

Operating Instructions and Spare Parts List

Horizontal Axis YT03



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1 Safety

1.1 Personnel safety

- The horizontal axis should only be switched on and operated after careful reading of this manual. Incorrect operation of the axis and the corresponding control can lead to injuries to personnel, as well as damage to the axis and/or other parts.
- All moving axes must be secured before start-up and during operation by the customer by providing fencing around the equipment (*see local regulations*).
- Check that the axis is grounded before start-up!
- Do not dismantle, bypass or avoid safety devices, open covers can hide the danger of crushing and other serious injuries.
- Safety devices must be kept in proper working order and not be allowed to be put out of operation.
- Maintenance work on the YT03 Horizontal Axis may only take place when the unit stands still. Switch the unit off completely, lock the main switch and remove keys!

1.2 Safety concept

- The YT03 Horizontal Axis is a component part of the unit, integrated in the safety system of the unit. Suitable measures must be taken for use outside of the safety concept.
- Only original ITW Gema spare parts may be used. Any warranty claim for damage caused by the use of foreign parts is void.
- Repairs on the axis may only be carried out by ITW Gema trained personnel.

1.3 Intended use

The horizontal axis is only intended for a defined application range. Use outside of this range is considered as incorrect use.

2 Product description

2.1 Field of application

The YT03 Horizontal Axis unit is used as a synchronizing axis in powder coating, that means above all where the powder gun must move synchronously (at the same speed, faster or slower) with the objects to be coated. The YT 2 Horizontal Axis unit can be used alternatively either with an ACR or with a ZA Reciprocator.

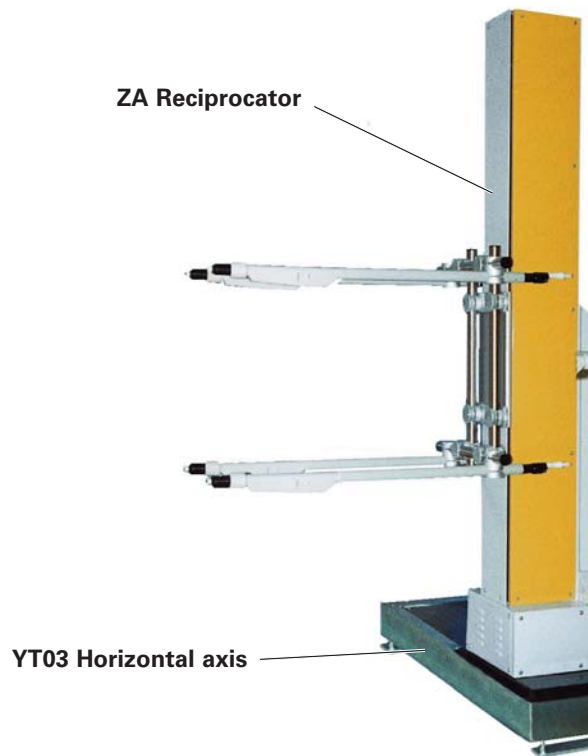


Fig. 2.1 YT03 Horizontal Axis and ZA Reciprocator

2.2 Description

The YT03 Horizontal Axis is a synchronization axis and has the following characteristics:

- Uses the same control unit as the ZA02 Reciprocator
- Free selectable speed settings on the CR03 Control Unit
- Built-in levelling feet
- Minimum space requirement
- Requires no additional space for dismantling and service work
- Low overall height
- Fitting with ZA02 and ACR Reciprocator possible

(Details about the control of the axis can be found in the respective operating instructions of the Gematic CR03 Control Unit)

2.3 Product identification

The identification of the horizontal axis is found in the ZA Reciprocator control unit, directly next to the frequency converter.

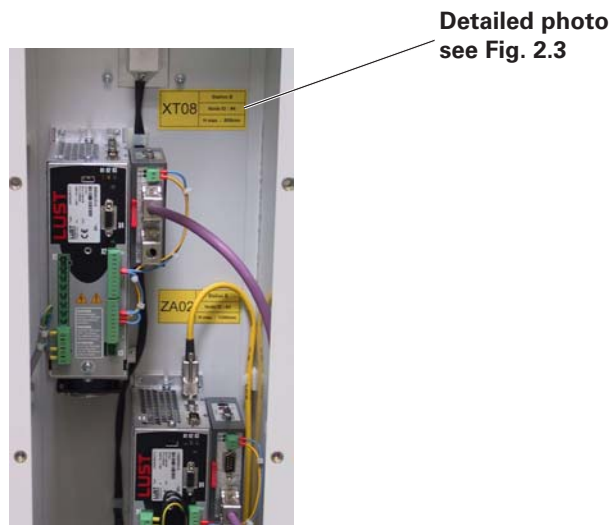


Fig. 2.2 Axis identification in the ZA control unit

The following specifications can be taken from it:

- Station address
- Node ID
- Max. stroke

YT03	Station A
	Node ID : #3
	H max. : 1000mm

Fig. 2.3 Identification of the ZA control unit

2.4 Technical data

- Electrical connection - frequency converter (controlled by CR03)
- Velocity - 0,05-0,6 m/s
- Position detection - impulse generator
- Reference point - corresponds to the zero point
- Zero point - selectable at both end positions
- Travel distance - on request

2.5 Design and function

2.5.1 Mechanical design

The YT03 Horizontal Axis consists of the following parts:

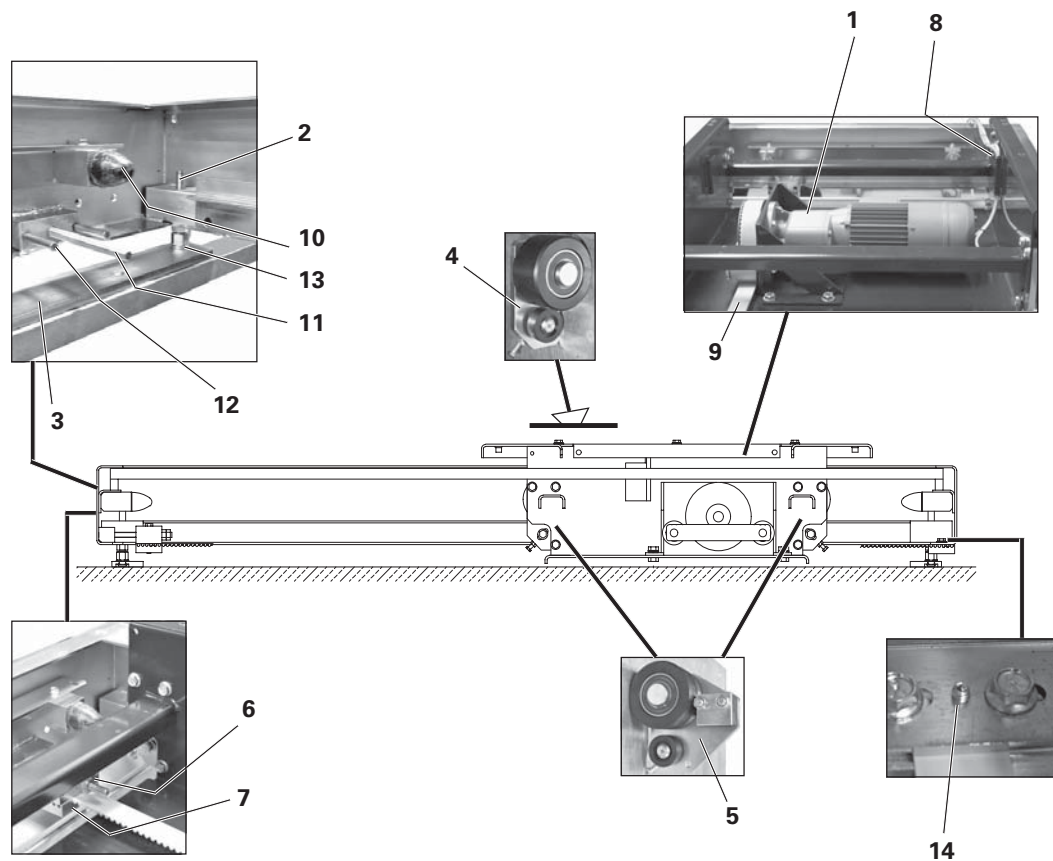


Fig. 2.4 Construction of the YT03 Axis

- | | |
|-------------------------|-------------------------------------|
| 1 Drive unit - complete | 9 Toothed belt |
| 2 Leveling screw | 10 Rubber buffer |
| 3 Foot plate | 11 Clamping screw -
M10 x 149 mm |
| 4 Running wheel bearing | 12 Slotted studding |
| 5 Guide wheel bearing | 13 Washer |
| 6 Clamp plate | 14 Grub screw |
| 7 Clamp plate | |
| 8 Cable guide | |

2.5.2 Description of function

- The YT03 Horizontal Axis is a synchronization axis, in order to adapt the powder gun position to the parts to be coated
- Position detection of the YT03 Horizontal Axis takes place by an impulse generator fitted to the drive unit
- The drive takes place by the drive unit, built onto the axis carriage (three-phase motor with a spur gear and an impulse generator) and the toothed belt, built firmly into the travel frame

2.5.3 Safety and monitoring devices

All moving axes must be secured before start-up and during operation by the customer by providing with fencing.
(see local regulations)

3 Start-up

3.1 Set up and assembly

3.1.1 Connecting the YT03 to the ZA02 Reciprocator

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



Fig. 3.1 YT03 Axis including the connecting cables

2. Both cables must be inserted through the free cable lead-through in the ZA axis **(1)** (observe the following points)

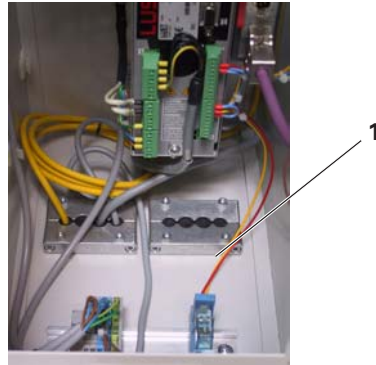


Fig. 3.2 Lead-through for the X-axis cables

3. Remove the screw **(2)** and loosen screw **(3)**
Lift half of the cable lead-through in the required opening, separate the lead-through rubber and pull the cables through



2

3



4. Screw the cable lead-through **(4)** together

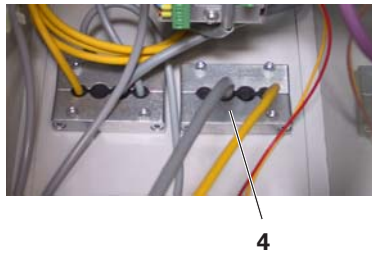


Fig. 3.3 Cable lead-through in the reciprocator

5. Connect the impulse generator cable (yellow) **(6)** to the rear socket **(7)** and the motor cable (gray) **(8)** to the contact strip X1 **(9)**



NOTE:
Before connecting the motor cable, the „latch“ **(5)** must be removed from connection **9** in the socket (green)!

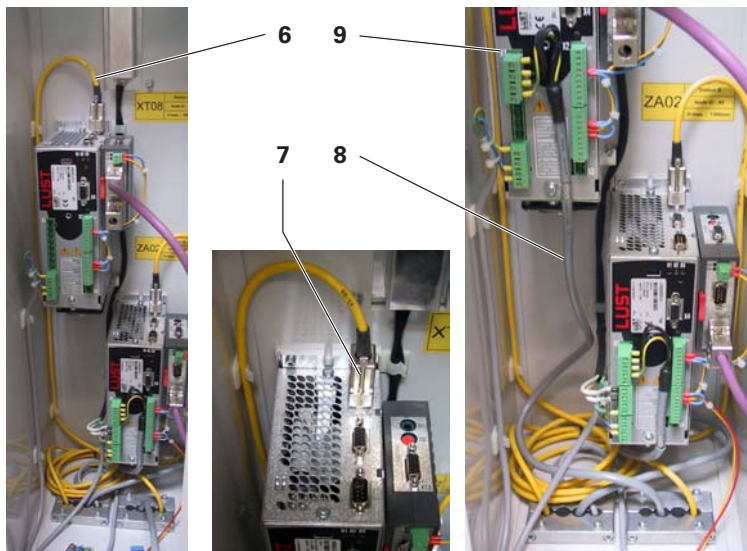
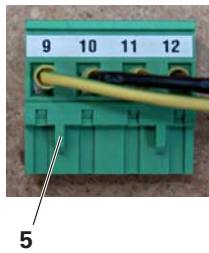


Fig. 3.4 YT03 cable connections

3.1.2 Installation and place of operation

- The axis must be leveled, in order to be able to ensure a perfect operation
- After firm positioning the YT03 Horizontal Axis must be bolted together to the base, respectively the pedestal etc.

3.1.3 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 accidents!



Attention!

The power of the horizontal axis is stronger than that of humans! All axes must be secured against entry during operation (see local regulations).

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

- The frame, as well as the drive carriage of the axis **must** be grounded!
The grounding of the frame must be done by the customer!
- Adapt the system parameters in the CR03 Control Unit (see operating instructions of the CR03 Control Unit)

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

- Travel distance
 - Check by moving manually and in accordance with the CR03 operating instructions
- Control
 - Check the cable connections (correct connection, 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 stability must be verified

4 Operation

The horizontal axis is operated exclusively by the CR03 Control Unit (see operating instructions of the CR03 Control Unit).

5 Maintenance

5.1 Maintenance plan

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.

Interval	Maintenance and Inspection work
Weekly	Coarse cleaning
	Check operating conditions
	Clean bearing surfaces
Monthly	Check belt tension

6 Fault correction



Note!

Faults may only be repaired by trained personnel!

Malfunction / Error	Measures / Remedy
The toothed belt on rides up on a wheel flange	Loosen the motor and shift into the corresponding (opposite) direction by the hand. The toothed belt must not ride up on the flanged wheels over the whole drive length, neither at the reversing points..
The reciprocator and the carriage plate also vibrate	<p>Check the connecting bolts between reciprocator, carriage plate, and YT03 carriage for tightness.</p> <p>Set the counter roller with the suitable screws at the running wheel bearing / guide wheel bearing free from play (<i>see also spare parts list</i>).</p> <p>Do not compress the counter rollers, under any circumstances, otherwise they will wear rapidly.</p>
Reference point is not approached	<ul style="list-style-type: none"> - Accumulation of powder on bearing surfaces; Clean! - Check the YT03 Axis for perfect running (shift manually) - Observe the notes in the Operating Instructions of the CR03 control

7 Spare parts

7.1 Ordering

For ordering of spare parts for the horizontal axis, following specifications are required:

- Type and stroke of the horizontal axis
- Part number, quantity and description of each spare part

Example:

Type: YT03 Horizontal Axis/stroke - 1000 mm

Order no.: 245 151

Quantity: 2 pieces

Description: Leveling foot - D110/M12/L=196

7.2 Spare parts list (Axis - complete)



Note!

When ordering toothed belts:

Toothed belt length = indicate travel distance + 855 mm

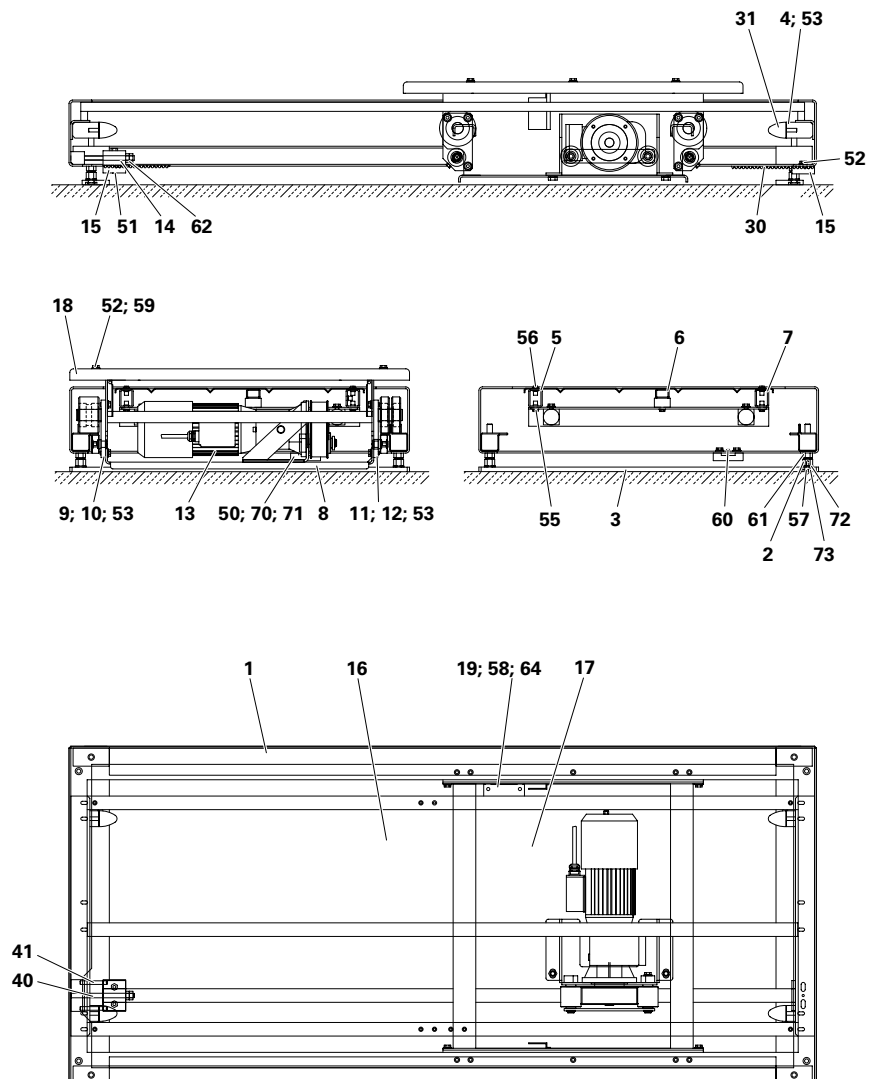
By replacing the toothed belt, screw in the grub screws so that the steel cables in the toothed belt are touched and thus the grounding is ensured.

The YT03 Horizontal Axis is provided with the following spare parts:

2	Studding - H Axis	372 412
3	Foot plate	372 404
4	Buffer holder	389 285
8	Carriage	387 436
9	Running wheel bearing - front - complete	372 560
10	Running wheel bearing - rear - complete	372 579
11	Guide wheel bearing - front - complete	372 587
12	Guide wheel bearing - rear - complete	372 595
13	YT03 Drive unit - complete (see detail page)	387 380
14	Clamp plate	372 420
15	Clamp plate	345 067
16	Cover panel - fixed side	372 463
17	Cover panel - stroke - 1400 mm	385 883
17	Cover panel - stroke - 1000 mm	384 151
18	Carriage plate - ZA02	387 525
18	Carriage plate - ZA02 - axial	387 355
19	Cable guide - YT03	387 843
30	Toothed belt - Htd 8m-30	103 730#*
31	Rubber buffer - D35 x 40 M8/A 55sh	211 664
40	Studding - M10 x 140 mm	258 474
41	Slotted studding - SI M8 x 60 mm	258 482
50	Hex. Screw - M10 x 20 mm	214 108
51	Hex. Screw - M8 x 50 mm	213 993

52	Hex. Shake-proof screw - M8 x 20 mm	244 422
53	Hex. Shake-proof screw - M8 x 16 mm	244 457
55	Hex. Shake-proof screw - M6 x 16 mm	244 503
56	Cap screw - K-S1 M6 x 16 mm - Ecofix	243 833
57	Countersunk screw - K-S1 M6 x 12 mm	214 680
58	Hex. Screw - M6 x 12 mm	213 810
59	Countersunk screw - Hex. - M8 x 16 mm	264 300
60	Grub screw - Hex. - Frame - M6 x 10 mm	214 841
61	Nut - M12 mm	215 597
62	Nut - M10 mm	215 589
64	Nut - M6 mm	205 095
70	Spring washer - M10	215 961
71	Washer - D10.5/21 x 2.0 mm	215 821
72	Washer - D13/24 x 2.5 mm	215 830
73	Washer - M6 (for c/sk screw)	258 431
80	Kit for electrical parts	386 944

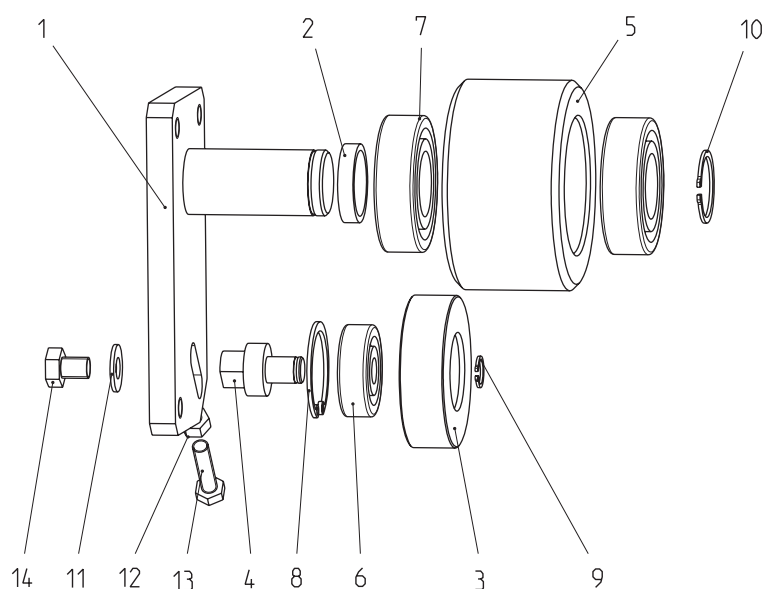
wear part
 * please indicate length



YT03 Horizontal axis - running wheel bearing

	Running wheel bearing - complete, front	390 593
	Running wheel bearing - complete, rear	390 607
1	Running wheel bearing (attachment) - front	390 615#
1	Running wheel bearing (attachment) - rear	390 623#
2	Spacer ring - Ø 30/25,1x5,9 mm	372 340
3	Counter roller	390 658#
4	Bearing bolt	390 666
5	Running wheel - Ø 80 mm	372 323#
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

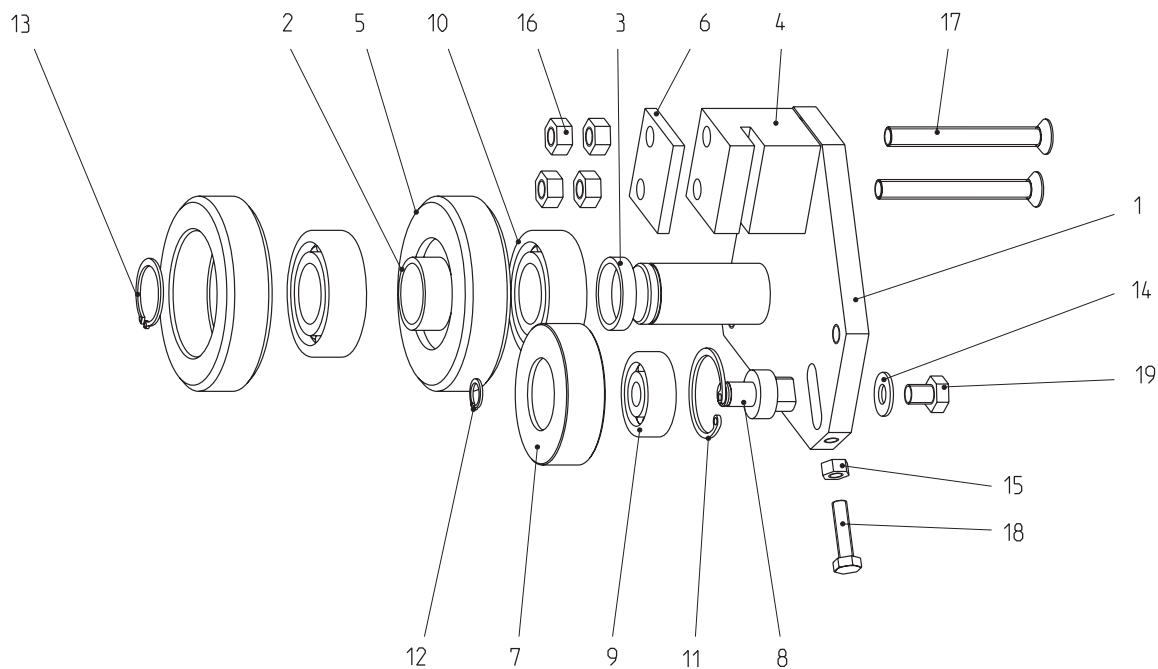


Running wheel bearing - front

YT03 Horizontal axis - guide wheel bearing

1	Guide wheel bearing - front	390 631#
1	Guide wheel bearing - rear	390 640#
2	Spacer ring - Ø 30/25,1/12,1 mm	372 331
3	Spacer ring - Ø 30/25,1/5,9 mm	372 340
4	Guide profile	372 374#
5	Guide wheel - Ø 80 mm	372 315#
6	Counter plate	372 382
7	Counter roller	390 658#
8	Bearing bolt	390 666
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	Hexagon nut - M8	215 570
17	Countersunk-head screw K-SI - M8x70 mm	258 440
18	Hexagon screw - M6x25 mm	213 845
19	Hexagon screw - M8x10 mm	213 900

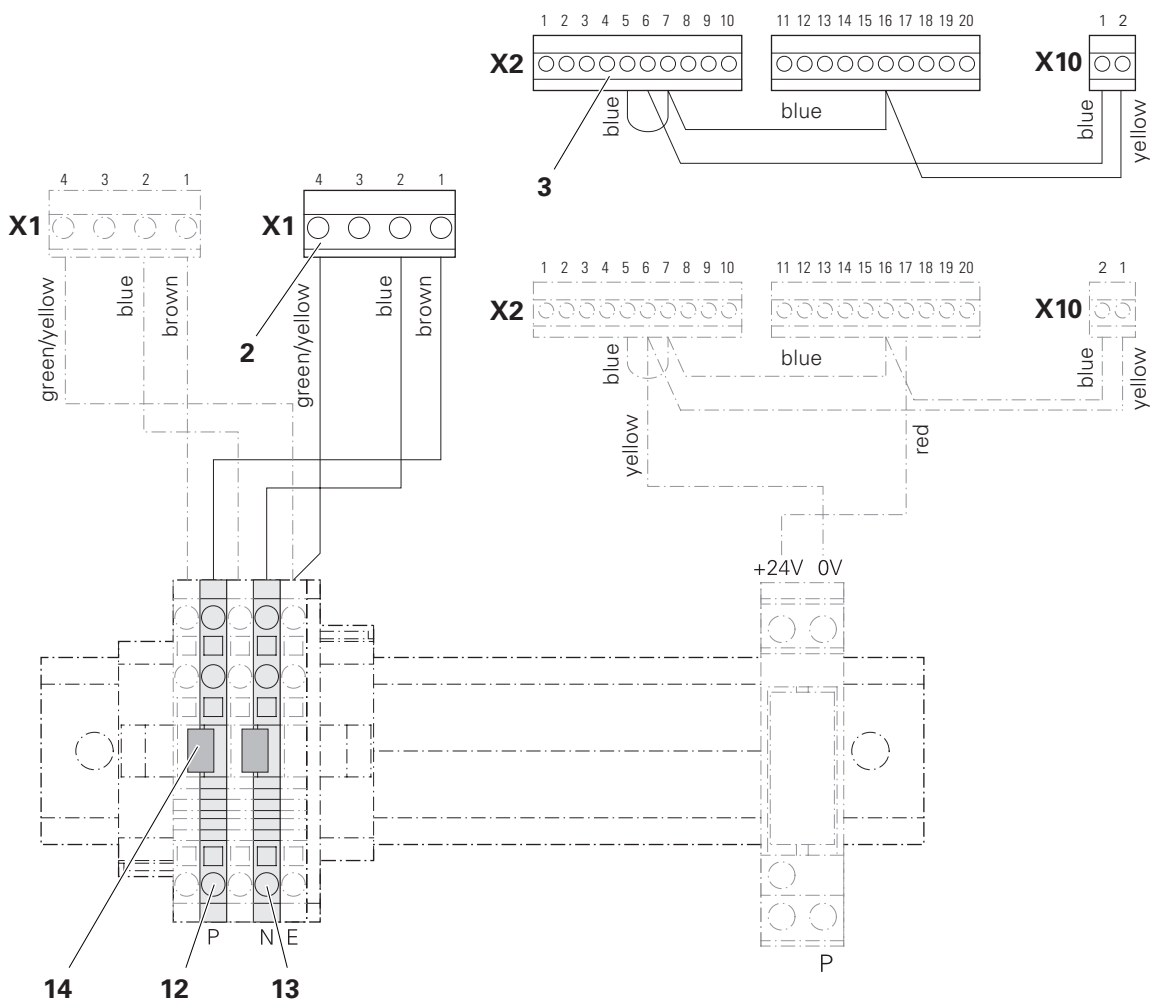
Wearing part



Guide wheel bearing - front

8 Electrical connections - YT03 Reciprocator (in addition to ZA02)

2	Internal mains cable - YT03	387 630
3	Cable set - control current - YT03	387 193
12	Connecting plate - 0.25 mm ² - P3-L	241 636
13	Connecting plate - 0.25 mm ² - N3-LT	241 644
14	Contact bridge (single)	238 392



ZA02 - existing parts

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