



19 Prefabricated Cables

19.1 Description

SEW-EURODRIVE offers pre-fabricated cables with plugs for straightforward and reliable motor connection.

Cable and contact are connected using the crimp technique. The following cables are available in 1 m steps:

For DR AC motors:

- Hybrid cable
- Encoder cable

For CMP servomotors:

- Motor cable
- Brakemotor cable
- Resolver/motor protection
- Absolute encoder/motor protection
- Forced cooling fan

Prefabricated cables are divided into:

- Power cables (motor cable, brake motor cable, extension cable)
- feedback cables (resolver cable, encoder cable, extension cable).

Preselection of cables

Prefabricated cables were preselected by SEW-EURODRIVE according to the standard EN 60204. The routing types "fixed installation" and "cable carrier installation" were considered.

Using other standards for the machine construction can result in diverging cross sections.

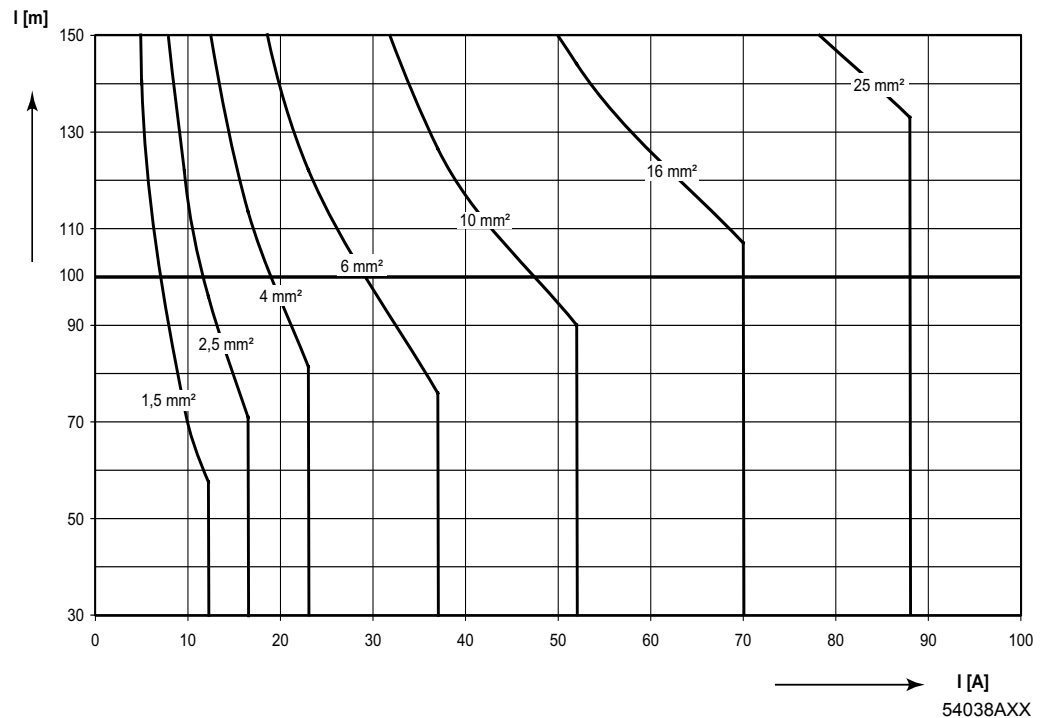


19.2 Dimensioning the cable cross section

Project planning for cable cross section

Cable dimensioning to EN 60204

The following figure shows the minimum required cable cross section depending on cable length and current.



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

Cable load table

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

Cable cross section [mm ²]	Three-core sheathed cable in pipe or cable [A]	Three-core sheathed cable on top of each other on wall [A]	Three-core sheathed cable lined up horizontally [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 data are merely recommended values and are **no substitute for the detailed project planning** of the cables depending on the concrete application considering the applicable regulations.

Observe the voltage drop that occurs along the cable in particular with the DC 24 V brake coil when dimensioning the cross sections for the brake cable. The accelerator current is decisive for the calculation.



19.3 Assignment table of cables to CMP servomotors

Servomotors

The following table is used to select power cables for CMP servomotors with 400 V system voltage.

The values in the following table are based on the values with a gray background in the "cable load table" on page 536 .

Type	Speed	To cable lengths	Part no. cable for fixed installation	Part no. cable for cable carrier installation	Core cross section	To cable lengths	Part no. cable for fixed installation	Part no. cable for cable carrier installation	Core cross section
	[rpm]	[m]	Motor only	Motor only	[mm ²]	[m]	Motor only	Motor only	[mm ²]
CMP 40S	3000	100	05904544	05906245	1.5				
CMP 40S	4500	100	05904544	05906245	1.5				
CMP 40S	6000	100	05904544	05906245	1.5				
CMP 40M	3000	100	05904544	05906245	1.5				
CMP 40M	4500	100	05904544	05906245	1.5				
CMP 40M	6000	100	05904544	05906245	1.5				
CMP 50S	3000	100	05904544	05906245	1.5				
CMP 50S	4500	100	05904544	05906245	1.5				
CMP 50S	6000	100	05904544	05906245	1.5				
CMP 50M	3000	100	05904544	05906245	1.5				
CMP 50M	4500	100	05904544	05906245	1.5				
CMP 50M	6000	100	05904544	05906245	1.5				
CMP 50L	3000	100	05904544	05906245	1.5				
CMP 50L	4500	100	05904544	05906245	1.5				
CMP 50L	6000	100	05904544	05906245	1.5				
CMP 63S	3000	100	05904544	05906245	1.5				
CMP 63S	4500	100	05904544	05906245	1.5				
CMP 63S	6000	100	05904544	05906245	1.5				
CMP 63M	3000	100	05904544	05906245	1.5				
CMP 63M	4500	100	05904544	05906245	1.5				
CMP 63M	6000	95	05904544	05906245	1.5	100	05904552	05906253	2.5
CMP 63L	3000	100	05904544	05906245	1.5				
CMP 63L	4500	95	05904544	05906245	1.5	100	05904552	05906253	2.5
CMP 63L	6000	75	05904544	05906245	1.5	100	05904552	05906253	2.5
CMP 71S	3000	100 (BP:80)	05904544	05906245	1.5				
CMP 71S	4500	95 (BP:80)	05904544	05906245	1.5	100	05904552	05906253	2,5
CMP 71S	6000	70	05904544	05906245	1.5	100	05904552	05906253	2,5

Table continued on next page.



Prefabricated Cables

Assignment table of cables to CMP servomotors

Type	Speed [rpm]	To cable lengths [m]	Part no. cable for fixed instal- lation Motor only	Part no. cable for cable car- rier instal- lation Motor only	Core cross section [mm ²]	To cable lengths [m]	Part no. cable for fixed instal- lation Motor only	Part no. cable for cable car- rier instal- lation Motor only	Core cross section [mm ²]
CMP 71M	3000	90 (BP:80)	05904544	05906245	1.5	100	05904552	05906253	2,5
CMP 71M	4500	65	05904544	05906245	1.5	100	05904552	05906253	2,5
CMP 71M	6000	80	05904552	05906253	2.5	100	05904560	05904803	4
CMP 71L	3000	80	05904544	05906245	1.5	100	05904552	05906253	2,5
CMP 71L	4500	85 (BP:80)	05904552	05906253	2.5	100	05904560	05904803	4
CMP 71L	6000	100 (BP:80)	05904560	05904803	4				
CMP 80S	3000	70 (BP:50)	05904544	05906245	1.5	100	05904552	05906253	2,5
CMP 80S	4500	80 (BP:50)	05904552	05906253	2.5	100	05904560	05904803	4
CMP 80S	6000	95 (BP:50)	05904560	05904803	4	100	13350269	13350293	6
CMP 80M	3000	90 (BP:50)	05904552	05906253	2.5	100	05904560	05904803	4
CMP 80M	4500	95 (BP:50)	05904560	05904803	4	100	05904560	05904803	4
CMP 80M	6000	100 (BP:80)	13350269	13350293	6				
CMP 80L	3000	100 (BP:50)	05904560	05904803	4				
CMP 80L	4500	100 (BP:80)	13350269	13350293	6				
CMP 80L	6000	100 (BP:80)	13350277	13350307	10				
CMP 100S	3000	95 (BP:50)	05904560	05904803	4	100	13350269	13350293	6
CMP 100S	4500	98 (BP:70)	13350269	13350293	6	100	13350277	13350307	10
CMP 100M	3000	85 (BP:50)	05904560	05904803	4	100	13350269	06650293	6
CMP 100M	4500	90 (BP:70)	13350269	13350293	6	100	13350277	13350307	10
CMP 100L	3000	90 (BP:70)	13350269	13350293	6	100	13350277	13350307	10
CMP 100L	4500	98 (BP:70)	13350277	13350307	10	100	13350285	13350315	16



**Servo
brakemotors**

The following table is used to select power cables for CMP servo brakemotors with 400 V system voltage.

The values in the following table are based on the values with a gray background in the "cable load table" on page 536 .

Type	Speed [rpm]	To cable lengths [m]	Part no. cable for fixed installa- tion Brakemo- tor	Part no. cable for cable car- rier instal- lation Brakemo- tor	Core cross section [mm ²]	To cable lengths [m]	Part no. cable for fixed installa- tion Brakemo- tor	Part no. cable for cable car- rier instal- lation Brakemo- tor	Core cross section [mm ²]
CMP 40S	3000	100	13324853	13331221	1.5				
CMP 40S	4500	100	13324853	13331221	1.5				
CMP 40S	6000	100	13324853	13331221	1.5				
CMP 40M	3000	100	13324853	13331221	1.5				
CMP 40M	4500	100	13324853	13331221	1.5				
CMP 40M	6000	100	13324853	13331221	1.5				
CMP 50S	3000	100	13324853	13331221	1.5				
CMP 50S	4500	100	13324853	13331221	1.5				
CMP 50S	6000	100	13324853	13331221	1.5				
CMP 50M	3000	100	13324853	13331221	1.5				
CMP 50M	4500	100	13324853	13331221	1.5				
CMP 50M	6000	100	13324853	13331221	1.5				
CMP 50L	3000	100	13324853	13331221	1.5				
CMP 50L	4500	100	13324853	13331221	1.5				
CMP 50L	6000	100	13324853	13331221	1.5				
CMP 63S	3000	100	13324853	13331221	1.5				
CMP 63S	4500	100	13324853	13331221	1.5				
CMP 63S	6000	100	13324853	13331221	1.5				
CMP 63M	3000	100	13324853	13331221	1.5				
CMP 63M	4500	100	13324853	13331221	1.5				
CMP 63M	6000	95	13324853	13331221	1.5	100	13332139	13332155	2.5
CMP 63L	3000	100	13324853	13331221	1.5				
CMP 63L	4500	95	13324853	13331221	1.5	100	13332139	13332155	2.5
CMP 63L	6000	75	13324853	13331221	1.5	100	13332139	13332155	2.5
CMP 71S	3000	100 (BP:80)	13324853	13331221	1.5				
CMP 71S	4500	95 (BP:80)	13324853	13331221	1.5	100	13332139	13332155	2,5
CMP 71S	6000	70	13324853	13331221	1.5	100	13332139	13332155	2,5

Table continued on next page.



Prefabricated Cables

Assignment table of cables to CMP servomotors

Type	Speed [rpm]	To cable lengths [m]	Part no. cable for fixed installa- tion Brakemo- tor	Part no. cable for cable car- rier instal- lation Brakemo- tor	Core cross section [mm ²]	To cable lengths [m]	Part no. cable for fixed installa- tion Brakemo- tor	Part no. cable for cable car- rier instal- lation Brakemo- tor	Core cross section [mm ²]
CMP 71M	3000	90 (BP:80)	13324853	13331221	1.5	100	13332139	13332155	2,5
CMP 71M	4500	65	13324853	13331221	1.5	100	13332139	13332155	2,5
CMP 71M	6000	80	13332139	13332155	2.5	100	13332147	13322163	4
CMP 71L	3000	80	13324853	13331221	1.5	100	13332139	13332155	2,5
CMP 71L	4500	85 (BP:80)	13332139	13332155	2.5	100	13332147	13332163	4
CMP 71L	6000	100 (BP:80)	13332147	13332163	4				
CMP 80S	3000	70 (BP:50)	13324853	13331221	1.5	100	13332139	13332155	2,5
CMP 80S	4500	80 (BP:50)	13332139	13332155	2.5	100	13332147	13332163	4
CMP 80S	6000	95 (BP:50)	13332147	13332163	4	100	13350196	13350234	6
CMP 80M	3000	90 (BP:50)	13332139	13332155	2.5	100	13332147	13332163	4
CMP 80M	4500	95 (BP:50)	13332147	13332163	4	100	13332147	13332163	4
CMP 80M	6000	100 (BP:80)	13350196	13350234	6				
CMP 80L	3000	100 (BP:50)	13332147	13332163	4				
CMP 80L	4500	100 (BP:80)	13350196	13350234	6				
CMP 80L	6000	100 (BP:80)	13350218	13350242	10				
CMP 100S	3000	95 (BP:50)	13332147	13332163	4	100	13350196	13350234	6
CMP 100S	4500	98 (BP:70)	13350196	13350234	6	100	13350218	13350242	10
CMP 100M	3000	85 (BP:50)	13332147	13332163	4	100	13350196	03350234	6
CMP 100M	4500	90 (BP:70)	13350196	13350234	6	100	13350218	13350242	10
CMP 100L	3000	90 (BP:70)	13350196	13350234	6	100	13350218	13350242	10
CMP 100L	4500	98 (BP:70)	13350218	13350242	10	100	13350226	13350250	16



19.4 Key to the cable assignments

	Cable with plug connector on motor, fixed installation
	Cable with plug connector on motor, cable carrier installation
	Extension cable with plug connector on motor, fixed installation
	Extension cable with plug connector on motor, cable carrier installation
	Cable with conductor end sleeves, fixed installation
	Cable with conductor end sleeves, cable carrier installation
	Cable connected via encoder cover
	Cable connected via encoder cover, cable carrier installation
	Cable with ISU plug connector



Prefabricated Cables

Cable assignments for DR series AC motors at a glance

19.5 Cable assignments for DR series AC motors at a glance

Brakemotor cable with IS

Motor type	Plug connector	Motor	Cable	Control cabinet Field distributor	Details
DR71 – DR132	ISU		 0817 8127 (cable type A) 0817 8178 (cable type A)	I / O 	page 544 page 552 page 589

Motor cable for field-oriented MOVI-SWITCH®

Motor type	Plug connector	Motor	Cable	MOVI-SWITCH® mounted in the field	Details
DR71 – DR100	--		 0817 8879 (cable type C) 0817 8860 (cable type C)	 /APG4 /ALA4	page 544 page 552 page 589
	/ASB4 /ISU		 0817 8887 (cable type C) 0817 8895 (cable type C) 0593 7558 (cable type A)		

Encoder cable

Encoder on DR series AC motors – MOVIDRIVE®					
Motor type	Encoder	Motor	Cable	MOVIDRIVE® inverter	Details
DR71 – DR132	ES7S ES7R AS7W		 1362 2021		page 547 page 556 page 595
DR160 – DR225	EG7S EG7R AG7W		 1362 2048		
DR71 – DR132	ES7S ES7R AS7W		 1361 7621		
DR160 – DR225	EG7S EG7R AG7W		 1361 7648		
DR315	EH7S		 1360 2659 1362 3206		

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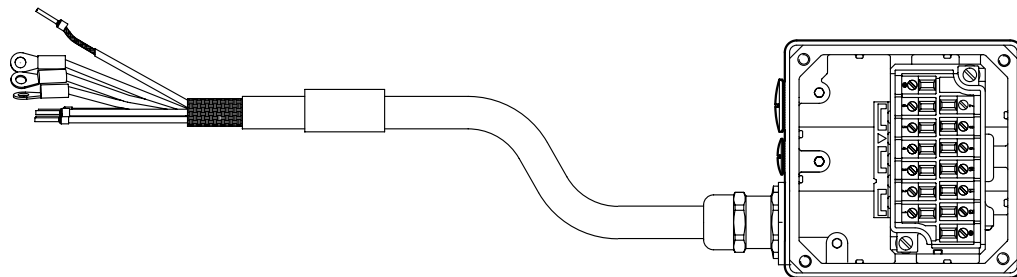


DR71 – DR132	AS7Y			 	page 547 page 556 page 595
DR160 – DR225	AG7Y				
DR315	AH7Y				
DR71 – DR132	AS7Y				page 549 page 561 page 595
DR160 – DR225	AG7Y				
DR71 – DR132	EI7C EI76 EI72 EI71				page 549 page 561 page 595
Encoder on DR series AC motors – intermediate sockets – MOVIDRIVE®					
Motor type	Encoder	Motor	Cable	M23	Details
DR71 – DR132	ES7S ES7R AS7W				page 550 page 562 page 595
DR160 – DR225	EG7S EG7R AG7W				
DR71 – DR132	ES7S ES7R AS7W				
DR160 – DR225	EG7S EG7R AG7W				
Motor type	Encoder	M23	Cable	M23	Details
DR71 – DR132	ES7S ES7R AS7W				page 550 page 562 page 595
DR160 – DR225	EG7S EG7R AG7W				
DR71 – DR132	ES7S ES7R AS7W				
DR160 – DR225	EG7S EG7R AG7W				



19.6 Description of power cables for DR series AC motors

Brakemotor cable with IS



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Figure 137: IS brakemotor cable with motor protection, conductor end sleeves and ring-type cable lugs

Prefabricated cables for motor side

On the motor end, all 12 contacts of the integrated plug connector are used for connecting motor, brake, and motor protection.

The cables are available with variable terminal link in star or delta connection.

The brakemotor can then be supplied in ISU design.

Control cabinet/ field distributor

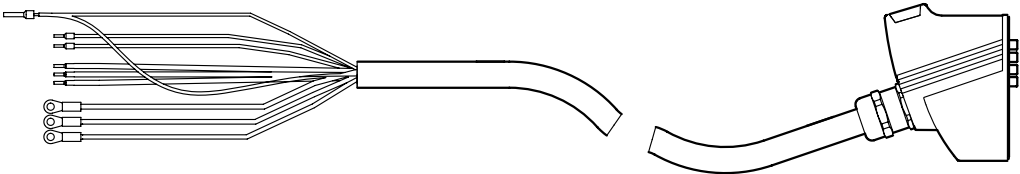
For wiring in the control cabinet and field distributors, the cores are fitted with ring-type cable lugs or conductor end sleeves.

Cable specification

The used cable types for fixed and cable carrier installation are listed in chapter "Cable specifications for power cables" page 592 .

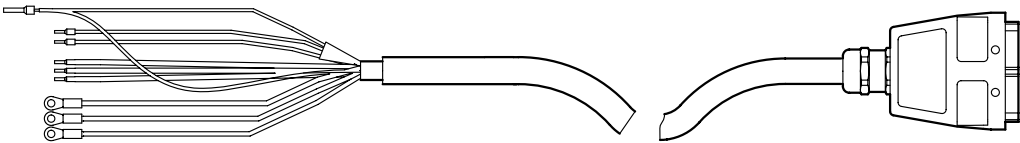


Brakemotor cable for decentralized MOVI-SWITCH®



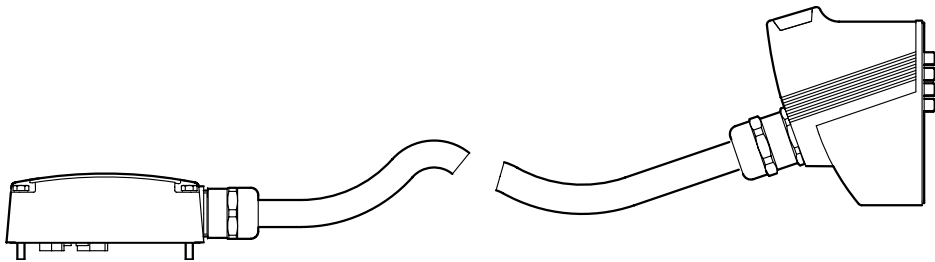
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Figure 138: Brakemotor cable with motor protection; conductor end sleeves/ring-type cable lugs, PLUSCON VC



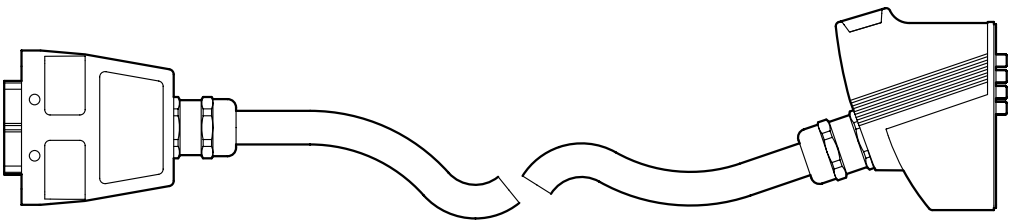
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Figure 139: Brakemotor cable with motor protection; conductor end sleeves/ring-type cable lugs, HAN 10E



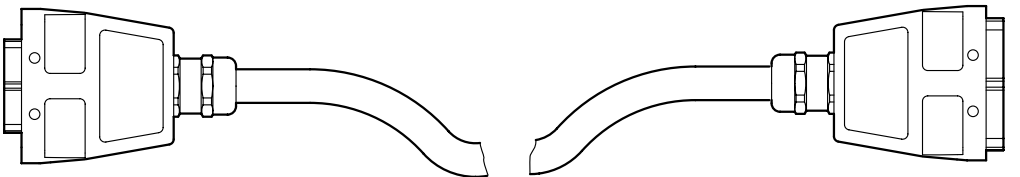
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Figure 140: Brakemotor cable with motor protection; IS and PLUSCON VC



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Figure 141: Brakemotor cable with motor protection; HAN 10E and PLUSCON VC



64051axx

Figure 142: Brakemotor cable with motor protection; HAN 10E and HAN 10E



Prefabricated Cables

Description of power cables for DR series AC motors

Prefabricated cables for motor side

The connection options are available for the motor end:

Figure 138 and Figure 139: Conductor end sleeves are used for classical terminal box connection.

Figure 140: The integrated IS plug connector from SEW-EURODRIVE is used for connection to the motor.

Figure 141 and Figure 142: The mounted HAN 10E plug connectors are used for motor connection.

Decentralized MOVI-SWITCH®

The decentralized MOVI-SWITCH® offers two connection options:

In Figure 138, Figure 140, Figure 141 the PHOENIX PLUSCON VC plug connector is used for connection to MOVI-SWITCH®.

In Figure 139 and Figure 142 the mounted HAN 10E plug connector is used to connect MOVI-SWITCH®.

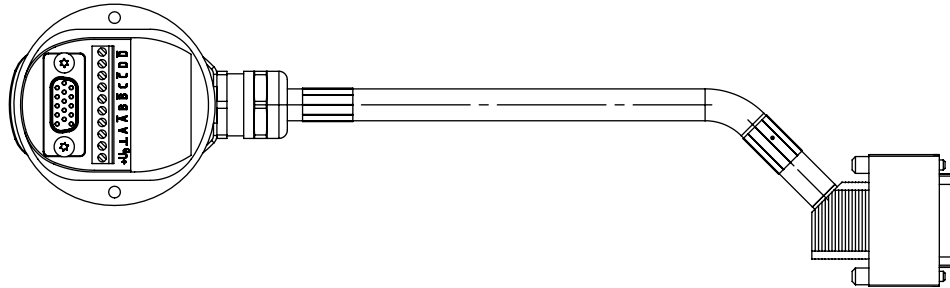
Cable specification

The used cable types for fixed and cable carrier installation are listed in chapter "Cable specifications for power cables" page 592 .



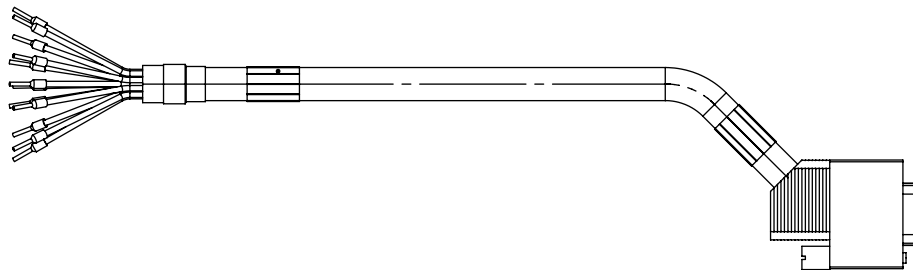
19.7 Description of add-on encoder cables for DR series AC motors

Encoder cable with sub-D



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Figure 143: Connection cover with sub-D



64039axx

Figure 144: Conductor end sleeves with sub-D

Prefabrication on encoder/motor end

The prefabricated encoder cables for the add-on encoders on the DR motor are available with two different designs on the encoder/motor end.

- Figure 143: If the encoder on the motor is ordered and delivered without a connection cover, the prefabricated cable is fitted with a connection cover on the encoder end.
- Figure 144: If the encoder on the motor is ordered and delivered with a connection cover, the prefabricated cable is fitted with conductor end sleeves on the encoder end. The customer is responsible for connecting the terminal strip in the connection cover. The cable gland in the connection cover is included in the scope of delivery of the encoder.

Prefabrication on MOVIDRIVE®/ inverter end

A commercial sub-D EMC connector with pin contacts is used on the inverter end of the prefabricated encoder cable for connection to MOVIDRIVE®. A 9-pin or 15-pin plug is available, depending on the inverter interface.

Cable specification

The used cable types for fixed and cable carrier installation are listed in chapter "Cable specifications for encoder cables" page 595.



Prefabricated Cables

Description of add-on encoder cables for DR series AC motors

Encoder cable with 2 sub-D

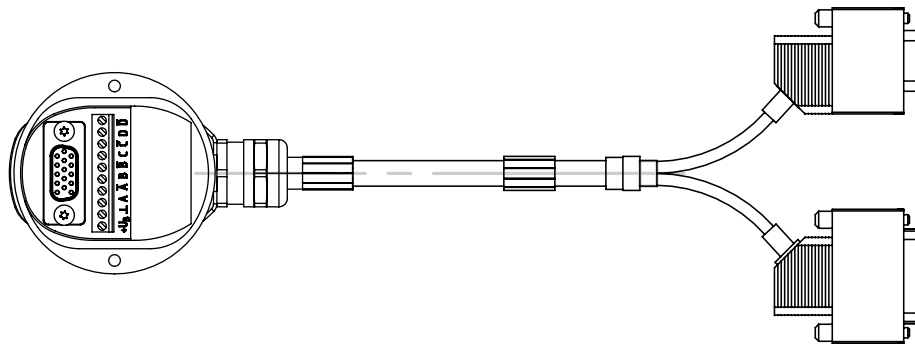


Figure 145: Connection cover with 2 sub-D (1 × 9-pole and 1 × 15-pole)

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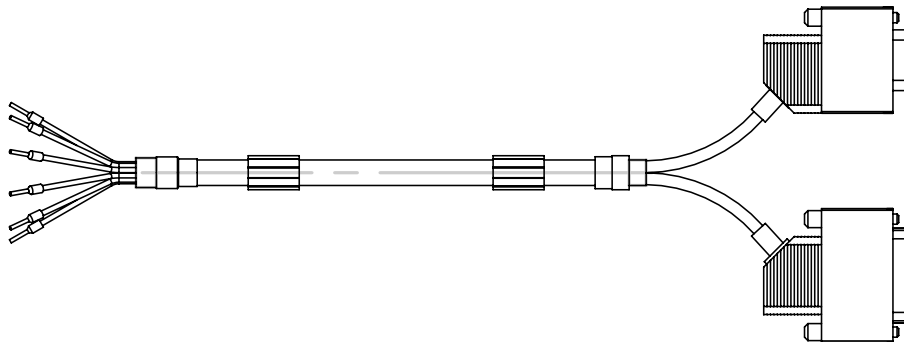


Figure 146: Conductor end sleeves with 2 sub-D (1 × 9-pole and 1 × 15-pole)

64040axx

Prefabrication on encoder/motor end

The prefabricated encoder cables for the add-on encoders on the DR motor are available with two different designs on the encoder/motor end.

- Figure 145: If the encoder on the motor is ordered and delivered without a connection cover, the prefabricated cable is fitted with a connection cover on the encoder end.
- Figure 146: If the encoder on the motor is ordered and delivered with a connection cover, the prefabricated cable is fitted with conductor end sleeves on the encoder end. The customer is responsible for connecting the terminal strip in the connection cover. The cable gland in the connection cover is included in the scope of delivery of the encoder.

Prefabrication on MOVIDRIVE®/ inverter end

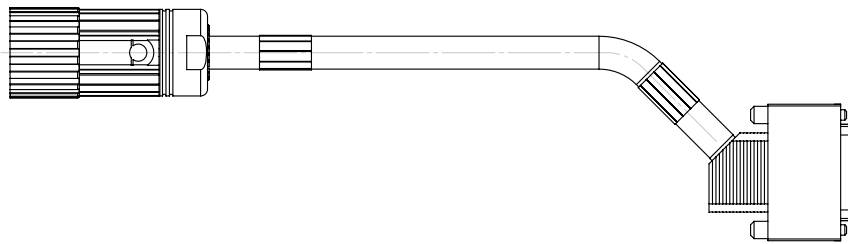
A commercial sub-D EMC connector with pin contacts is used on the inverter end of the prefabricated encoder cable for connection to MOVIDRIVE®. A 9-pin or 15-pin plug is available, depending on the inverter interface.

Cable specification

The used cable types for fixed and cable carrier installation are listed in chapter "Cable specifications for encoder cables" page 595.



Encoder cable with one M23



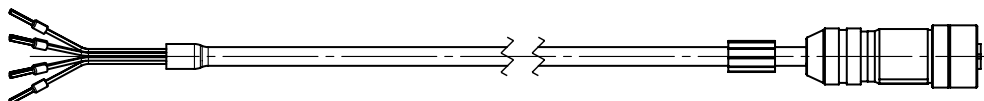
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Figure 147: M23 with sub-D

Prefabrication on encoder/motor end	Prefabricated encoder cables for add-on encoders on DR315 motors are available with a M23 coupling connector with socket contacts on the encoder/motor end.
Prefabrication on MOVIDRIVE®/ inverter end	A commercial sub-D EMC connector with pin contacts is used on the inverter end of the prefabricated encoder cable for connection to MOVIDRIVE®. A 15-pin plug is available that matches the inverter interface.
Cable specification	The used cable types for fixed and cable carrier installation are listed in chapter "Cable specifications for encoder cables" page 595.

19.8 Description of built-in encoder cables for DR series AC motors

Encoder cable with M12



64143axx

Figure 148: M12 with conductor end sleeves

Prefabrication on encoder/motor end	Prefabricated encoder cables for built-in encoders on DR motors are available with an 8-pole M12 coupling connector with socket contacts on the encoder/motor end for connection to the terminal box.
Prefabrication on MOVIDRIVE®/ inverter end	Conductor end sleeves are used on the inverter end of the prefabricated encoder cable for connection to the digital inputs (DI02/DI03) of MOVIDRIVE®.
Cable specification	The used cable types for fixed and cable carrier installation are listed in chapter "Cable specifications for encoder cables" page 595.



19.9 Description of extensions of add-on encoder cables for DR series AC motors

Intermediate sockets

Intermediate sockets are used whenever

- Part of the wiring is routed in a cable carrier, or
- Connecting several cable sections is easier for very long distances.

The encoder cables are available with intermediate sockets for this purpose.

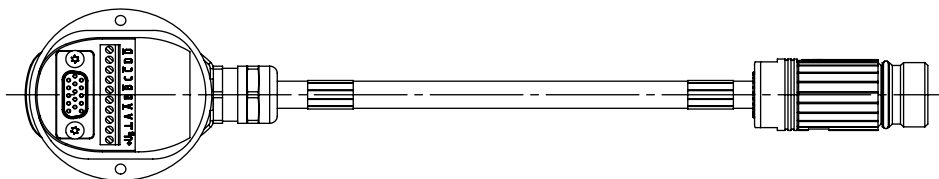


Figure 149: Connection cover with M23

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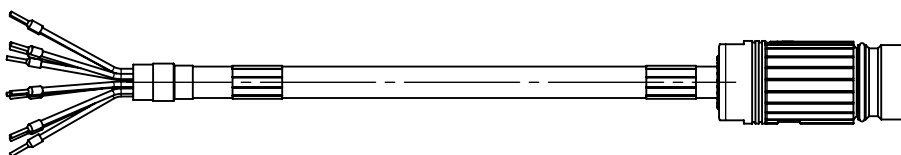


Figure 150: Conductor end sleeve with M23

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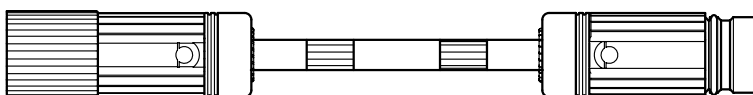


Figure 151: M23 with M23

64045axx

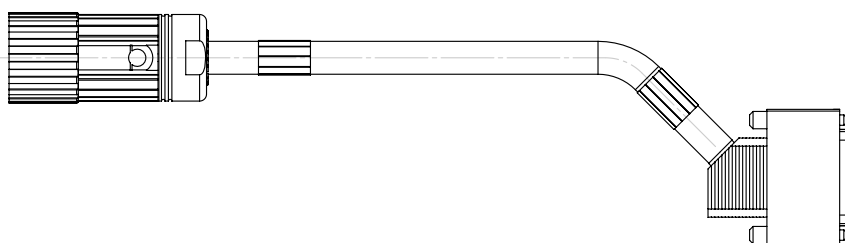


Figure 152: M23 with sub-D

64042axx



Prefabrication on encoder/motor end

The prefabricated encoder cables for the add-on encoders on the DR motor are available with two different designs on the encoder/motor end.

- Figure 149: If the encoder on the motor is ordered and delivered with a connection cover, the prefabricated cable is fitted with conductor end sleeves on the encoder end. The customer is responsible for connecting the terminal strip in the connection cover. The cable gland in the connection cover is included in the scope of delivery of the encoder.
- Figure 150: If the encoder on the motor is ordered and delivered without a connection cover, the prefabricated cable is fitted with a connection cover on the encoder end.

Figure 149 and Figure 150: The cables now end in a M23 round plug connector with pin contacts.

Extension

Figure 151: The extension is fitted with 2 M23 round plug connectors. The cable has a coupling plug with socket contacts on the encoder end and a plug with pins on the inverter end.

Prefabrication on MOVIDRIVE®/ inverter end

Figure 152: A commercial sub-D EMC connector with pin contacts on the inverter end of the extension cable is used for connecting MOVIDRIVE®. A 9-pin or 15-pin plug is used, depending on the inverter interface.

Cable specification

The used cable types for fixed and cable carrier installation are listed in chapter "Cable specifications for encoder cables" page 595.



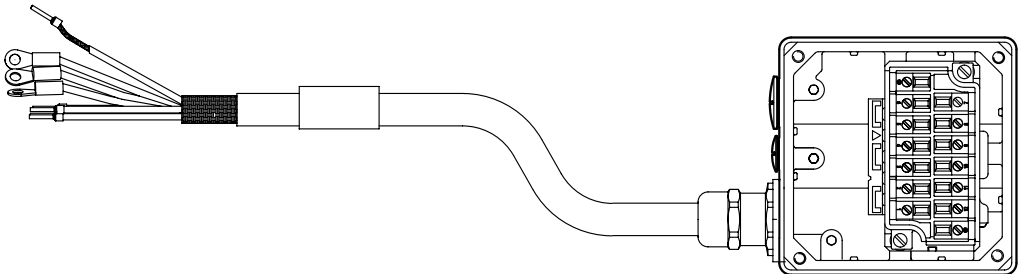
19.10 Power cables for DR series AC motors

Brakemotor cable with IS

Brakemotor types

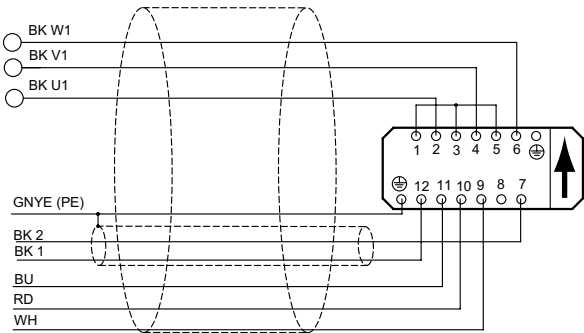
Motor type	Brake type	Connector
DR.71	BE05, BE1	/ISU
DR.80	BE05, BE1, BE2	
DR.90	BE1, BE2, BE5	
DR.100	BE2, BE5	
DR.112	BE5, BE11	
DR.132	BE5, BE11	

Cable drawing,
wiring



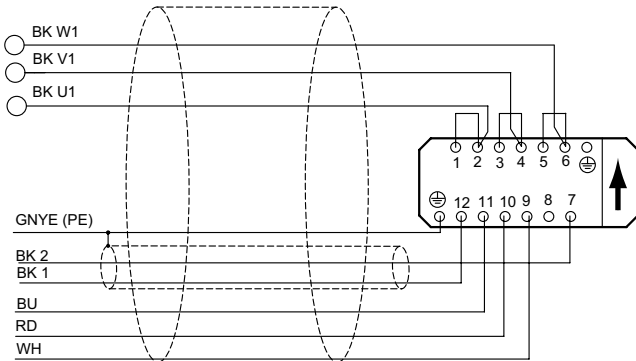
64046axx

Figure 153: IS brakemotor cable with motor protection; conductor end sleeves; ring-type cable lugs



64052axx

Figure 154: Star connection



64053axx

Figure 155: Delta connection

Part numbers

Variable terminal link	Star connection	Delta connection
	0817 8127	0817 8178



Brakemotor cable for decentralized MOVI-SWITCH®

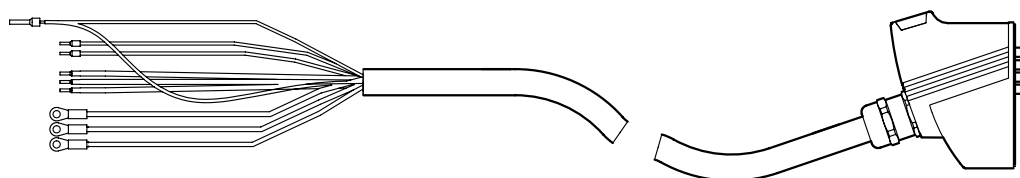
Brakemotor types

Motor type	Brake type	Connector
DR.71	BE05, BE1	/ISU /ASB4
DR.80	BE05, BE1, BE2	
DR.90	BE1, BE2, BE5	
DR.100	BE2, BE5	

MOVI-SWITCH®

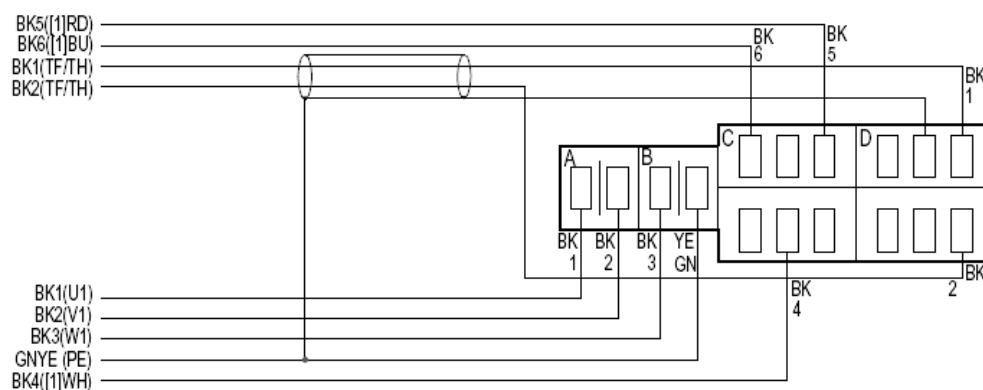
MOVI-SWITCH®	PLUSCON VC	HAN 10E
MSW-2S	.../APG4	.../ALA4

Cable drawing,
wiring



64047axx

Figure 156: Brakemotor cable with motor protection; conductor end sleeves/ring-type cable lugs, PLUSCON VC



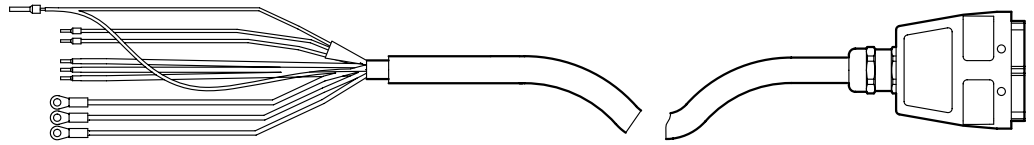
64054axx

Figure 157: Conductor end sleeves/ring-type cable lugs, PLUSCON VC



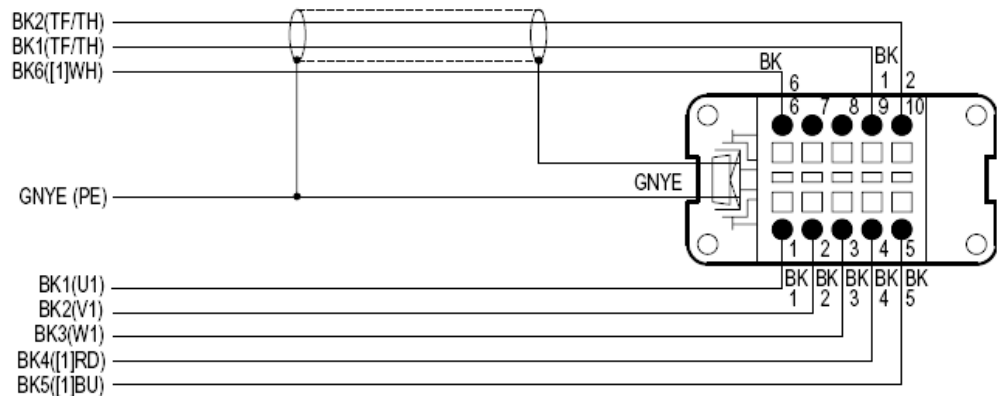
Prefabricated Cables

Power cables for DR series AC motors



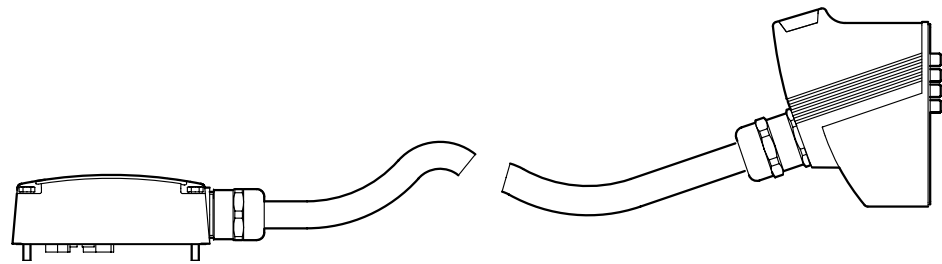
64048axx

Figure 158: Brakemotor cable with motor protection; conductor end sleeves/ring-type cable lugs, HAN 10E



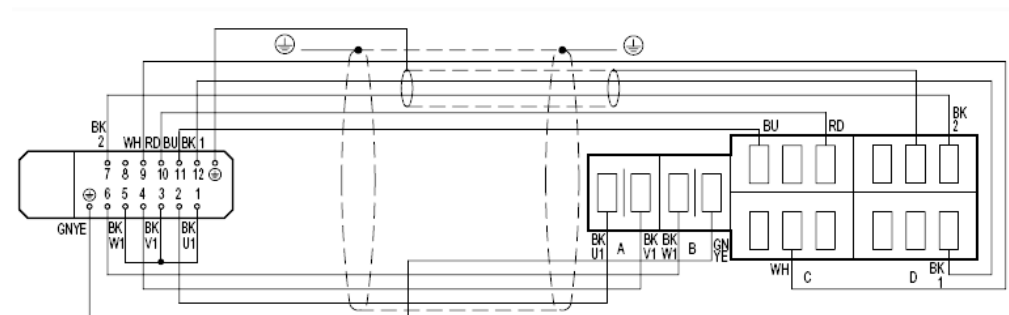
64055axx

Figure 159: Conductor end sleeves/ring-type cable lugs, HAN 10E



64049axx

Figure 160: Brakemotor cable with motor protection; IS and PLUSCON VC



64056axx

Figure 161: IS and PLUSCON VC

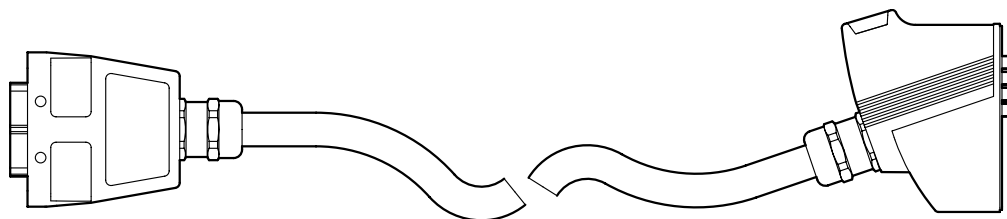


Figure 162: Brakemotor cable with motor protection; HAN 10E and PLUSCON VC

64050axx

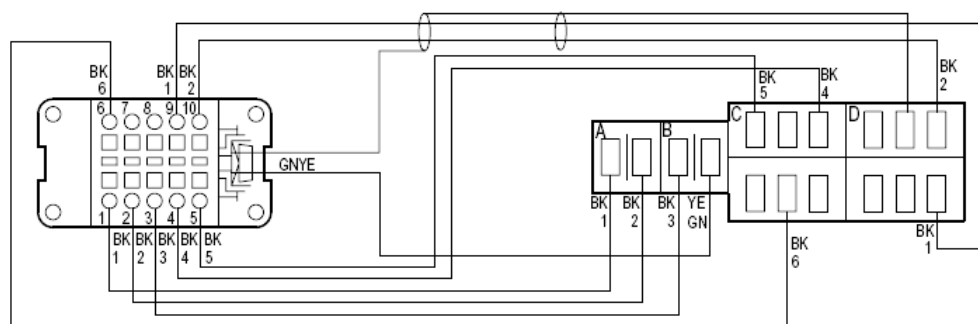


Figure 163: HAN 10E and PLUSCON VC

64057axx

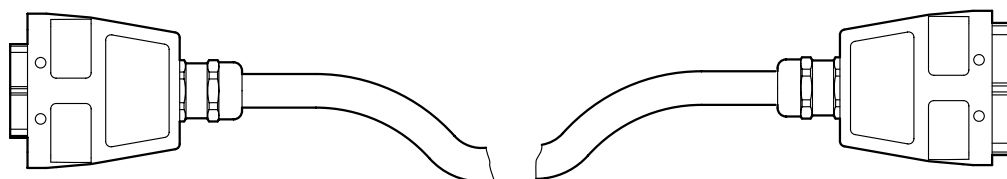


Figure 164: Brakemotor cable with motor protection; HAN 10E and HAN 10E

64051axx

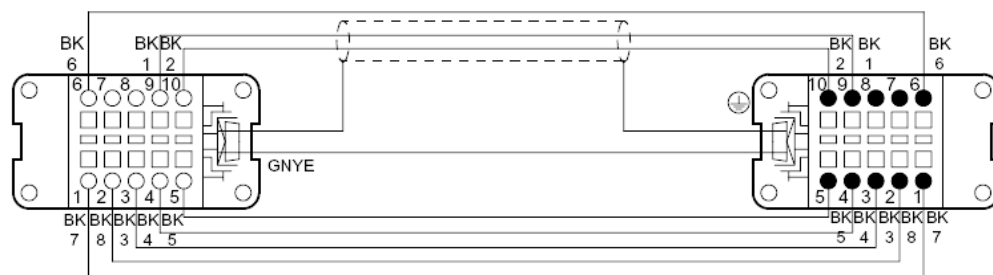


Figure 165: HAN 10E and HAN 10E

64058axx



Part numbers

Motor DR.71 – DR.100	MOVI-SWITCH®	
	PLUSCON VC	HAN 10E
	Figure 156: 0417 8879	Figure 158: 0817 8860
	Figure 160: 0593 7558	--
	Figure 162: 0817 8895	Figure 164: 0817 8887

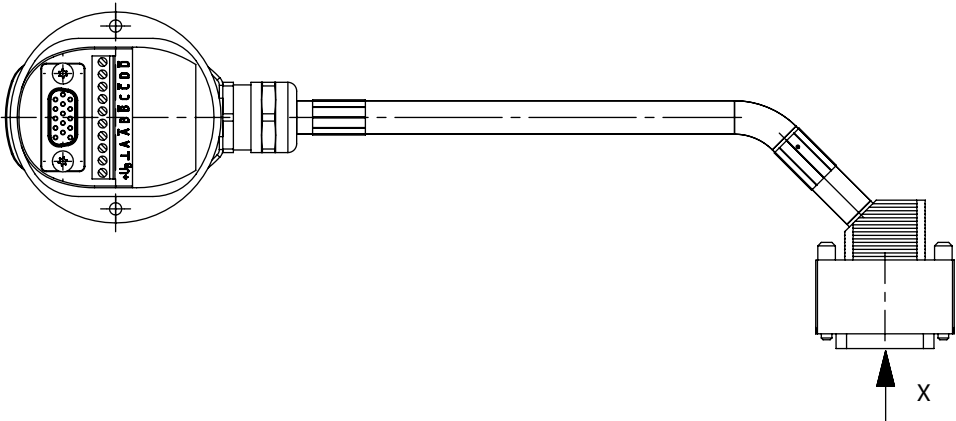
19.11 Add-on encoder cables for DR series AC motors

Encoder cable with D-sub

Prefabricated
cables for
encoders

Encoder types	DR.71 – 132	DR.160 – 225
Sine encoder	ES7S	EG7S
TTL (V _B = DC 9–30 V)	ES7R	EG7R
RS485	AS7W	AG7W

Cable drawing,
wiring



Connector assignment						
A Contact	Signal		Cable Core color	Signal MDX	B Contact	
360° contact A-side			Shielding	360° contact B-side		
A	cos+		Red (RD)	A	1	
A	cos-		Blue (BU)	A	9	
B	sin+		Yellow (YE)	B	2	
B	sin-		Green (GN)	B	10	
C	C +		Brown (BN)	C	3	
C	C -		White (WH)	C	11	
D	Data +		Black (BK)	D	4	
D	Data -		Violet (VT)	D	12	
UB	UB		Red-blue-gray (RD-BU-GY)	UB	15	
	DGND		Gray-pink-pink (GY-PK-PK)		8	
			Shielding			

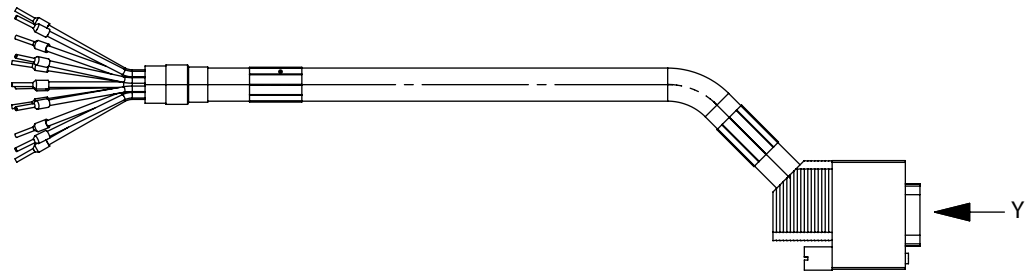


Figure 166: Connection cover with sub-D

63951aen



Cable drawing,
wiring



Connector assignment					
A Contact	Signal		Cable Core color	Signal MDX	B Contact
360° contact A-side		Stranding	Shielding	360° contact B-side	
	A (cos+)		Red (RD)	A (cos+)	
	A (cos-)		Blue (BU)	A (cos-)	
	B (sin+)		Yellow (YE)	B (sin+)	
	B (sin-)		Green (GN)	B (sin-)	
	C +		Brown (BN)	C +	
	C -		White (WH)	C -	
	D +		Black (BK)	D +	
	D -		Violet (VT)	D -	
	UB		Red-blue-gray (RD-BU-GY)	UB	
	GND		Gray-pink-pink (GY-PK-PK)	GND	
			Shielding		



Figure 167: Conductor end sleeves with sub-D

63980aen

Part numbers

Cable type	Sub-D
	Figure 167: 1362 2021
	Figure 166: 1361 7621
	Figure 167: 1362 2048
	Figure 166: 1361 7648

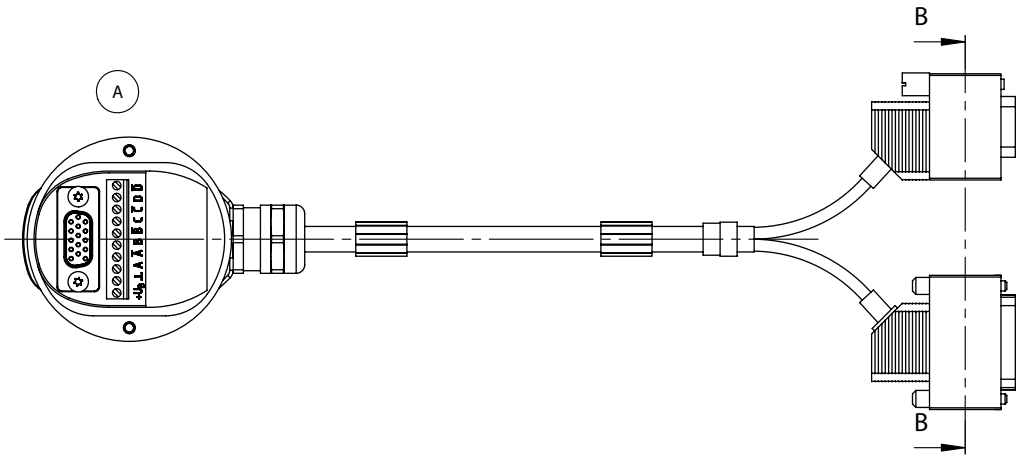


Encoder cable with 2 sub-D

Prefabricated
cables for
encoders

Encoder types	DR.71 – 132	DR.160 – 225	DR.315
M-SSI	AS7Y	AG7Y	AH7Y

Cable drawing,
wiring



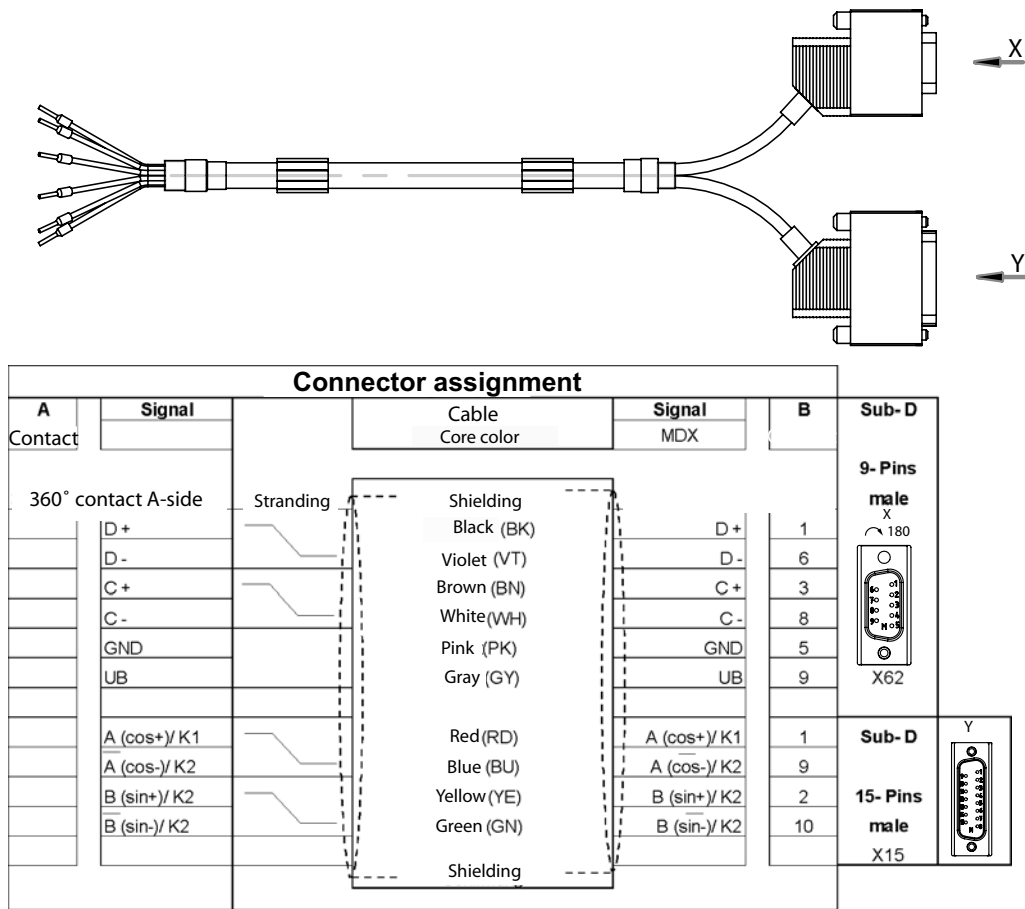
A		Connector assignment			B-B	
Contact	Stranding	Cable core color		Signal	Pin	
A	R	Shielding		cos+	1	
A	B	Red (RD)		cos-	9	
B	G	Blue (BU)		sin+	2	
B		Yellow (YE)		sin-	10	
C+		Green (GN)		C+	3	
C-		Brown (BN)		C-	8	
D+		White (WH)		D+	1	
D-		Black (BK)		D-	6	
UB		Violet (VT)		UB	9	
GND		Red-blue-gray (RD-BU-GY)		GND	5	
		Gray-pink-pink (GY-PK-PK)				
		Shielding				

Figure 168: Connection cover with 2 sub-D (1 × 9-pole and 1 × 15-pole)

64138aen



Cable drawing,
wiring



63956aen

Figure 169: Conductor end sleeves with 2 sub-D (1 × 9-pole and 1 × 15-pole)

Part numbers

Cable type	Sub-D
	Figure 169: 1360 2640
	Figure 168: 1362 6299
	Figure 169: 1362 3265
	Figure 168: 1362 6302



Encoder cable with one M23

Prefabricated
cables for
encoders

Encoder types	DR.315
Sine encoder	EH7S

Cable drawing,
wiring

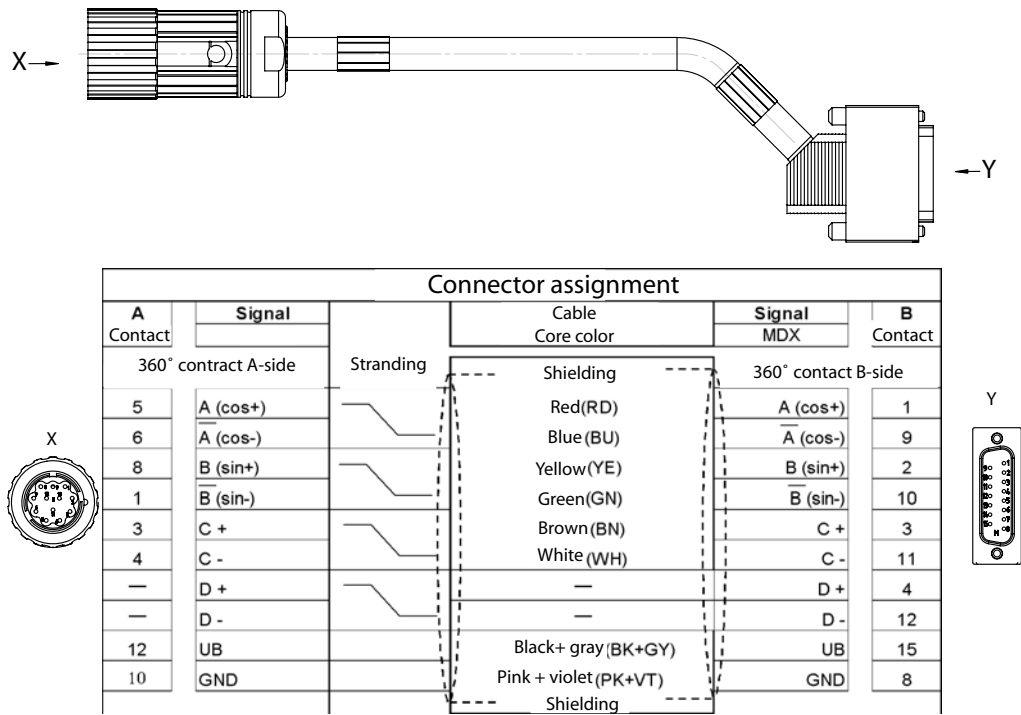


Figure 170: M23 with sub-D

63957aen

Part numbers

Cable type	Sub-D15
	1360 2659
	1362 3206



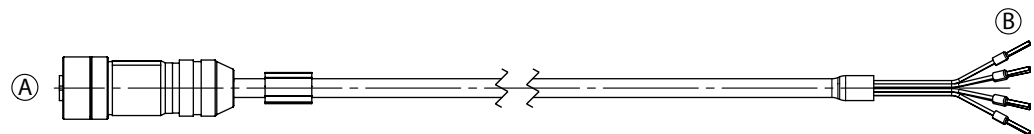
19.12 Built-in encoder cables for DR series AC motors

Encoder cable on a M12

Prefabricated
cables for
encoders

Encoder types	DR.71 – 132
HTL	EI7C EI76 EI72 EI71

Cable drawing,
wiring



Connector assignment					
A Contact	Signal		Cable Core color	Signal MDX	B Contact
360° contact A-side		Stranding	Shielding	360° contact B-side	
	A (cos+)		Brown (BN)	A (cos+)	
	A (cos-)		White(WH)	A (cos-)	
	B (sin+)		Yellow (YE)	B (sin+)	
	B (sin-)		Green (GN)	B (sin-)	
	TF		Red (RD)	TF	
	TF		Blue (BU)	TF	
	UB		Gray (GY)	UB	
	GND		Pink (PK)	GND	
			Shielding		

64141aen

Figure 171: Encoder cable on a M12

Part numbers

Cable type	Sub-D15
	1362 3273
	1362 3281



Prefabricated Cables

Extensions for add-on encoder cables for DR series AC motors

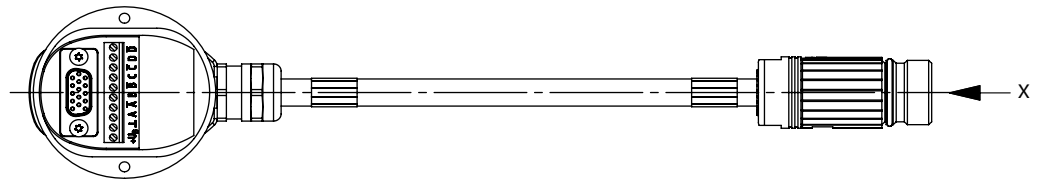
19.13 Extensions for add-on encoder cables for DR series AC motors

Extensions with one M23

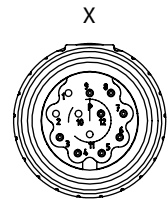
Prefabricated
cables for
encoders

Encoder types	DR.71 – 132	DR.160 – 225
Sine encoder	ES7S	EG7S
TTL ($V_B = DC\ 9\text{--}30\ V$)	ES7R	ES7R
RS485	AS7W	AG7W

Cable drawing,
wiring



Connector assignment					
A Contact	Signal		Cable Core color	Signal MDX	B Contact
360° contact A-side		Stranding	Shielding	360° contact B-side	
	A (cos+)		Red (RD)	A (cos+)	
	A (cos-)		Blue (BU)	A (cos-)	
	B (sin+)		Yellow (YE)	B (sin+)	
	B (sin-)		Green (GN)	B (sin-)	
	C +		Brown (BN)	C +	
	C -		White (WH)	C -	
	D +		Black (BK)	D +	
	D -		Violet (VT)	D -	
	UB		Red-blue-gray (RD-BU+GY)	UB	
	GND		Gray-pink-pink (GY-PK+PK)	GND	
			Shielding		

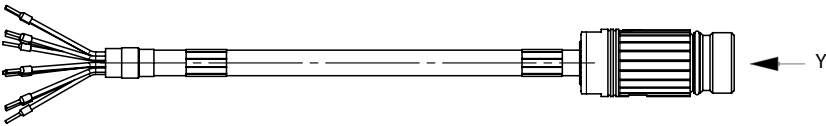


63952aen

Figure 172: Connection cover with M23



Cable drawing,
wiring



Connector assignment					
A	Signal		Cable	Signal	B
Contact			Core color	MDX	Contact
360° contact A-side		Stranding	Shielding	360° contact B-side	
	A (cos+)		Red (RD)		A (cos+)
	A (cos-)		Blue (BU)		A (cos-)
	B (sin+)		Yellow (YE)		B (sin+)
	B (sin-)		Green (GN)		B (sin-)
	C +		Brown (BN)		C +
	C -		White (WH)		C -
	D +		Black (BK)		D +
	D -		Violet (VT)		D -
	UB		Red-blue-gray (RD-BU+GY)		UB
	GND		Gray-pink-pink (GY-PK+PK)		GND
			Shielding		



AKUA 020

Figure 173: Conductor end sleeves with M23

63979aen

Part numbers

Cable type	M23
	Figure 173: 1362 3184
	Figure 172: 1362 1963



Extensions with two M23

*Prefabricated
cables for
encoders*

Encoder types	DR.71 – 132	DR.160 – 225
Sine encoder	ES7S	EG7S
TTL ($V_B = \text{DC } 9\text{--}30 \text{ V}$)	ES7R	ES7R
RS485	AS7W	AG7W

*Cable drawing,
wiring*

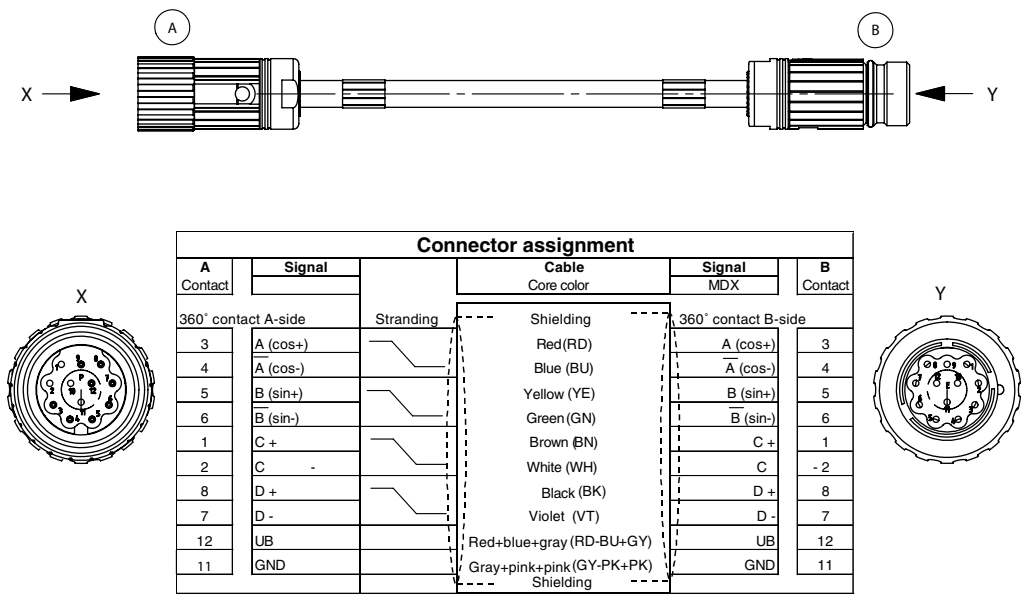


Figure 174:

61142aen

Part numbers

Cable type	M23 – M23
	1362 3292
	1362 1971



Extension with M23 with sub-D

Prefabricated
cables for
encoders

Encoder types	DR.71 – 132	DR.160 – 225
Sine encoder	ES7S	EG7S
TTL ($V_B = \text{DC } 9\text{--}30 \text{ V}$)	ES7R	ES7R
RS485	AS7W	AG7W

Cable drawing,
wiring

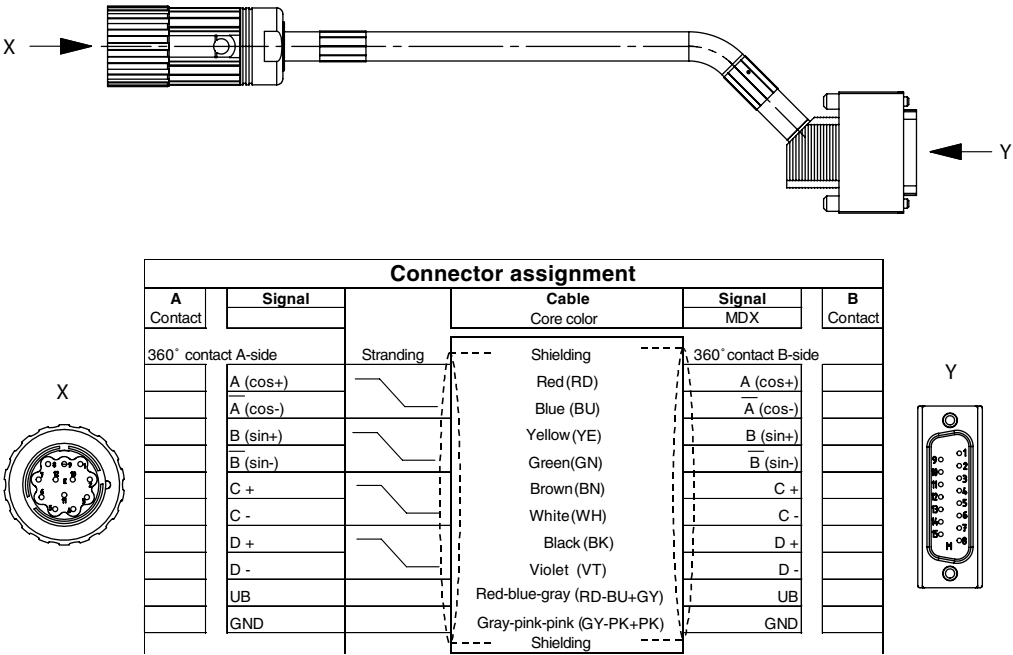


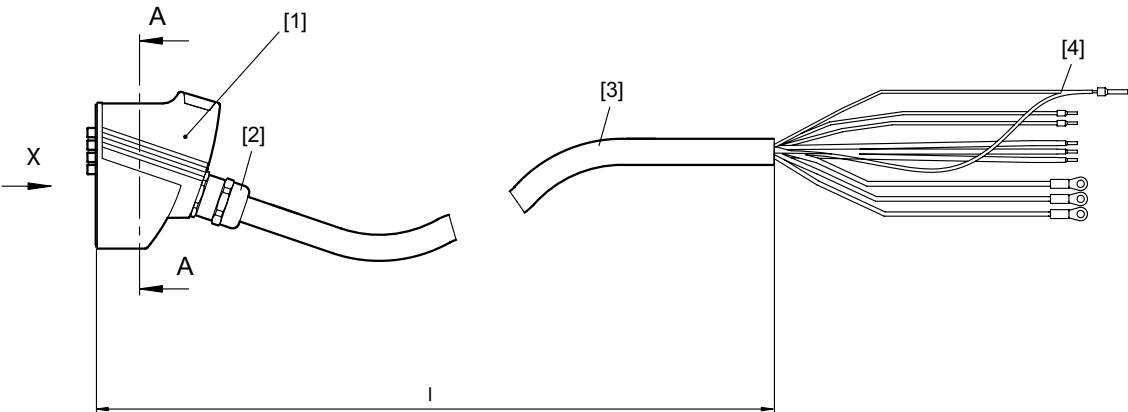
Figure 175: M23 with sub-D

63953aen



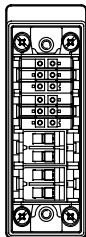
19.14 Prefabricated cables – MOVI-SWITCH®

Cable 0817 8879



A-A		Connector assignm.		B
	Pin	Cable Core color	Signal	Contact
	A1	BK \ U1	U1	CL
	A2	BK \ V1	V1	CL
	B1	BK \ W1	W1	CL
	B2	GNYE \	⏏	CES
	C1	BU \ 15	Brake 15	CES
	C3	RD \ 13	Brake 13	CES
	C5	WH \ 14	Brake 14	CES
	D2	Shielding		
	D3	BK \ 1	24V	CES
	D6	BK \ 2	TF / TH	CES
Cable gland		Shielding		Cable gland
C2, C4, C6, D1, D4, D5			n.c.	

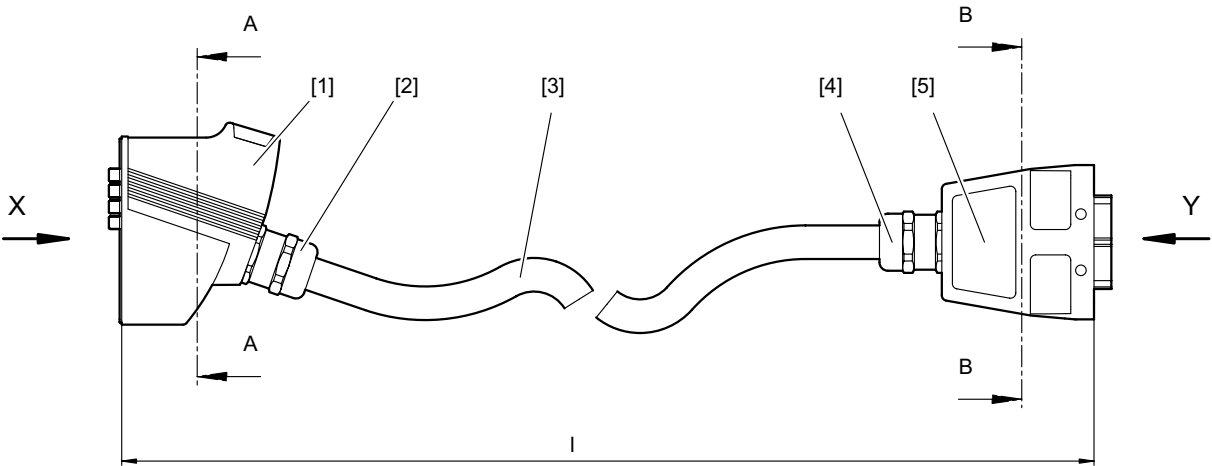
View X



- [1] Phoenix - PLUSCON-VC VARIOCON T3 plug connector, female
- [2] EMC cable gland
- [3] Hybrid cable
- [4] Shield of control core group 2 x 0.75 mm²

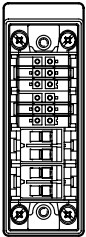


Cable 0817 8895



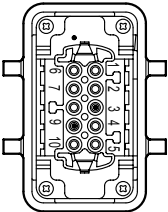
A-A		Connector assignment		B-B	
	Pin	Cable Core color	Signal	Pin	
A	A1	BK \ 7	U1	1	
	A2	BK \ 8	V1	2	
B	B1	BK \ 3	W1	3	
	B2	GNYE \	⏏	PE-Frame	
C	C1	BK \ 6	Brake 15	5	
	C3	BK \ 5	Brake 13	4	
D	C5	BK \ 4	Brake 14	6	
	D2	Shielding		PE-Frame	
	D3	BK \ 1	24V	10	
	D6	BK \ 2	TF / TH	9	
C2, C4, C6, D1, D4, D5			n.c.	7, 8	

View X



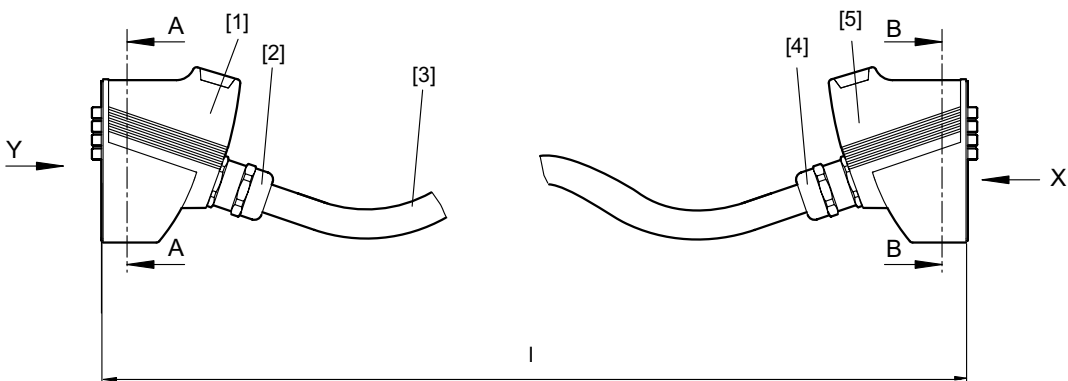
- [1] Phoenix - PLUSCON-VC VARIOCON T3 plug connector, female
- [2] EMC cable gland
- [3] Hybrid cable
- [4] EMC cable gland
- [5] HAN® 10 plug connector, female

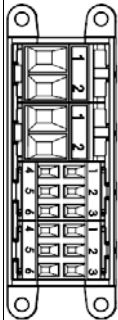
View Y

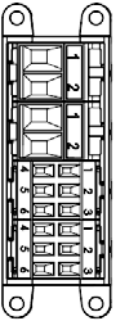




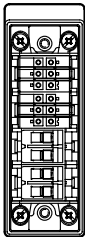
Cable 0186 7415



A-A		Connector assignment		B-B	
		Pin	Cable Core color	Signal	Pin
	A	A1	BK \ U1	U1	A1
		A2	BK \ V1	V1	A2
		B1	BK \ W1	W1	B1
		B2	GNYE \	⏏	B2
		B	C1	BU \ 15	Brake 15
	C3		RD \ 13	Brake 13	C3
	C5		WH \ 14	Brake 14	C5
	C	D2	Shielding (Control cable)		D2
		D3	BK \ 1	24V	D3
	D	D6	BK \ 2	TF / TH	D6
		Cable gland	Shielding (Outer)		Cable gland
	C2, C4, C6, D1, D4, D5		n.c.		C2, C4, C6, D1, D4, D5

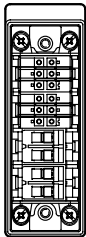
		Pin	Cable Core color	Signal	Pin
	A	A1	BK \ U1	U1	A1
		A2	BK \ V1	V1	A2
		B1	BK \ W1	W1	B1
		B2	GNYE \	⏏	B2
		B	C1	BU \ 15	Brake 15
	C3		RD \ 13	Brake 13	C3
	C5		WH \ 14	Brake 14	C5
	C	D2	Shielding (Control cable)		D2
		D3	BK \ 1	24V	D3
	D	D6	BK \ 2	TF / TH	D6
		Cable gland	Shielding (Outer)		Cable gland
	C2, C4, C6, D1, D4, D5		n.c.		C2, C4, C6, D1, D4, D5

View Y



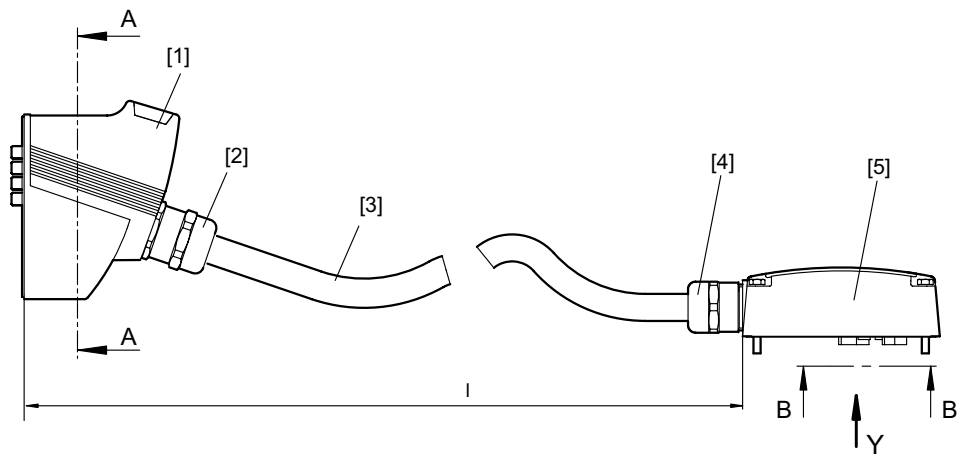
- [1] PLUSCON-VC VARIOCON T3 plug connector, female
- [2] EMC cable gland
- [3] Hybrid cable
- [4] EMC cable gland
- [5] PLUSCON-VC VARIOCON T3 plug connector, female

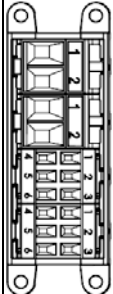
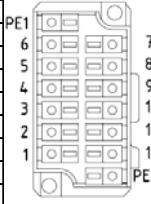
View X



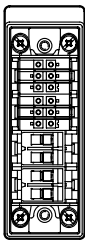


Cable 0593 7558

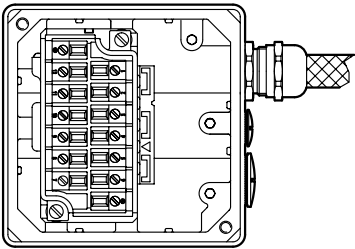


A-A		Connector assignm.			B-B	
	Pin	Cable Core color	Signal	Variable terminal link	Pin	
	A1	BK \ U1	U1		2	
	A2	BK \ V1	V1		4	
	B1	BK \ W1	W1		6	
	B2	GN YE \	PE		PE1	
	C1	BU \ 15	Brake 15		11	
	C3	RD \ 13	Brake 13		10	
	C5	WH \ 14	Brake 14		9	
	C2			E	1	
	C4				3	
	C6				5	
	D2	Shielding (Control cable)			PE2	
	D3	BK \ 1	24V		7	
	D6	BK \ 2	TF / TH		12	
	Cable gland	Shielding (Outer)			Cable gland	
	D1, D4, D5		n.c.		8	

View Y

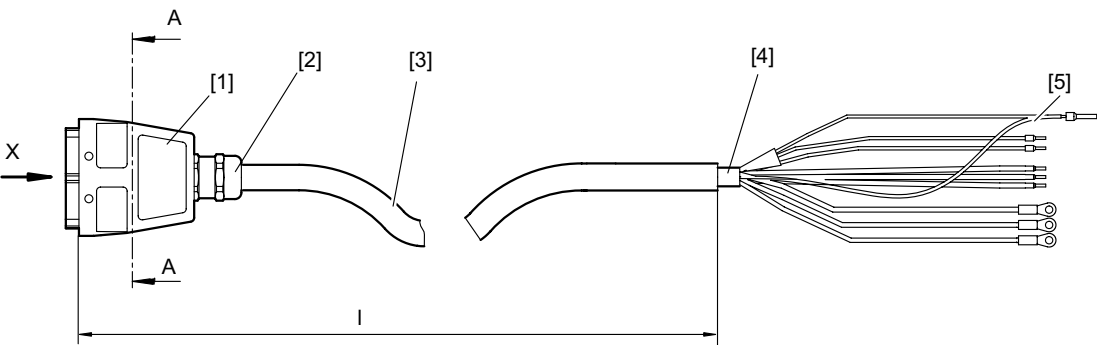


- [1] Phoenix - PLUSCON-VC VARIOCON T3 plug connector, female
- [2] EMC cable gland
- [3] Hybrid cable
- [4] EMC cable gland
- [5] IS plug connector upper part



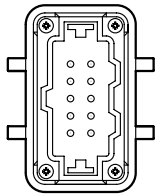


Cable 0817 8860



A-A		Connector assignment		B-B
	Pin	Cable Core color	Signal	Contact
	1	BK \ 7	U1	CL
	2	BK \ 8	V1	CL
	3	BK \ 3	W1	CL
	4	BK \ 5	Brake 13	CES
	5	BK \ 6	Brake 15	CES
	6	BK \ 4	Brake 14	CES
	9	BK \ 1	24V	CES
	10	BK \ 2	TF / TH	CES
	PE-Frame	Shielding (Control cable)		
	PE-Frame	GNYE \	⏏	CES
	7, 8		n.c.	

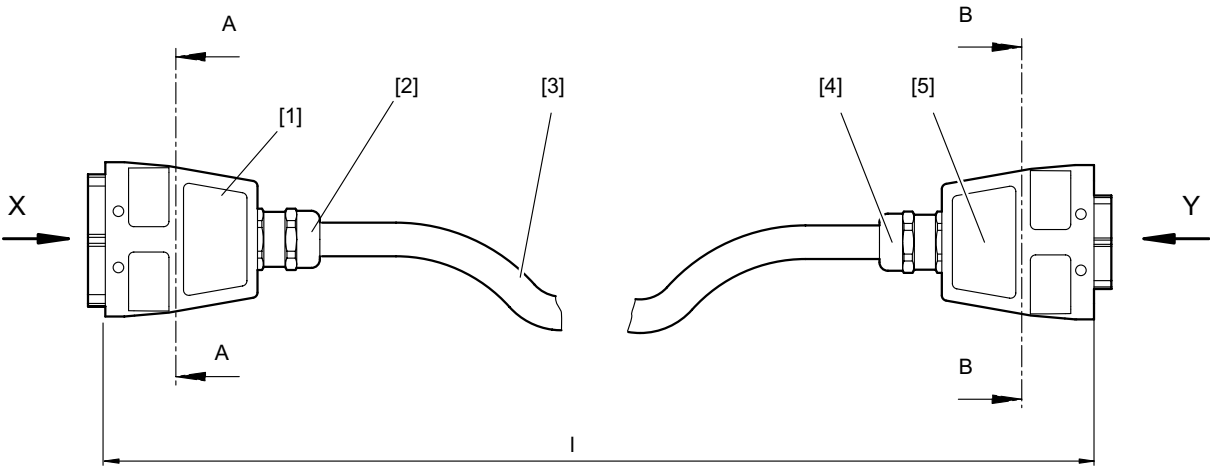
View X



- [1] HAN® 10E plug connector, male
- [2] EMC cable gland
- [3] Hybrid cable
- [4] Stripped braided screen
- [5] Shield of control core group 2 x 0.75 mm²

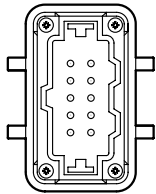


Cable 0817 8887



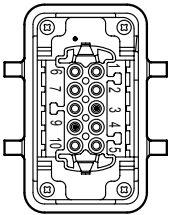
A-A		Connector assignment		B-B	
	Pin	Cable Core color	Signal	Pin	
	1	BK \ 7	U1	1	
	2	BK \ 8	V1	2	
	3	BK \ 3	W1	3	
	4	BK \ 5	Brake 13	4	
	5	BK \ 6	Brake 15	5	
	6	BK \ 4	Brake 14	6	
	9	BK \ 1	24V	9	
	10	BK \ 2	TF / TH	10	
	PE-frame	Shielding (Control cable)		PE-frame	
	PE-frame	GNYE \	⏏	PE-frame	
	7, 8		n.c.	7, 8	

View X



- [1] HAN® 10 plug connector, male
- [2] EMC cable gland
- [3] Hybrid cable
- [4] EMC cable gland
- [5] HAN® 10 plug connector, female

View Y





19.15 Cable assignment – CMP servomotors

Key to the cable assignments:

	Cable with plug connector on motor, fixed installation
	Cable with plug connector on motor, cable carrier installation
	Extension cable with plug connector on motor, fixed installation
	Extension cable with plug connector on motor, cable carrier installation
	Cable with terminal box on motor, fixed installation
	Cable with terminal box on motor, cable carrier installation

Motor cable

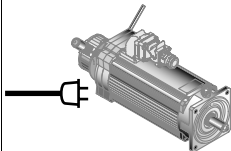
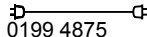
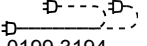
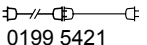
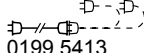
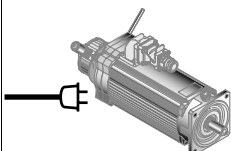
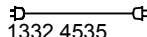
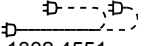
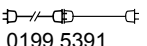
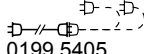
Motor type	Plug connector	Motor	Cable	Control cabinet Field distributor	Details
CMP40 – 63	SM.		 0590 4555 0590 4552 0590 4560 0590 6245 0590 6253 0590 4803 1333 2547 1333 2465 1333 2473	I / O 	page 574 page 576 page 592

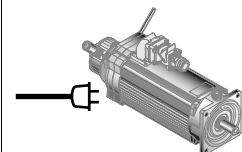
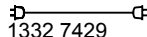
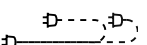
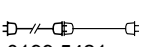
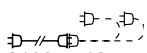
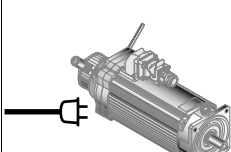
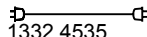
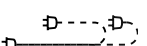
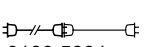
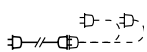
Brakemotor cable

Motor type	Plug connector	Motor	Cable	Control cabinet Field distributor	Details
CMP40 – 63	SB.		 1332 4853 1333 2139 1333 2147 1333 1221 1333 2155 1333 2163 1333 2481 1333 2503 1333 2511	I / O 	page 574 page 578 page 592



Encoder cable

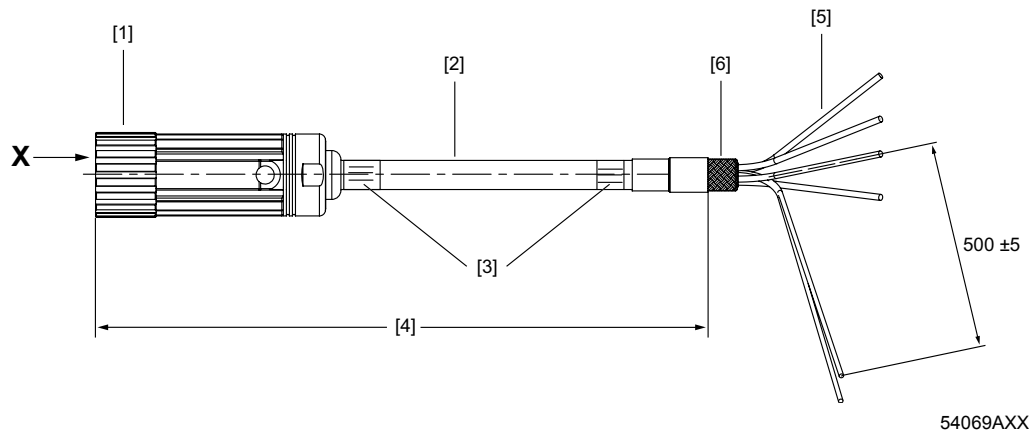
Motor type	Encoder	Motor	Cable	MOVIDRIVE® inverter	For details, see
Resolver					
CMP	Resolver RH1M,		 0199 4875  0199 3194  0199 5421  0199 5413	X15 	page 575 page 581 page 595
Optical encoder					
CMP	HIPERFACE® AS1H, ES1H AS3H, AS4H, AK0H, EK0H		 1332 4535  1332 4551  0199 5391  0199 5405	X15 	page 575 page 583 page 595

Motor type	Encoder	Motor	Cable	MOVIAXIS® servo inverter	For details, see
Resolver					
CMP40 – 63	Resolver RH1M,		 1332 7429  1332 7437  0199 5421  0199 5413	X13 	page 575 page 580 page 595
Optical encoder					
CMP	HIPERFACE® AS1H, ES1H AS3H, AS4H, AK0H, EK0H		 1332 4535  1332 4551  0199 5391  0199 5405	X13 	page 575 page 583 page 595



19.16 Design of the prefabricated cables for CMP servomotors

Motor cables/brakemotor cables for CMP servomotors



- [1] Connector: Intercontec BSTA 078
- [2] SEW-EURODRIVE logo printed on cable
- [3] Nameplate
- [4] Line length ≤ 10 m: Tolerance +200 mm.
Line length ≥ 10 m: Tolerance +2 %.
Permitted line length according to the technical documents.
- [5] Pre-fabricated cable end for inverter.
Required loose parts are supplied with the cable.
- [6] Shielding pulled back approx. 20 mm +5 mm.

Prefabricated cables for motor side

The power cables on the motor end consist of an 8-pin plug connector and socket contacts.

The shield is connected in the connector housing according to EMC requirements. All plug connectors seal the plug on the cable end with a lamellar seal and ensure cable relief according to EN 61884.

Prefabricated cables for inverter side

The individual cable cores of the motor and brakemotor cables are exposed and the shield is prepared for connection in the control cabinet. The cable for the inverter end still has to be fabricated. The loose parts required are supplied with the cable in a separate bag.

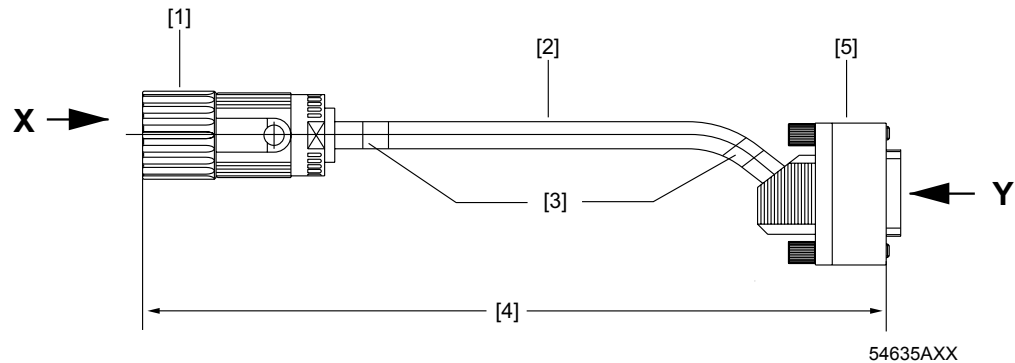
Loose parts

The following loose parts are supplied in accordance with the core cross sections for connection to the power terminals on the inverter:

Bag no.	Content
1	4 x conductor end sleeves 1.5 mm ² , insulated 4 x M6 U-shaped cable lugs 1.5 mm ²
2	4 x conductor end sleeves 2.5 mm ² , insulated 4 x M6 U-shaped cable lugs 2.5 mm ²
3	4 x conductor end sleeves 4 mm ² , insulated 4 x M6 U-shaped cable lugs 4 mm ²



Feedback cable



- [1] Connector: Intercontec ASTA
- [2] Printed on connector: SEW-EURODRIVE
- [3] Nameplate
- [4] Line length ≤ 10 m: Tolerance +200 mm
Line length ≥ 10 m: Tolerance +2 %
Permitted line length according to the technical documents.
- [5] Sub-D connector

**Prefabricated
cables for motor
side**

A 12-pin EMC signal plug connector from Intercontec with socket contacts is used on the motor end for RH.M/AS1H/ES1H. The shield is connected in the connector housing according to EMC requirements. All plug connectors seal the plug on the cable end with a lamellar seal.

**Prefabricated
cables for inverter
side**

A commercial sub-D EMC connector with pin contacts is used on the inverter end. A 9-pin or 15-pin connector matching the inverter is used.

Hybrid cables

The outer cable sheath on the motor and inverter end bears a nameplate with part number and logo of the prefabricated cable manufacturer. The ordered length and permitted tolerance are interrelated as follows:

- Line length ≤ 10 m: Tolerance 200 mm.
- Line length ≥ 10 m: + 2 % tolerance

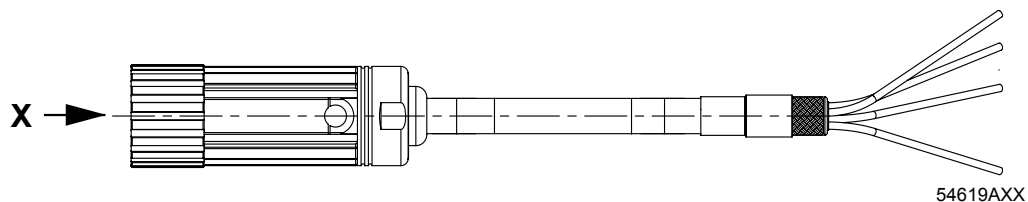
	NOTE Refer to the system manual of the inverter for determining the maximum cable length. Make sure that an EMC-compliant environment is maintained during project planning.
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19.17 Power cables – CMP servomotors

Motor cable

CMP motor cable



CMP motor cable types

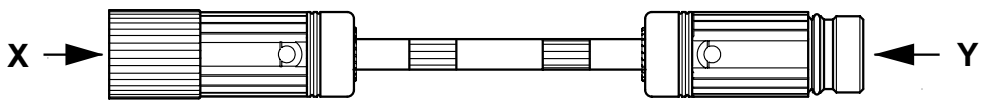
Plug connector type	Number of cores and line cross section	Part number	Installation
SM 11	4 × 1.5 mm ²	0590 4544	Fixed installation
SM 11	4 × 1.5 mm ²	0590 6245	Cable carrier installation
SM12	4 × 2.5 mm ²	0590 4552	Fixed installation
SM12	4 × 2.5 mm ²	0590 6253	Cable carrier installation
SM14	4 × 4 mm ²	0590 4560	Fixed installation
SM14	4 × 4 mm ²	0590 4803	Cable carrier installation

Pin assignment of the CMP motor cable

Plug connector view X	Contact	Cable core color	Assigned	Extra
BSTA 078 	1	(BK) Black	U	Bag of loose parts
	2	(GN/YE) Green / Yellow	PE	
	3	(BK) Black	W	
	4	(BK) Black	V	



CMP motor extension cable



54878AXX

CMP motor extension cable types

Plug connector type	Number of cores and line cross section	Part number	Installation
SM11	4 × 1.5 mm ²	1333 2547	Cable carrier installation
SM12	4 × 2.5 mm ²	1333 2465	Cable carrier installation
SM14	4 × 4 mm ²	1333 2473	Cable carrier installation

Pin assignment of CMP motor extension cable

Plug connector view X	Contact	Cable core color	Assigned	Contact	Plug connector view Y
BSTA 078 	1	(BK/WH) Black with white lettering U, V, W	U	1	BKUA 199
	4		V	4	
	3		W	3	
	2	(GR/YE) Green / Yellow	PE	2	

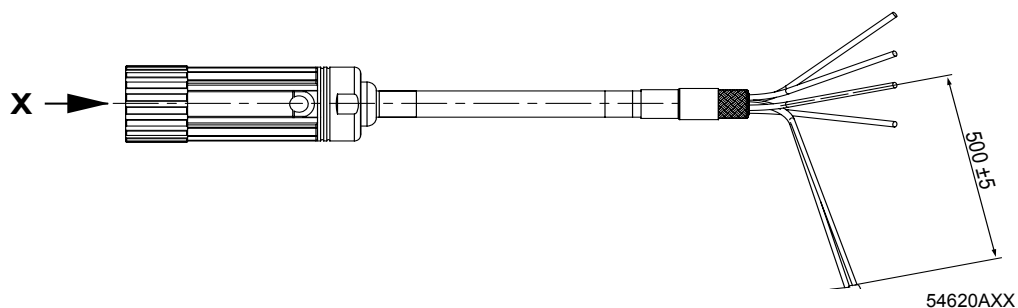


Prefabricated Cables

Power cables – CMP servomotors

Brakemotor cable

CMP brakemotor cable



Types of CMP brakemotor cables

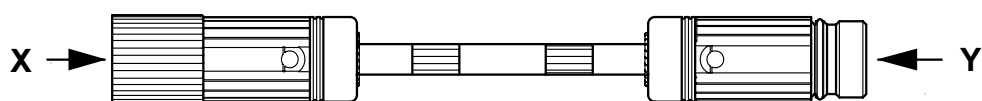
Plug connector type	Number of cores and line cross section	Part number	Installation
SB 11	$4 \times 1.5 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1332 4853	Fixed installation
SB 11	$4 \times 1.5 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1333 1221	Cable carrier installation
SB12	$4 \times 2.5 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1333 2139	Fixed installation
SB12	$4 \times 2.5 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1333 2155	Cable carrier installation
SB14	$4 \times 4 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1333 2147	Fixed installation
SB14	$4 \times 4 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1333 2163	Cable carrier installation

Pin assignment of the CMP brakemotor cable

Plug connector view X	Contact	Cable core color	Assigned	Extra
BSTA 078 	1	(BK/WH) Black with white lettering U, V, W	U	Bag of loose parts
	4		V	
	3		W	
	2	(GN/YE) Green / Yellow	PE	
	A	–	Unassigned	
	B	–	Unassigned	
	C	(BK/WH) Black with white lettering 1, 2	2	
	D		1	



CMP brakemotor extension cable



54878AXX

CMP brakemotor extension cable types

Plug connector type	Number of cores and line cross section	Part number	Installation
SB11	$4 \times 1.5 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1333 2481	Cable carrier installation
SM12	$4 \times 2.5 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1333 2503	Cable carrier installation
SM14	$4 \times 4 \text{ mm}^2 + 2 \times 1 \text{ mm}^2$	1333 2511	Cable carrier installation

Pin assignment of the CMP brakemotor extension cable

Plug connector view X	Contact	Cable core color	Assigned	Contact	Plug connector view Y
BSTA 078 	1	(BK/WH) Black with white lettering U, V, W	U	1	BKUA 199
	4		V	4	
	3		W	3	
	2	(GN/YE) Green / Yellow	PE	2	
	A	–	Unas-igned	A	
	B	–	Unas-igned	B	
	C	(BK/WH) Black with white lettering 1, 2	2	C	
	D		1	D	



19.18 Encoder cables – CMP servomotors

Resolver

Resolver cable RH.M for MOVIDRIVE® MDX60B/61B

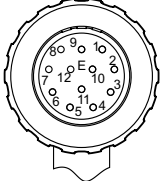
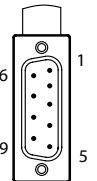


54704AXX

RH.M resolver cable types for MOVIDRIVE® MDX60B/61B

Type	Number of cores and line cross section	Part number	Installation
CMP	5 × 2 × 0.25 mm ²	0199 4875	Fixed installation
CMP	5 × 2 × 0.25 mm ²	0199 3194	Cable carrier installation

Pin assignment of resolver cable RH.M for MOVIDRIVE® MDX60B/61B

Motor connection side		Description	Cable core color	Description	MOVIDRIVE® B connection	
Plug connector view X	Contact no.				Contact no.	Plug connector view Y
ASTA 021FR 198 921 9 12-pin with socket contacts 	1	R1 (reference +)	(PK) Pink	R1 (reference +)	3	Sub-D 9-pin 
	2	R2 (reference -)	(GY) Gray	R2 (reference -)	8	
	3	S1 (cosine +)	(RD) Red	S1 (cosine +)	2	
	4	S3 (cosine -)	(BU) Blue	S3 (cosine -)	7	
	5	S2 (sine +)	(YE) Yellow	S2 (sine +)	1	
	6	S4 (sine -)	(GN) Green	S4 (sine -)	6	
	7	Unassigned	–	–	–	
	8	Unassigned	–	–	–	
	9	TF/KTY +	(BN) Brown / (VT) Violet ¹⁾	TF (KTY+)	9	
	10	TF / KTY –	(WH) White / (BK) Black ¹⁾	TF / KTY –	5	
	11	Unassigned	–	–	–	
	12	Unassigned	–	Unassigned	4	

1) Double assignment to increase cross section



RH.M resolver cable for MOVIAXIS® MX



RH.M resolver cable tables for MOVIAXIS® MX

Type	Number of cores and line cross section	Part number	Installation
CMP	5 ×2×0.25 mm ²	1332 7429	Fixed installation
CMP	5 ×2×0.25 mm ²	1332 7437	Cable carrier installation

Pin assignment of RH.M resolver cable for MOVIAXIS® MX

Motor connection side				Connection MOVIAXIS® MX		
Plug connector view X	Contact no.	Description	Cable core color	Description	Contact no.	Plug connector view Y
ASTA 021FR 198 921 9 12-pin with socket contacts 	1	R1 (reference +)	(PK) Pink	R1 (reference +)	5	Sub-D 15-pin
	2	R2 (reference -)	(GY) Gray	R2 (reference -)	13	
	3	S1 (cosine +)	(RD) Red	S1 (cosine +)	2	
	4	S3 (cosine -)	(BU) Blue	S3 (cosine -)	10	
	5	S2 (sine +)	(YE) Yellow	S2 (sine +)	1	
	6	S4 (sine -)	(GN) Green	S4 (sine -)	9	
	7	Unassigned	–	Unassigned	3	
	8	Unassigned	–	Unassigned	4	
	9	TF/KTY +	(BN) Brown / (VT) Violet ¹⁾	TF/KTY +	14	
	10	TF/KTY -	(WH) White / (BK) Black ¹⁾	TF/KTY -	6	
	11	Unassigned	–	Unassigned	7	
	12	Unassigned	–	Unassigned	8	
		–	–	Unassigned	11	
		–	–	Unassigned	12	
		–	–	Unassigned	15	

1) Double assignment to increase cross section

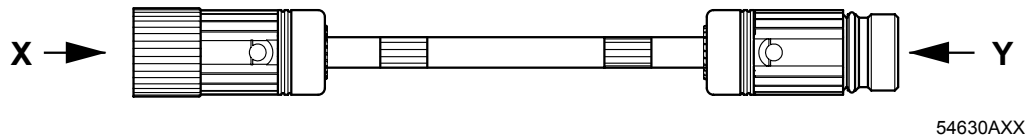
All connectors are shown with view onto the pins.



Prefabricated Cables

Encoder cables – CMP servomotors

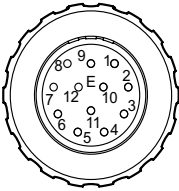
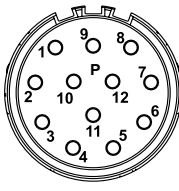
Extension cable for RH.M resolver



Extension cable types for RH.M resolver

Type	Number of cores and line cross section	Part number	Installation
CMP	5 × 2 × 0.25 mm ²	0199 5421	Fixed installation
CMP	5 × 2 × 0.25 mm ²	0199 5413	Cable carrier installation

Pin assignment of extension cable for resolver RH.M

Plug connector view X	Contact no.	Description	Cable core color	Description	Contact no.	Plug connector view Y
ASTA 021FR 198 673 2 12-pin with socket contacts 	1	R1 (reference +)	(PK) Pink	R1 (reference +)	1	AKUA 020MR 199 647 9 12-pin with pin contacts 
	2	R1 (reference -)	(GY) Gray	R1 (reference -)	2	
	3	S1 (cosine +)	(RD) Red	S1 (cosine +)	3	
	4	S3 (cosine -)	(BU) Blue	S3 (cosine -)	4	
	5	S2 (sine +)	(YE) Yellow	S2 (sine +)	5	
	6	S4 (sine -)	(GN) Green	S4 (sine -)	6	
	7	Unassigned	–	Unassigned	7	
	8	Unassigned	–	Unassigned	8	
	9	TF/KTY +	(BN) Brown / (VT) Violet ¹⁾	TF/KTY +	9	
	10	TF/KTY -	(WH) White / (BK) Black ¹⁾	TF/KTY -	10	
	11	Unassigned	–	Unassigned	11	
	12	Unassigned	–	Unassigned	12	

1) Double assignment to increase cross section

The extension cable has the same pin assignment as all other contacts.

Alternative plug connector for resolver cable RH.M

Signal plug connector with socket contacts (complete)

Type	Cross sections that can be connected	Part no.
RH.M	6 × 2 × 0.06 – 1 mm ²	0198 6732



HIPERFACE® encoder

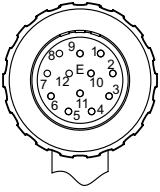
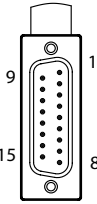
HIPERFACE® encoder cable for MOVIDRIVE® B and MOVIAXIS® MX



HIPERFACE® encoder cable types for MOVIDRIVE® B and MOVIAXIS® MX

Type	Number of cores and line cross section	Part number	Installation
CMP	6 ×2×0.25 mm ²	1332 4535	Fixed installation
CMP	6 ×2×0.25 mm ²	1332 4551	Cable carrier installation

Pin assignment of HIPERFACE® cables for AK0H/EK0H/AS1H/ES1H encoders

Motor connection side					MOVIAXIS® MX, MOVIDRIVE® B connection	
Plug connector view X	Contact no.	Description	Cable core color	Description	Contact no.	Plug connector view Y
ASTA 021FR 198 921 9 12-pin with socket contacts 	1	Unassigned	Unassigned	Unassigned	3	Sub-D 15-pole 
	2	Unassigned	Unassigned	Unassigned	5	
	3	S1 (cosine +)	(RD) Red	S1 (cosine +)	1	
	4	S3 (cosine -)	(BU) Blue	S3 (cosine -)	9	
	5	S2 (sine +)	(YE) Yellow	S2 (sine +)	2	
	6	S4 (sine -)	(GN) Green	S4 (sine -)	10	
	7	DATA-	(VT) Violet	DATA-	12	
	8	DATA+	(BK) Black	DATA+	4	
	9	TF/KTY +	(BN) Brown	TF/KTY +	14	
	10	TF/KTY -	(WH) White	TF/KTY -	6	
	11	GND	(GY/PK) Gray/Pink ¹⁾	GND	8	
	12	U _s	(RD/BU) Red/Blue ¹⁾	U _s	15	
		–	–	Unassigned	7	
		–	–	Unassigned	11	
		–	–	Unassigned	13	

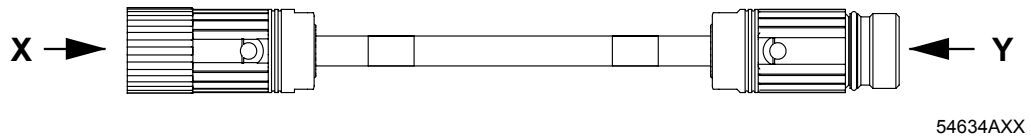
1) Double assignment to increase cross section



Prefabricated Cables

Encoder cables – CMP servomotors

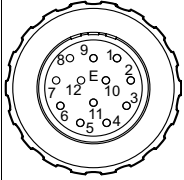
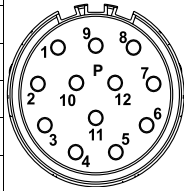
Extension cable for HIPERFACE® AK0H/EK0H/AS1H/ES1H encoders



Extension cable types for HIPERFACE® AK0H/EK0H/AS1H/ES1H encoders

Type	Number of cores and line cross section	Part number	Installation
CMP	6 × 2 × 0.25 mm ²	0199 5391	Fixed installation
CMP	6 × 2 × 0.25 mm ²	0199 5405	Cable carrier installation

Pin assignment for extension cable for HIPERFACE® AK0H/EK0H/AS1H/ES1H encoders

Plug connector view X	Contact no.	Description	Cable core color	Description	Contact no.	Plug connector view Y
ASTA 021FR 198 673 2 12-pin with socket contacts 	1	Unassigned	–	Unassigned	1	AKUA 020MR 199 647 9 12-pin with pin contacts 
	2	Unassigned	–	Unassigned	2	
	3	S1 (cosine +)	(RD) Red	S1 (cosine +)	3	
	4	S3 (cosine -)	(BU) Blue	S3 (cosine -)	4	
	5	S2 (sine +)	(YE) Yellow	S2 (sine +)	5	
	6	S4 (sine -)	(GN) Green	S4 (sine -)	6	
	7	DATA-	(VT) Violet	DATA-	7	
	8	DATA+	(BK) Black	DATA+	8	
	9	TF/KTY +	(BN) Brown	TF/KTY +	9	
	10	TF/KTY -	(WH) White	TF/KTY -	10	
	11	GND	(GY/PK) (Gray/Pink / (PK) Pink	GND	11	
	12	U _s	(RD/BU) Red/Blue / (GY) Gray	U _s	12	

The extension cable has the same pin assignment as all other contacts.

Alternative plug connector cable for HIPERFACE® AK0H/EK0H/AS1H/ES1H encoders

Signal plug connector with socket contacts (complete)

Type	Cross sections that can be connected	Part no.
AK0H	6 × 2 × 0.06 – 1 mm ²	0198 6732
EK0H		
AS1H		
ES1H		



19.19 Mating connector combinations – CMP servomotors

Power cable

Cable type		Plug connector type	Cable cross section [mm ²]	Part number	
				Prefabricated cables	Power connector*
Fixed installation	Motor cable	SM11	4 x 1.5 mm ²	0590 4544	0198 6740
		SM12	4 x 2.5 mm ²	0590 4552	0198 6740
		SM14	4 x 4 mm ²	0590 4560	0199 1639
		SMB6	4 x 6 mm ²	**	**
		SMB10	4 x 10 mm ²	**	**
	Brakemotor cable ¹⁾	SB11	4 x 1.5 mm ² + 2 x 1 mm ²	1332 4853	0198 6740
		SB12	4 x 2.5 mm ² + 2 x 1 mm ²	1332 2139	0198 6740
		SB14	4 x 4 mm ² + 2 x 1 mm ²	1332 2147	0199 1639
		SBB6	4 x 6 mm ² + 3 x 1.5 mm ²	**	**
		SBB10	4 x 10 mm ² + 3 x 1.5 mm ²	**	**
Cable carrier installation	Motor cable	SM11	4 x 1.5 mm ²	0590 6245	0198 6740
		SM12	4 x 2.5 mm ²	0590 6253	0198 9197
		SM14	4 x 4 mm ²	0590 4803	0199 1639
		SMB6	4 x 6 mm ²	**	**
		SMB10	4 x 10 mm ²	**	**
	Brakemotor cable ¹⁾	SB11	4 x 1.5 mm ² + 2 x 1 mm ²	1333 1221	0198 9197
		SB12	4 x 2.5 mm ² + 2 x 1 mm ²	1333 2155	0198 9197
		SB14	4 x 4 mm ² + 2 x 1 mm ²	1333 2163	0199 1639
		SBB6	4 x 6 mm ² + 3 x 1.5 mm ²	**	**
		SBB10	4 x 10 mm ² + 3 x 1.5 mm ²	**	**

1) BP brake: 3-core cable, only 2 cores are used

* The complete set of mating connectors always includes the following parts:

- Power connector,
- Insulation inserts,
- Socket contacts.

** Part number on request



Prefabricated Cables

Mating connector combinations – CMP servomotors

Encoder cable

Cable type		Cable cross section		FI type	Part number	
		[mm ²]	AWG		Prefabricated cables	Signal connector*
Fixed installation	Resolver cable	5 x 2 x 0.25 mm ²		MOVIDRIVE®	0199 4875	0198 6732
				MOVIAXIS®	1332 7429	
Cable carrier installation				MOVIDRIVE®	0199 3194	
				MOVIAXIS®	1332 7437	
Fixed installation	Hiperface cable	6 x 2 x 0.25 mm ²		MOVIDRIVE® / MOVIAXIS®	1332 4535	0198 6732
Cable carrier installation				MOVIDRIVE® / MOVIAXIS®	1332 4551	

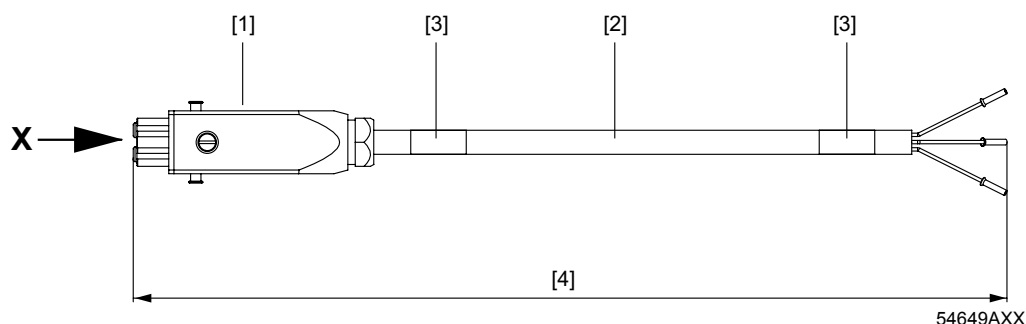
* The complete set of mating connectors always includes the following parts:

- Feedback connector,
- Insulation inserts,
- Socket contacts.



19.20 Forced cooling fan cables – CMP servomotors

Cable for motors with VR forced cooling fan

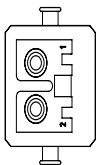


- [1] Connector: STAK 200
- [2] Printed on connector: SEW-EURODRIVE
- [3] Nameplate
- [4] Line length ≤ 5 m: Tolerance +200 mm
Line length ≥ 5 m: Tolerance +2 %
Permitted line length according to the technical documents.

Cable types for motors with VR forced cooling fan

Type	Cross section	Installation	Part number
CMP	3 × 1 mm ² (AWG 18)	Fixed installation	0198 6341
CMP		Cable carrier installation	0199 560X

Pin assignment of cables for motors with VR forced cooling fan

STAK 200 plug connector view X	Contact	Core identification	Assigned	Contact	Connection type
Connector with two socket contacts 	1	First digit	24 V +	Cut-off, length ca. 250 mm	Conductor end sleeves
	2	Second digit	0 V		

Alternative connector for cable for the VR forced cooling fan

Signal plug connector with socket contacts (complete)

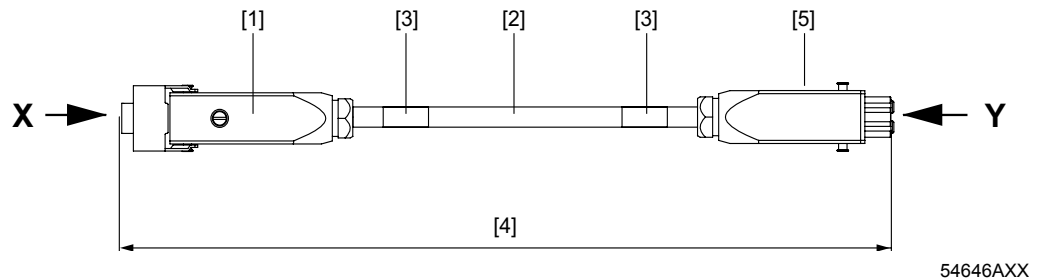
Type	Cross sections that can be connected	Installation	Part number
VR	3 × 1 mm ² (AWG 18)	Fixed installation/cable carrier installation	0198 4985



Prefabricated Cables

Forced cooling fan cables – CMP servomotors

Extension cable for motors with VR forced cooling fan

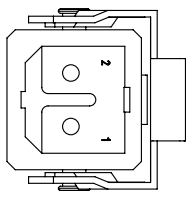
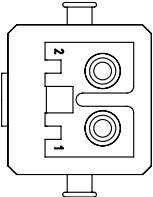


- [1] Connector: STAS 200
- [2] Printed on connector: SEW-EURODRIVE
- [3] Nameplate
- [4] Line length ≤ 5 m: Tolerance +200 mm
Line length ≥ 5 m: Tolerance +2 %
Permitted line length according to the technical documents.
- [5] Socket: STAK 200

Extension cable types for motors with VR forced cooling fan

Type	Cross section	Installation	Part number
CMP	$3 \times 1 \text{ mm}^2$ (AWG 18)	Fixed installation	0199 5618
CMP		Cable carrier installation	0199 5626

Pin assignment of extension cables for motors with VR forced cooling fan

STAS 200 plug connector view X	Contact	Core identification	Assigned	Contact	STAK 200 connection type view Y
Connector with two pin contacts 	1	First digit	24 V +	1	Connector with two socket contacts 
	2	Second digit	0 V	2	

The extension cable has the same pin assignment as all other contacts.

Alternative connector for cable for the VR forced cooling fan

Signal plug connector with pin contacts (complete)

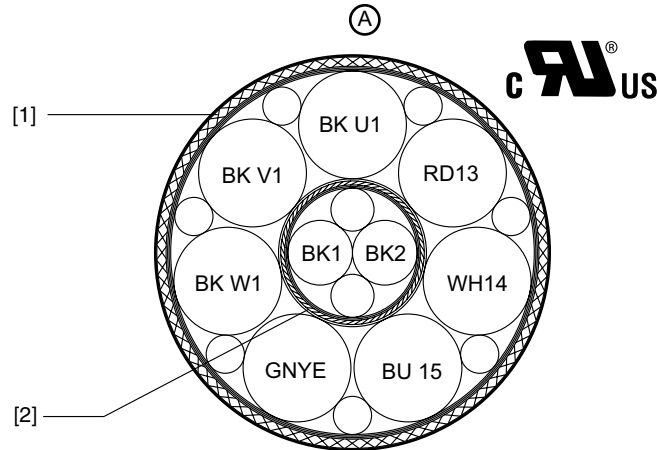
Type	Cross sections that can be connected	Part no.
VR	$3 \times 1 \text{ mm}^2$	0198 5693



19.21 Cable specifications of DR. power cables

Cable type A

Mechanical design



55292AXX

Cable type (A) Connection between Z.7 or Z.8 field distributors and AC motors
Connection between MOVIMOT® or MOVI-SWITCH® 2S and AC motors
(for mounting close to the motor)

[1]Overall shield
[2]Shielding

- SEW works standard W3251 (817 953 0)
- Supply cores: 7 x 1.5 mm²
- Control core pair: 2 x 0.75 mm²
- Insulation: TPE-U (polyurethane)
- Conductor: Bare E-Cu strand, extra fine wires with individual wire ≤ 0.1 mm
- Shield: Tinned E-Cu wire.
- Overall diameter: 13.2 ... 15.9 mm
- Color of outer cable sheath: Black

Electrical properties

- Conductor resistance for 1.5 mm² (at 20 °C): max. 13 Ω/km
- Conductor resistance for 0.75 mm² (at 20 °C): max. 26 Ω/km
- Operating voltage for 1.5 mm² core: max. 750 V (c  600 V)
- Operating voltage for 0.75 mm² core: max. 350 V (c  600 V)
- Insulation resistance at 20 °C: min. 20 MΩ x km



Prefabricated Cables

Cable specifications of DR. power cables

Mechanical properties

- Suitable for cable carriers
 - Bending cycles > 2.5 million
 - Traveling velocity ≤ 3 m/s
- Bending radius in the cable carrier: 10 x diameter
for fixed routing: 5 x diameter
- Torsional strength (e.g. rotary table applications)
 - Torsion $\pm 180^\circ$ for a cable length of > 1 m
 - Torsional cycles > 100 000



You will have to check the mechanical marginal conditions if you encounter reversed bending and high torsional load for a length of < 3 m. Please contact SEW-EURODRIVE in such cases.

Thermal properties

- Processing and operation: -30°C to $+90^\circ\text{C}$ (cUL_{us}: -30°C to $+80^\circ\text{C}$)
- Transport and storage: -40°C to $+90^\circ\text{C}$ (cUL_{us}: -30°C to $+80^\circ\text{C}$)
- Flame-retardant according to UL1581 Vertical Wiring Flame Test (VW1)
- Flame-retardant according to CSA C22.2 Vertical Wiring Flame Test

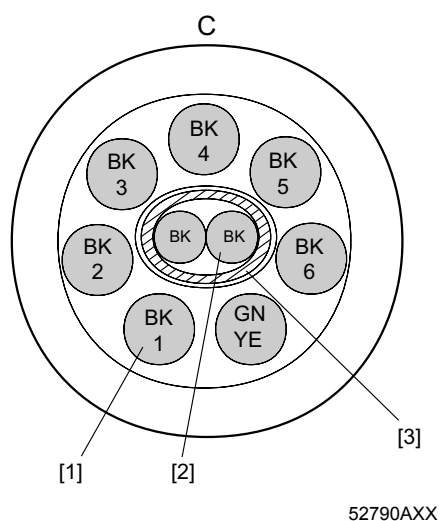
Chemical properties

- Oil-resistant according to VDE 0472 part 803 method B
- General resistance to fuels (such as diesel, gasoline) according to ISO 6722 parts 1 and 2
- General resistance to acids, alkalis, cleaning agents
- General resistance to dust (such as bauxite, magnesite)
- Insulation and cable jacket material is halogen free according to VDE 0472 part 815 as well as silicone free
- Within the specified temperature range, free from substances interfering with wetting agents



Cable type C

Mechanical design



Cable type **©** Connection between MOVI-SWITCH® 2S and AC motors
(for mounting close to the motor with option P2.A)

- [1] Cores 2.5 mm²
- [2] Cores 0.75 mm²
- [3] Shielding

- SEW works standard W3251 (015 207 2)
- Supply cores: 7 x 2.5 mm²
- Control cores: 2 x 0.75 mm²
- Insulation: PVC / special PVC
- Conductor: Fine wires to VDE class 5, copper strand conductor
- Shield: Braided tinned copper shield
- Overall diameter: 15,2 mm

Electrical properties

- Conductor resistance for 2.5 mm²: 8,5 Ω/km
- Conductor resistance for 0.75 mm²: 26 Ω/km
- Operating voltage for 2,5 mm² cores: 600 V/1000 V
- Operating voltage for cores 0.75 mm²: AC 48 V
- Insulation resistance: 20 MΩ x km

Mechanical properties

- Bending radius in the cable carrier: 20 x diameter
- for fixed routing: 6 x diameter

Thermal properties

- Processing and operation:
 - Flexible routing: -5 °C to +70°C
 - Fixed routing: -30 °C to +80°C
- Transport and storage: -30 °C up to +80 °C



19.22 Cable specifications for CMP power cables

Fixed installation

Motor cable

Installation		Fixed				
Cable cross sections		4 x 1.5 mm ² (AWG 16)	4 x 2.5 mm ² (AWG 14)	4 x 4 mm ² (AWG 12)	4 x 6 mm ² (AWG 10)	4 x 10 mm ² (AWG 8)
Manufacturer		HELUKABEL				
Manufacturer designation		LI9YCY				
Operating voltage V ₀ / V AC	[V]	600 / 1000				
Temperature range	[°C]	Fixed installation – 40 to +80				
Max. temperature	[°C]	+80				
Min. bending radius	[mm]	45	55	65	73	85
Diameter D	[mm]	9.0 ± 0.2	11 ± 0.2	13 ± 0.2	14.3 ± 0.3	17.0 ± 0.6
Core identification		BK with lettering WH + GN/YE				
Sheath color		Orange, similar to RAL 2003				
Approval(s)		DESINA / VDE / UL				
Capacitance core/shielding	[nF/km]	110	110	118	125	125
Capacitance core/core	[nF/km]	70	70	75	80	80
Halogen-free		No				
silicon-free		yes				
CFC-free		yes				
Inner insulation (core)		PP				
Outer insulation (sheath)		PVC				
Flame-inhibiting/self-extinguishing		No				
Conductor material		Cu				
Shielding		Tinned Cu				
Weight (cable)	[kg/km]	134	202	262	332	601

Brakemotor cable

Installation		Fixed				
Cable cross sections		4 x 1.5 mm ² (AWG 16) + 3 x 1 mm ² (AWG 18)	4 x 2.5 mm ² (AWG 14) + 3 x 1 mm ² (AWG 18)	4 x 4 mm ² (AWG 12) + 3 x 1 mm ² (AWG 18)	4 x 6 mm ² (AWG 10) + 3 x 1.5 mm ² (AWG 16)	4 x 10 mm ² (AWG 8) + 3 x 1.5 mm ² (AWG 16)
Manufacturer		HELUKABEL				
Manufacturer designation		LI9YCY				
Operating voltage V ₀ / V AC	[V]	600 / 1000				
Temperature range	[°C]	Fixed installation: –40 to +80				
Max. temperature	[°C]	+80				
Min. bending radius	[mm]	60	68	75	85	100
Diameter D	[mm]	11.8 ± 0.4	13.4 ± 0.4	15.0 ± 0.5	17.0 ± 0.6	20.0 ± 1.0
Core identification		BK with lettering WH + GN/YE				
Sheath color		Orange similar to RAL 2003				
Approval(s)		DESINA / VDE / UL				
Capacitance core / shielding	[nF/km]	105	105	110	115	120
Capacitance core / core	[nF/km]	60	60	70	75	78



Installation		Fixed				
Cable cross sections		4 x 1.5 mm ² (AWG 16) + 3 x 1 mm ² (AWG 18)	4 x 2.5 mm ² (AWG 14) + 3 x 1 mm ² (AWG 18)	4 x 4 mm ² (AWG 12) + 3 x 1 mm ² (AWG 18)	4 x 6 mm ² (AWG 10) + 3 x 1.5 mm ² (AWG 16)	4 x 10 mm ² (AWG 8) + 3 x 1.5 mm ² (AWG 16)
Manufacturer		HELUKABEL				
Halogen-free		No				
silicon-free		yes				
CFC-free		yes				
Inner insulation (core)		PP				
Outer insulation (sheath)		PVC				
Flame-inhibiting/self-extinguishing		yes				
Conductor material		Cu				
Shielding		Tinned Cu				
Weight (cable)	[kg/km]	229	292	393	542	938

Cable carrier installation

Motor cable

Installation		Cable carrier				
Cable cross sections		4 x 1.5 mm ² (AWG 16)	4 x 2.5 mm ² (AWG 14)	4 x 4 mm ² (AWG 12)	4 x 6 mm ² (AWG 10)	4 x 10 mm ² (AWG 8)
Manufacturer		Nexans				
Manufacturer designation		PSL(LC)C11Y-J 4 x – mm ²		PSL11YC11Y-J 4 x – mm ²		
Operating voltage V ₀ / V AC	[V]	600 / 1000				
Temperature range	[°C]	–20 to +60				
Max. temperature	[°C]	+90 (+194) (on conductor)				
Min. bending radius	[mm]	134	140	135	155	180
Diameter D	[mm]	12.8 + 0.6 / –0.7	15.7 ± 0.3	13.2 ± 0.4	15.4 ± 0.4	17.8 ± 0.5
Maximum acceleration	[m/s ²]	20				
Max. velocity	[m/min]	200 at max. travel distance of 5 m				
Core identification		BK with lettering WH + GN/YE				
Sheath color		Orange similar to RAL 2003				
Approval(s)		DESINA / VDE / UL / cRUus				
Capacitance core / shielding	[nF/km]	95	95	170	170	170
Capacitance core / core	[nF/km]	65	65	95	95	95
Halogen-free		yes				
silicon-free		yes				
CFC-free		yes				
Inner insulation (core)		Polyolefin		TPM		
Outer insulation (sheath)		TPU (PUR)				
Flame-inhibiting/self-extinguishing		yes				
Conductor material		E-Cu blank				
Shielding		Braided tinned Cu shield (optically covered > 85 %)				
Weight (cable)	[kg/km]	249	373	311	426	644
Min. bending cycles		= 5 million				



Brakemotor cable

Installation		Cable carrier				
Cable cross sections		4 x 1.5 mm ² (AWG 16) + 3 x 1 mm ² (AWG 18)	4 x 2.5 mm ² (AWG 14) + 3 x 1 mm ² (AWG 18)	4 x 4 mm ² (AWG 12) + 3 x 1 mm ² (AWG 18)	4 x 6 mm ² (AWG 10) + 3 x 1.5 mm ² (AWG 16)	4 x 10 mm ² (AWG 8) + 3 x 1.5 mm ² (AWG 16)
Manufacturer		Nexans				
Manufacturer designation		PSL(LC)C11Y-J 4x... +3A.../C		PSL11YC11Y-J 4x... +3A.../C		
Operating voltage V ₀ / V AC	[V]	600 / 1000				
Temperature range	[°C]	-20 to +60				
Max. temperature	[°C]	+90 (conductor)				
Min. bending radius	[mm]	159	170	155	175	200
Diameter D	[mm]	15.0 ± 0.9	16.5 ± 0.7	15.3 ± 0.5	17.4 ± 0.5	20.5 ± 0.5
Maximum acceleration	[m/s ²]	20				
Max. velocity	[m/min]	200 at max. travel distance of 5 m				
Core identification		BK with lettering WH + GN/YE				
Sheath color		Orange similar to RAL 2003				
Approval(s)		DESINA / VDE / UL / cRUus				
Capacitance core/shielding	[nF/km]	105	105	170	170	170
Capacitance core/core	[nF/km]	65	65	95	95	95
Halogen-free		yes				
silicon-free		yes				
CFC-free		yes				
Inner insulation (cable)		TPM				
Outer insulation (sheath)		Polyolefin		TPU (PUR)		
Flame-inhibiting / self-extinguishing		yes				
Conductor material		E-Cu blank				
Shielding		Braided tinned Cu shield (optically covered > 85 %)				
Weight (cable)	[kg/km]	335	433	396	522	730
Min. bending cycles		= 5 million				



19.23 Cable specifications for encoder cables

Fixed installation of feedback cables

Accessory designation		AS1H / ES1H / ES7S / EG7S / ES7R / EG7R / ES7C / EG7C / AS7W / AG7W / AH7Y / AS7Y / AG7Y	RH.M / EH7S / AH7Y
Cable cross sections		6 x 2 x 0.25 mm ²	5 x 2 x 0.25 mm ²
Manufacturer		HELUKABEL	
Manufacturer designation		LI9YCY	
Operating voltage V ₀ / V AC	[V]	230 / 350	
Temperature range	[°C]	Fixed installation -40 to +80	
Max. temperature	[°C]	+ 80	
Min. bending radius	[mm]	43	36.5
Diameter D	[mm]	8.6 ± 0,2	7.3 ± 0,2
Core identification		DIN 47 100	
Sheath color		Green, similar to RAL 6018	
Approval(s)		DESINA / VDE / 	
Capacitance core/shielding	[nF/km]	110	
Capacitance core/core	[nF/km]	70	
Halogen-free		No	
Silicone-free		yes	
CFC-free		yes	
Inner insulation (core)		PP	
Outer insulation (sheath)		PVC	
Flame-inhibiting/self-extinguishing		No	
Conductor material		Cu blank	
Shielding		Braided tinned Cu	
Weight (cable)	[kg/km]	107	78

Cable carrier installation of feedback cables

Accessory designation		AS1H / ES1H / ES7S / EG7S / ES7R / EG7R / ES7C / EG7C / AS7W / AG7W / AH7Y / AS7Y / AG7Y	RH.M / EH7S / AH7Y
Cable cross sections		6 x 2 x 0.25 mm ²	5 x 2 x 0.25 mm ²
Manufacturer		Nexans	
Manufacturer designation		SSL18YC11Y 6 x 2 x 0.25/ SSL11YC11Y 5 x 2 x 0.25	
Operating voltage V ₀ / V AC	[V]	300	
Temperature range	[°C]	-20 to + 60	
Max. temperature	[°C]	+90 (+194) (on conductor)	
Min. bending radius	[mm]	100	95
Diameter D	[mm]	9.8 ± 0.2	9,5 ± 0.2
Maximum acceleration	[m/s ²]	20	
Max. velocity	[m/min]	200	
Core identification		WH/BN, GN/YE, GY/PK, BU/RD, BK/VT, GY-PK/RD-BU	WH/BN, GN/YE, GY/PK, BU/RD, BK/VT
Sheath color		Green similar to RAL 6018	
Approval(s)		DESINA / VDE / 	
Capacitance core/shielding	[nF/km]	100	
Capacitance core/core	[nF/km]	55	
Halogen-free		yes	
Silicone-free		yes	
CFC-free		yes	
Table continued on next page			



Prefabricated Cables

Cable specifications of forced cooling fan cables for CMP motors

Accessory designation		AS1H / ES1H / ES7S / EG7S / ES7R / EG7R / ES7C / EG7C / AS7W / AG7W / AH7Y / AS7Y / AG7Y	RH.M / EH7S / AH7Y
Cable cross sections		6 x 2 x 0.25 mm ²	5 x 2 x 0.25 mm ²
Manufacturer		Nexans	
Inner insulation (core)		PP	
Outer insulation (sheath)		TPE-U	
Flame-inhibiting/self-extinguishing		yes	
Conductor material		E-Cu blank	
Shielding		Braided tinned Cu	
Weight	[kg/km]	130	120
Min. bending cycles		≥ 5 million	

19.24 Cable specifications of forced cooling fan cables for CMP motors

Fixed installation of the forced cooling fan cable

Accessory designation		VR
Cable cross sections		3 x 1 mm ²
Manufacturer		Lapp
Manufacturer designation		Ölflex 110 Classic
Operating voltage V_0 / V AC	[V]	300 / 500
Temperature range	[°C]	-30 to +70
Max. temperature	[°C]	+ 70
Min. bending radius	[mm]	24
Diameter D	[mm]	6.0 ± 0.3
Core identification		VDE 0293
Sheath color		Silver gray, RAL 7001
Approval(s)		VDE
Capacitance core/shielding	[nF/km]	-
Capacitance core/core	[nF/km]	-
Halogen-free		No
Silicone-free		yes
CFC-free		yes
Inner insulation (core)		PVC
Outer insulation (sheath)		PVC
Flame-inhibiting/self-extinguishing		No
Conductor material		Cu blank
Shielding		-
Weight (cable)	[kg/km]	65



Cable carrier installation for forced cooling fan cable

Accessory designation		VR
Cable cross sections		3 x 1 mm²
Manufacturer		Nexans
Manufacturer designation		PSL 3 x 1.0
Operating voltage V ₀ / V AC	[V]	300
Temperature range	[°C]	- 30 to + 70
Max. temperature	[°C]	+ 90 (on conductor)
Min. bending radius	[mm]	45
Diameter D	[mm]	5,7 ± 0.2
Maximum acceleration	[m/s ²]	10
Max. velocity	[m/min]	50
Core identification		2 x WH with digit + 1 x GN/YE
Sheath color		Black RAL 9005
Approval(s)		VDE / UL
Capacitance core/shielding	[nF/km]	-
Capacitance core/core	[nF/km]	-
Halogen-free		yes
Silicone-free		yes
CFC-free		yes
Inner insulation (core)		TPM
Outer insulation (sheath)		TPE-U
Flame-inhibiting/self-extinguish- ing		yes
Conductor material		E-Cu blank
Shielding		-
Weight	[kg/km]	50
Min. bending cycles		≥ 5 million



19.25 Crimping tools

An alternative for purchasing the prefabricated cables from SEW-EURODRIVE for motors with plug connectors is to purchase the required plug connectors.

In this case, the customers have to wire the plug connectors themselves. SEW-EURODRIVE offers the matching crimping tools to ensure correct connection of cable core and contact. Please quote the required part number in your order.

Power and brake contacts of CMP servomotors

Tools required for assembly			
Type	for	SEW part number	Illustration
Crimping tool		019 243 0	
Positioning tool	Motor contact 2 mm Ø Core cross section 0.5 – 2.5 mm ²	019 245 7	
	Brake contact 1mm Ø Core cross section 0.06 – 1 mm ²	019 244 9	
Tools required for removal			
Removal tool	Motor contact 2 mm Ø	019 247 3	
	Brake contact 1 mm Ø	019 246 5	
Removal tool ¹⁾	Insulator	019 248 1	

1) The removal tool is **only required for removal on the motor end.**



RH1M resolver, Hiperface AS1H and ES1H single- and multi-turn encoder system

Tools required for assembly			
Type	for	SEW part number	Illustration
Crimping tool		019 243 0	
Positioning tool	Contact 1 mm Ø Core cross section 0.06–1 mm ²	019 244 9	
Tools required for removal			
Removal tool	Contact 1 mm Ø Core cross section 0.06–1 mm ²	019 246 5	
Removal tool ¹⁾	Insulator	019 248 1	

1) The removal tool is **only required for removal on the motor end.**



20 Appendix

20.1 Cable dimensions to AWG

AWG stands for **American Wire Gauge** and refers to the size of the wires. This number specifies the diameter or cross section of a wire in code. This type of cable designation is usually only used in the USA. However, the designations can also be seen in catalogs or data sheets in Europe.

AWG designation	Cross section in mm ²
000000 (6/0)	185
00000 (5/0)	150
0000 (4/0)	120
000 (3/0)	90
00 (2/0)	70
0 (1/0)	50
1	50
2	35
3	25
4	25
5	16
6	16
7	10
8	10
9	6
10	6
11	4
12	4
13	2.5
14	2.5
15	2.5
16	1.5
16	1
18	1
19	0.75
20	0.5
21	0.5
22	0.34
23	0.25
24	0.2



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	Kolkata	SEW EURODRIVE India Private Limited 2nd floor, Room No. 35 Chowringhee Court 55, Chowringhee Road Kolkata - 700 071 - West Bengal	Tel. +91 33 22827457 Fax +91 33 22894204 saleskal@seweurodriveindia.com a.j.biswas@seweurodriveindia.com
	Chandigarh	SEW EURODRIVE India Private Limited Sujit Kumar Mishra H.No.5464/3 Modern Housing Complex Manimajra Chandigarh -160101	Tel. +91 9878469579 Fax +91 1722738664 saleschand@seweurodriveindia.com
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	Coimbatore	SEW-EURODRIVE India Private Limited Office No 60 Arpee Centre (Opp Annapoorna Hotel) 420 N, NSR Road, Saibaba Colony Coimbatore 641 0111 - Tamil Nadu	Tel. +91 422 2455420 Fax +91 422 2443988 salescmb@seweurodriveindia.com p.selvakumar@seweurodriveindia.com
	Madgaon	SEW-EURODRIVE India Private Limited Flat No.-G1, Shivas-Laxmi Prasad Co-Operative Housing Society, Padmanarayan Estate, Near Jivottaam Math, Gagole Madgao, Goa - 403 602	samrat.chakravorty@seweurodriveindia.com



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	Raipur	SEW-EURODRIVE India Private Limited Flat No-0-102, First Floor Satyam Appt., Golchha Park Nr Mining Office, Ring Road-1 Raipur 492 001 - Chhattisgarh	Tel. +91 9893290624 sutanu.sarkar@seweurodriveindia.com
Indonesia			
Technical Office	Jakarta	SEW-EURODRIVE Pte Ltd. Jakarta Liaison Office, Menara Graha Kencana Jl. Perjuangan No. 88, LT 3 B, Kebun Jeruk, Jakarta 11530, Indonesia	Tel. +62 21 5359066 Fax +62 21 5363686 Service Hotline: +65 61000 739 sew@cbn.net.id
Ireland			
Sales Service	Dublin	Alpert Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 info@alpert.ie http://www.alpert.ie
Israel			
Sales	Tel-Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il
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Assembly Sales Service	Milano	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini, 14 I-20020 Solaro (Milano)	Tel. +39 02 96 9801 Fax +39 02 96 799781 http://www.sew-eurodrive.it sewit@sew-eurodrive.it
Technical Offices	Bologna	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via della Grafica, 47 I-40064 Ozzano dell'Emilia (Bo)	Tel. +39 051 65-23-801 Fax +39 051 796-595
	Caserta	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Carlo III Km. 23,300 I-81020 S. Nicola la Strada (Caserta)	Tel. +39 0823 219011 Fax +39 0823 421414



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	Pescara	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Europa, 132 I-65010 Villa Raspa di Spoltore (PE)	Tel. +39 085 41-59-427 Fax +39 085 41-59-643
	Torino	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Filiale Torino c.so Unione Sovietica 612/15 - int. C I-10135 Torino	Tel. +39 011 3473780 Fax +39 011 3473783
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Sales	Abidjan	SICA Ste industrielle et commerciale pour l'Afrique 165, Bld de Marseille B.P. 2323, Abidjan 08	Tel. +225 2579-44 Fax +225 2584-36
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Assembly Sales Service	Iwata	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp
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	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferryroad Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Technical Office	Palmerston North	SEW-EURODRIVE NEW ZEALAND LTD. C/-Grant Shearman, RD 5, Aronui Road Palmerston North	Tel. +64 6 355-2165 Fax +64 6 355-2316 sales@sew-eurodrive.co.nz
Norway			
Assembly Sales Service	Moss	SEW-EURODRIVE A/S Solgaard skog 71 N-1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 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



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Poland			
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		24 Hour Service	Tel. +48 602 739 739 (+48 602 SEW SEW) sewis@sew-eurodrive.pl
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	Poznan	SEW-EURODRIVE Polska Sp.z.o.o. ul. Romana Maya 1 PL-61-371 Poznań	Tel. +48 61 8741640 Fax +48 61 8741641
	Szczecinek	SEW-EURODRIVE Polska Sp.z.o.o. ul. Mickiewicza 2 pok. 36 PL-78-400 Szczecinek	Tel. +48 94 3728820 Fax +48 94 3728821
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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. Rybničná 40 SK-831 06 Bratislava	Tel. +421 2 33595 202 Fax +421 2 33595 200 sew@sew-eurodrive.sk http://www.sew-eurodrive.sk
	Žilina	SEW-Eurodrive SK s.r.o. Industry Park - PChZ ulica M.R.Štefánika 71 SK-010 01 Žilina	Tel. +421 41 700 2513 Fax +421 41 700 2514 sew@sew-eurodrive.sk
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	Košice	SEW-Eurodrive SK s.r.o. Slovenská ulica 26 SK-040 01 Košice	Tel. +421 55 671 2245 Fax +421 55 671 2254 sew@sew-eurodrive.sk
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Sales Service	Celje	Pakman - Pogonska Tehnika d.o.o. Ul. XIV. divizije 14 SLO - 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net



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	Cape Town	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 cfoster@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 hengela@sew.co.za
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Technical Offices	Barcelona	Delegación Barcelona Avenida Francesc Macià 40-44 Oficina 4.2 E-08208 Sabadell (Barcelona)	Tel. +34 93 7162200 Fax +34 93 7233007
	Lugo	Delegación Noroeste Apartado, 1003 E-27080 Lugo	Tel. +34 639 403348 Fax +34 982 202934
	Madrid	Delegación Madrid Gran Vía. 48-2° A-D E-28220 Majadahonda (Madrid)	Tel. +34 91 6342250 Fax +34 91 6340899
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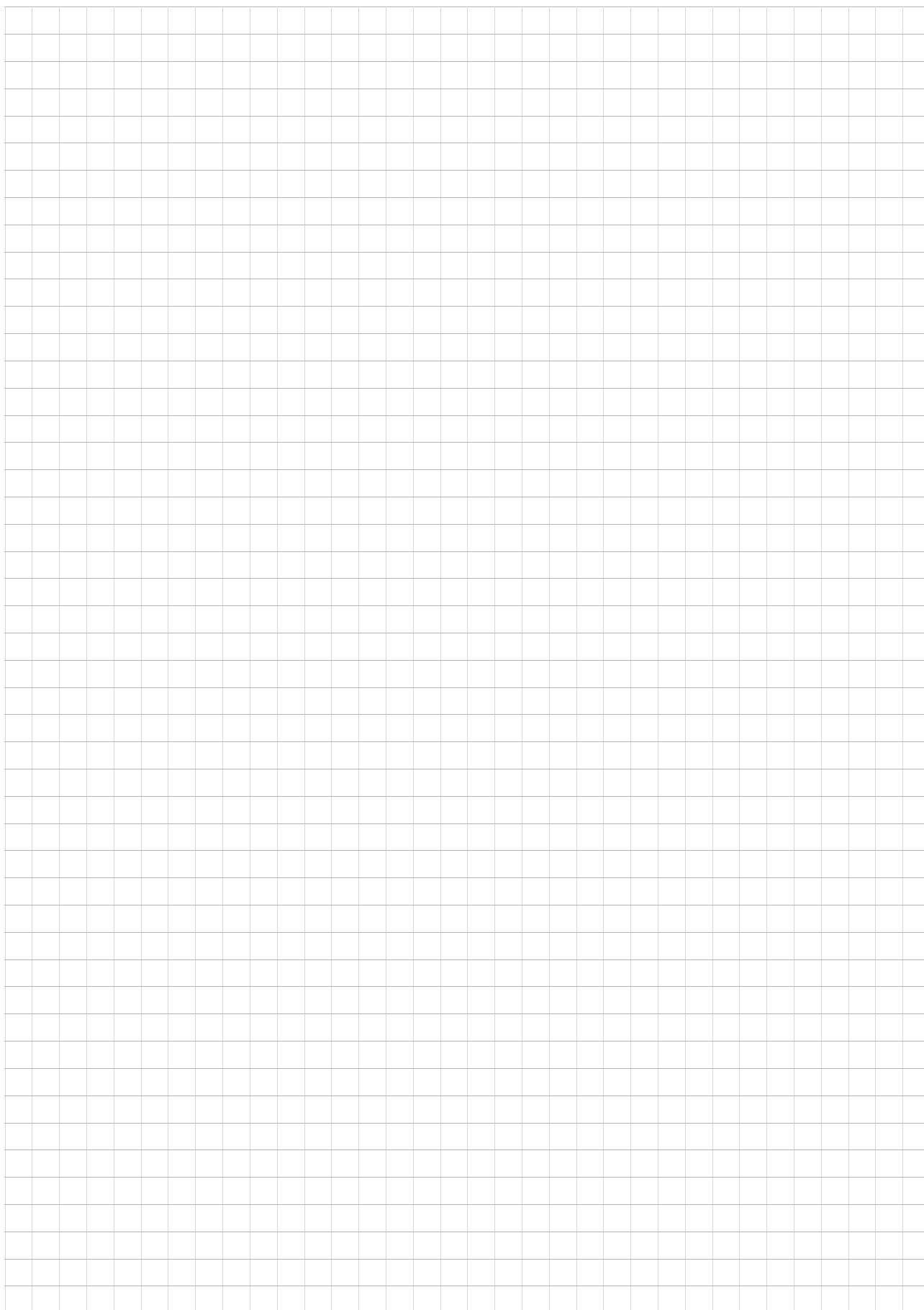


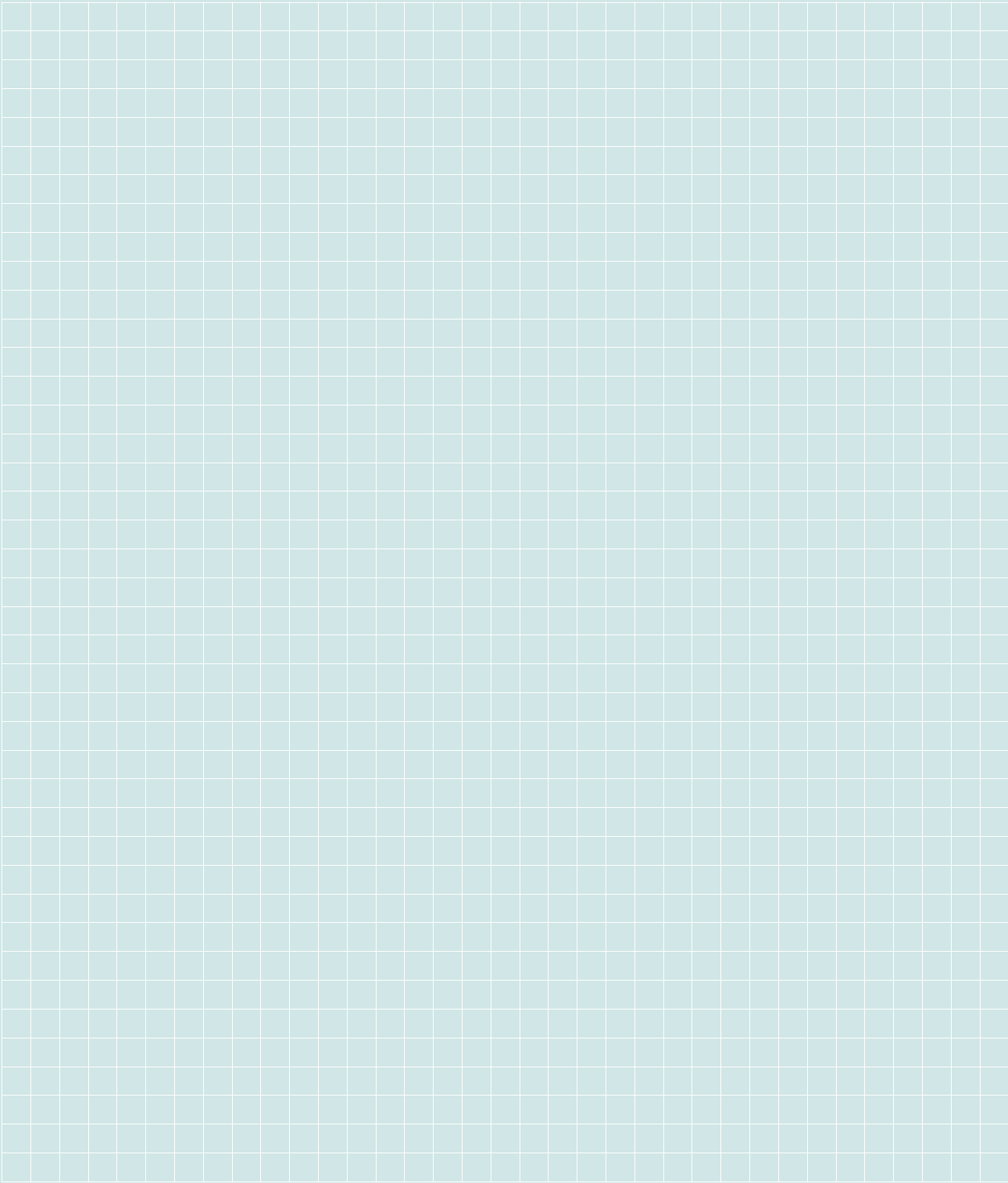
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	Khonkaen	SEW-EURODRIVE (Thailand) Ltd. 4th Floor, Kaow-U-HA MOTOR Bldg, 359/2, Mitraphab Road. Muang District Khonkaen 40000	Tel. +66 43 225745 Fax +66 43 324871 sew-thailand@sew-eurodrive.com
Tunisia			
Sales	Tunis	T. M.S. Technic Marketing Service 5, Rue El Houdaibiah 1000 Tunis	Tel. +216 71 4340-64 + 71 4320-29 Fax +216 71 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 4419164, 3838014, 3738015 Fax +90 216 3055867 http://www.sew-eurodrive.com.tr sew@sew-eurodrive.com.tr
Technical Offices	Adana	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Kizilay Caddesi 8 Sokak No 6 Dađtekin Is Merkezi Kat 4 Daire 2 TR-01170 SEYHAN / ADANA	Tel. +90 322 359 94 15 Fax +90 322 359 94 16
	Ankara	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Özcelik Is Merkezi, 14. Sok, No. 4/42 TR-06370 Ostim/Ankara	Tel. +90 312 3853390 / +90 312 3544715 / +90 312 3546109 Fax +90 312 3853258
	Bursa	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Besevler Küçük Sanayi Parkoop Parçacılar Sitesi 48. Sokak No. 47 TR Nilüfer/Bursa	Tel. +90 224 443 4556 Fax +90 224 443 4558
	Izmir	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. 1203/11 Sok. No. 4/613 Hasan Atli Is Merkezi TR-35110 Yenisehir-Izmir	Tel. +90 232 4696264 Fax +90 232 4336105
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



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Sales	Kiev	SEW-EURODRIVE GmbH S. Oleynika str. 21 02068 Kiev	Tel. +380 44 503 95 77 Fax +380 44 503 95 78 kso@sew-eurodrive.ua
	Donetsk	SEW-EURODRIVE GmbH 25th anniversary of RKKA av. 1-B, of. 805 Donetsk 83000	Tel. +380 62 38 80 545 Fax +380 62 38 80 533 dso@sew-eurodrive.ua
Uruguay			
Sales	Montevideo	SEW-EURODRIVE Uruguay, S. A. German Barbato 1526 CP 11200 Montevideo	Tel. +598 2 90181-89 Fax +598 2 90181-88 sewuy@sew-eurodrive.com.uy
USA			
Production Assembly Sales Service Cooperate Offices	Southeast Region	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 Manufacturing +1 864 439-9948 Fax Assembly +1 864 439-0566 Fax Confidential/HR +1 864 949-5557 http://www.seweurodrive.com cslyman@seweurodrive.com
Assembly Sales Service	Northeast Region	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
	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 440-3799 cstroy@seweurodrive.com
	Southwest Region	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Western Region	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, CA 94544	Tel. +1 510 487-3560 Fax +1 510 487-6433 cshayward@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 ventas@sew-eurodrive.com.ve sewfinanzas@cantv.net





How we're driving the world

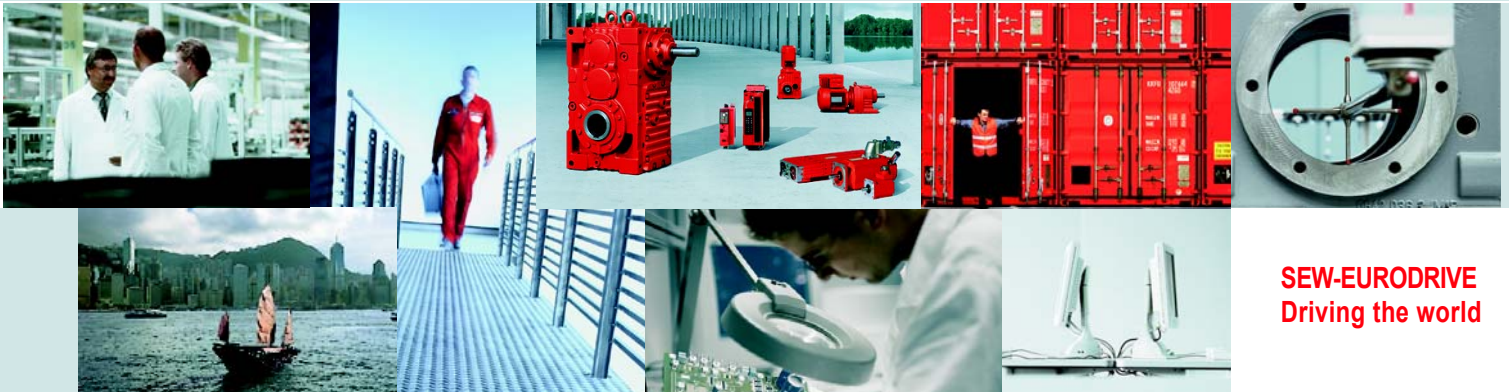
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