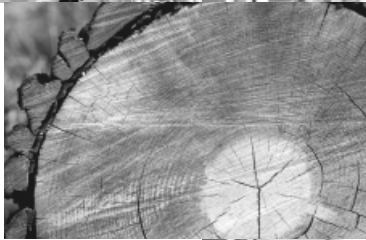
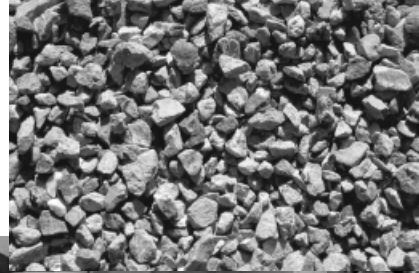


SLC Synchronous Linear Motors

Edition 05/2007

11575026 / EN

Operating Instructions





1	Important Information about the Operating Instructions	4
1.1	Explanation of symbols	6
2	Safety Notes	7
3	Product Description and Overview of Types	11
3.1	System environment	11
3.2	Type code	12
3.3	Nameplate.....	14
3.4	Scope of delivery for system components	15
4	Storage	16
4.1	Corrosion protection and storage conditions.....	16
4.2	Coating.....	17
4.3	Return delivery to SEW-EURODRIVE	17
5	Mechanical Installation	18
5.1	Installation tolerances	18
5.2	Installing the primary	20
5.3	Installation of secondaries	21
5.4	Installation of the NL16 measuring system	22
6	Electrical installation	23
6.1	Electrical connection	23
6.2	Pre-fabricated cables	24
7	Startup.....	26
7.1	Prerequisites for startup	26
7.2	Startup procedure	27
8	Malfunctions	29
9	Inspection and Maintenance	30
9.1	General maintenance work	30
10	Technical Data	31
10.1	Motor data	31
10.2	Mounting dimensions	32
10.3	MOVIDRIVE® compact part numbers	37
10.4	NL16 measuring system technical data	38



1 Important Information about the Operating Instructions

Integral part of the product

The operating instructions are an integral part of the SLC synchronous linear motors and contain important information about operation and service. The operating instructions are written for all assembly, installation, startup and service staff who are involved in the installation and maintenance of SLC synchronous linear motors.

Designated use



SLC series linear motors are motors for industrial and commercial systems. Motor utilization other than that specified and areas of application other than industrial and commercial systems can only be used after consultation with SEW-EURODRIVE.

Do not operate the unit until you have ensured that the machine complies with the Low Voltage Directive 73/23/EEC and that the conformity of the end product has been determined to comply with the Machinery Directive 98/37/EC.

Technical data and information about permissible conditions can be found on the nameplate and in the documentation.

All the specified information must be observed.

Operating environment



The following uses are prohibited unless the unit is expressly designed for the purpose or conditions specified:

- Use in potentially explosive areas.
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation. Please contact SEW-EURODRIVE if you have any questions on the environmental conditions.
- Use in non-stationary applications that are subject to mechanical vibration and impact loads in excess of the requirement of EN 50178.

Safety functions



SLC series linear motors may not perform any safety functions without higher-level safety systems.

Use higher-level safety systems to ensure protection of equipment and personnel.



Qualified personnel

SLC linear motors represent a potential hazard for persons and property. Consequently, assembly, installation, startup and service work may only be performed by trained staff who are aware of the potential hazards.

Staff must be appropriately qualified for the task in hand and be familiar with the assembly, installation, startup and operation of the product. Staff must read the operating instructions, in particular the safety notes section, carefully and ensure that they understand and comply with them.

Liability for defects

Incorrect handling or any action performed that is not specified in these operating instructions could impair the properties of the product. In this case, you lose any right to claim under warranty against SEW-EURODRIVE GmbH & Co KG.

Product names and trademarks

The brands and product names contained in these operating instructions are trademarks or registered trademarks of the titleholders.

Disassembly and disposal








- Local regulations apply concerning recycling the operator terminal or parts of it.
- Note that the following components contain substances that may represent a health hazard and cause environmental pollution: Lithium battery, electrolyte condensers and display.



1.1 Explanation of symbols

The operating instructions contain important information that deals with general and operational safety. This information is emphasized in particular with the following symbols.

	<p>Hazard</p> <p>Indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>Warning</p> <p>Indicates a potentially hazardous situation which, if not avoided, could result in minor injuries. You will also find this symbol to indicate a potential risk of damage to property.</p>
	<p>Caution</p> <p>Indicates a potentially hazardous situation which, if not avoided, may result in damage to products or the surrounding area.</p>
	<p>Note</p> <p>Indicates a reference to applications, for example for installation, and other useful information.</p>
	<p>Documentation reference</p> <p>SEW-EURODRIVE GmbH & Co KG makes a reference to existing documentation, such as operating instructions, catalog or data sheet.</p>



As a prerequisite for fault-free operation and fulfillment of warranty claims, you must adhere to the information in the operating instructions. You must therefore read the operating instructions before you start operating the drive.

The operating instructions contain important information about servicing and should therefore be kept close to the unit.



2 Safety Notes

Preliminary information

Due to the strong permanent magnets installed in the secondaries of the SLC linear motors, the following safety regulations must be observed.



Work must not be carried out by persons with cardiac pacemakers.

The strong magnetic fields and the associated high ferromagnetic attraction forces can be directly harmful to your health, for example for persons with cardiac pacemakers, or indirectly as a result of fast motor movements and high thrust forces.

Based on current medical knowledge, magnetic fields with a flux density of < 5 mT have no effect on the human body.



Hazard caused by magnetic field

Even at a distance of 100 mm (3.9 in), the magnetic flux density of the secondaries present is < 2 mT (at 150 mm (5.9 in) < 1 mT). Since the magnetic flux density in SLC linear motors is generated exclusively by the magnetic fields of the secondaries, this value is independent from the operating status of the linear motor.

Special caution needs to be the rule in close proximity (distances < 100 mm (3.9 in)) to the secondaries due to the high attraction forces. Magnetic forces are often underestimated since they are not visible.

Magnetic attraction forces often arise abruptly in the immediate proximity range and can grow in excess of several 100 kg (220 lb) for medium-sized objects.

Also consider the supplementary safety notes in the individual sections of these operating instructions.

General



Burns hazard

Touching the linear motors when they have not cooled down could result in burns. SLC linear motors can have a surface temperature of over 100 °C (212 °F).

To prevent burns:

- Never touch the SLC linear motor during operation or in the cool down phase once it has been switched off.



Safety Notes

Explanation of symbols

All work related to transport, storage, setting up/mounting, connection, startup, maintenance and repair is to be carried out by trained staff only. Note the following important points.



- Pay attention to the danger and safety signs on the SLC linear motor.
- Do not lead any metallic objects that are heavy ($> 1 \text{ kg}$ (2.2 lb)) or have a wide surface ($> 1 \text{ dm}^2$ (15.5 sq. in)) to the secondary with unprotected hands to the secondary.
- Have at least two pointed wedges made of firm, non-magnetic material – e.g. brass or stainless steel (edge angle approx. $10^\circ - 15^\circ$) and a hammer ready to separate the adhering magnetic parts. If necessary, e.g. if mounting space is limited, customized installation appliances should be used to facilitate and safeguard work. To free parts of the body that have been trapped, separate adhering parts by driving the prepared pointed wedges (made of stable, non-magnetic material) into the separation gap.
- Keep watches and magnetizable data carriers (such as credit cards, disks, etc.) away from close proximity ($< 100 \text{ mm}$ (3.9 in)) of the SLC synchronous linear motors.
- Note the system-specific guidelines and requirements.
- Note the national/regional regulations governing safety and the prevention of accidents.



Serious injuries and property damage may result from:

- Non-designated use
- Incorrect installation or operation
- Unauthorized removal of necessary protection covers or housing

Transportation/ storage

Immediately upon receipt, inspect the shipment for any damage that may have occurred during transportation. Inform the shipping company immediately. It may be necessary to preclude startup.

Use suitable means of transport with adequate space if necessary. Remove securing devices used for transportation prior to startup.

Follow the instructions in the "Notes on transportation" section.

- Mark the storage locations of secondaries ("Caution! Strong magnetic fields", symbols).
- Never store secondaries unpacked; use non-magnetic packaging material with a thickness of at least 2 cm (0.79 in) on the magnetic side.
- Observe the warning instructions on the packaging.
- Keep storage area dry.
- Protect storage sites from heat.
- For transportation of machines or components with primaries or secondaries already installed on travel axle/axles: Lock the axle/axles to prevent accidental movement (due to missing self-locking mechanism).

Follow the instructions in the "Transportation and storage" section.



**Installation /
assembly**



Hazard caused by magnetic field

- Never place secondaries on metal.
- Never place a primary directly on a secondary.
- Hold the tools firmly (with both hands). Slowly guide the tools to the secondary.
- Wear work gloves during installation.
- Do not remove the packaging of the secondary until directly before it is installed.
- Carry out installation work in pairs only.
- Cover already installed secondaries with at least 2 cm (0.79 in) of non-magnetic material (e.g. wood) during installation.
- Use customized installation appliances to facilitate and safeguard work, if necessary (e.g. if mounting space is limited).
- Make sure that the primary is grounded according to regulations with the PE grounding bar in the control cabinet as a reference potential.

Please attach the enclosed warning sign in a prominent position or in the vicinity of the secondaries installed.

Follow the instructions in the "Mechanical Installation" section.

Startup

- Never work in the travel range when the machine is switched on.
- Ensure free axle travel.
- Check the final positions.
- Check the linear measuring system prior to turning on the machine.
- Limit the maximum power in the servo controller.
- Set the velocity limits in the servo controller to small values.

Follow the instructions in the "Startup" section.



Safety Notes

Explanation of symbols

Operation and inspection/maintenance



Danger of electric shock

Induced voltages of up to 500 V can be generated by movement of the primary (generator principle) even if the motor is not connected.

Only remove the protection cap on the power plug of the primary immediately before connecting the power plug to the power supply.

To prevent electric shocks:

- **After separating the servo controller from the supply voltage, wait for at least five minutes before you touch any live parts (e.g. contacts, thread bolts) or loosen connections. Measure the voltage on the DC link and wait until the voltage has dropped below 40 V.**
- Keep motor area free from chips.
- Listen out for and note any noises.
- The motors may have a surface temperature of 100 °C (212 °F) during operation. Wait until the motor has cooled down to 40 °C (104 °F) before touching it.
- Power connections can conduct voltages even if the motor is not turning. Never disconnect electrical connections of motors while they are energized.
- Wear work gloves when carrying out maintenance and repair work.
- Ensure safe disconnection from the voltage supply before working on the machine.
- Never work in the travel range when the machine is switched on.
- Remove any chips from the motor area on a regular basis.

Follow the instructions in the "Startup" and "Maintenance" sections.

Actions and immediate measures in case of ACCIDENTS

- If the machine is connected to the power supply system, press the EMERGENCY OFF button immediately.
- Request first aid immediately.
- You need the tools mentioned previously to free body parts jammed in between two secondaries or a secondary and a ferromagnetic component (e.g. steel plate, steel carrier, machine bed, tool). Separate the components at the separation gap using the pointed wedge.

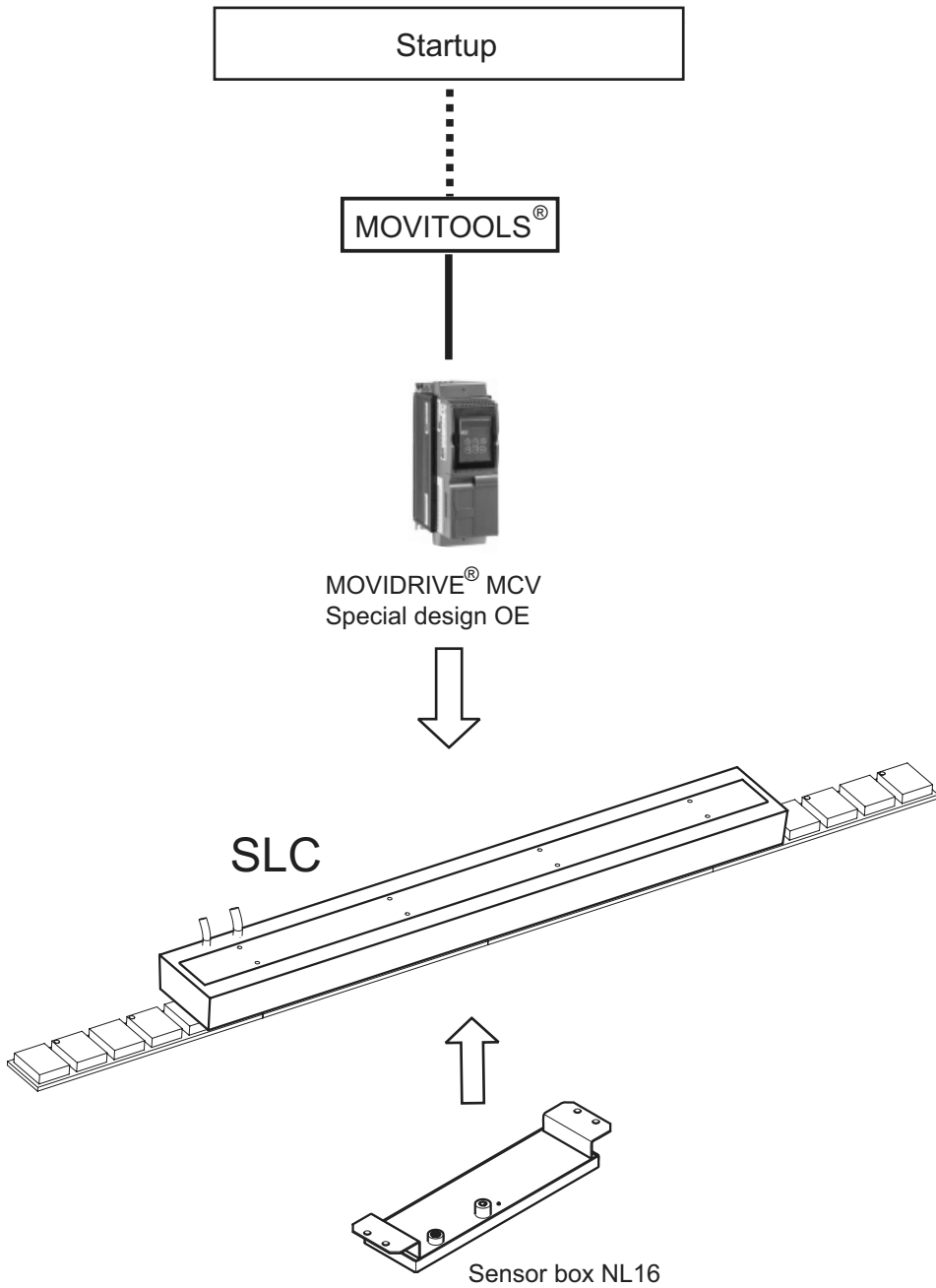


The magnetic forces are always present regardless of the operating status of the system.



3 Product Description and Overview of Types

3.1 System environment



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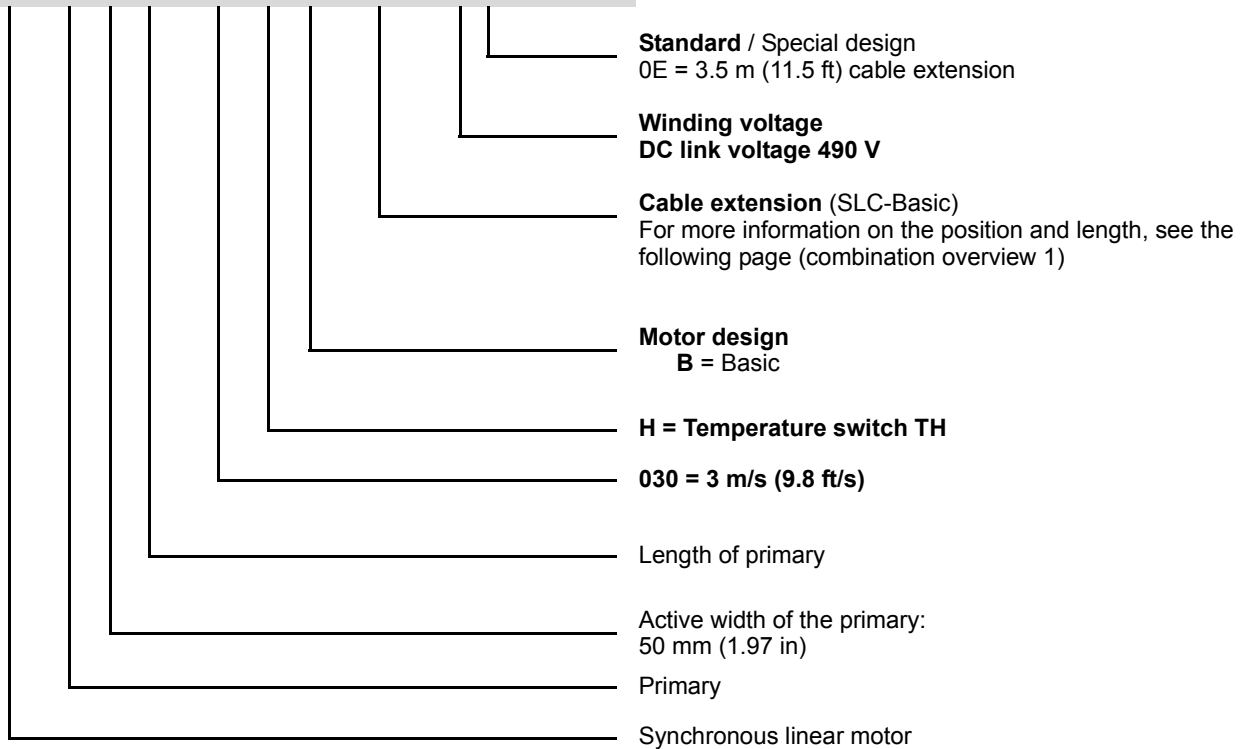


3.2 Type code

The following example shows the type code structure.

Primary

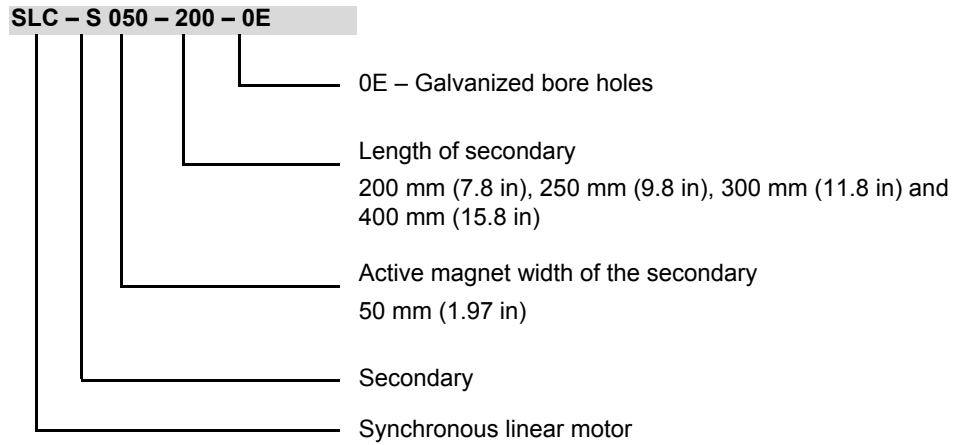
SLC - P 050 M - 030 - H - B - KVZ1 - 490 0E



The standard design appears in bold.

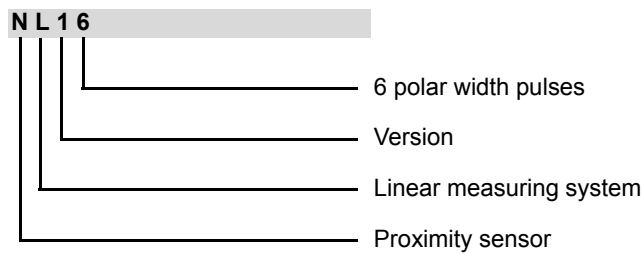


Secondary



Sensor box

In combination with MOVIDRIVE® MCV special design 0E:



The standard design appears in bold.



3.3 Nameplate

A label is attached to the primary to show the following technical data:

Nameplate SLC

SEW-EURODRIVE		CE	
76646 Bruchsal/Germany			
Type	SLC-P050M-030-H-B-KVZ1-490-00		
No.			
F_{peak}	400 N	I_{peak}	4.7 A kg 12.5
F_1	N	I_1	A IP 65
F_N	200 N	I_N	2.4 A
k_e	vs/m	k_f	84 N/A
R_{U-V}	26 Ω	L_{U-V}	162 mH
U	490 V _{DC}	Ins.Cl.	F
V_N	2.5 m/s	Part-No.	133333224
13327836		Made in Germany	

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Type	=	Type code
No.	=	Customer order number
F_{Peak}	=	Peak force
F_1	=	Maximum force available up to v_1
F_N	=	Permanent force
k_e	=	Voltage constant
R_{U-V}	=	Winding resistance
U	=	Voltage
V_N	=	Velocity up to which the rated force is available
I_{PEAK}	=	Maximum current
I_1	=	Current at F_1
I_N	=	Rated current
k_f	=	Force factor
L_{U-V}	=	Inductance
Ins.Cl.	=	Insulating material class
Part no.	=	Part number
kg	=	Mass
IP	=	Enclosure



3.4 Scope of delivery for system components

The scope of delivery for SLC linear motors comprises:

- Primaries
- Secondaries with permanent magnets
- Control and regulation systems such as MOVIDRIVE®
- Linear measuring system

**Not included
in the scope
of delivery:**



- Linear guide systems
- Linear measuring systems NL16
- Cable carriers
- Brake systems
- Buffers / shock absorbers

**4 Storage**

You must strictly observe the safety instructions in the previous sections.

4.1 Corrosion protection and storage conditions

The motor parts are protected against corrosion for five years in closed original packaging.

Observe the following storage conditions for the linear motors:

- Store the linear motors inside
- Keep storage area clean and dry
- Maintain a storage temperature between -5 °C (23 °F) and +70 °C (158 °F)
- Relative humidity not to exceed 95 %
- Original packaging must be free from damages

When storing unpacked secondaries, display the following warning labels at the storage location:

- Warning



- Magnetic





4.2 Coating

Primary The primaries are treated with an anti-corrosion coating OS1.

Secondary The mounting platform of the secondaries is electrogalvanized. The thickness of the coating is 20..25 μm (0.79 .. 0.98 mil).

4.3 Return delivery to SEW-EURODRIVE



Cover the magnetic side of the secondaries with a wooden board/packaging material of thickness 1 cm (0.39 in) over the entire surface and connect.

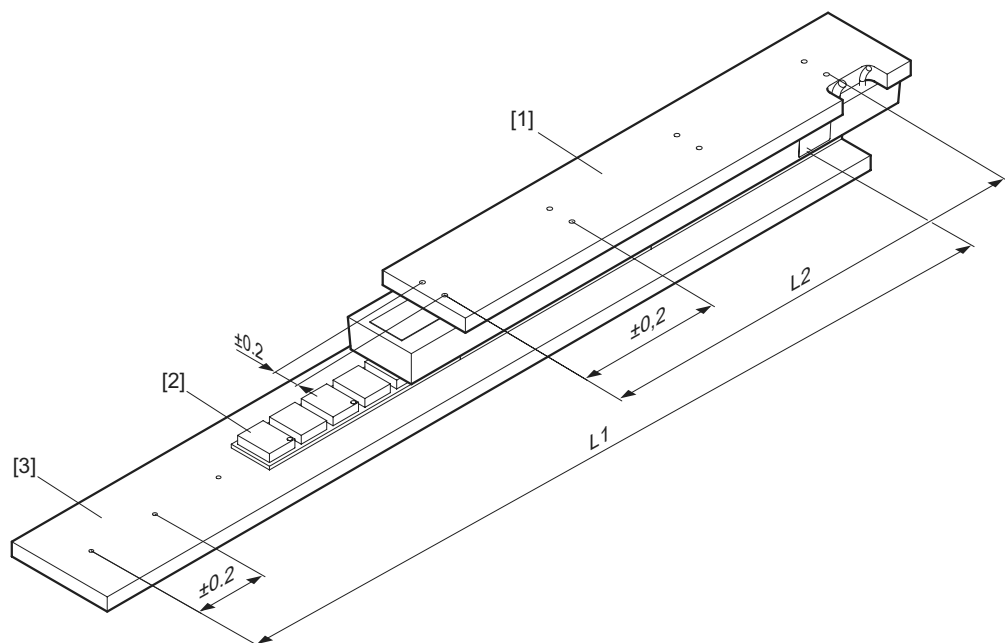


5 Mechanical Installation



You must strictly observe the safety instructions in the previous sections.

5.1 Installation tolerances



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[1] Installation of primary

with reference to the largest primary, max. deflection length 0.3 mm (0.01 in) / width 0.1 mm (0.004 in)

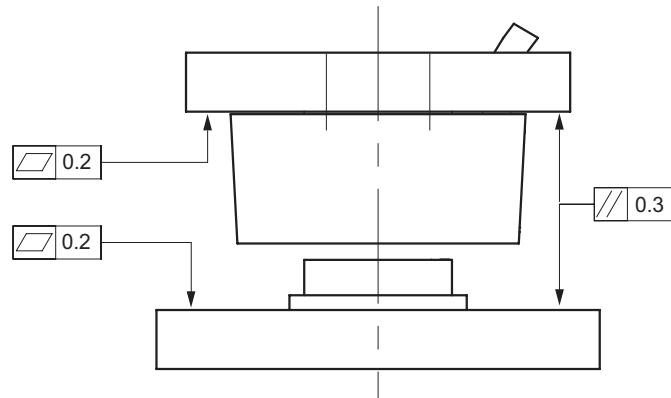
[2] Secondary

with reference to 400 mm (15.8 in) length, max. deflection 0.1 mm (0.004 in)

[3] Installation of secondary

[L1] ± 0.3 mm (0.01 in) with reference to the total length of the secondary

[L2] ± 0.2 mm (0.008 in) with reference to the total length of the primary



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- [1] Installation of primary (mounting plate)
- [2] Installation of secondary (basic body, e. g machine base)

Shape and position tolerances in reference to 1000 mm (39.4 in) length

Adhering to shape and position tolerances is necessary for the functionality of the linear motor. These accuracies are sufficient for the functionality of the NL16 encoder system.

These shape and position tolerances will have to be observed in operating mode at steady-state temperature of the linear motor. You will also have to take into consideration the influence of the loads applied by the customer.



5.2 Installing the primary

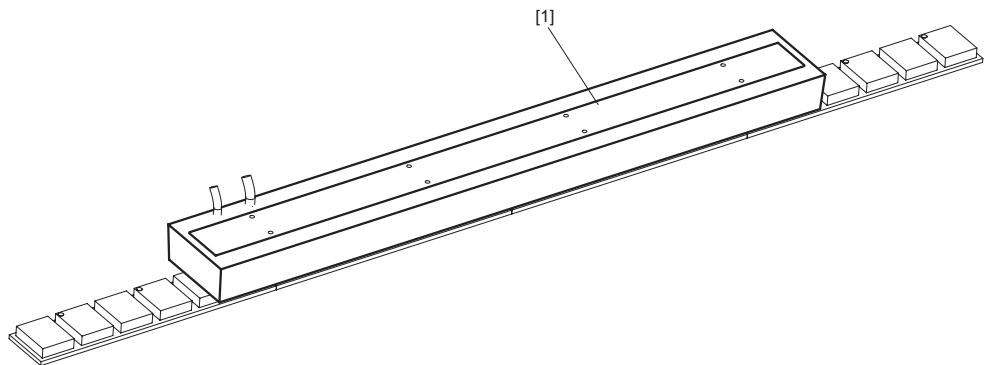
Before you begin: Check that

- the information on the nameplate of the drive and/or the output voltage of the servo controller match the voltage supply system
- the drive is undamaged (no damage caused by transportation or storage)
- it is certain that the following requirements have been fulfilled:
 - ambient temperature between +5 °C (41 °F) and +40 °C (104 °F)¹⁾
 - no oil, acid, gas, vapors, radiation, etc.
 - installation altitude max. 1000 m (3281 ft) above sea level¹⁾



Start with the installation of the primary. Install the secondaries once all other installation work has been completed, immediately prior to startup of the drive. Observe the safety notes about handling the secondaries (see section 2).

Preparing the primary for installation



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Mounting surfaces [1]:

The mounting surfaces of the primary were treated with an anti-corrosion agent at the factory. Before installing the surface, wipe the surface with a lint free cloth to remove any dust, dirt, etc. clinging to the surface.

Retaining screws:

Use **all** M6 threaded holes in the mounting surface for retaining purposes. Use screws of size M6, strength class 8.8 or higher. The minimum depth of engagement is 6 mm. The tightening torque is always 6 Nm (53 in-lb) and may not be exceeded, even with screws of a higher strength class.

1) Observe the derating data in section 4.9 of the catalog.



5.3 Installation of secondaries

Preparing the secondaries for installation

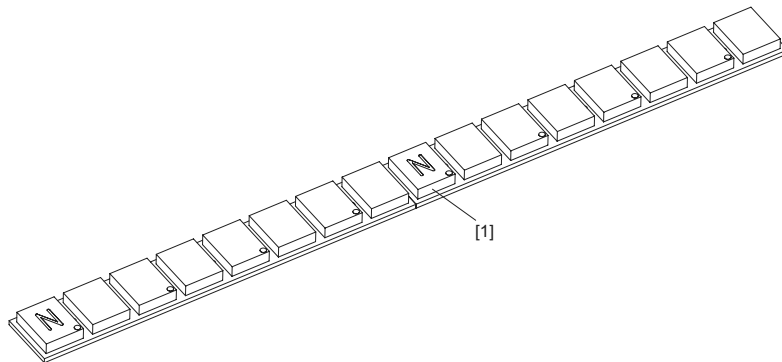


Caution: Do not unpack parts until you are ready for installation.

Installation of secondaries



Install the first part at one end of the travel section and work your way down in one direction. The orientation of the first part can be random. The adjoining part will have the same orientation. The north [1] pole is marked on the secondaries (→ see figure below). You can combine secondaries of different lengths.



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[1] North pole

Move primary over secondaries by hand prior to startup of drive to check for unhindered operation.

Use non-magnetic testing devices, such as feeler gauges made of stainless steel, aluminum, brass or copper sheets if you are planning to check the visible air gap.



Induced voltages of up to 500 V can be generated by movement of the primary (generator principle) even if the motor is not connected.

Only remove the protection cap on the power plug of the primary immediately before connecting the power plug to the power supply.



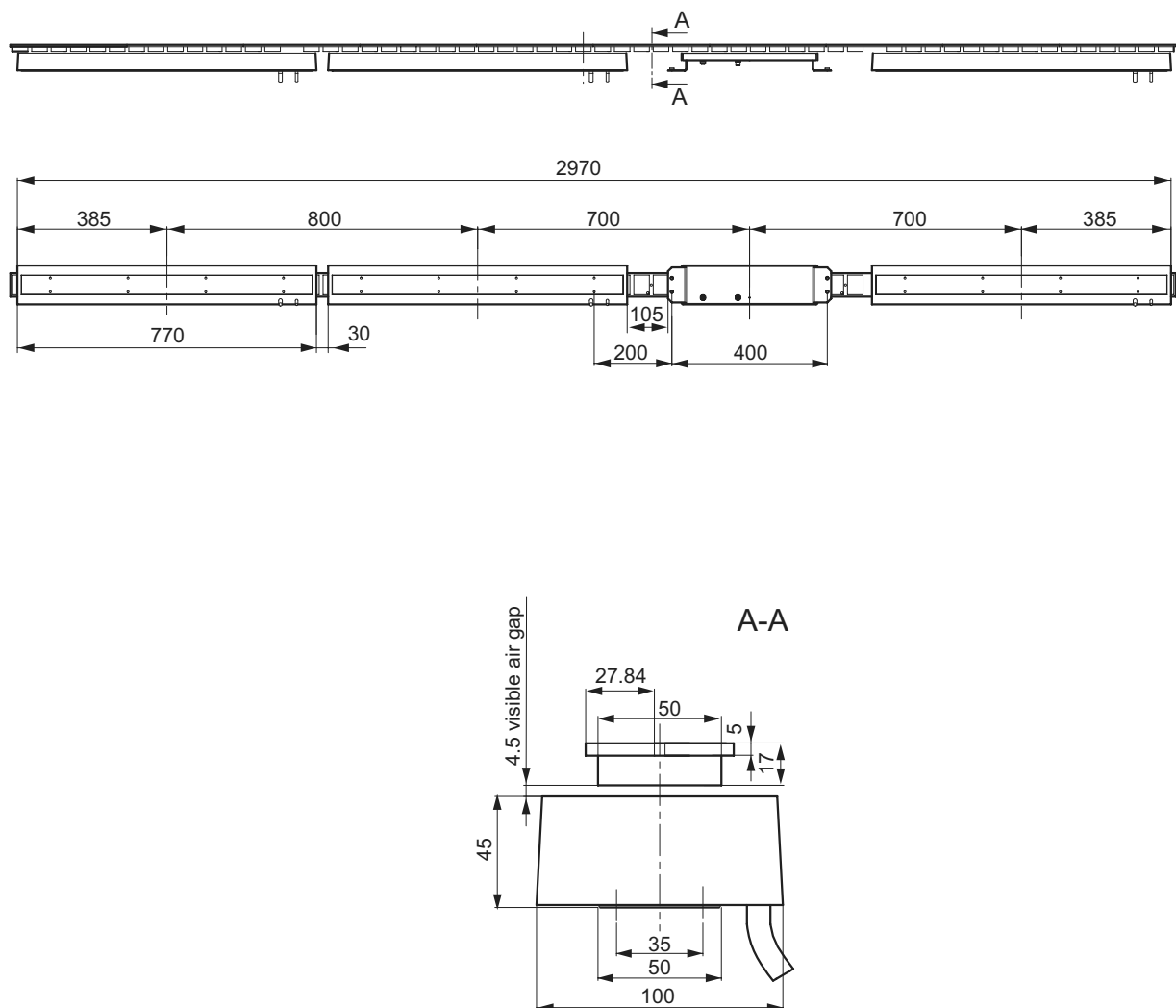
5.4 Installation of the NL16 measuring system

The NL16 measuring system is screwed to a carrier plate with 4 screws. When designing the motor it was ensured that the SLC-P050M-030, for example, has the same height as the NL16 so that both can be directly mounted on the same carrier plate.

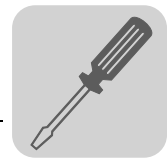
For the motor to be commutated and energized in the correct phases, the measuring system must be mounted according to the distances and orientation displayed in the figure.

Observe the following tolerances when installing:

- Nominal clearance: 4.5 mm (0.18 in)
- Misalignment at the sides at right angles to the direction of travel: Center +/- 0.5 mm (0.02 in)
- Distance from center of NL16 to center of SLC-P: 700 mm (27.56 in) + (1....n x 100 mm (3.94 in)) +/- 1 mm (0.04 in)



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6 Electrical installation



You must strictly observe the safety instructions in the previous sections.

Observe the wiring instructions issued by the manufacturer of the servo controller in case motors are powered by inverters. It is essential to observe the operating instructions for the servo controller.



A bag containing the following information is attached to the motor:

- Safety Notes

You must comply with this information.

6.1 Electrical connection



The current carrying capacity only applies to a standard cable length of 1 m (3.28 ft).

Project planning for cable cross-section of the power cable

Cable dimensioning in accordance with EN 60402

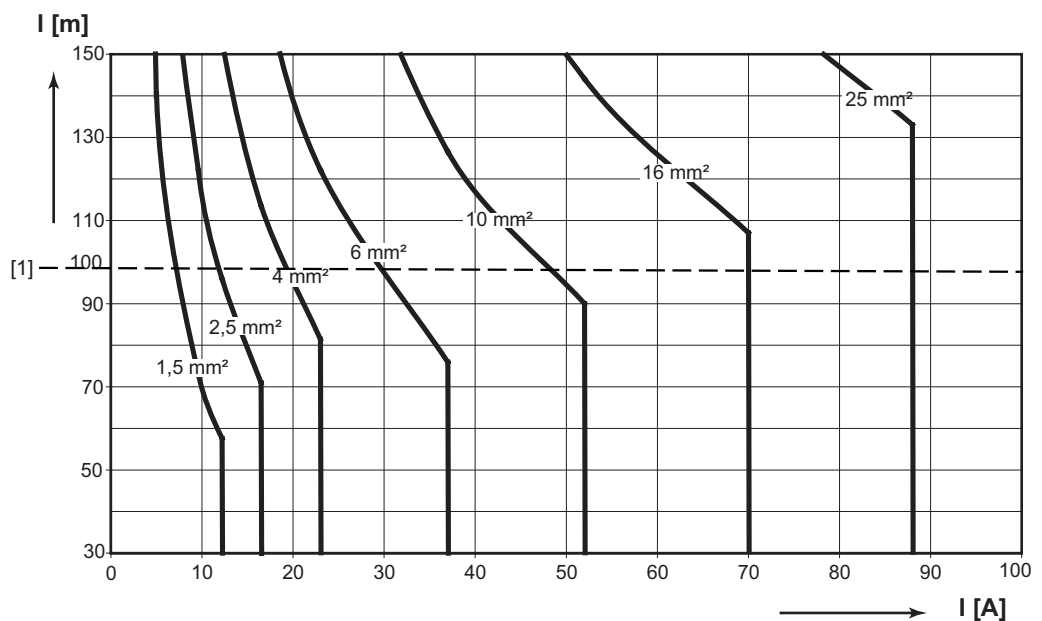


Fig. 1: Minimum required cable cross-section depending on cable length l [m] and current I [A] 55258AXX

[1] Max. permitted cable length according to SEW specification = 100 m (328 ft)

The diagram (see above) is used as the basis for cable assignment (see following pages).

Hybrid cables with cross-sections of 1.5 mm² to 10 mm² can be ordered from SEW-EURODRIVE.



Cable load through current I in [A] according to EN 60204-1 table 5, ambient temperature 40 °C (104 °F)

Cable cross-section [mm ²]	Three-core sheathed cable in pipe or cable [A]	Three-core sheathed cable on top of one another on wall [A]	Three-core sheathed cable next to one another [A]
1.5	12,2	15.2	16.1
2.5	16.5	21.0	22
4	23	28.0	30
6	29	36.0	37
10	40	50.0	52
16	53	66.0	70
25	67	84.0	88
35	83	104.0	114

These are only recommended values and **are no substitute for the detailed project planning** of the cables depending on the actual application usage under observance of the applicable regulations.

Safety notes

EMC measures

The designated use of SEW-EURODRIVE synchronous linear motors is as components for installation in machinery and systems. The designer of the machine or system is responsible for complying with the EMC directive 89/336/EEC. For more detailed information on this subject, refer to the SEW publications:

"Drive Engineering – Practical Implementation, Volume 7, Project Planning for Drives" and in "Drive Engineering – Practical Implementation, Volume 9, EMC in Drive Engineering".

Encoder connection

Observe the following instructions when connecting an encoder:

- Use a shielded cable with twisted pair conductors only.
- Connect the shield to the PE potential on both ends over a large surface area.
- Install signal cables separately from power cables or brake cables (min. distance 200 mm [7.87 in]).

6.2 Pre-fabricated cables



The cables also have low capacitive characteristics for operation on the inverter.

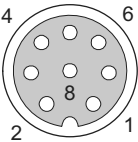
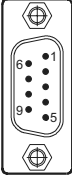
NL16 feedback cable

SEW-EURODRIVE does not offer a feedback cable for the linear measuring system. The cable must be pre-fabricated by the operator with an M12 actuator/sensor cable and a 15-pin SUB-D connector.



Cable for NL16 encoder

Cable pin assignment for feedback cables

Encoder end				MOVIDRIVE® MCV connection	
Plug connector	Contact no.	Description	Description	Contact no.	Plug connector
ASTA021FR 198 921 9 12-pin with socket contacts 	1	A	A	1	Sub-D 9-pin MCV X15 
	2	B	B	2	
	3	C	C	3	
	4	GND	GND	5	
	5	/A	/A	6	
	6	/B	/B	7	
	7	/C	/C	8	
	8	24 V	24 V	9	
		Unassigned	Unassigned	4	



7 Startup

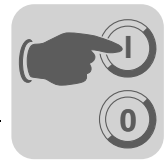
7.1 Prerequisites for startup



You must strictly observe the safety instructions in the previous sections.

***Before startup,
make sure that***

- The primary moves along the entire travel distance easily, without collisions and free from mechanical contact between the primary and secondary
- All connections have been made properly
- All protection devices have been installed correctly
- All motor protection devices are active
- The brake works correctly in hoists
- You have a MOVIDRIVE[®] MCV with the -0E special design
- There are no other sources of danger present
- The MOVITOOLS[®] startup software is installed on your PC



7.2 Startup procedure

- Parameter setting**
1. Make sure that the -0E special design servo controller is in controller inhibit mode or 24V operation mode.
 2. Using the factory setting, perform a startup for a CM servomotor, for which the continuous static current corresponds to the sum of the rated currents of all SLC motors used in parallel on Movidrive. The following must also be set for startup:
 - Temperature sensor is not connected (the TH sensor must be evaluated separately in a PLC)
 - Torque control operating mode
 - Current limitation P303 to the total maximum current of all SLC motors
 - Stiffness, controller parameters and ramp times are not in effect in torque control operating mode
 3. Terminate motor startup with download.
 4. Set the current controller index 8663 according to the formula
 Index 8663 = L[mH] x rated unit current x MDX factor, where
 MDX factor = 0.02 for MDX = size 0
 = 0.016 for MDX > size 0
 5. Set the scale of the actual speed value (optional) to:
 P850 = 1, P851 = 200, P852 = m/s. (1 m/s = 200 rpm)
 The setting does not have any effect on the functionality.

**Check the
encoder
evaluation**

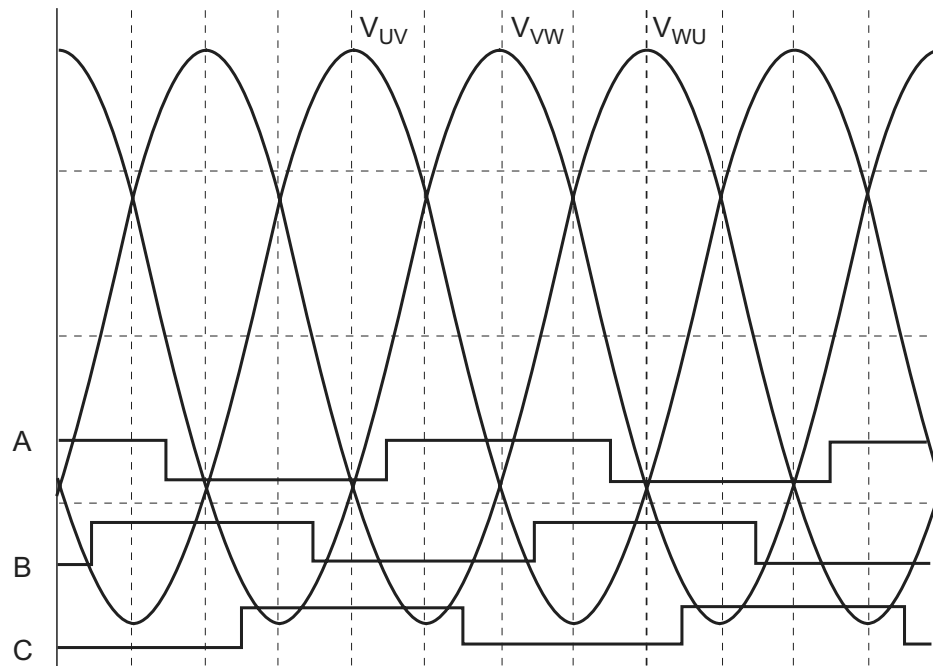
Manually move the primary in one direction and observe parameter P003 (actual position) in the MOVITOOLS shell. Determine the positive direction of movement. Check that you measure 6 increments for a travel distance of 100 mm (3.94 in).



Axle movement

Check the limit switch is functioning correctly for axles with end limits. Move the axle with reduced torque setpoint.

If the axles do not move in a positive direction in a controlled manner when torque is in a positive direction of rotation, check that the correct motor phases have been assigned to the encoder signals. In extreme cases, you can push the motor in the positive direction and, using the oscilloscope, record the line voltage between U and V and the C track signal. The relationship between the two is shown in the following figure. The zero passage in the positive direction of the line voltage U-V must coincide with the rising edge of the C track. (Note: The motor does not perform any commutation travel.)



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8 Malfunctions



You must strictly observe the safety instructions in the previous sections.

The servo controller reports malfunctions depending on type via diagnostic LEDs or a 7-segment display and a fault code. Consult the system manual or the operating instructions for the respective MOVIDRIVE® for troubleshooting.



9 Inspection and Maintenance



You must strictly observe the safety instructions in the previous sections.



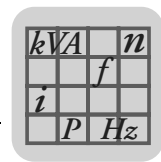
- Use only genuine spare parts in accordance with the applicable spare parts list.
- Motors can become very hot during operation - danger of burns!
- Disconnect the linear motor from the power supply before starting work and protect it against unintentional re-start.

9.1 *General maintenance work*

The primaries and secondaries are maintenance-free and cannot be repaired. Replace defective parts.

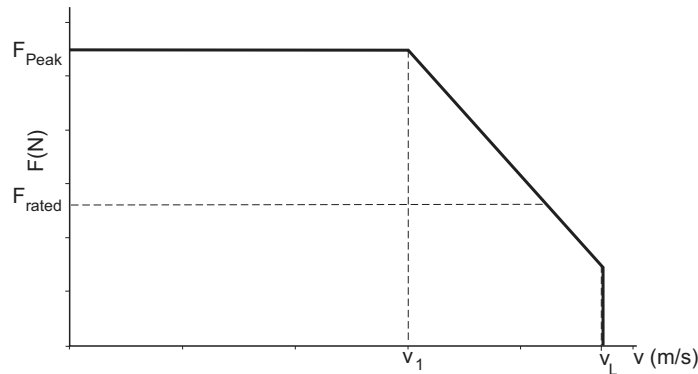
Remove any traces of dirt, chips, dust, etc. from the secondaries with a soft cloth.

Note that mobile cables are subject to wear. They have to be checked for external changes on a regular basis.



10 Technical Data

10.1 Motor data



61739AEN

Fig. 2: Characteristics curve

- [1] = Dynamic limit forces
- [2] = Thermal limit forces
- F_{rated} = Permanent force

when mounting to a horizontal aluminum cooling surface with

- four times primary flange surface
- 10 mm (0.39 in) thickness
- an ambient temperature of up to 40 °C (104 °F)
- an installation altitude of up to 1000 m (3280 ft)

- F_{Peak} = Maximum force
- v_L = Theoretical maximum traveling velocity
- v_1 = Velocity up to which the force F_1 is available
- I_{rated} = Rated current
- I_{Peak} = Maximum current
- F_D = Force through magnetic attraction for 4.5 mm (0.18 in) nominal clearance

Motor type ¹⁾	Force			Speed		Current		Cable cross-section [mm (in)]	Phase inductance [mH]	Resistance [Ω]
	F_{Peak} [N] ([lbf])	F_{rated} [N] ([lbf])	F_D [N] ([lbf])	v_1 [m/s] ([ft/s])	v_L [m/s] ([ft/s])	I_{Peak} [A]	I_{rated} [A]			
SLC-050M	400 (89.92)	200 (44.96)	480 (107.91)	2.5 (8.20)	5.0 (16.40)	4.7	2.35	3 x 1.5 (3 x 0.06)	162	26

1) All data provided are string values (semi-conductor values)

Electrical values refer to sine-shaped commutation and are indicated as effective values or refer to them.

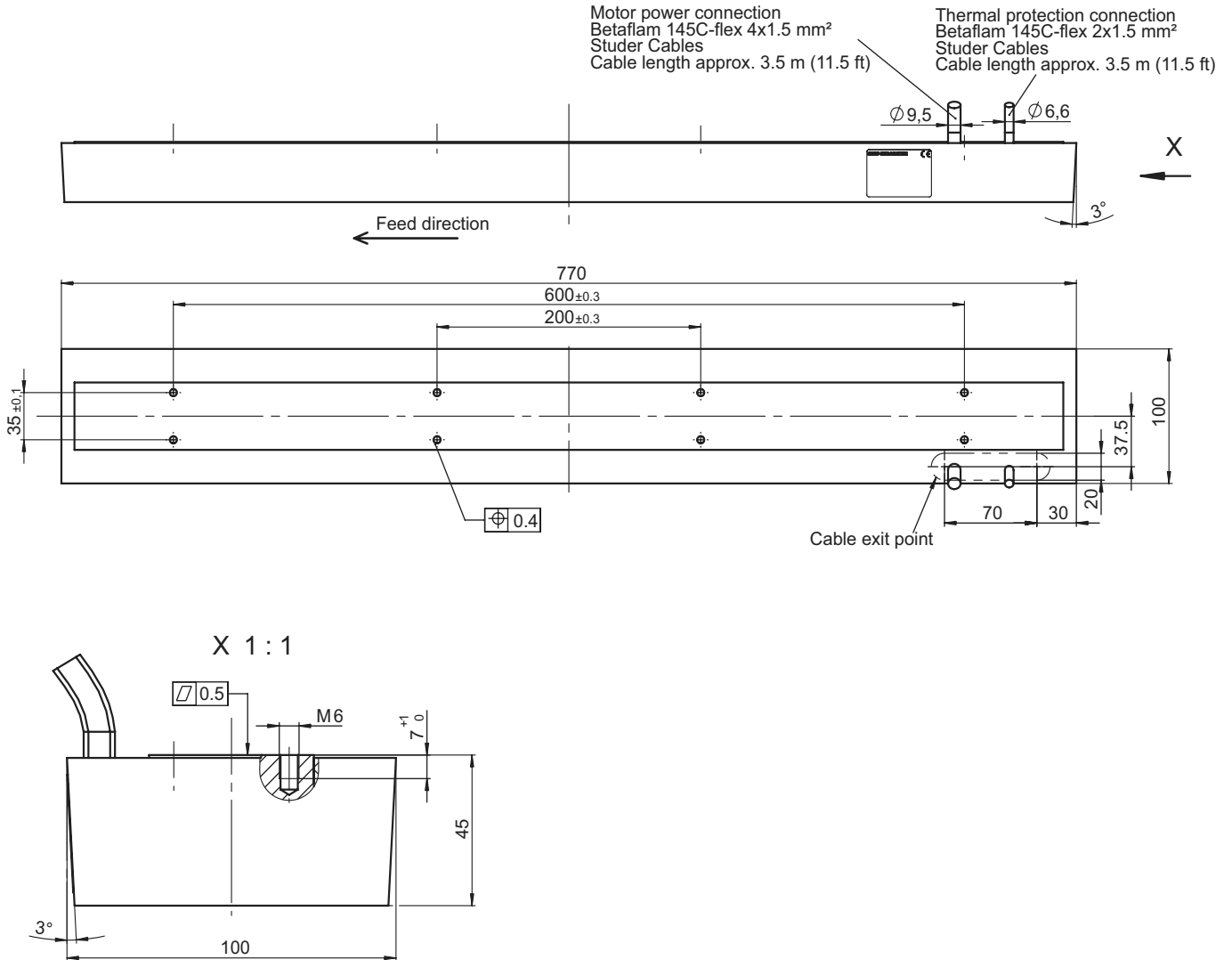


For inverter assignment, see section 10.4.

kVA	n
f	
i	
P	H_z

10.2 Mounting dimensions

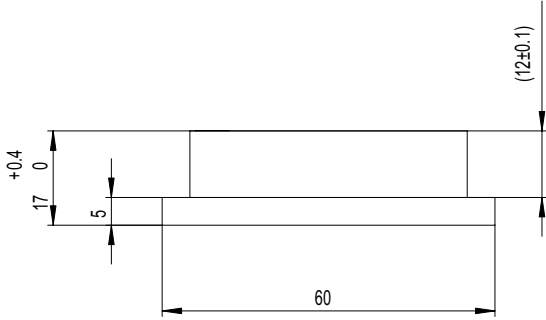
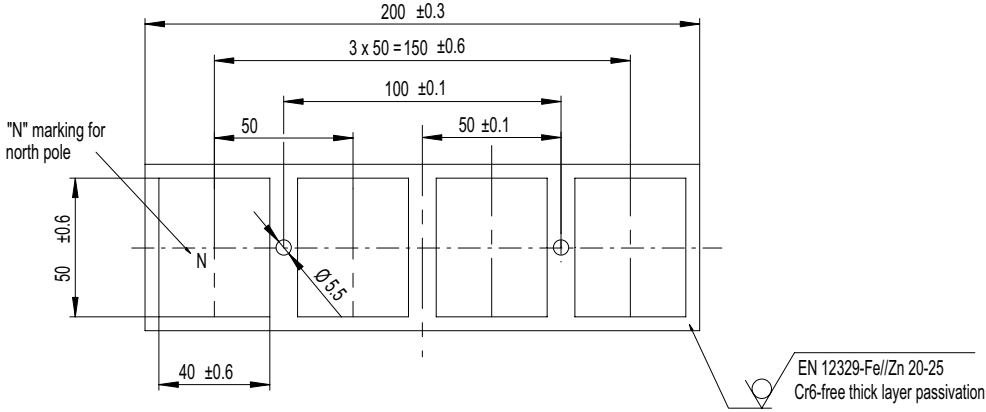
Primary



62018AEN

kVA	n
i	f
P	H_z

Length of the secondary 200

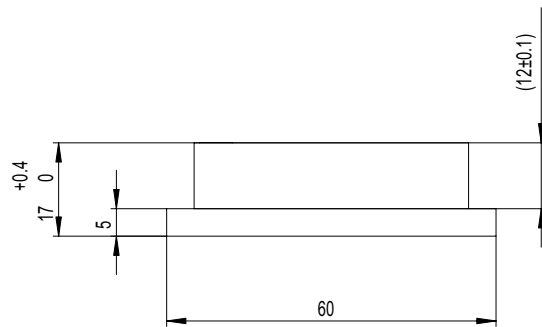
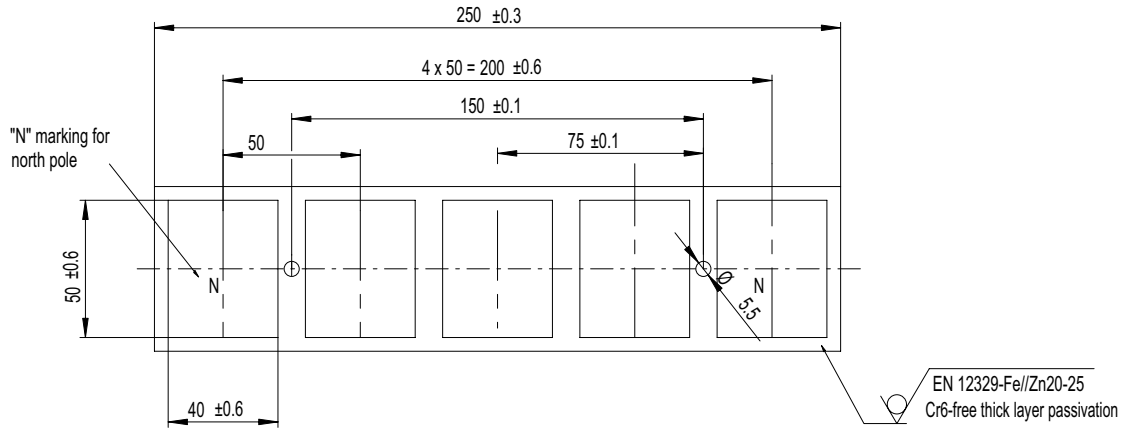


62013AEN

kVA	n
i	f
P	Hz

Technical Data
Mounting dimensions

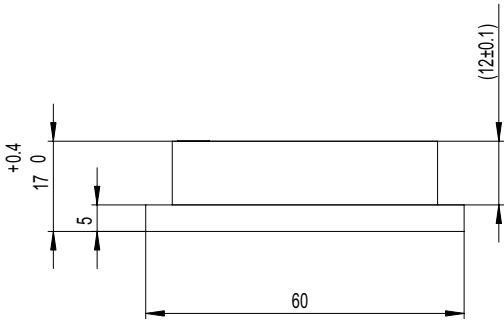
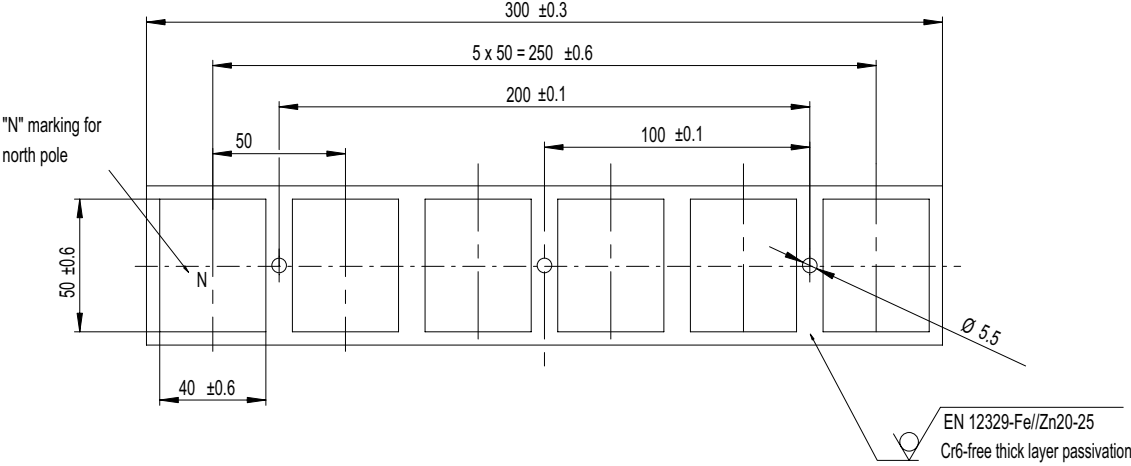
Length of the secondary 250



62012AEN

kVA	n
i	f
P	H_z

Length of the secondary 300

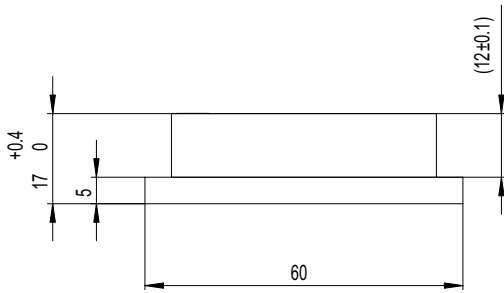
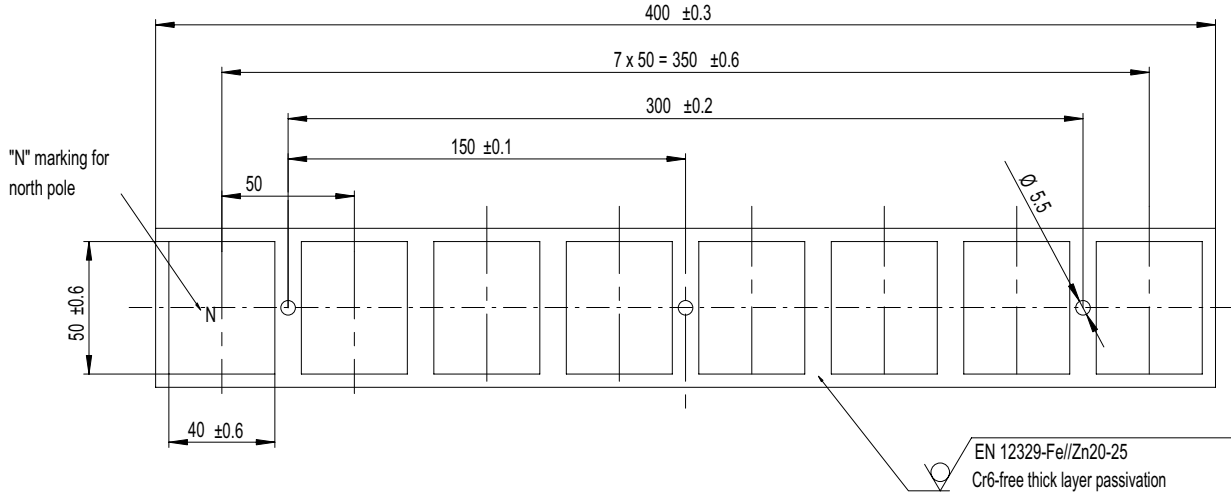


62009AEN

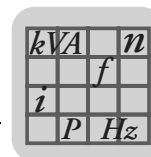
kVA	n
f	
i	
P	H_z

Technical Data
Mounting dimensions

Length of the secondary 400



62010AEN



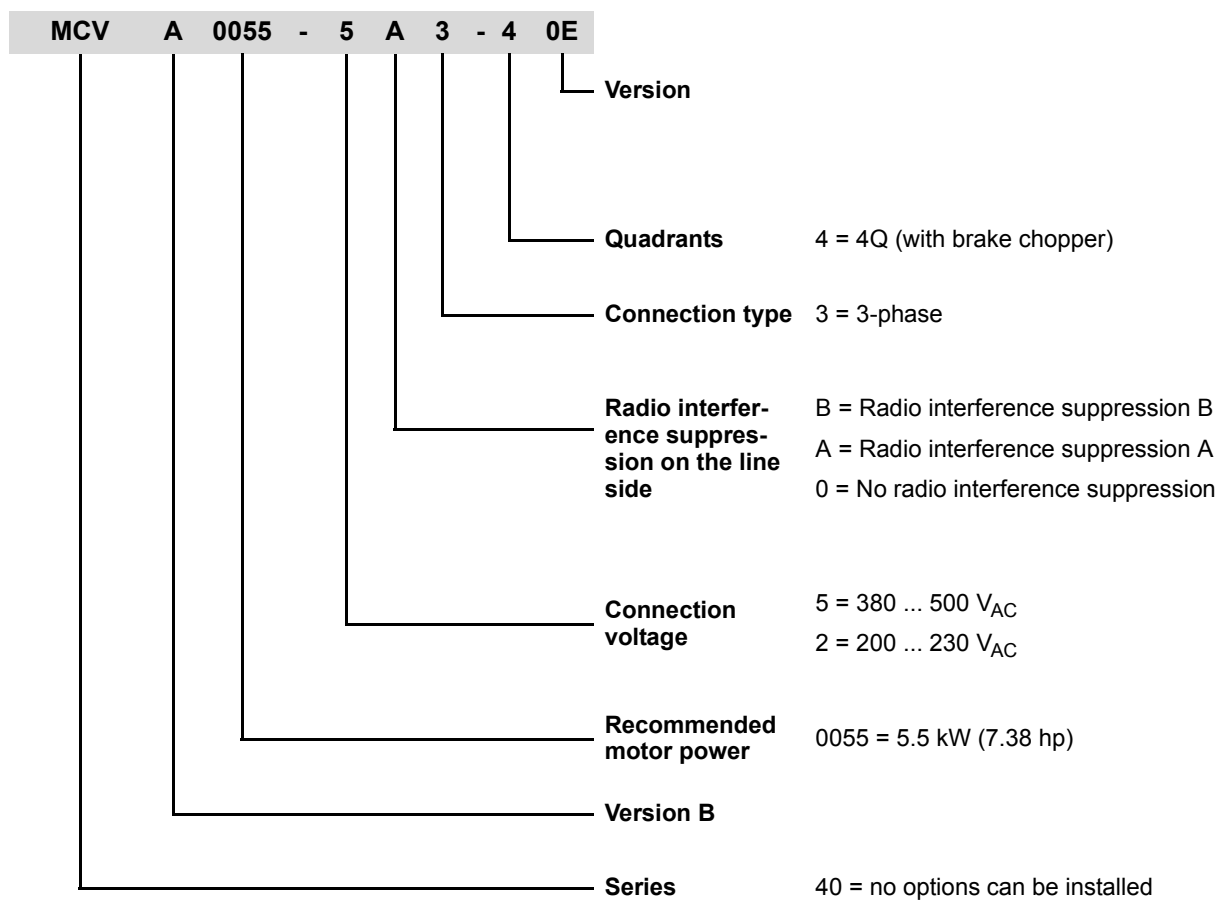
10.3 MOVIDRIVE® compact part numbers

The linear motors can be operated with

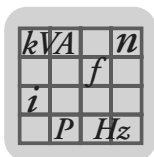
- MOVIDRIVE® 5A3-4-0E in combination with NL16.

MOVIDRIVE® compact part numbers: 08295107

MOVIDRIVE® compact unit designation



You will find additional information in the MOVIDRIVE® compact system manual.



Technical Data

NL16 measuring system technical data

10.4 NL16 measuring system technical data

General data	
Absolute accuracy	1 mm (0.039370079 in)
Mass	0.9 kg (1.98 lb)
Ambient temperature	0 °C ... 50 °C (32 °F ... 122 °C)
Storage temperature	-25 °C ... 75 °C (-13 °F ... 167 °F)



Address List

Germany			
Headquarters Production Sales	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal P.O. Box Postfach 3023 • D-76642 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de
Service Competence Center	Central Gear units / Motors	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 D-76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 sc-mitte-gm@sew-eurodrive.de
	Central Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 sc-mitte-e@sew-eurodrive.de
	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 40-42 D-30823 Garbsen (near Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 sc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Dänkritzter Weg 1 D-08393 Meerane (near Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 sc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 D-85551 Kirchheim (near München)	Tel. +49 89 909552-10 Fax +49 89 909552-50 sc-sued@sew-eurodrive.de
	West	SEW-EURODRIVE GmbH & Co KG Siemensstraße 1 D-40764 Langenfeld (near Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 sc-west@sew-eurodrive.de
	Drive Service Hotline / 24 Hour Service		
Additional addresses for service in Germany provided on request!			
France			
Production Sales Service	Hagenau	SEW-USOCOME 48-54, route de Soufflenheim B. P. 20185 F-67506 Hagenau Cedex	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 http://www.usocomme.com sew@usocomme.com
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	Lyon	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 4 72 15 37 00 Fax +33 4 72 15 37 15
	Paris	SEW-USOCOME Zone industrielle 2, rue Denis Papin F-77390 Verneuil l'Etang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
Additional addresses for service in France provided on request!			
Algeria			
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Argentina			
Assembly Sales Service	Buenos Aires	SEW EURODRIVE ARGENTINA S.A. Centro Industrial Garin, Lote 35 Ruta Panamericana Km 37,5 1619 Garin	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 sewar@sew-eurodrive.com.ar



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	Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164	Tel. +61 2 9725-9900 Fax +61 2 9725-9905 enquires@sew-eurodrive.com.au
	Townsville	SEW-EURODRIVE PTY. LTD. 12 Leyland Street Garbutt, QLD 4814	Tel. +61 7 4779 4333 Fax +61 7 4779 5333 enquires@sew-eurodrive.com.au
Austria			
Assembly Sales Service	Wien	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Strasse 24 A-1230 Wien	Tel. +43 1 617 55 00-0 Fax +43 1 617 55 00-30 http://sew-eurodrive.at sew@sew-eurodrive.at
Belgium			
Assembly Sales Service	Brüssel	SEW Caron-Vector S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.caron-vector.be info@caron-vector.be
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Production Sales Service	Sao Paulo	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 50 Caixa Postal: 201-07111-970 Guarulhos/SP - Cep.: 07251-250	Tel. +55 11 6489-9133 Fax +55 11 6480-3328 http://www.sew.com.br sew@sew.com.br
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Bulgaria			
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Canada			
Assembly Sales Service	Toronto	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, Ontario L6T3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca l.reynolds@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. 7188 Honeyman Street Delta, B.C. V4G 1 E2	Tel. +1 604 946-5535 Fax +1 604 946-2513 b.wake@sew-eurodrive.ca
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Street LaSalle, Quebec H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 a.peluso@sew-eurodrive.ca
Additional addresses for service in Canada provided on request!			
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Production Assembly Sales Service	Tianjin	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25322611 gm-tianjin@sew-eurodrive.cn http://www.sew-eurodrive.com.cn
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Finland			
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India			
Assembly Sales Service	Baroda	SEW-EURODRIVE India Pvt. Ltd. Plot No. 4, Gidc Por Ramangamdi • Baroda - 391 243 Gujarat	Tel. +91 265 2831086 Fax +91 265 2831087 http://www.seweurodriveindia.com mdoffice@seweurodriveindia.com
Technical Offices	Bangalore	SEW-EURODRIVE India Private Limited 308, Prestige Centre Point 7, Edward Road Bangalore	Tel. +91 80 22266565 Fax +91 80 22266569 salesbang@seweurodriveinindia.com
Ireland			
Sales Service	Dublin	Alperston Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458
Israel			
Sales	Tel-Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 lirazhandasa@barak-online.net
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Ivory Coast			
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Lithuania			
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Assembly Sales Service	Queretaro	SEW-EURODRIVE MEXIKO SA DE CV SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Queretaro C.P. 76220 Queretaro, Mexico	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
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Netherlands			
Assembly Sales Service	Rotterdam	VECTOR Aandrijftechniek B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085 NL-3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 http://www.vector.nu info@vector.nu
New Zealand			
Assembly Sales Service	Auckland	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferrymead Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Norway			
Assembly Sales Service	Moss	SEW-EURODRIVE A/S Solgaard skog 71 N-1599 Moss	Tel. +47 69 241-020 Fax +47 69 241-040 http://www.sew-eurodrive.no sew@sew-eurodrive.no
Peru			
Assembly Sales Service	Lima	SEW DEL PERU MOTORES REDUCTORES S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe



Address List

Poland			
Assembly Sales Service	Lodz	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 PL-92-518 Lodz	Tel. +48 42 67710-90 Fax +48 42 67710-99 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
Portugal			
Assembly Sales Service	Coimbra	SEW-EURODRIVE, LDA. Apartado 15 P-3050-901 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt
Romania			
Sales Service	Bucuresti	Sialco Trading SRL str. Madrid nr.4 011785 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro
Russia			
Assembly Sales Service	St. Petersburg	ZAO SEW-EURODRIVE P.O. Box 36 195220 St. Petersburg Russia	Tel. +7 812 3332522 +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru
Senegal			
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Serbia and Montenegro			
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Singapore			
Assembly Sales Service	Singapore	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com
Slovakia			
Sales	Bratislava	SEW-Eurodrive SK s.r.o. Rybnicna 40 SK-83107 Bratislava	Tel. +421 2 49595201 Fax +421 2 49595200 http://www.sew.sk sew@sew-eurodrive.sk
	Zilina	SEW-Eurodrive SK s.r.o. ul. Vojtecha Spanyola 33 SK-010 01 Zilina	Tel. +421 41 700 2513 Fax +421 41 700 2514 sew@sew-eurodrive.sk
	Banská Bystrica	SEW-Eurodrive SK s.r.o. Rudlovska cesta 85 SK-97411 Banská Bystrica	Tel. +421 48 414 6564 Fax +421 48 414 6566 sew@sew-eurodrive.sk
Slovenia			
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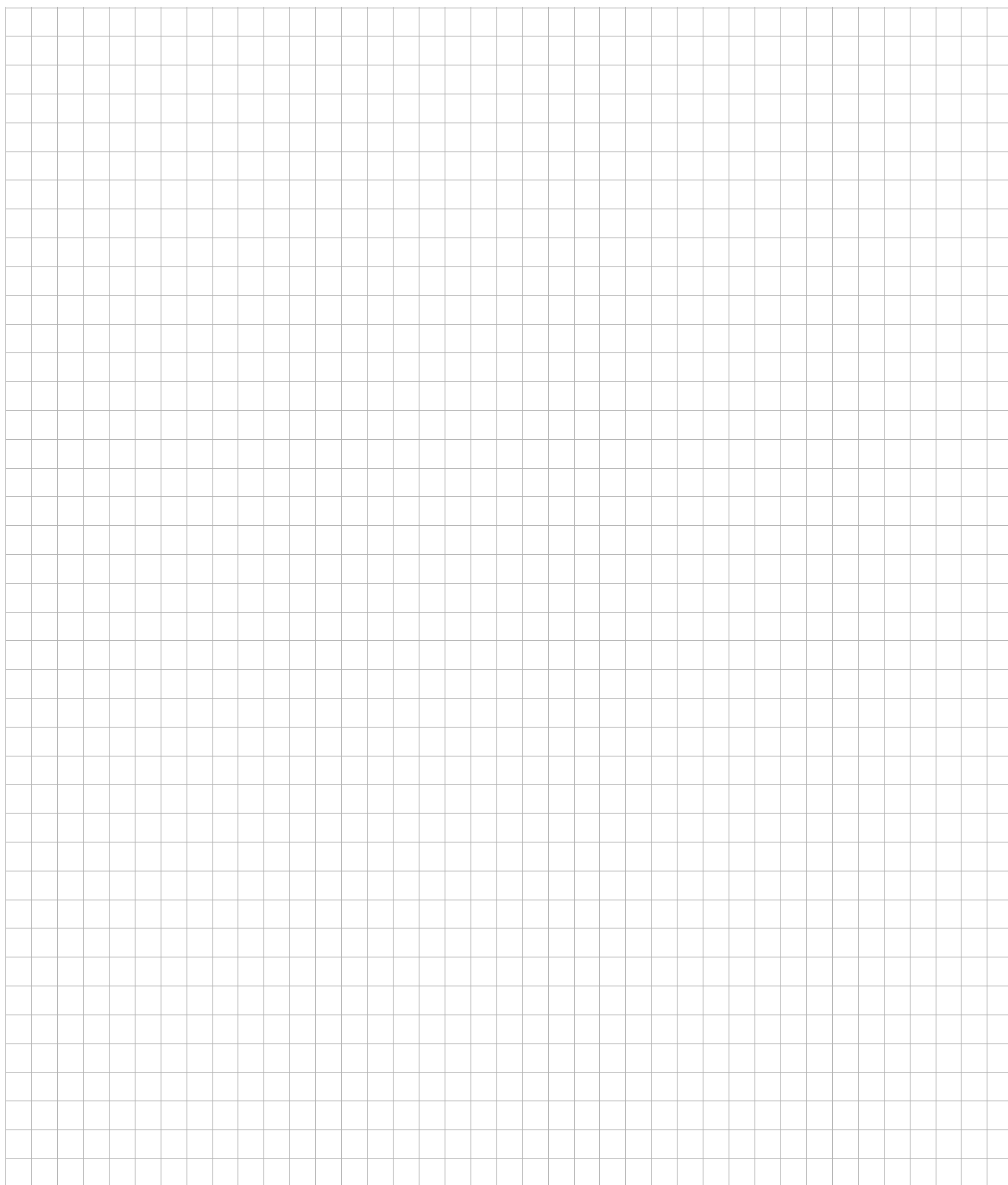


South Africa			
Assembly Sales Service	Johannesburg	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 494-3104 http://www.sew.co.za dross@sew.co.za
	Capetown	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442 Cape Town	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 dswanepoel@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 2 Monaceo Place Pinetown Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 700-3451 Fax +27 31 700-3847 dtait@sew.co.za
Spain			
Assembly Sales Service	Bilbao	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 E-48170 Zamudio (Vizcaya)	Tel. +34 9 4431 84-70 Fax +34 9 4431 84-71 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es
Sweden			
Assembly Sales Service	Jönköping	SEW-EURODRIVE AB Gnejsvägen 6-8 S-55303 Jönköping Box 3100 S-55003 Jönköping	Tel. +46 36 3442-00 Fax +46 36 3442-80 http://www.sew-eurodrive.se info@sew-eurodrive.se
Switzerland			
Assembly Sales Service	Basel	Alfred Imhof A.G. Jurastrasse 10 CH-4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch
Thailand			
Assembly Sales Service	Chon Buri	SEW-EURODRIVE (Thailand) Ltd. Bangpakong Industrial Park 2 700/456, Moo.7, Tambol Donhuaroh Muang District Chon Buri 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com
Tunisia			
Sales	Tunis	T. M.S. Technic Marketing Service 7, rue Ibn El Heithem Z.I. SMMT 2014 Mégrine Erriadh	Tel. +216 1 4340-64 + 1 4320-29 Fax +216 1 4329-76 tms@tms.com.tn
Turkey			
Assembly Sales Service	Istanbul	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Bagdat Cad. Koruma Cikmazi No. 3 TR-34846 Maltepe ISTANBUL	Tel. +90 216 4419163 / 164 3838014/15 Fax +90 216 3055867 sew@sew-eurodrive.com.tr
Ukraine			
Sales Service	Dnepropetrovsk	SEW-EURODRIVE Str. Rabochaja 23-B, Office 409 49008 Dnepropetrovsk	Tel. +380 56 370 3211 Fax +380 56 372 2078 http://www.sew-eurodrive.ua sew@sew-eurodrive.ua



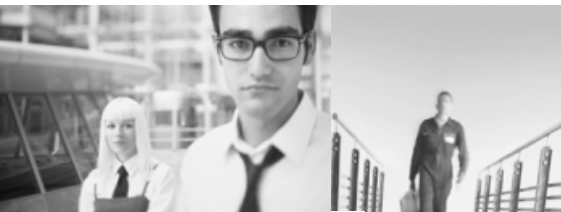
Address List

USA			
Production Assembly Sales Service	Greenville	SEW-EURODRIVE INC. 1295 Old Spartanburg Highway P.O. Box 518 Lyman, S.C. 29365	Tel. +1 864 439-7537 Fax Sales +1 864 439-7830 Fax Manuf. +1 864 439-9948 Fax Ass. +1 864 439-0566 Telex 805 550 http://www.seweurodrive.com cslyman@seweurodrive.com
Assembly Sales Service	San Francisco	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, California 94544-7101	Tel. +1 510 487-3560 Fax +1 510 487-6381 cshayward@seweurodrive.com
	Philadelphia/PA	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 856 467-2277 Fax +1 856 845-3179 csbridgeport@seweurodrive.com
	Dayton	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 440-3799 cstroy@seweurodrive.com
	Dallas	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
Additional addresses for service in the USA provided on request!			
Venezuela			
Assembly Sales Service	Valencia	SEW-EURODRIVE Venezuela S.A. Av. Norte Sur No. 3, Galpon 84-319 Zona Industrial Municipal Norte Valencia, Estado Carabobo	Tel. +58 241 832-9804 Fax +58 241 838-6275 http://www.sew-eurodrive.com.ve sewventas@cantv.net sewfinanzas@cantv.net



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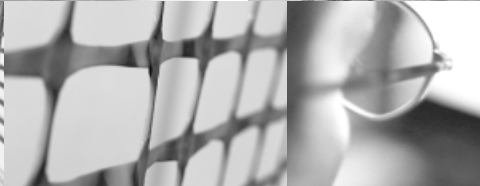
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