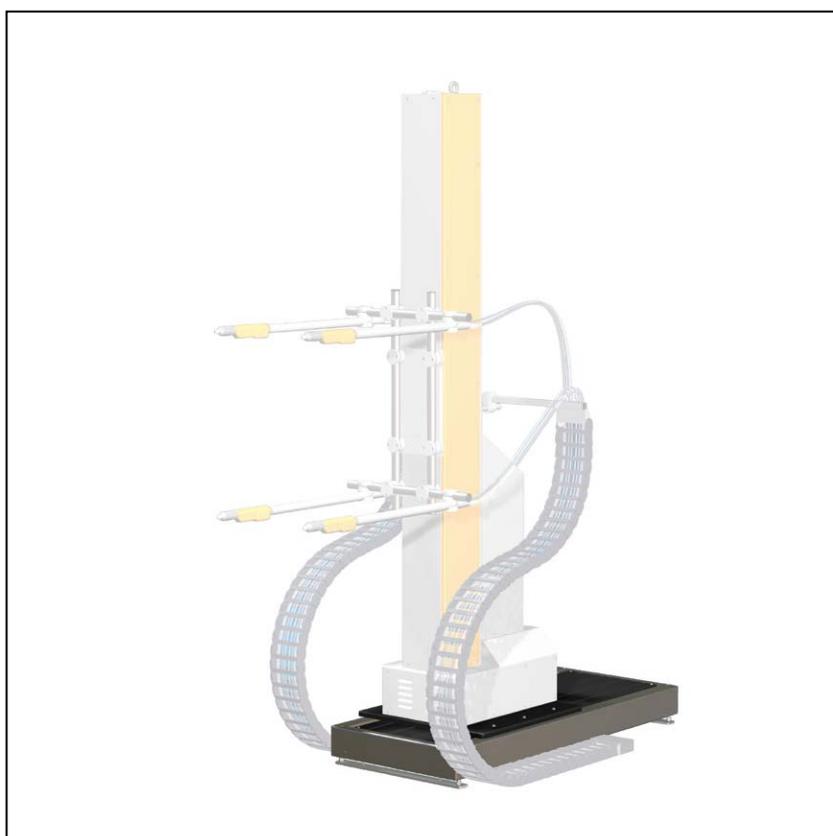

Operating instructions and spare parts list

XT11 Horizontal axis



Translation of the original operating instructions

Documentation XT11 Horizontal axis

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General safety regulations

This chapter specifies out the fundamental safety regulations that must be followed by the user and third parties using the XT11 Horizontal axis.

These safety regulations must be read and understood before the XT11 Horizontal axis is used.

Safety symbols (pictograms)

The following warnings with their meanings can be found in the Gema operating instructions. The general safety precautions must also be followed as well as the regulations in the operating instructions.

**DANGER!**

Danger due to live electricity or moving parts. Possible consequences: Death or serious injury

**WARNING!**

Improper use of the equipment could damage the machine or cause it to malfunction. Possible consequences: minor injuries or damage to equipment

**INFORMATION!**

Useful tips and other information

Conformity of use

1. The XT11 Horizontal axis is built to the latest specification and conforms to the recognized technical safety regulations. It is designed for the normal application of powder coating.
2. Any other use is considered as non-conform. The manufacturer is not responsible for damage resulting from improper use of this equipment; the end-user alone is responsible. If the XT11 Horizontal axis is to be used for other purposes or other substances outside of our guidelines then Gema Switzerland GmbH should be consulted.
3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. The XT11 Horizontal axis should only be used, maintained

and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.

4. Start-up (i.e. the execution of a particular operation) is forbidden until it has been established that the XT11 Horizontal axis has been set up and wired according to the guidelines for machinery (2006/42/CE). EN 60204-1 (machine safety) must also be observed.
5. Unauthorized modifications to the XT11 Horizontal axis exempt the manufacturer from any liability from resulting damage.
6. The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.
7. Furthermore the country-specific safety regulations must be observed.

Explosion protection	Protection type
 	IP54

Product specific security measures

XT11 Horizontal axis

The XT11 Horizontal axis is a component of the system and is thus integrated into the safety system of the plant.

For the use outside of the safety concept, corresponding measures must be taken.



Note:

For further security information, see the more detailed Gema safety regulations!

Personnel safety

- The XT11 Horizontal axis may only be switched on and operated after careful reading of this manual. Incorrect operating of the horizontal axis can lead to personal injuries as well as damage to the table or other parts.
- All moving axes must be secured by security gates before start-up and during operation (see local regulations).
- Before start-up, the grounding of the axis is to be checked!
- Safety devices may not be dismantled, bypassed or ignored! Open covers hide the danger of injury.
- Safety devices must be held in perfect functioning and may be not put out of operation!

- Maintenance works on the XT11 Horizontal axis may take place only when the plant is stopped! Switch off the plant, lock the main switch and remove the key!

Safety concept

- The XT11 Horizontal axis is a constituent part of the system and is thus integrated into the safety system of the plant. For the use outside of the safety concept, corresponding measures must be taken!
- Only original Gema spare parts may be used! Damage caused by other parts is not covered by guarantee.
- Repairs on the axis may only be done by personnel correspondingly trained by Gema.

Conformity of use

- The XT11 Horizontal axis is only intended for the defined application range. The use outside of this range is considered as not intended use.

About this manual

General information

This operating manual contains all the important information which you require for the working with the XT11 Horizontal axis. It will safely guide you through the start-up process and give you references and tips for the optimal use of your new powder coating system.

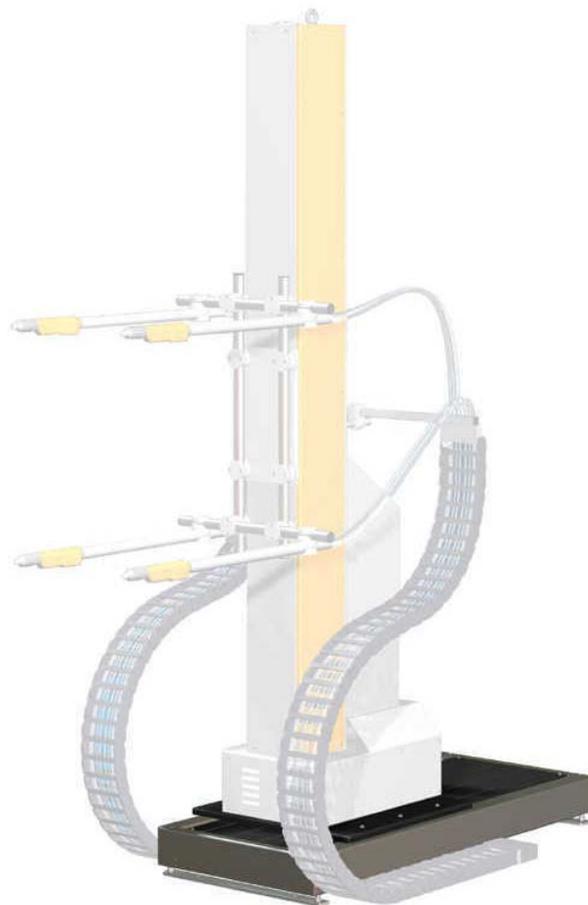
Information about the function mode of the individual system components - reciprocators, booths, powder gun control units, powder guns etc. - should be referenced to their corresponding documents.

Function description

Field of application

The XT11 Horizontal axis is used for the coating of parts with different widths. By coating in this way, the powder guns must be driven into each corresponding position for every given width.

The XT11 Horizontal axis is used in connection with the ZA reciprocator.

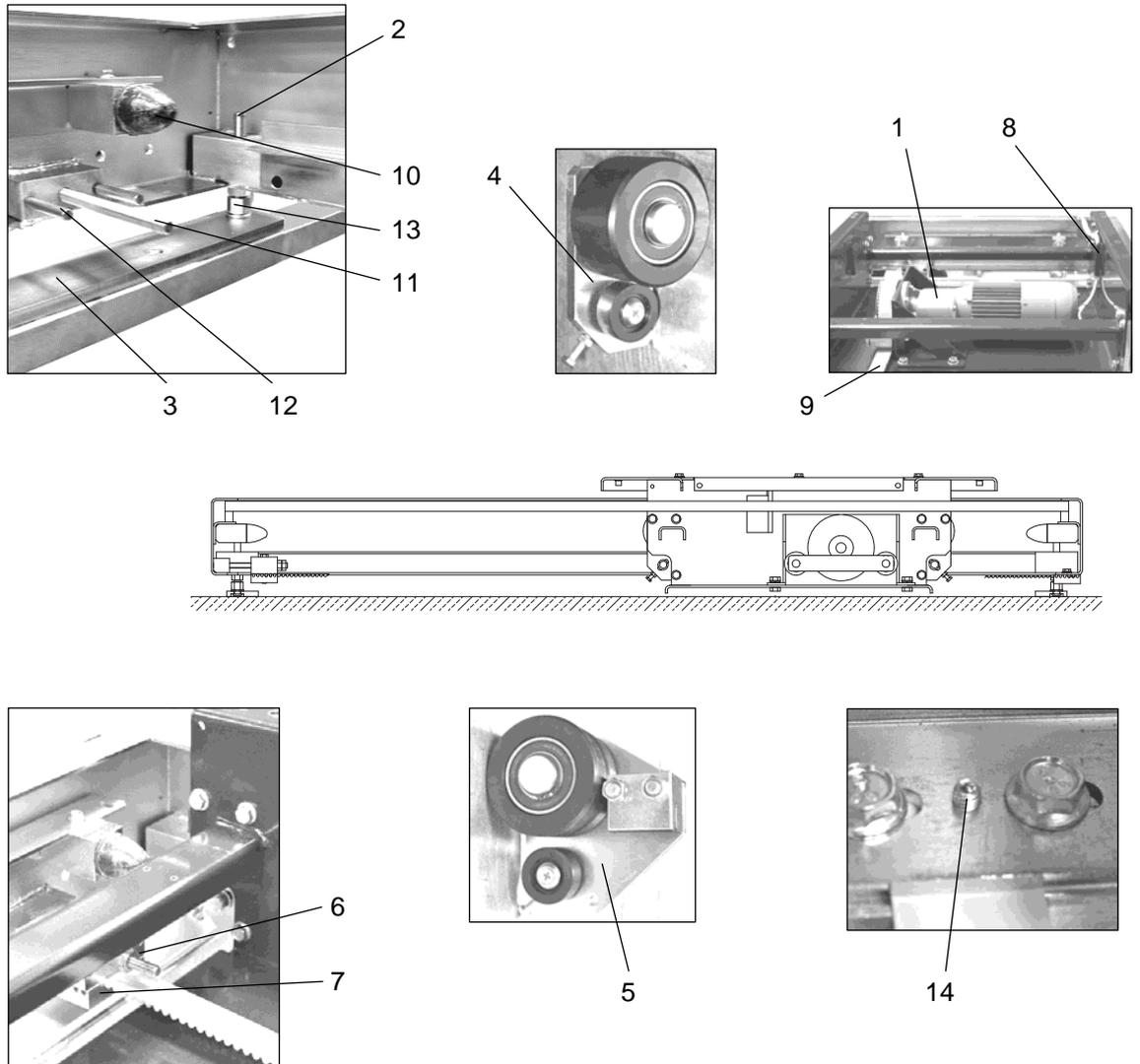


XT11 Horizontal axis with ZA reciprocator

Structure and function

Mechanical structure

The XT11 Horizontal axis consists of the following components:



XT11 Horizontal axis - structure

- | | | | |
|---|-----------------------|----|----------------|
| 1 | Drive unit - complete | 8 | Cable guide |
| 2 | Leveling bolt | 9 | Toothed belt |
| 3 | Baseboard | 10 | Rubber buffer |
| 4 | Running wheel bearing | 11 | Clamping bolt |
| 5 | Guide wheel bearing | 12 | Headless screw |
| 6 | Clamping plate | 13 | Washer |
| 7 | Clamp plate | 14 | Grub screw |

Description

The XT11 Horizontal axis is a feeding axis with the following characteristics:

- Same control as the ZA reciprocator
- Free position selection by OptiMove CR05/CR06 Control unit
- Built-in leveling pads
- Minimum space requirement
- No additional space required for dismantling and service works
- Low overall height

Further information about the axis control can be found in the corresponding CR05/CR06 OptiMove Control unit operating manual.

Function

The XT11 Horizontal axis is the feeding axis for the gun position adjustment to the work piece. This position detection takes place by a pulse generator installed onto the drive unit.

The drive takes place by the drive unit, installed onto the axis carriage (three-phase motor with spur gear and pulse generator) and the toothed belt, fitted into the travel frame.

Safety and monitoring devices



Attention:

All moving axes must be secured by safety barriers before start-up and during operation (see the local regulations)!

Technical data

XT11 Horizontal axis

Versions

The XT11 Horizontal axis is available in two versions with different travel distances.

XT11 Horizontal axis		
Travel distance length	1000 mm	1400 mm

Electrical data

XT11 Horizontal axis	
Power supply	230 VAC (from control unit)
Tolerance	± 10%
Frequency	50/60 Hz
Control unit	OptiMove CR05/CR06

Drive unit data

XT11 Horizontal axis	
Drive unit	Asynchronous three-phase AC motor
Motor voltage/frequency	3x230 V, 87 Hz
Motor power consumption	0.3 kW
Motor circuit	Triangle/three phase
Max. driving speed	0.08-0.6 m/sec.
Recommended driving speed	0.1-0.2 m/sec.
Position detection	with incremental pulse generator
Drive torque	36 Nm
Brake torque	3 Nm
Motor RPM	67 1/min

Weights

XT11 Horizontal axis	
with travel distance - 1000 mm	150 kg
with travel distance - 1400 mm	166 kg

Start-up

Assembly of the XT11 Horizontal axis

The axis must be leveled, in order to ensure a safe and perfect operation.

After positioning, the XT11 Horizontal axis must be firmly fixed on the floor.

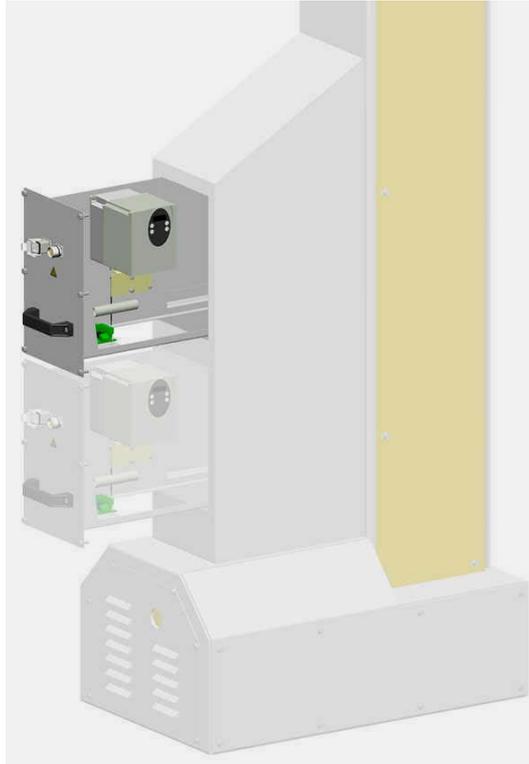
Connecting the XT11 Horizontal axis to the ZA reciprocator

1. The cables to be connected are lying loose on the carriage plate of the horizontal axis.



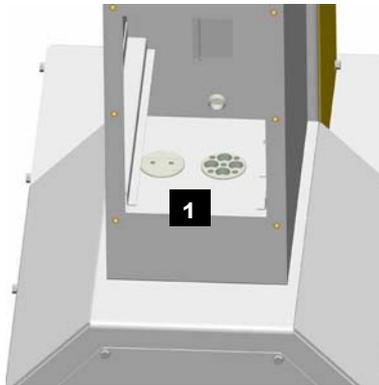
XT11 Horizontal axis with connection cable

2. Both cables must be inserted into the cable duct in the ZA reciprocator (1)
3. Loosen the screws on the rear side of the ZA reciprocator and pull out the electrical modules



Electrical modules in the ZA reciprocator

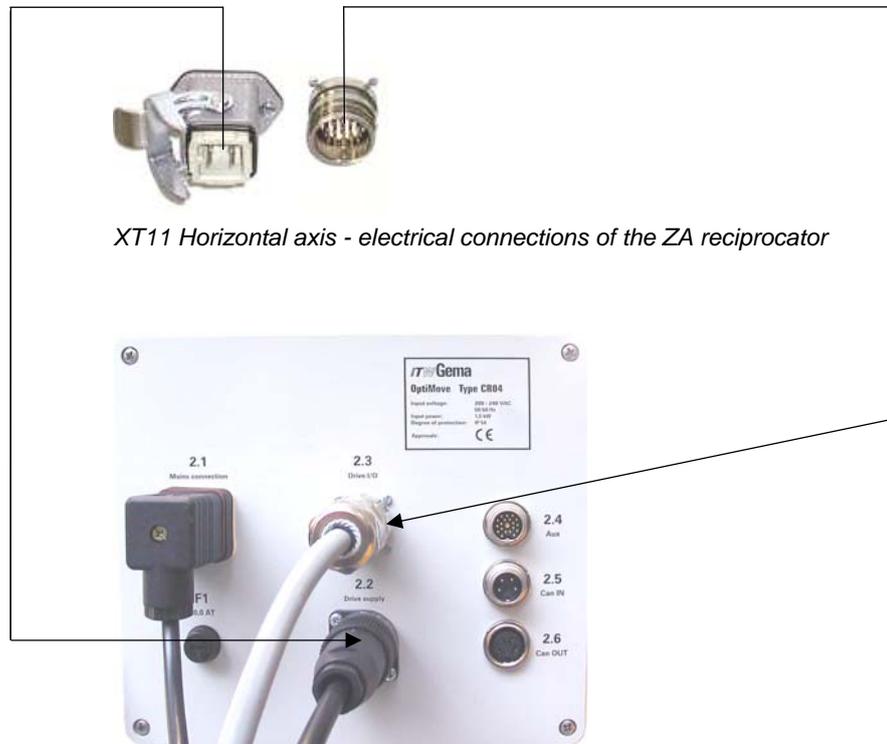
4. Break out the required opening in the feedthrough rubber and pull trough the cables



Cable ducts in the ZA reciprocator

5. Connect the cable (according to the enclosed wiring diagram)
6. Push back the electrical modules and fasten them

Electrical connections / cable connections



XT11 Horizontal axis - electrical connections of the ZA reciprocator

OptiMove CR06 Control unit - connections

- The XT11 Horizontal axis mains connection on the ZA06 Reciprocator is connected to the **2.2 Drive supply** connection on the CR05/CR06 OptiMove Control unit by the XT11 power supply cable
- The XT11 Horizontal axis signal connection is connected to the **2.3 Drive I/O** connection on the CR05/CR06 OptiMove Control unit by the XT11 signal cable

Reference point

The reference point serves as starting point for the axis control unit for calculating the procedure positions.

By switching on the axis control unit, the horizontal axis travels automatically to the reference point (proximity switch).

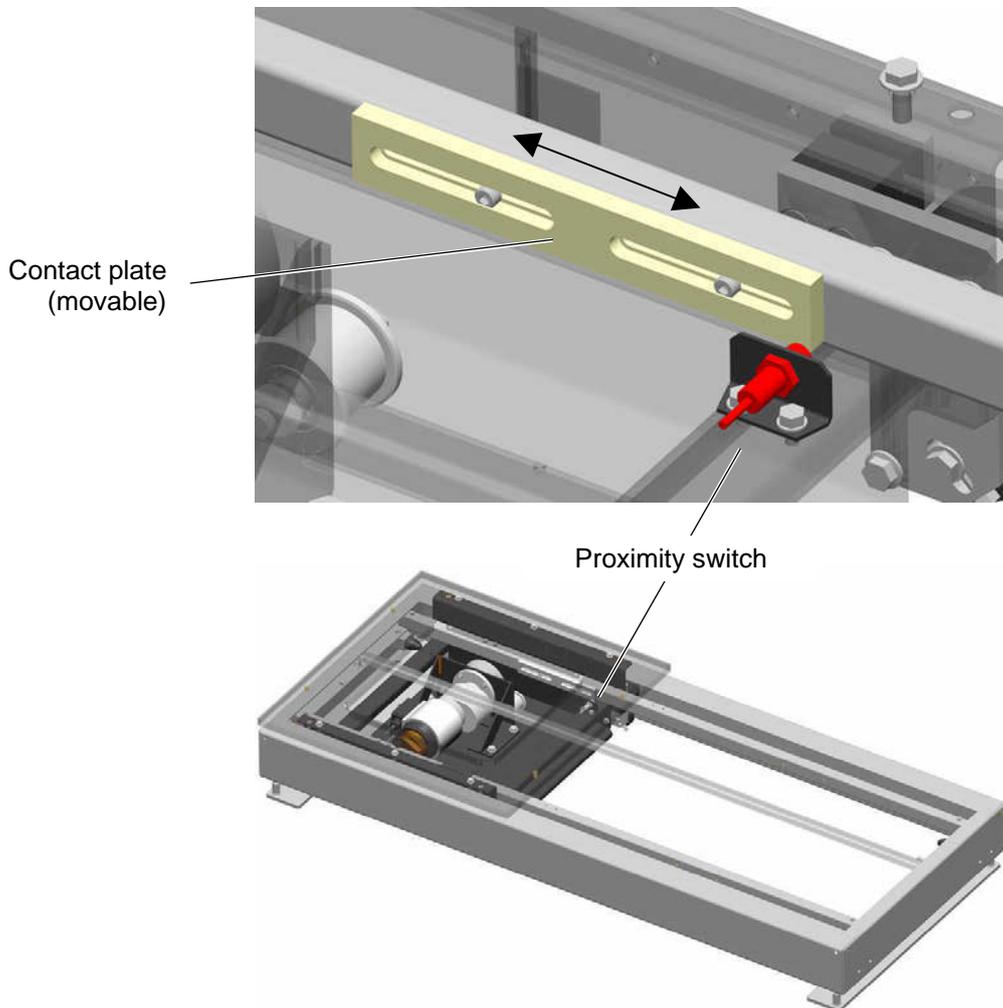


Attention!

In order to avoid damages to the booth or the gun holder etc. the reference point must be set before the first start-up!

Setting the reference point

1. Move the contact plate to the desired position and fasten it
2. Set the response gap of the proximity switch to approx. 2 mm



XT11 Horizontal axis - reference point

The position of the contact plate is set by an Gema service engineer during assembly.



Attention:

The reference point must be referenced before each start-up (at each switching on, after an interruption of the power supply etc.)!

Initial start-up



Danger!

Never stand on the horizontal axis or under the carriage of the vertical axis when it is in operation - danger of accident!



Attention:

The power of the horizontal axis is much stronger than that of a human being!

All axes must be secured against admittance during operation (see local regulations)!

Before start-up the XT11 Horizontal axis, the following points must be observed:

- The frame and the drive carriage of the axis must be grounded! The grounding of the frame must be done by the customer
- Adjust the system parameters in the CR05/CR06 Control unit (see the OptiMove CR05/CR06 operating manual)

In addition, the following checks are necessary before the initial start-up:

- **Travel distance** - check by test run, as well as in accordance to the OptiMove CR05/CR06 operating manual
- **Control unit** - check the cable connections (correct connections, squeezed parts, cable lengths, cable movement etc.)
- **Toothed belt** - move manually to check if it does not ride up on the flanged wheel
- **Stability** - reciprocator and carriage plate must be stable!

Handling and maintenance

General operation

The horizontal axis is operated exclusively by the OptiMove CR05/CR06 Reciprocator control unit (see the OptiMove CR05/CR06 operating instructions).

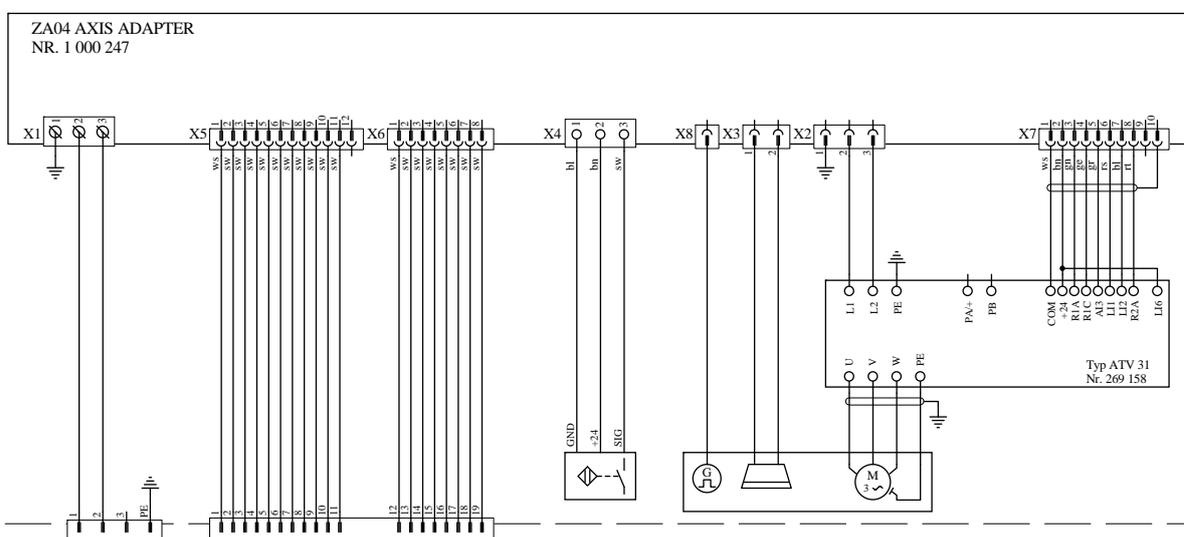
Maintenance schedule

The maintenance plan contains checking and maintenance notes for single shift operation of the horizontal axis. Wear checks, maintenance and repair must be adapted accordingly, when operation conditions deviate!

Maintenance interval	Maintenance and inspection works
Weekly	Coarse cleaning Check operating conditions Clean the running surface
Monthly	Check the toothed belt tensioning

Wiring diagram

XT11 Horizontal axis



XT11 Horizontal axis - wiring diagram

- | | |
|--------------------------------|---|
| X1 Power supply | X5 Drive I/O connection |
| X2 FU* power supply | X6 Drive I/O connection |
| X3 Motor brake connection | X7 FU* signal connection |
| X4 Proximity switch connection | X8 Incremental pulse generator connection |

* FU = Frequency converter



Note:
A contact bridge must be installed between +24 and the LI6 input!

Troubleshooting

General information



Attention:
Faults are to be fixed by trained personnel only!

Fault clearance

Problem/error/malfunction	Procedures/remedy
Reciprocator and carriage plate are wagging	Check the connecting bolts between reciprocator, carriage plate and the XT11 carriage for tightness Adjust the counter rollers without clearance by the corresponding screws on the running wheel bearing/guide wheel bearing (see also the spare parts list) In no case press the counter rollers, otherwise they wear quickly!
Reference point not reached	Remove the powder accumulation on the running surfaces! Check the XT11 axis for proper running (move manually) Consider the indications in the CR05/CR06 Control unit operating manual!

Spare parts list

Ordering spare parts

When ordering spare parts for powder coating equipment, please indicate the following specifications:

- Type and serial number of your powder coating equipment
- Order number, quantity and description of each spare part

Example:

- **Type** XT11 Horizontal axis
Serial number 1234 5678
- **Order no.** 203 386, 1 piece, Clamp - Ø 18/15 mm

When ordering cable or hose material, the required length must also be given. The spare part numbers of this yard/meter ware is always marked with an *.

The wear parts are always marked with a #.

All dimensions of plastic hoses are specified with the external and internal diameter:

Example:

Ø 8/6 mm, 8 mm outside diameter (o/d) / 6 mm inside diameter (i/d)



WARNING!

Only original Gema spare parts should be used, because the hazardous location approval will be preserved that way! The use of spare parts from other manufacturers will invalidate the Gema guarantee conditions!

XT11 Horizontal axis - spare parts list



Attention!

When ordering toothed belts, indicate the toothed belt length (according to travel distance + 855 mm).

By replacing the toothed belt, screw in the grub screw, so that the steel cables in the toothed belt are touched and the grounding is ensured!

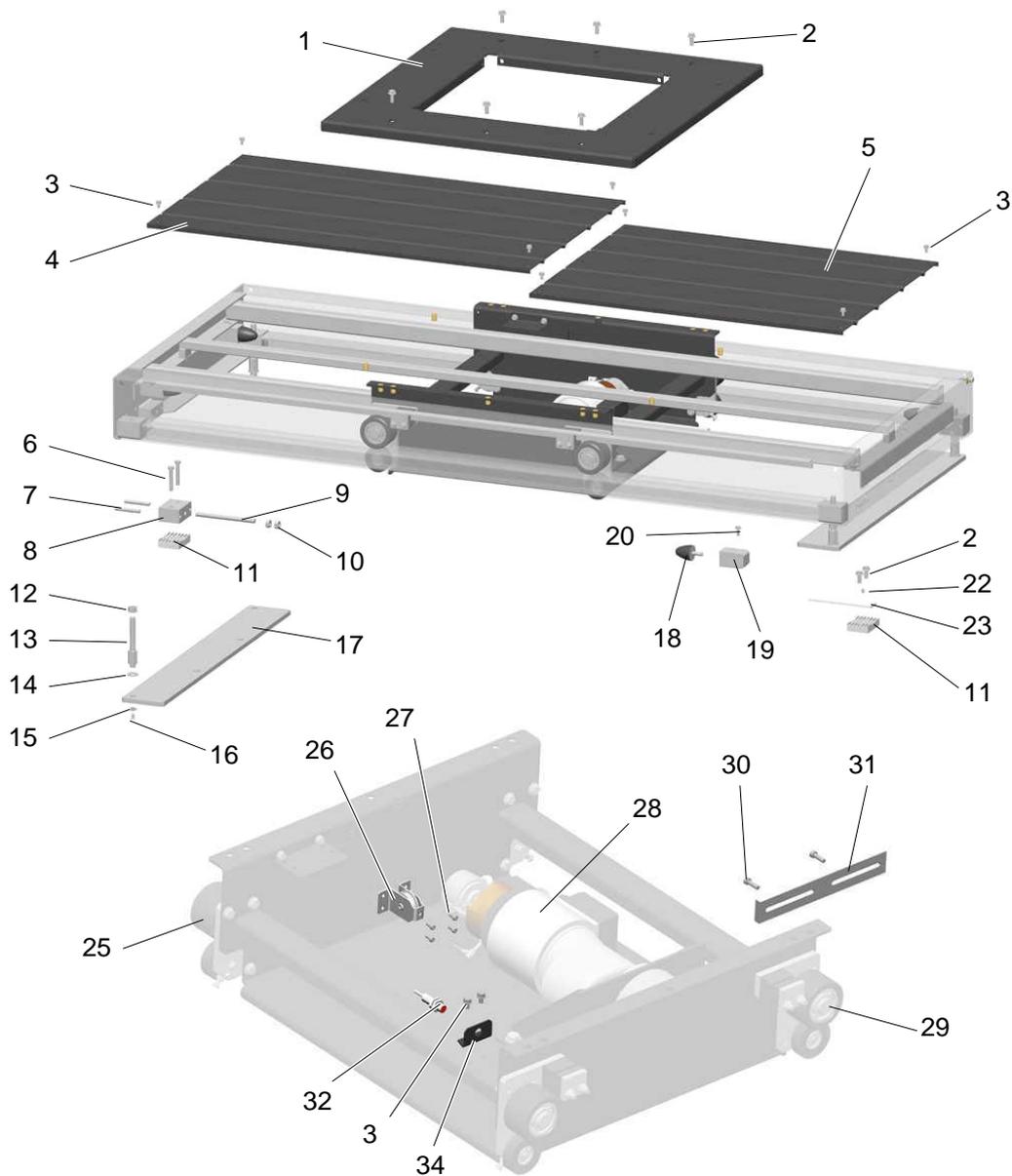
	XT11 Horizontal - stroke 1000 mm	1003 801
	XT11 Horizontal - stroke 1400 mm	1003 802
1	ZA06 carriage plate - lengthwise	387 355
	ZA06 carriage plate	387 525
2	Hexagon shakeproof screw - M8x20 mm	244 422
3	Hexagon screw - M6x10 mm	1001 081
4	Cover panel - stroke 1000 mm	384 151
	Cover panel - stroke 1400 mm	385 883
5	Cover panel - firm side	372 463
6	Hexagon screw - M8x50 mm	213 993
7	Headless screw - M8x60 mm	258 482
8	Clamping plate	372 420
9	Threaded bolt - M10x140 mm	258 474
10	Hexagon nut - M10	215 589
11	Clamp plate	345 067
12	Hexagon nut - M12	215 597
13	Threaded bolt - M12x115 mm	372 676
14	Washer - Ø 13/24x2.5 mm	215 830
15	Washer - M6 (for countersunk-head screw)	258 431
16	Countersunk-head screw - M6x12 mm	214 680
17	Foot plate	372 404
18	Rubber buffer - Ø 35x40 mm, M8	211 664
19	Buffer holder	389 285
20	Hexagon shakeproof screw - M6x16 mm	244 503
22	Allen grub screw - M6x10 mm	214 841
23	Toothed belt	103 730#*
25	Running wheel bearing - complete (see corresponding spare parts list)	
26	Roller - Ø 40 mm	256 366
27	Cap screw - M5x10 mm	241 849
28	XT11 drive unit - complete (see the corresponding spare parts list)	
29	Guide wheel bearing - complete (see corresponding spare parts list)	

XT11 Horizontal axis - spare parts

30	Allen cylinder screw - M6x20 mm	216 429
31	Contact plate	387 568
32	Proximity switch	229 180
34	Limit switch holder	387 576
XT11 Electrical module on ZA06 (not shown, see corresponding spare parts list)		

* Please indicate length

Wearing part



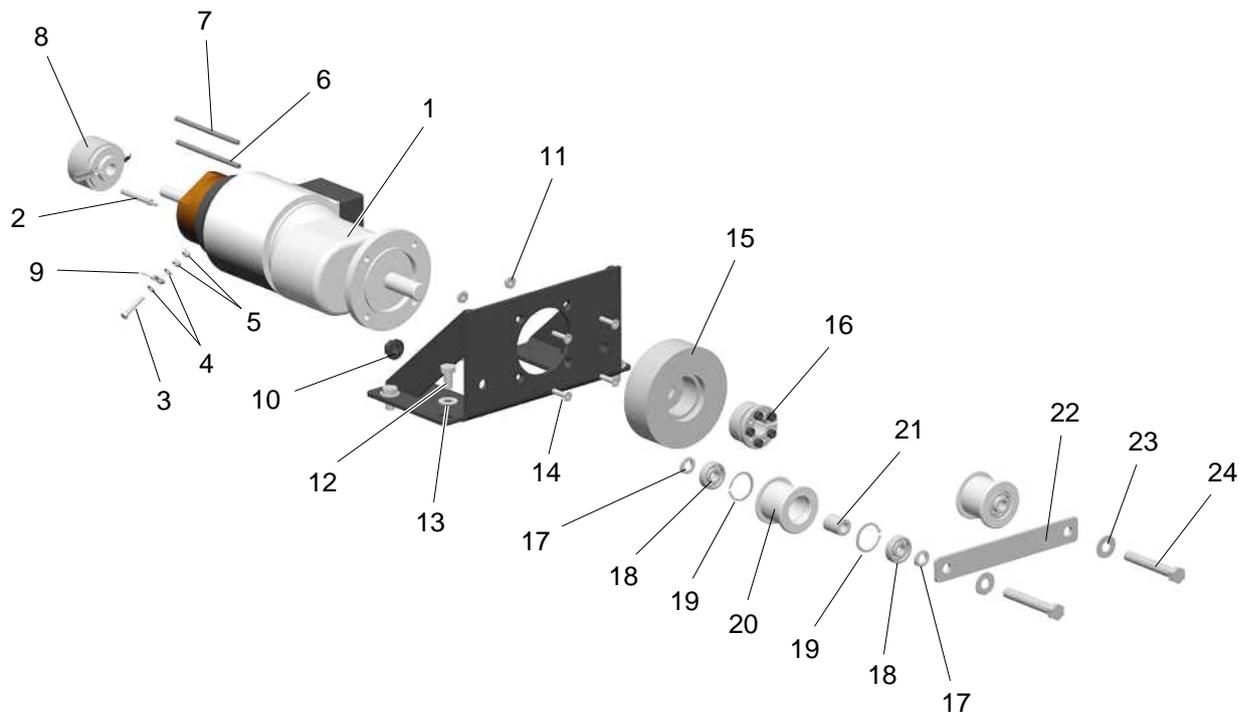
XT11 Horizontal axis - spare parts list

XT11 Horizontal axis - drive unit

	Motor/gearbox unit - complete (pos. 1-5)	1005 064
1	Motor/gearbox - 0,25 kW	
	- for XT Axes with serial numbers 18402.xxxx (see Rating plate)	1008 448
	- for XT Axes with serial numbers 18401.xxxx (see Rating plate)	1003 815
2	Torque support - Ø 6/M4	1003 126
3	Hexagon screw - M5x30 mm	213 764
4	Washer - Ø 5.3/10x1 mm	205 320
5	Hexagon nut - M5	205 150
6	XT11 motor cable - L=2 m	1000 904
7	XT11 motor brake cable - L=2 m	1001 343
8	Incremental pulse generator	268 925
9	Brake release cable	1002 855
10	Hexagon ribbed nut - M12	1003 797
11	Hexagon shakeproof nut - M6	244 430
12	Hexagon screw - M10x20 mm	214 108
13	Ribbed washer - M10	237 981
14	Countersunk Allen screw - M6x25 mm	241 598
15	Toothed belt wheel ¹⁾	1003 814
16	Tensioning set - Ø 20/47x22 mm ¹⁾	257 583
17	Spacer ring - Ø 20/12.1x3.7 mm	1003 795
18	Deep groove ball bearing - Ø 12/32x10 mm	245 720
19	Snap ring - A-32	235 741
20	Guide roller	1003 793
21	Spacer ring - Ø 20/12.1x25 mm	1003 812
22	Roller fixing plate - L=120 mm	1003 796
23	Ribbed washer - M12	237 973
24	Hexagon screw - M12x80 mm	221 325

¹⁾ If these parts must be replaced, clean off all grease before assembly!

XT11 Horizontal axis - drive unit

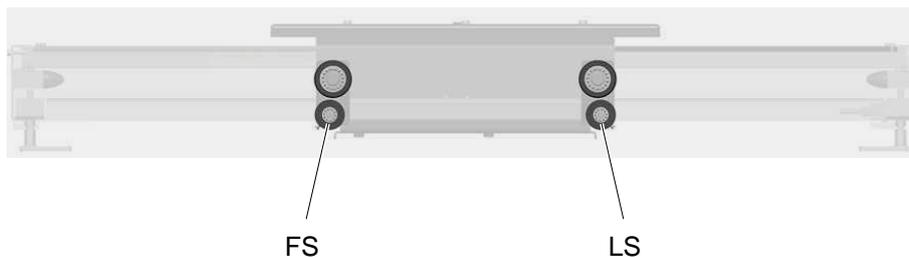


XT11 Horizontal axis - drive unit

XT11 Horizontal axis - running wheel bearing

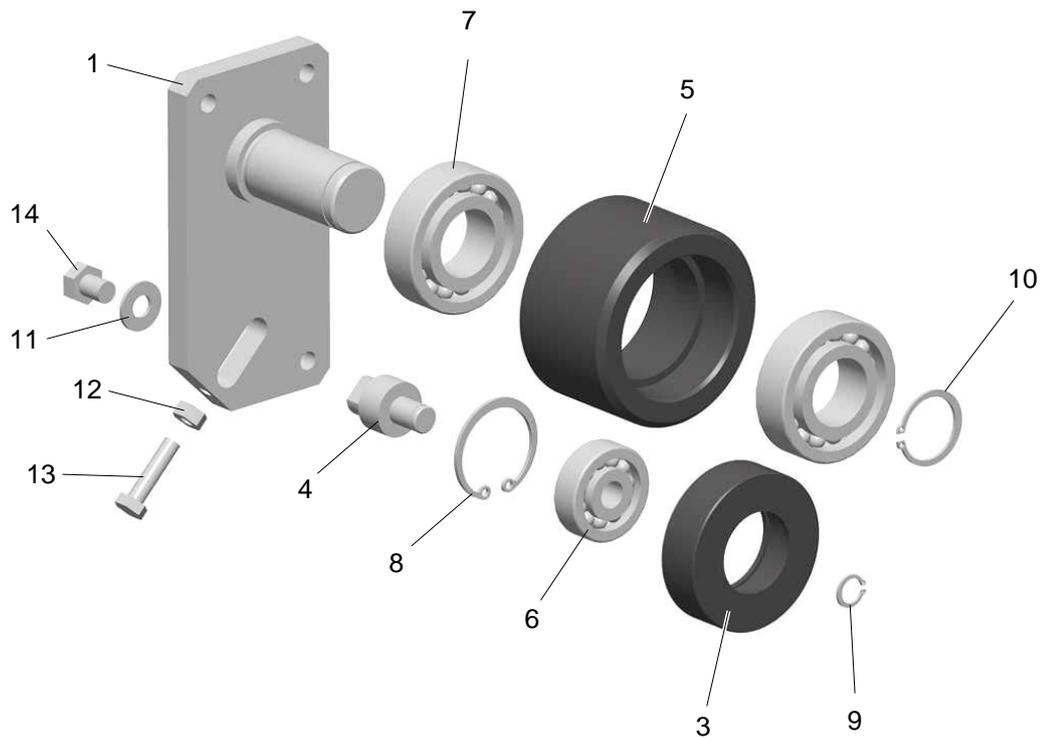
	Running wheel bearing - complete, FS	1003 808
	Running wheel bearing - complete, LS	1003 806
1	Running wheel bearing (support) - FS	1003 809#
1	Running wheel bearing (support) - LS	1003 807#
3	Counter roller	390 658#
4	Bearing bolt	1003 813
5	Running wheel - Ø 73 mm	1003 805#
6	Deep groove ball bearing - Ø 10/35x11 mm	201 359#
7	Deep groove ball bearing - Ø 15/52x15 mm	258 415#
8	Snap ring - I-35	216 135
9	Snap ring - A-10	256 358
10	Snap ring - A-25	237 094
11	Ribbed washer - M8	242 870
12	Hexagon nut - M6	205 095
13	Hexagon screw - M6x25 mm	213 845
14	Hexagon screw - M8x10 mm	213 900

Wearing part



XT11 Horizontal axis - running wheel bearing

XT11 Horizontal axis - running wheel bearing

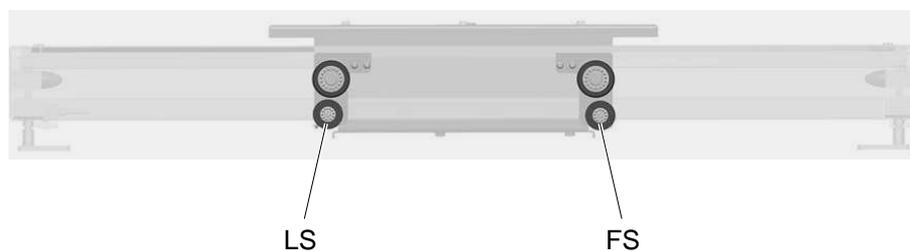


Running wheel bearing - FS

XT11 Horizontal axis - guide wheel bearing

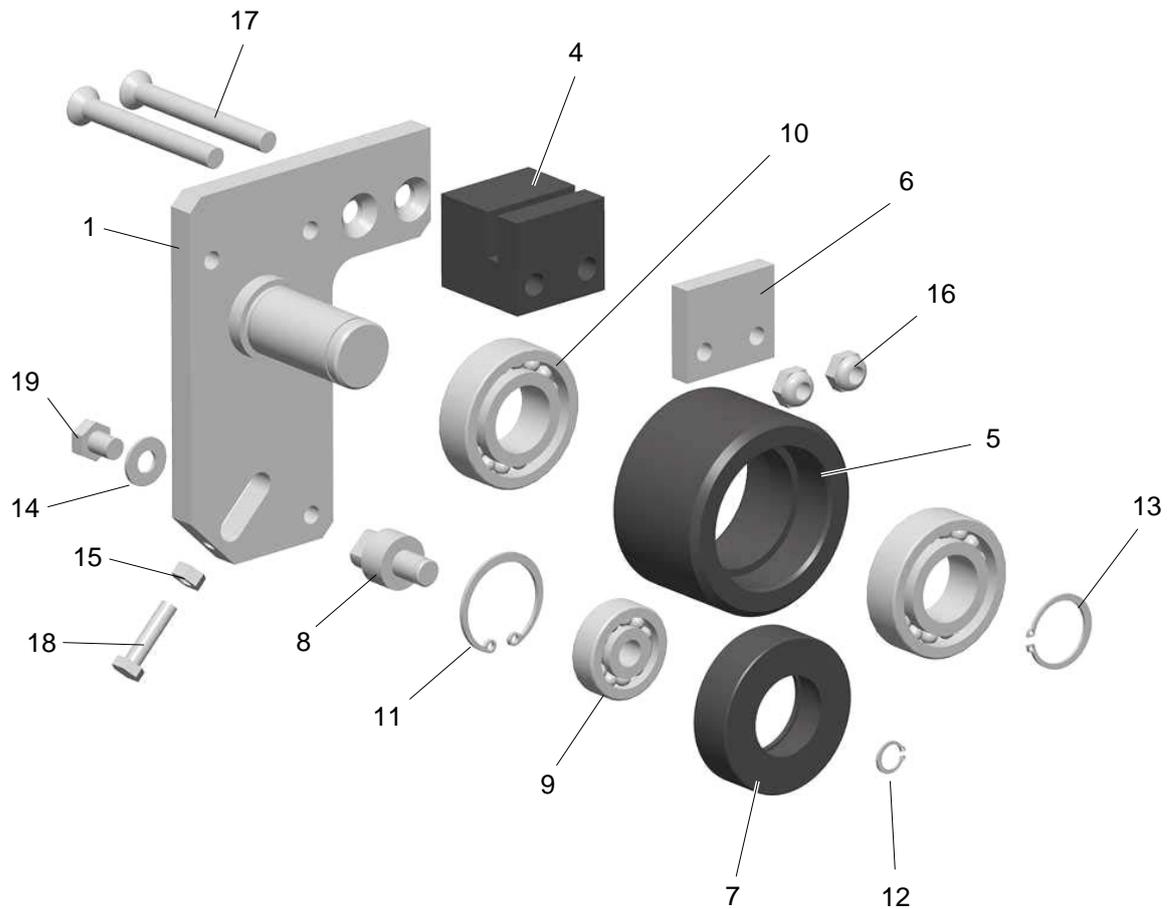
	Guide wheel bearing - complete, LS	1003 803
	Guide wheel bearing - complete, FS	1003 811
1	Guide wheel bearing (support) - LS	1003 804#
1	Guide wheel bearing (support) - FS	1003 810#
4	Guide profile	372 374#
5	Guide wheel - Ø 73 mm	1003 805#
6	Counter plate	372 382
7	Counter roller	390 658#
8	Bearing bolt	1003 813
9	Deep groove ball bearing - Ø 10/35x11 mm	201 359
10	Deep groove ball bearing - Ø 15/52x15 mm	258 415
11	Snap ring - I-35	216 135
12	Snap ring - A-10	256 358
13	Snap ring - A-25	237 094
14	Ribbed washer - M8	242 870
15	Hexagon nut - M6	205 095
16	Locknut - M8	221 317
17	Countersunk screw K-SI - M8x70 mm	258 440
18	Hexagon screw - M6x25 mm	213 845
19	Hexagon screw - M8x10 mm	213 900

Wearing part



XT11 Horizontal axis - guide wheel bearing

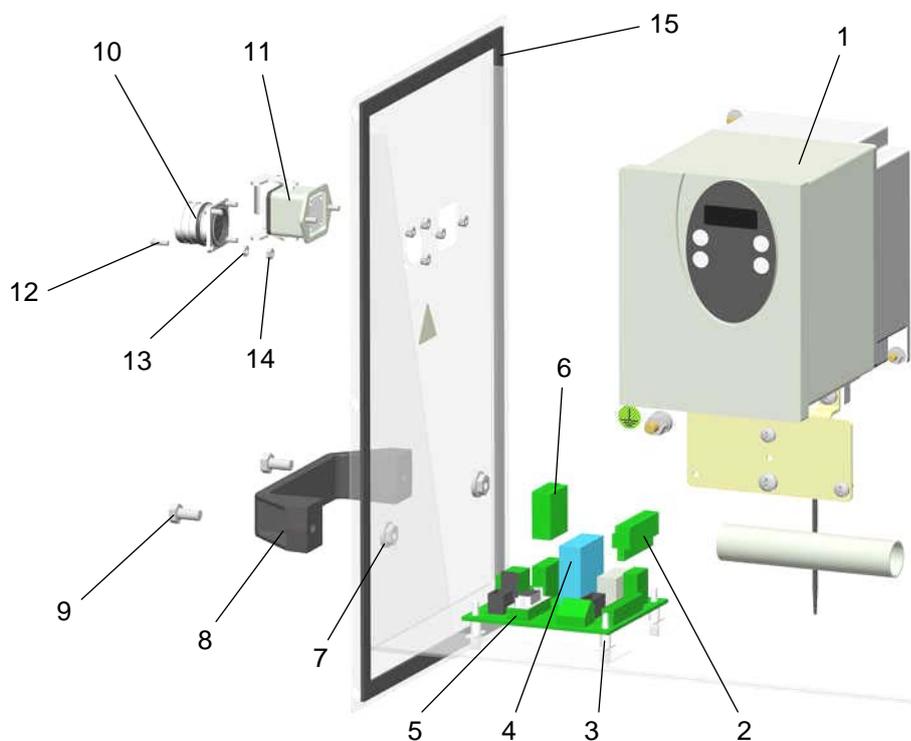
XT11 Horizontal axis - guide wheel bearing



Guide wheel bearing - LS

XT11 Horizontal axis - electrical module

1	Frequency converter - ATV31-XT11	269 158
2	Signals-frequency converter connection	1000 314
3	Spacer - Ø 4 / Ø 4.8/9.4 mm	266 833
4	Relay - 24 VDC, for motor brake	250 961
5	Axis adaptor - complete	1000 247
6	Frequency converter mains connection	1000 312
7	Hexagon shakeproof nut - M6	244 430
8	Handhold	244 864
9	Hexagon screw - M6x12 mm	213 810
10	Drive I/O connection - complete	1004 105
11	Power supply	1003 990
12	Cylinder screw - M3x8 mm	268 801
13	Shake proof washer - A-type, M3	205 885
14	Hexagon nut - M3	202 142
15	Adhesive seal strip - 9x2 mm	100 250
	OptiMove XT11 power supply cable - L=20 m (not shown)	1000 280
	OptiMove XT11 signal cable - L=20 m (not shown)	1000 281



XT11 Horizontal axis - electrical module in the ZA06 Reciprocator

