

#### Sensor mounting assembly

consisting of:

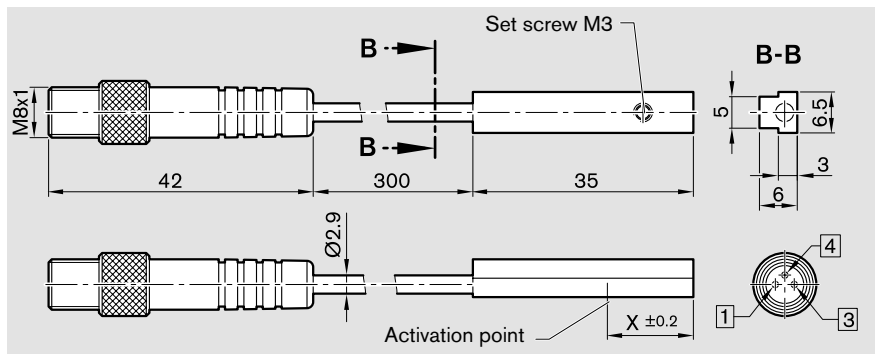
- 3 Sensor (Hall or Reed)
- 4 Sensor mount incl. set screws (loose) and square nut 4a
- 5 Cable holder (3 units) incl. set screw (loose)



Version	Part number
Sensor mounting assembly with Reed sensor	R0375 300 07
Sensor mounting assembly with Hall sensor	R0375 300 08

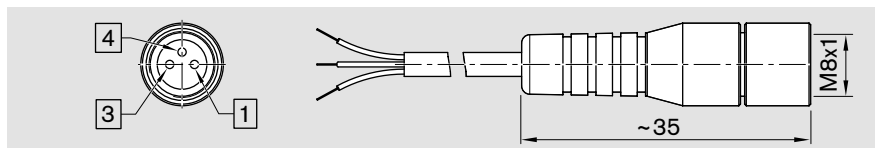
#### Sensor configuration:

Dimension X (mm)	
Reed sensor	Hall sensor
9.00	13.65



### Extension cable for sensor (Reed/Hall)

The extension cable (approx. 5 m) is supplied complete with a female connector M8x1 for connection to the sensor.



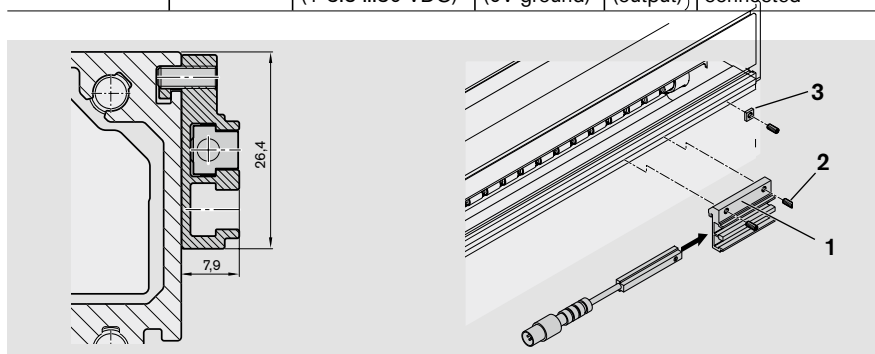
Extension cable					
Part number	Connector contact	1	3	4	Protection class
R3476 025 03	to core	brown (+ 3.8 ...30 VDC)	blue (0V ground)	black (output)	IP 66 when connected

### Sensor mount

A sensor mount (1) is required to attach the sensors. It is hooked into the upper slot on the Compact Module and secured with set screws (2).

The sensors are slid into the respective slot on the sensor mount and secured with set screws.

The square nut (3) with set screw serves as a positive stop for the sensor (switch position when changing sensors). Parts are included with the sensor mounting assembly.



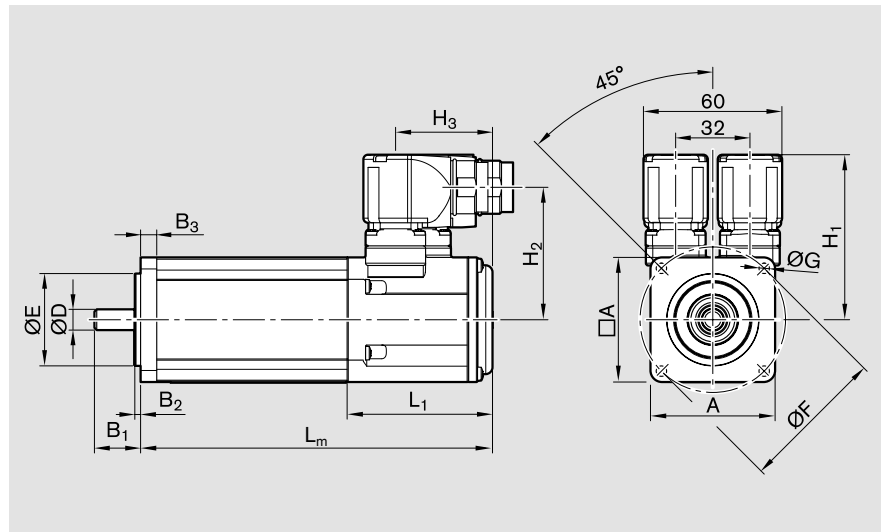
# Motors

## AC servo motors MSK

### Notes

All MSK motors have an absolute multi-turn encoder (Hyperface, 128 increments with 4096 revolutions).

The motors can be supplied complete with controller and control unit. For more information on motors, controllers and control systems, see Rexroth catalog "IndraDrive for Linear Motion Systems."



Motor	Dimensions (mm)													L <sub>m</sub>	L <sub>1</sub>
	A	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	ØD k6	ØE j6	ØF	ØG	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	w/o brake	with brake		
MSK 030C	54	20	2.5	7.0	9	40	63	4.5	71.5	57.4	42.0	188.0	213.0	-	
MSK 040C	82	30	2.5	8.0	14	50	95	6.6	83.5	69.0	31.0	185.5	215.5	42.5	
MSK 050C	98	40	3.0	9.0	19	95	115	9.0	85.5	71.0	43.5	203.0	233.0	55.5	

### Motor data

Description	Symbol	Unit	MSK030C-0900	MSK040C-0600	MSK050C-0600
Maximum usable speed	n <sub>max</sub>	(min <sup>-1</sup> )	9000	6000	6000
Maximum torque	M <sub>max</sub>	(Nm)	4	8.1	15
Rated torque	M <sub>N</sub>	(Nm)	0.8	2.7	5.0
Motor mass moment of inertia	J <sub>m</sub>	(10 <sup>-6</sup> kgm <sup>2</sup> )	30	140	330
Mass without brake	m <sub>m</sub>	(kg)	2.1	3.6	5.4
<b>Holding brake</b>					
Holding torque	M <sub>br</sub>	(Nm)	1.0	4.0	5.0
Brake mass moment of inertia	J <sub>br</sub>	(10 <sup>-6</sup> kgm <sup>2</sup> )	7	23	107
Mass of brake	m <sub>br</sub>	(kg)	0.25	0.32	0.7

eLINE Compact Modules – Freely Configurable

## Motors

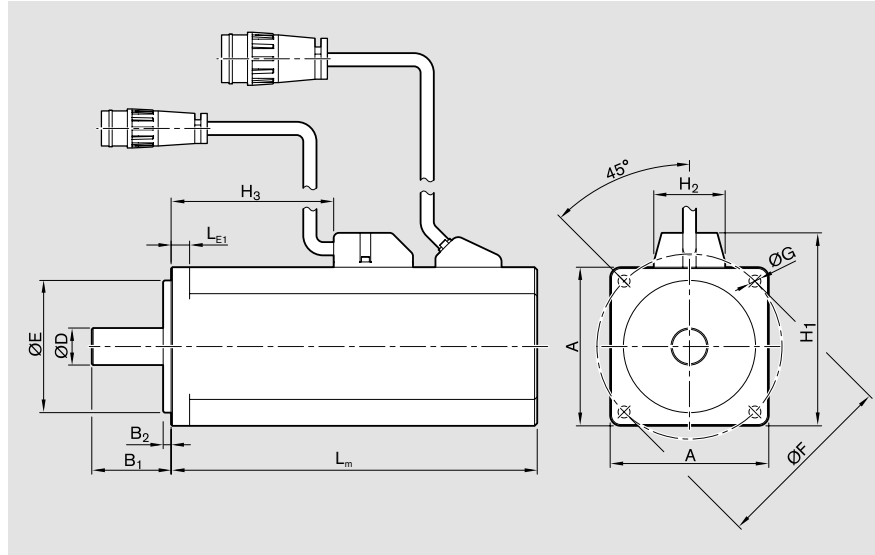
### AC servo motors MSM

#### Notes

All MSM motors have an absolute multi-turn encoder.

The motors can be supplied complete with controller and control unit.

For more information on motors, controllers and control systems, see the "ECODRIVE Cs" catalog.



Motor	Dimensions (mm)													
	A	B <sub>1</sub>	B <sub>2</sub>	L <sub>E1</sub>	ØD h6	ØE h7	ØF	ØG	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	without brake	L <sub>m</sub> with brake	
MSM 020B	42	24	2	7	8	22	48	3.4	55	27	38.8	109.0	140.0	
MSM 030B	60	30	3	7	11	50	70	4.5	73	27	34.0	111.0	144.0	

#### Motor data

Description	Symbol	Unit	MSM 020B	MSM 030B
Maximum usable speed	$n_{max}$	( $min^{-1}$ )	5000	5000
Maximum torque	$M_{max}$	(Nm)	0.95	1.91
Rated torque	$M_N$	(Nm)	0.32	0.64
Motor mass moment of inertia	$J_m$	( $10^{-6} kgm^2$ )	3.2	10.0
Mass without brake	$m_m$	(kg)	0.50	0.96
<b>Holding brake</b>				
Holding torque	$M_{br}$	(Nm)	0.29	1.27
Brake mass moment of inertia	$J_{br}$	( $10^{-6} kgm^2$ )	0.4	3.0
Mass of brake	$m_{br}$	(kg)	0.2	0.4

### 3-phase stepping motors VRDM

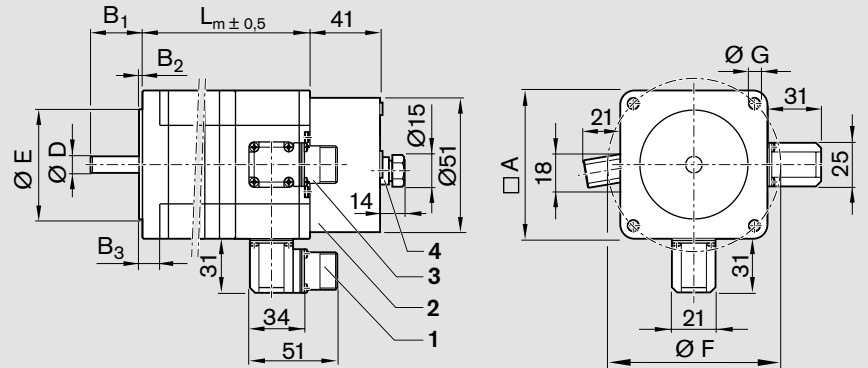
#### Notes

All VRDM motors are equipped with an encoder for rotation monitoring.

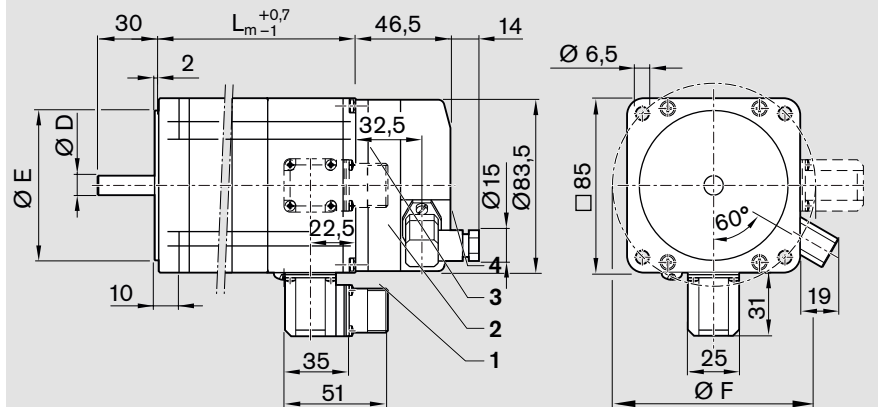
The motors can be delivered complete with controllers.

- 1 Motor connector
- 2 Brake
- 3 Encoder connector
- 4 Brake connector

**VRDM 368**



**VRDM 397  
VRDM 3910  
VRDM 3913**



Motor	Dimensions (mm)									L <sub>m</sub>	
	A	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	ØD	ØE	ØF	ØG	without brake	with brake	
<b>VRDM 368</b>	57.2	21	1.6	5	8 <sub>-0.013</sub>	38.1 <sub>±0.025</sub>	66.7	5.2	116.0	157.0	
<b>VRDM 397</b>	85.0	30	2.0	10	12 <sub>h6</sub>	60.0 <sub>h8</sub>	99.0	6.5	110.0	156.5	
<b>VRDM 3910</b>	85.0	30	2.0	10	12 <sub>h6</sub>	60.0 <sub>h8</sub>	99.0	6.5	140.0	186.5	
<b>VRDM 3913</b>	85.0	30	2.0	10	14 <sub>h6</sub>	60.0 <sub>h8</sub>	99.0	6.5	170.0	216.5	

#### Motor data

Description	Symbol	Unit	VRDM 368	VRDM 397	VRDM 3910	VRDM 3913
Maximum torque	M <sub>max</sub>	(Nm)	1.50	2.00	4.00	6.00
Motor mass moment of inertia	J <sub>m</sub>	(10 <sup>-6</sup> kgm <sup>2</sup> )	38	110	220	330
Motor holding torque	M <sub>m</sub>	(Nm)	1.74	2.26	4.52	6.78
Mass without brake	m <sub>m</sub>	(kg)	1.1	2.5	3.1	4.2
Step count	z	(-)	200 / 400 / 500 / 1000 / 2000 / 4000 / 5000 / 10000			
Stepping angle per step	α	(°)	1.8 / 0.9 / 0.72 / 0.36 / 0.18 / 0.09 / 0.072 / 0.036			
Encoder resolution			1000 increments/revolution			
<b>Holding brake</b>						
Brake holding torque	M <sub>br</sub>	(Nm)	1	6	6	6
Brake mass moment of inertia	J <sub>br</sub>	(10 <sup>-6</sup> kgm <sup>2</sup> )	1.6	20	20	20
Mass of brake	m <sub>br</sub>	(kg)	0.5	1.5	1.5	1.5

eLINE Compact Modules with Integrated Compact Drive

## Motors, Compact Drives, Version 1a and 1b

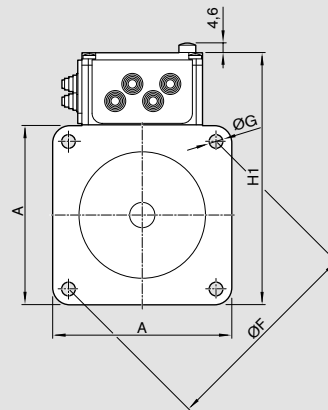
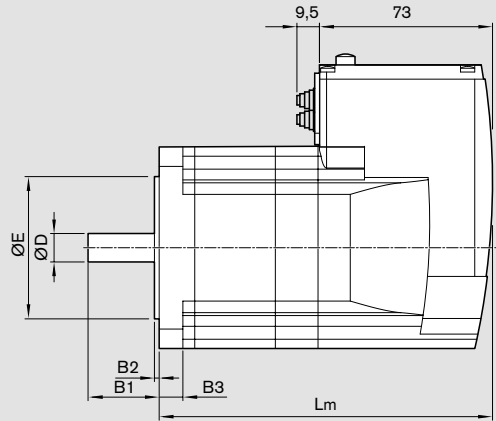
### Note

All compact drives have a missed-step detection feature. Missed steps are detected at the latest after one full motor revolution.

The motors are equipped with either of the following:

- integrated positioning data set control
- Profibus interface

The voltage supply for all compact drives is 24 V DC.



eCKK eCKR	Motor	Dimensions (mm)										without brake	L <sub>m</sub> with brake
		A	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	H <sub>1</sub>	ØD	ØE	ØF	ØG			
eCKK 90	ILS1X <sup>1)</sup> 527S	57.2	21	1.6	5	92.2	6.35 <sub>-0.013</sub>	38.1 <sub>±0.025</sub>	66.7	5.2	115.9	158.15	
eCKK 110	ILS1X <sup>1)</sup> 851S	85.0	30	2.0	10	119.6	12 <sub>h6</sub>	60.0 <sub>h8</sub>	99.0	6.5	140.6	187.3	
eCKR 90	ILS1X <sup>1)</sup> 851S	85.0	30	2.0	10	119.6	12 <sub>h6</sub>	60.0 <sub>h8</sub>	99.0	6.5	140.6	187.3	
eCKR 110	ILS1X <sup>1)</sup> 853S	85.0	30	2.0	10	119.6	14 <sub>h6</sub>	60.0 <sub>h8</sub>	99.0	6.5	200.6	247.3	

1) X = M for Version 1a (eLINE Compact Module with integrated compact drive with positioning data set control)

X = B for Version 1b (eLINE Compact Module with integrated compact drive with Profibus interface)

Description	Symbol	Unit	eCKK 90	eCKK 110	eCKR 90	eCKR 110
Maximum torque	M <sub>max</sub>	(Nm)	0.3	0.7	0.7	2.0
Maximum rotary speed at maximum torque	n <sub>max</sub>	(min <sup>-1</sup> )	3600	1800	1800	480
Motor mass moment of inertia	J <sub>m</sub>	(10 <sup>-6</sup> kgm <sup>2</sup> )	22	110	110	330
Motor holding torque	M <sub>m</sub>	(Nm)	0.3	0.7	0.7	2.0
Mass without brake	m <sub>m</sub>	(kg)	1.6	2.6	2.6	4.7
Step count	z	(-)	20 000			
Stepping angle per step	α	(°)	0.018			
Encoder resolution			-			
<b>Holding brake</b>						
Brake holding torque	M <sub>br</sub>	(Nm)	1.2	6.0	6.0	6.0
Brake mass moment of inertia	J <sub>br</sub>	(10 <sup>-6</sup> kgm <sup>2</sup> )	7.0	26.6	26.6	26.6
Mass of brake	m <sub>br</sub>	(kg)	0.2	1.8	1.8	1.8
Brake power rating	P	(W)	7.5	22.0	22.0	22.0