

Spare Parts List SPL/RHD250-EN

RHD250 (Contrac) Electrical Part-Turn Actuator

For continuous positioning,
rated torque
250 Nm (200 lbf-ft)




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1 Actuator identification

The actuator version can be identified by referring to the name plate that is attached to the housing.

1.1 Name plate on the RHD actuator

1	Antrieb / Actuator: CONTRAC		
2	F-Nr./No	NL	
3	M =	Jahr/Year	CE
4	t =	IP 66, NEMA 4X	
5	min.....max.	max.	☒
6	Öl / Oil:		
7	Elektronik/Electronics		
8			
9			
10	ABB Automation D-32425 Minden Made in Germany 		

M10365

Fig. 1: Name plate on the RHD actuator

- 1 Full name of model |
- 2 Serial no. / NL no. (no. of non-list version)¹ |
- 3 Rated torque / Year of manufacture |
- 4 Permissible ambient temperature / Degree of protection / CE mark |
- 5 Min./max. operating angle / Max. operating speed / Heater (option) |
- 6 Filled oil type | 7 Associated Contrac electronic unit |
- 8 Blank | 9 Blank | 10 Blank for customer-specific information

IMPORTANT (NOTE)

¹ The numbers following the letters "NL" indicate a non-standard design. This number must be provided with the information from the name plate to ensure proper delivery of spare parts (material numbers may vary).

2 Name plate specifications for spare parts orders

2.1 Information from actuator name plate

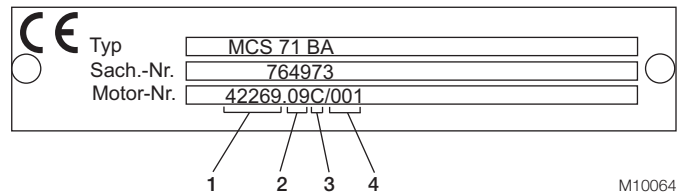
When placing spare parts orders, the information relating to items 1 and 2 must always be provided in accordance with the actuator name plate.

2.2 Information from motor name plate

When ordering spare parts for the motor, it is important to pay attention to the motor series, as there are internal differences between the various series. Two different motor series are used with the Contrac actuators.

2.3 Motor type identification

2.3.1 Series 1 motor



M10064

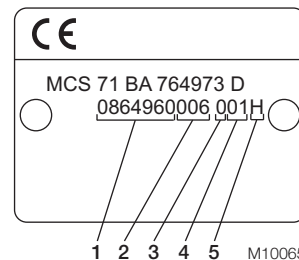
Fig. 2: Name plate for series 1 motor

- 1 Production order | 2 Year | 3 ABB index | 4 Consecutive no.

Distinguishing features:

- Name plate design
- Plugs in brake cover

2.3.2 Series 2 motor



M10065

Fig. 3: Name plate for series 2 motor

- 1 Production order | 2 Consecutive no. | 3 Year | 4 Month | 5 Production information

Distinguishing feature:

- Name plate design

IMPORTANT (NOTE)

Series 1 special temperature motors are no longer available and can only be replaced by new series 2 motors.

(For details, see "Motor, complete (motor series 1, special temperature)", page 5.

3 Motor, complete (motor series 1 and 2)

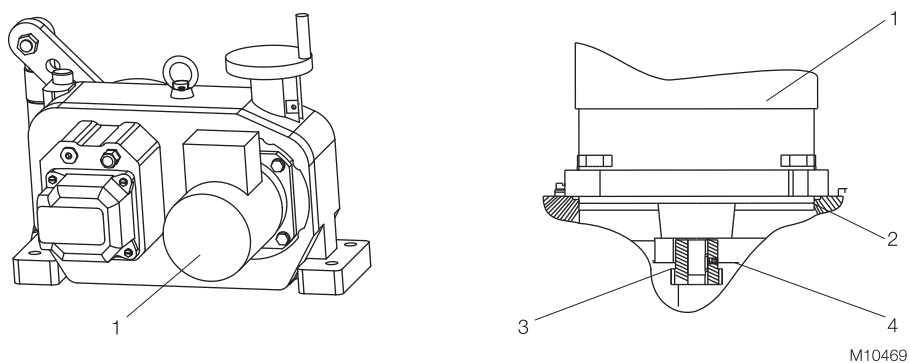


Fig. 4

Number	Name of part	Order number	Weight kg (lb)	Price (€)
1	Motor MCS 71 BA — For all ambient temperature ranges ^{1,2}	764 973		
2	O-ring 133.02 x 2.62 — For standard temperature range ¹ — For special temperature range ²	651 805 9 220 218		
3	Motor pinion RHD250 z=28	284 585		
4	Threaded pin M4 x 5 Motor pinion fixture	192 663		

1 Standard temperature range: -10 ... 65 °C (15 ... 150 °F) / -30 ... 50 °C (-20 ... 130 °F)

2 Special temperature range: -1 ... 85 °C (30 ... 185 °F), year of manufacture 2010 or later

4 Motor, complete (motor series 1, special temperature)

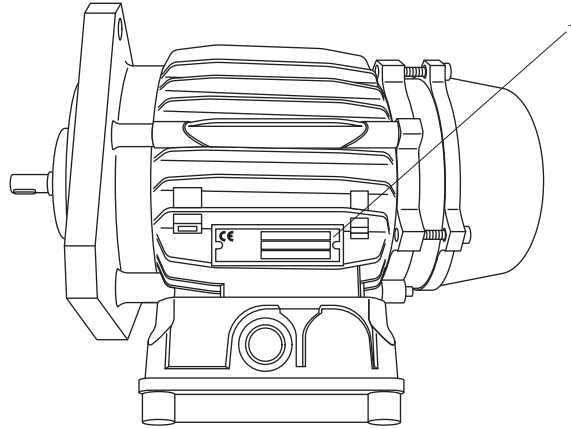
Number	Name of part	Order number	Weight kg (lb)	Price (€)
1	Motor MCS 71 BA - No longer available! — For special temperature range ¹ Replacement: motor MCS 71 BA ² motor series 2, year of manufacture 2010 or later, incl. new data set for power electronic unit	(9 280 001) 8 689 423		
2	O-ring 133.02 x 2.62 — For special temperature range ¹	9 220 218		
3	Motor pinion RHD250 z=28	284 585		
4	Threaded pin M4 x 5 Motor pinion fixture	192 663		

¹ Special temperature range: -1 ... 85 °C (30 ... 185 °F), up to year of manufacture 2009

IMPORTANT (NOTE)

- ² The replacement motor can only be used in conjunction with an adapted data set for the power electronic unit. This data set is included in the scope of delivery of the new motor.
In order to create the new data set, we need the factory no. and the software version that are specified on the name plate of the power electronic unit.
Once the motor has been replaced, the new data set must be loaded into the power electronic unit using the ECOM688 / ECOM700 service tool.

5 Motor spare parts - Series 1



M10062

Fig. 5: Series 1 motor

1 Name plate

Number	Name of part	Order number	Weight kg (lb)	Price (€)
	Motor MCS 71 BA For standard temperature range ¹	(764 973) ⁶		
	— Motor kit ³	8 689 250		
	— Brake kit ⁴	8 689 237		
	— Terminal box kit ⁵	8 689 328		
	Motor MCSS 71 BA For special temperature range ²	(9 280 001) ⁷		
	— Motor kit ³	8 689 333		
	— Brake kit - No longer available!	-		
	— Terminal box kit ⁵	8 689 335		

1 Standard temperature range: -10 ... 65 °C (15 ... 150 °F) / -30 ... 50 °C (-20 ... 130 °F)

2 Special temperature range: -1 ... 85 °C (30 ... 185 °F)

3 The motor kit consists of the following: shaft sealing ring, ball bearings, O-rings, terminal box gaskets, holding bolts, and small parts (information required from motor name plate, see "Information from motor name plate").

4 The brake kit consists of the following: brake coil, brake disk, brake pinion, terminal box gaskets, and small parts (information required from motor name plate, see "Information from motor name plate").

5 The terminal box kit consists of the following: terminal box, terminal box cover, terminal box gaskets, junction plate, and small parts (information required from motor name plate, see "Information from motor name plate").

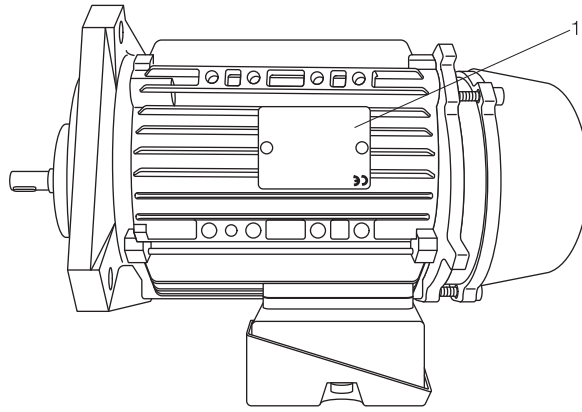
6 The numbers in brackets are the order numbers for the complete motors, see page 4.

7 No longer available, see page 5.

IMPORTANT (NOTE)

The service kits contain all the parts required for the relevant repair or maintenance work. Consequently, if all the kits for a particular motor type are ordered, some materials may be provided more than once.

6 Motor spare parts - Series 2



M10063

Fig. 6: Series 2 motor
1 Name plate

Number	Name of part	Order number	Weight kg (lb)	Price (€)
	Motor MCS 71 BA	(764 973) ⁶		
	For all ambient temperature ranges ^{1,2}			
	— Motor kit ³	8 689 251		
	— Brake kit ⁴	8 689 238		
	— Terminal box kit ⁵	8 689 353		

1 Standard temperature range: -10 ... 65 °C (15 ... 150 °F) / -30 ... 50 °C (-20 ... 130 °F)

2 Special temperature range: -1 ... 85 °C (30 ... 185 °F)

3 The motor kit consists of the following: shaft sealing ring, ball bearings, O-rings, terminal box gaskets, holding bolts, and small parts (information required from motor name plate, see "Information from motor name plate").

4 The brake kit consists of the following: brake coil, brake disk, brake pinion, terminal box gaskets, and small parts (information required from motor name plate, see "Information from motor name plate").

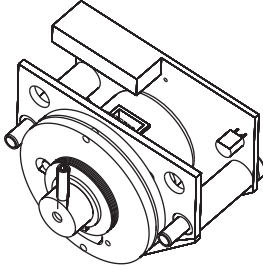
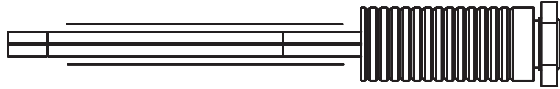
5 The terminal box kit consists of the following: terminal box, terminal box cover, terminal box gaskets, junction plate, and small parts (information required from motor name plate, see "Information from motor name plate").

6 The numbers in brackets are the order numbers for the complete motors.

IMPORTANT (NOTE)

The service kits contain all the parts required for the relevant repair or maintenance work. Consequently, if all the kits for a particular motor type are ordered, some materials may be provided more than once.

7 Position sensor and heater

Number	Name of part	Order number	Weight kg (lb)	Price (€)
	<p>Position sensor, complete (potentiometer with electronics)³</p> <ul style="list-style-type: none"> — Standard temperature range¹ — Special temperature range²  <p>M10075</p>	<p>764 975 764 996</p>		
	<p>Anti-condensation heater, complete (heater element, pigtail leads)⁴</p>  <p>M10076</p>	<p>9 280 081</p>		

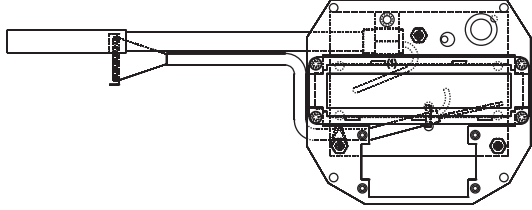
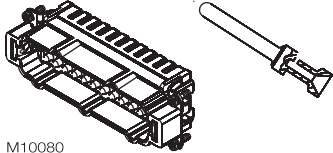
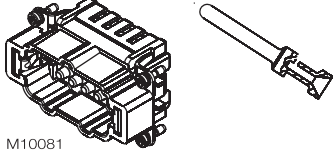
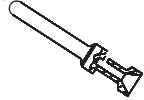
1 Standard temperature range: -10 ... 65 °C (15 ... 150 °F) / -30 ... 50 °C (-20 ... 130 °F)

2 Special temperature range: -1 ... 85 °C (30 ... 185 °F)

3 Connection cable included in complete cable set (see 8 "Actuator wiring (internal)").

4 The necessary crimp pins are an integral part of the 10-pin plug insert for the heater.

8 Actuator wiring (internal)

Number	Name of part	Order number	Weight kg (lb)	Price (€)
	<p>Cable set, complete¹</p> <p>— Wiring between plug, motor, and sensor</p>  <p>M10082</p>	9 280 056		
	<p>Plug insert, 24-pin²</p> <p>— Crimp technology (including crimp pins)</p>  <p>M10080</p>	8 689 244		
	<p>Plug insert for heater, 10-pin²</p> <p>— Crimp technology (including crimp pins for heater element)</p>  <p>M10081</p>	9 287 271		
	<p>Set of crimp pins for wiring into the plug inserts</p> <p>24-pin and 10-pin</p>  <p>M10123</p> <p>— For motor, heater (pack of 10)</p> <p>— For position sensor (pack of 20)</p>	8 689 248		

¹ The cable set consists of a supporting plate, plug insert, cable set for position sensor, and motor connecting cable.

² Mounting on the supporting plate supplied with the cable set, complete. During mounting, make sure that the mounting position is correct.

9 Lever and limit stops

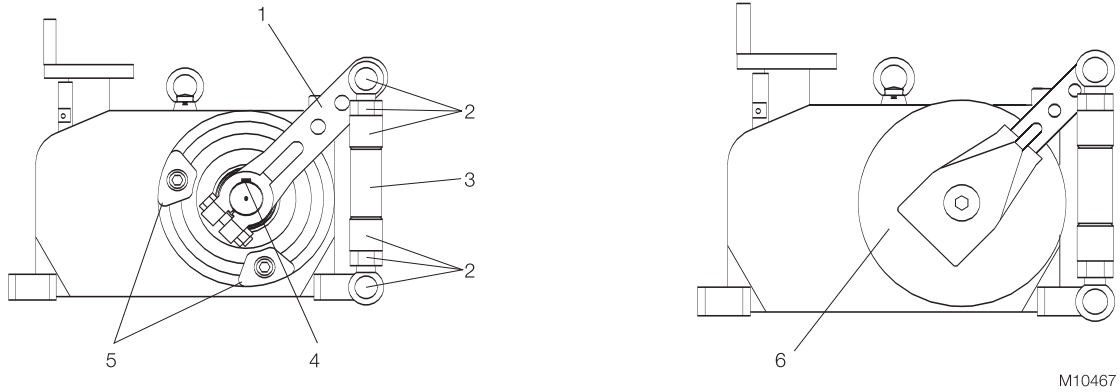


Fig. 7

Number	Name of part	Order number	Weight kg (lb)	Price (€)
1	Lever ¹ — Standard — US version	786 214 9 287 136		
2	Ball-and-socket joint set ² — Standard — US version	799 633 8 689 601		
3	Connection pipe (not included in scope of delivery)	-		
4	Key 8 x 7 x 45	323 078		
5	Limit stop set ³	8 689 363		
6	Protective cover ⁴ — Cover to provide protection while the driver lever is in operation	9 287 764		

- 1 The lever consists of the following: lever, ball-and-socket joints, nuts, threaded sockets on the left and right for 1 1/2" connection pipe (DIN EN 10255 or 1 1/2" (Schedule 80)
- 2 Each ball-and-socket joint set consists of the following: ball-and-socket joints, nuts, threaded sockets on the left and right for 1 1/2" connection pipe (DIN EN 10255 or 1 1/2" (Schedule 80)
- 3 The limit stop set consists of the following: limit stops, screws, nuts (2 of each)
- 4 As standard with year of manufacture 2010 or later. The protective cover can also be refitted to older actuators once the drive shaft has been modified.

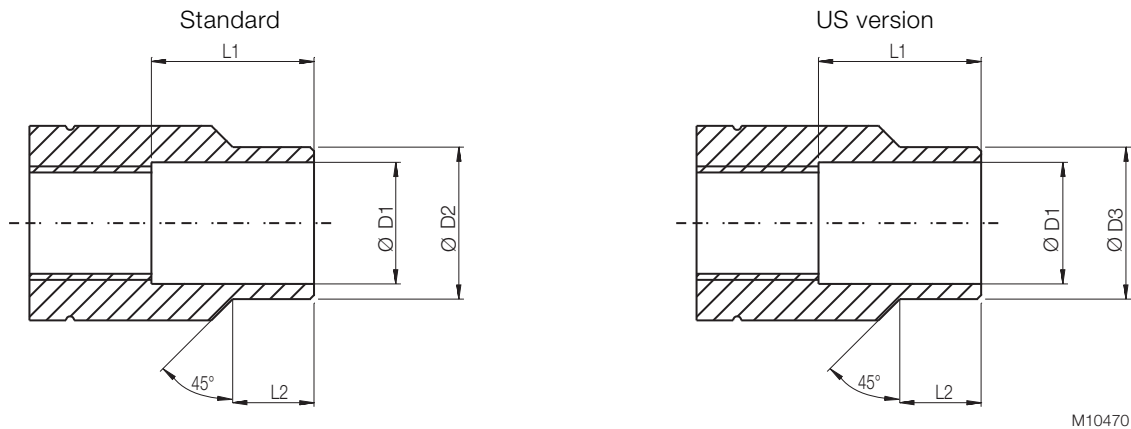
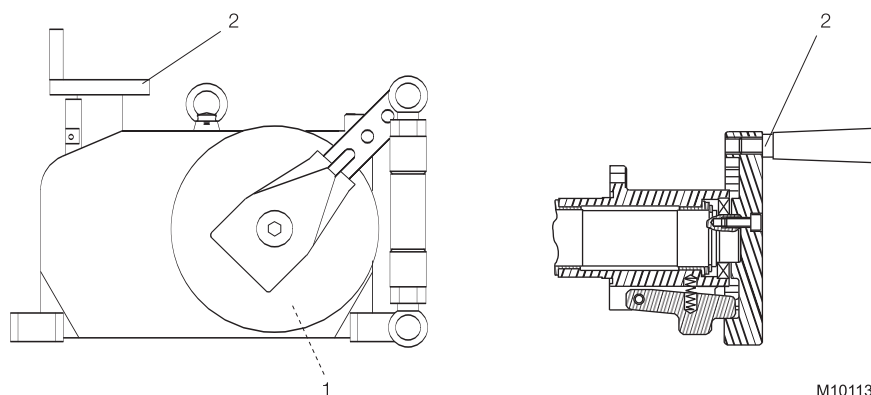


Fig. 8: Threaded sockets


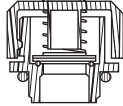
L1	L2	D1	D2	D3
mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
45 (1.77)	20 (0.79)	25 (0.98)	33.5 (1.32)	32 (1.26)

10 Gasket sets and handwheel drive



M10113

Fig. 9: Gasket sets and handwheel drive

Number	Name of part	Order number	Weight kg (lb)	Price (€)
1	Gasket set, complete ³			
	— Standard temperature range ¹	8 689 212		
	— Special temperature range ²	8 689 339		
2	Handwheel drive ⁴ (repair / maintenance set)			
	— Standard temperature range ¹	8 689 214		
	— Special temperature range ²	8 689 345		
	Vent plug			
	— Standard	192 026		
	 M10088			
	— With valve	764 423		
	 M10089			
	— Cu sealing ring (for vent plug)	591 063		

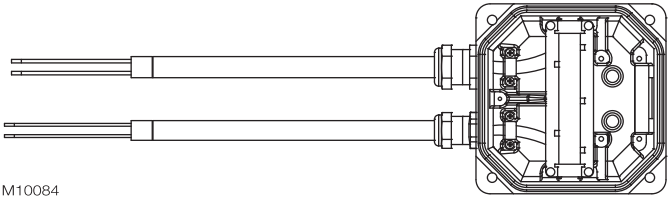
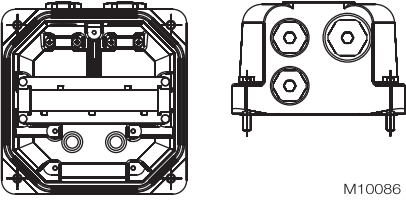
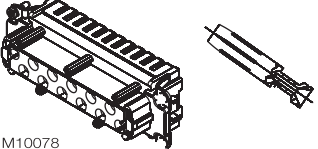
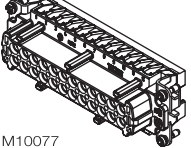
1 Standard temperature range: -10 ... 65 °C (15 ... 150 °F) / -30 ... 50 °C (-20 ... 130 °F)

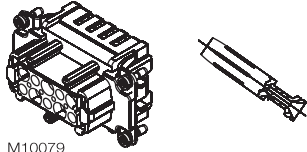
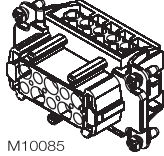

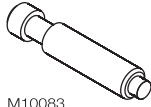
2 Special temperature range: -1 ... 85 °C (30 ... 185 °F)

3 The gasket set consists of the following: all O-rings, sealing rings, and gaskets including motor o-ring, sealing elements, and gasket for handwheel drive.

4 The repair and maintenance set consists of the following: cone grip, sealing ring, O-ring, and screws.



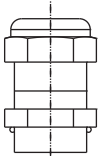
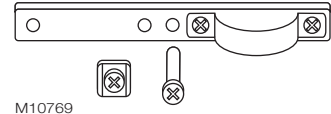
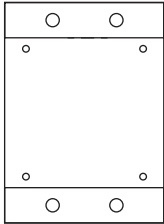
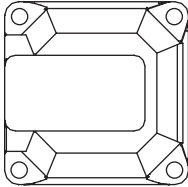
11 Connection cable and plug (external, actuator - electronic unit)

Number	Name of part	Order number	Weight kg (lb)	Price (€)
	<p>Universal plug, 24-pin, complete with cable for connection to the power electronic unit (crimp technology)^{1, 5}</p>  <p>M10084</p> <ul style="list-style-type: none"> – Cable length: 5 meters – Cable length: 10 meters – Cable length: 20 meters 	<p>9 287 290</p> <p>9 287 291</p> <p>9 287 292</p>		
	<p>Universal plug, 24-pin, complete^{2, 3, 4, 5}</p>  <p>M10086</p> <ul style="list-style-type: none"> – Crimp technology – Screwed connection 	<p>9 287 234</p> <p>9 287 236</p>		
	<p>Plug insert, 24-pin⁴</p> <ul style="list-style-type: none"> – Crimp technology (including crimp sockets)  <p>M10078</p> <ul style="list-style-type: none"> – Screwed connection  <p>M10077</p>	<p>8 689 245</p> <p>8 689 247</p>		

Number	Name of part	Order number	Weight kg (lb)	Price (€)
	Plug insert, 10-pin, for heater ^{4, 5} – Crimp technology (including crimp sockets)  M10079	9 287 237		
	– Screwed connection  M10085	9 287 238		
	Set of crimp sockets, for wiring / connection in universal plug, plug insert (24-pin and 10-pin)  M10124 – For motor, heater (pack of 10) – For position sensor (pack of 20)	8 689 246		
	Coding pin, red, for coding the universal plugs (24-pin) ⁶  M10083	685 311		

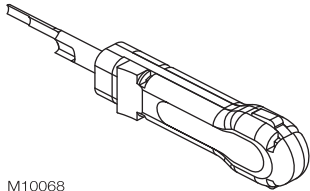
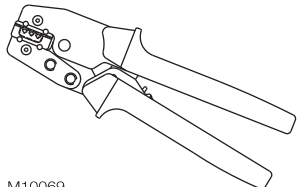
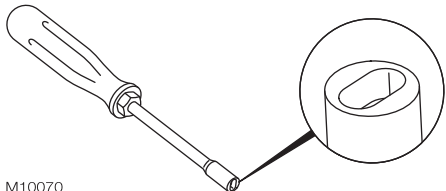
- 1 Universal plug with two cables connected on the plug side:
 Cable 1 = 8 x 1.5 mm² for motor, brake, PE (optional for heater)
 Cable 2 = 8 x 0.5 mm² for position sensor
 (including cable glands, 1 x M20 x 1.5 and 1 x M25 x 1.5 as an accessories kit).
- 2 Connector housing with sealing plugs, 2 x M20 x 1.5 and 1 x M25 x 1.5, 24-pin contact insert, crimp contacts.
- 3 Please order cable glands separately, see 12 "[Installation material and accessories for universal plug \(24-pin\)](#)".
- 4 During mounting, make sure that the correct mounting position is used for the plug insert inside the housing.
- 5 The 10-pin plug insert for the heater is not included as part of the universal plug. It must be ordered separately.
- 6 As standard with year of manufacture 2010 or later. In order to remove or change the coding pins, the deinstallation tool for crimp contacts is required.
 For details of the tool for crimp contacts, see 13 "[Special tools](#)".

12 Installation material and accessories for universal plug (24-pin)

Number	Name of part	Order number	Weight kg (lb)	Price (€)
	PG adapter set, metric / PG thread – 2 x M20/PG16 and 1 x M25/PG21  M10071	9 287 253		
	NPT adapter set, metric / NPT thread – 2 x M20/NPT1/2" and 1 x M25/NPT3/4"  M10071	9 287 254		
	Cable gland – M25 x 1.5 (1 required per universal plug) – M20 x 1.5 (2 required per universal plug)  M10072	9 287 257 9 287 258		
	Strain relief device, complete ¹  M10769	8 689 404		
	Holder for universal plug, 24-pin ²  M10073	564 401		
	Protective cap for plug, 24-pin ³  M10074	9 287 242		

- 1 Strain relief device for a 3rd connection cable in the universal plug
- 2 External compartment for actuator connection plug
- 3 For covering the electrical patch panel on the actuator once the universal plug has been removed

13 Special tools

Number	Name of part	Order number	Weight kg (lb)	Price (€)
	<p>Deinstallation tool for crimp contacts</p>  <p>M10068</p>	8 689 366		
	<p>Hand crimping tool</p>  <p>M10069</p>	8 689 369		
	<p>Special screwdriver, "negative slot", for releasing / securing holding bolts on motors</p> <ul style="list-style-type: none"> — M 5 (MCS 71 and MCS 80) — M 6 (MC 90 and MC 100)  <p>M10070</p>	<p>8 689 407</p> <p>8 689 408</p>		

14 Assignment of power electronic units

Part-turn actuators	Field mount			Rack installation		
	EAN823	EBN853	EBN861	EAS822	EBS852	EBS862
PME120-AI ¹	---			---		
PME120-AN	X			X		
RHD250-10		X			X	
RHD500-10		X			X	
RHD800-10		X			X	
RHD1250-12		X			X	
RHD2500-10			X			X
RHD2500-25		X			X	
RHD4000-10			X			X
RHD4000-40		X			X	
RHD8000-12			X			X
RHD8000-80		X			X	
RHD10000-20						
RHD16000-30			X			X

¹ No need for an external power electronic unit, as it has been integrated into the actuator.

X = operation possible

Contact us

To find your local ABB branch, go to:
www.abb.com/contacts

Additional product information is
available at:
www.abb.com

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