COSBER

INSTALLATION GUIDE

TRUCK Brake Tester

COSBER C-BTT Series

CONTENT

1 General

1.1 Important notes

- First, thank you for choosing this product.
- This manual is included with the product. For the sake of efficient use of the system, users should read the instructions carefully before installation and keep them carefully for reference later and for maintenance purposes.
- The specifications and information mentioned in the instructions are for information purposes only. Your content may be updated periodically without notice.
- This product should only be used for the intended use for which it is specifically designed. It should not be used for other purposes under any circumstances. The manufacturer is not liable for any damage resulting from improper use of the product.
- Please strictly adhere to the "guidelines" and "instructions" during operation and remember that the system must be maintained regularly.
- This product should only be operated and used by specially trained professionals.
- Personnel who are not members of our company are not authorized to disassemble or modify the product or use it for any other purpose beyond the detection function of the system itself without our consent.
- In cases where the product is damaged by human factors or force majeure (earthquake, flood, etc.), the user must take effective remedial action quickly and notify our company as soon as possible.

1.2 Safety

Before starting, suppressing, connecting, and operating the system, read the instructions carefully and strictly adhere to them.

INFORM OTHER USERS AND BYSTANDERS OF DANGERS AND ALWAYS INFORM THEM ABOUT DANGEROUS CONSEQUENCES AND PREVENTIVE MEASURES.

WARNING!

Designation	Probability of occurrence	Severity of risk
Danger	Danger in delay	Injury and death
Warning	Danger	Injury
Hint	Danger	Minor injury

1.2.1 Beware of electric shocks.

1.2.2 Keep away from the rotating rollers! Risk of crushing can lead to injury and death.

1.2.3 Installation Note

All necessary configuration settings and calibration of the sensors should be conducted exclusively by Cosber technical personnel or approved partners of Cosber.

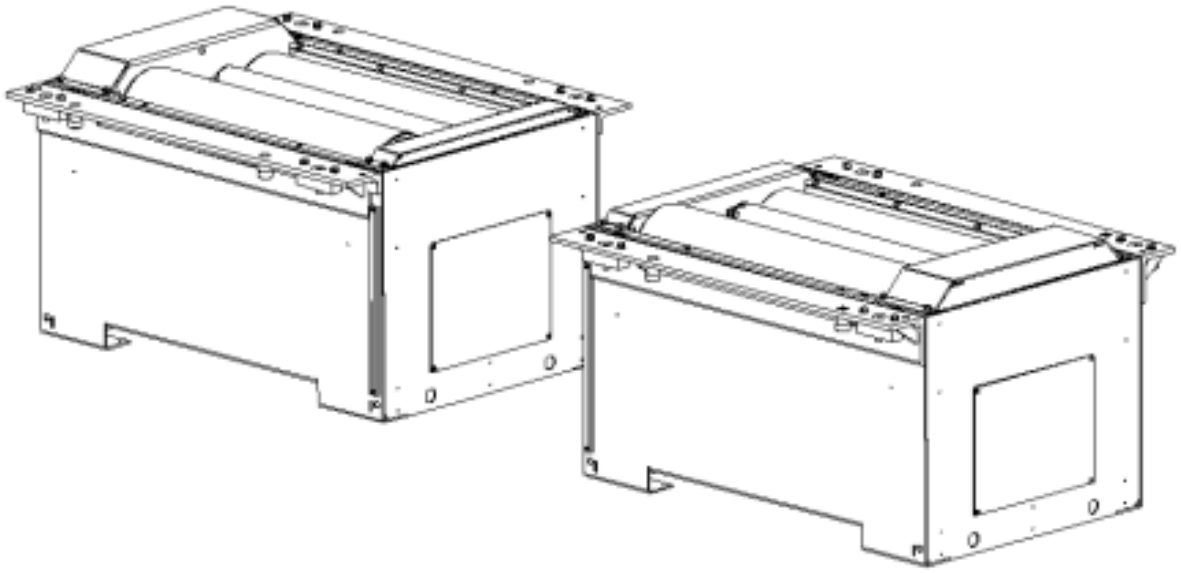
2 Installation of the system

2.1 Preparatory work

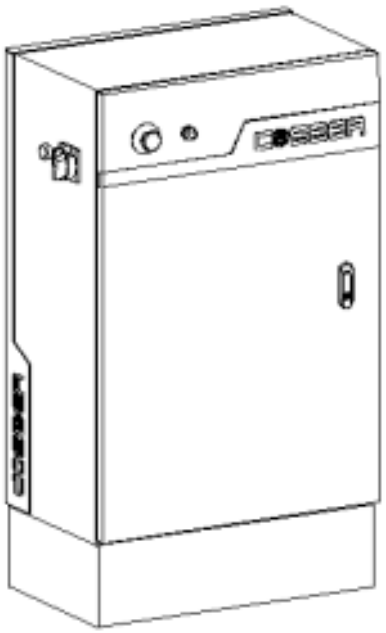
2.1.1 Visual inspection of parts

Scope of delivery in the minimum configuration:

- A set of rollers (including signal cable and power cable for connecting the gear motor to the control cabinet)



- An electrical cabinet (including power cable to connect to the main switch)



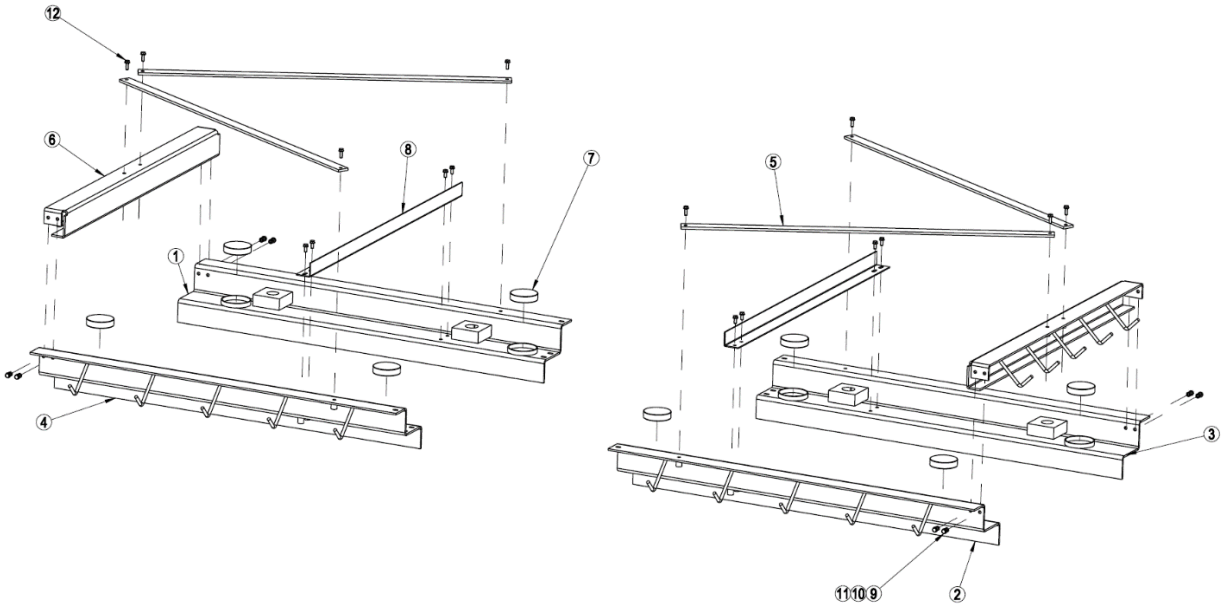
- Check that all parts are present according to the packing list.
- Check that the system is intact in all parts. The user should take effective remedial action quickly and immediately inform our company if any damage occurs due to an error or force majeure (e.g., earthquake, flood, etc.).

2.1.2 Inspection of the pit

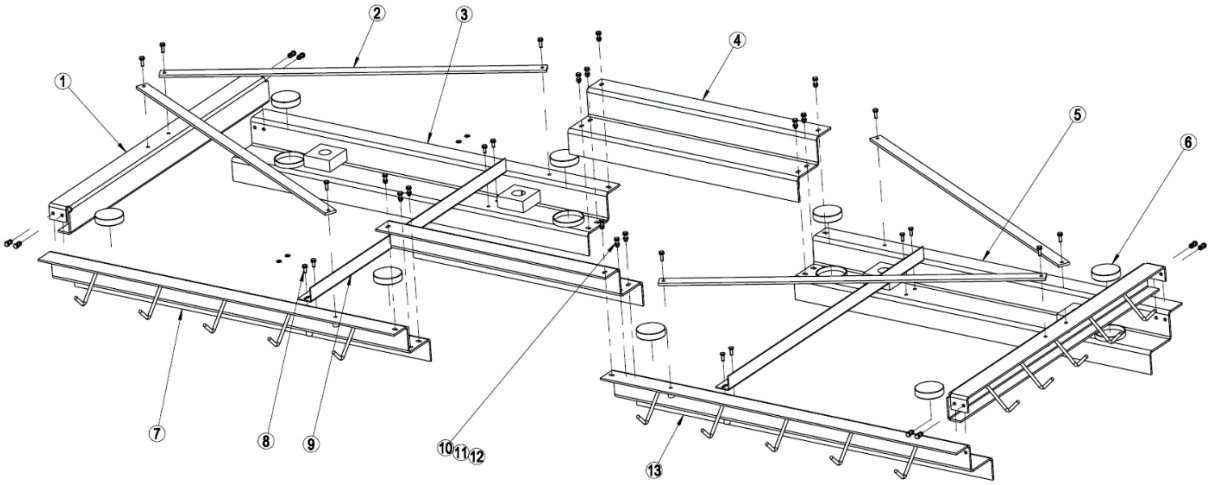
Check the length, width and depth of the pit, the arrangement of the outlet port and other dimensions based on the indications in the drawing of the product. The bottom of the pit is flat on both sides, and the center of the pit has a 2% slope to the water drain. The cable duct must not be clogged under any circumstances. The infrastructure and concrete must meet all requirements and be fully cured.

2.1.3 Foundation frame

Assembly drawing of foundation frames for installation on a pit:



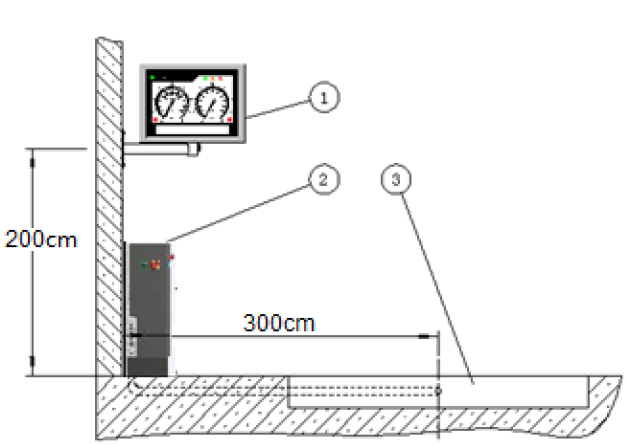
Assembly drawing of foundation frames for installation in our own pit:

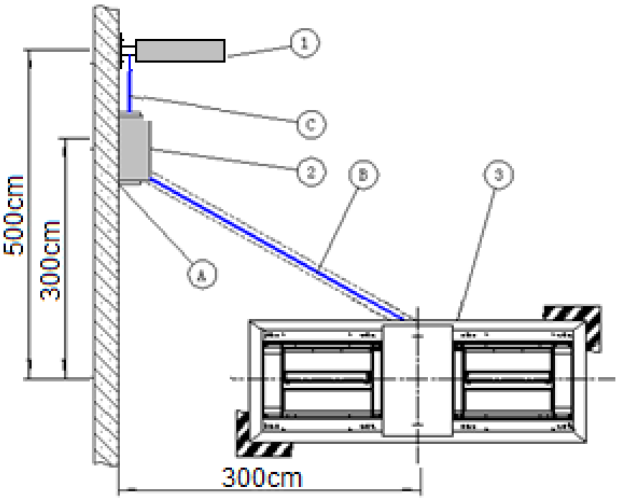


2.1.4 Location

- The system and its components should be assembled in the workshop at the most suitable location.
- Always consider the needs of your customers, local or national regulations, safety requirements, operational or technical specifications and take all requirements into account when deciding on a location and planning them.

2.1.4.1. Assembly sketch with analogue display

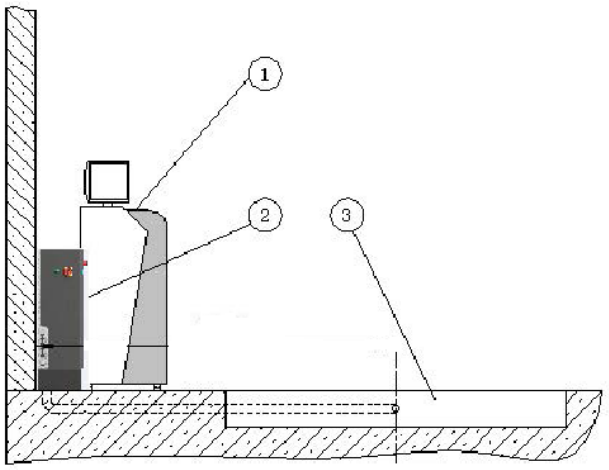


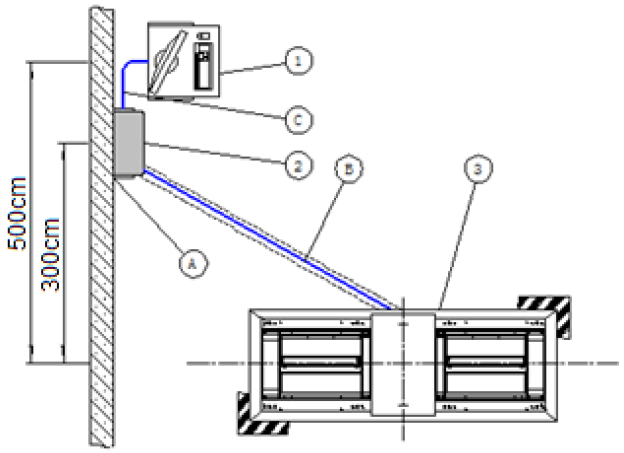


Pos.	Designation
1	Analog Display
2	Switchboard
3	Brake test bench

Pos.	Designation	Connection
A	Power cord	Control cabinet <=> main switch (to be provided by the customer)
B	Power cables, signal cables	Control cabinet <=> brake test bench
C	Signal	Control cabinet <=> analogue display

2.1.4.2. Installation diagram with PC connection





Pos.	Designation
1	PC and PC cabinet (optional)
2	Switchboard

Pos.	Designation	Connection
A	Power cord	Control cabinet <=> main switch (to be provided by the customer)
B	Power cables, signal cables	Control cabinet <=> brake test bench

3	Brake test bench	C	Signal	Control cabinet <=> PC

2.1.5 Requirements for power connection and wiring

WARNING!

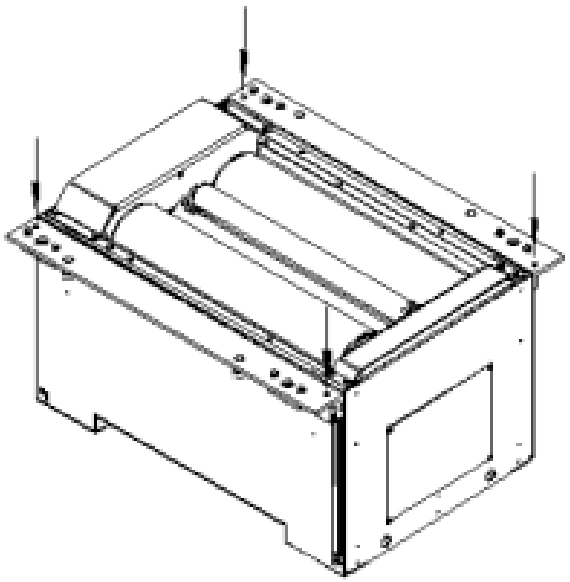
- The main switch must comply with all national standards and safety regulations. It must also meet the requirements of the system in terms of power supply/power consumption.
- The main switch must be earthed in accordance with applicable national standards and safety regulations. Grounding is especially important so that the system can be operated safely and run stably.
- If installed at a location where there are strong voltage fluctuations in the grid, lightning protection or surge protection should also be provided on the power supply.
- Before connecting the power cable, check that the main switch is in the OFF position.
- Personnel must work with insulation and insulated safety shoes during assembly.

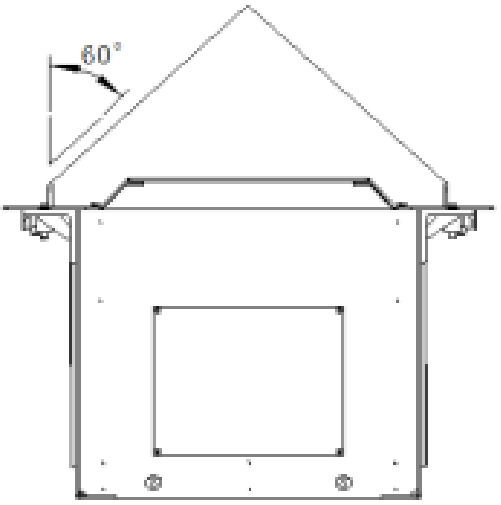
2.2 Installation of the brake test bench

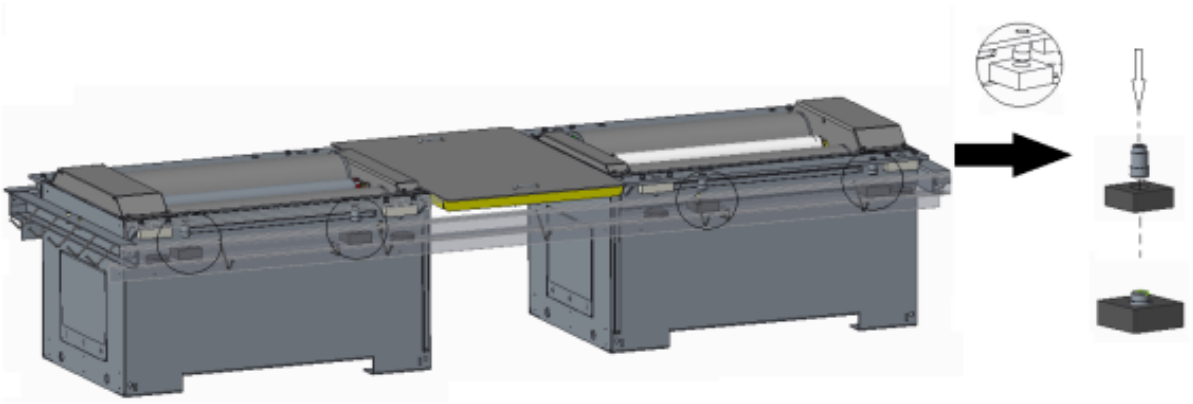
2.2.1 Cable duct

- Use the threading tool to pass the brake test bench power cable and signal cable through the cable guide tube and connect the cables to the exit of the control cabinet.
- Due to the limited space available, assemble the threading tool before placing the system in the pit.

2.2.2 Lifting the brake test bench







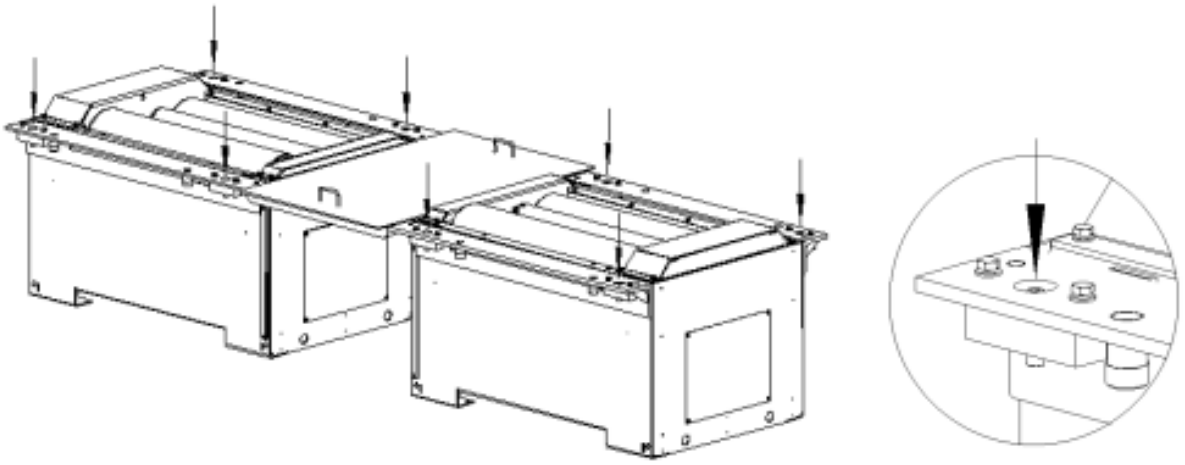
- Properly assemble four M16 eyebolts as shown in the position shown.
- Hook the eyebolt with the lifting rope and hang it on the hoist or forklift arm.
- The load capacity of hoists or forklifts must be more than 2000 kg.
- The inclination of the hoist rope must be less than 60°.
- The lifting operation must meet the requirements for the safe operation of the hoist or forklift.
- Slowly lower the brake test bench into the foundation pit.
- Note the direction of the brake test bench.

WARNING!

ENSURE YOUR SAFETY AT ALL TIMES AND AVOID INJURIES FROM FALLING OBJECTS DURING THE LIFTING AND TRANSPORT PROCESS!

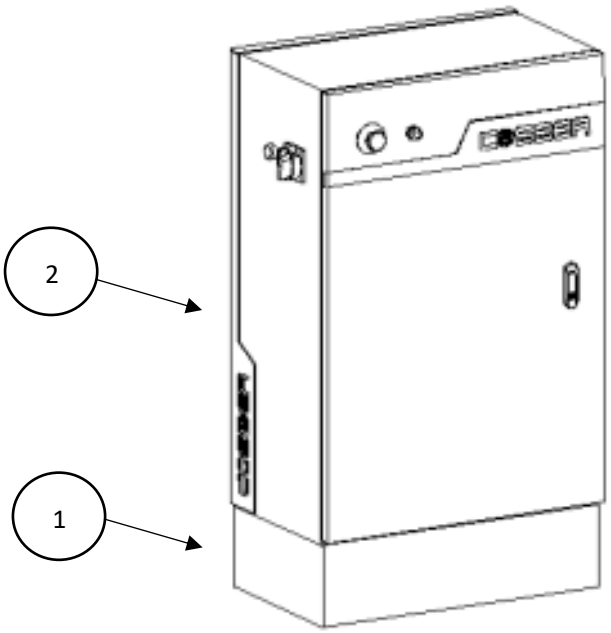
- Personnel must comply with the applicable requirements for personal protective equipment (PPE) during installation.
- No one is allowed to be under the hoist when it is in operation.

2.2.3 Adjustment of the brake test bench at height



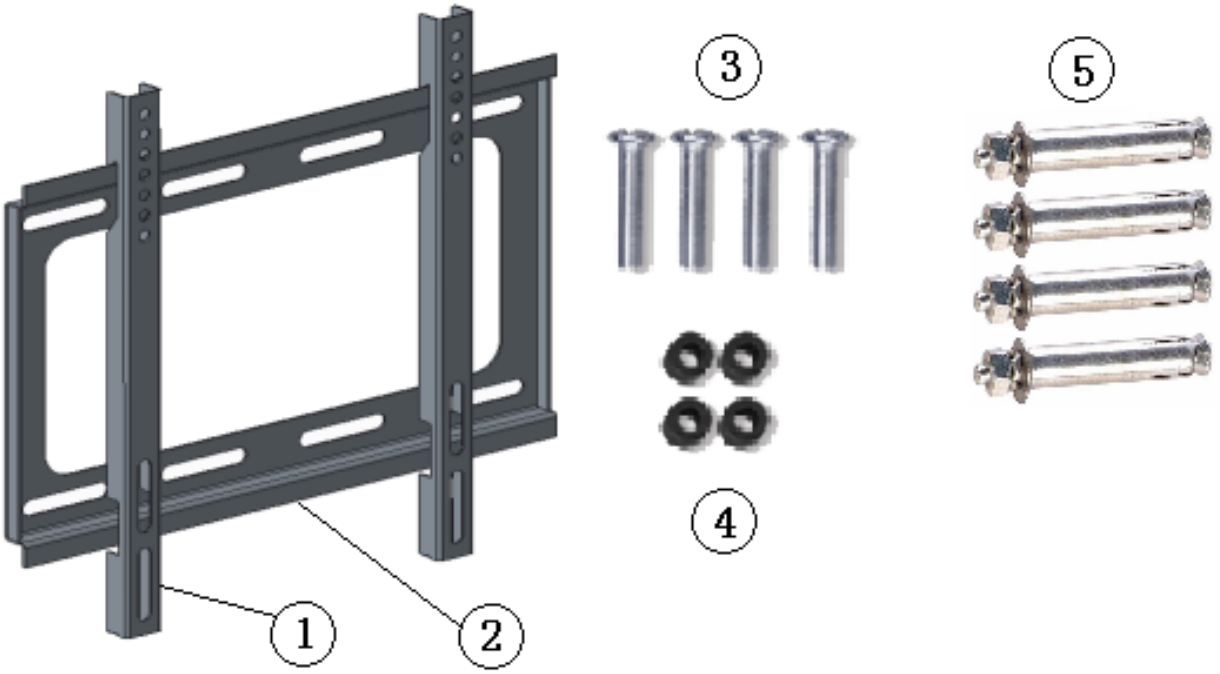
- If the height of the bearing plate is not correct, the smaller height deviation can be adjusted by adjusting the screw. After adjusting the height, tighten the lock nut to the adjustment screw. In the event of a large height deviation, it is necessary to replace the carrier plate for adjustment.
- After the device has been placed in the excavation, the four adjustment screws of the platform must reach the ground to absorb the force.

2.3 Assembly of the control cabinet



- Separate the foot (1) from the control cabinet (2)
- Use the foot as a template and attach it over the cable outlet.
- Remount the control cabinet on foot.

2.4 Assembly of the hub control cabinet

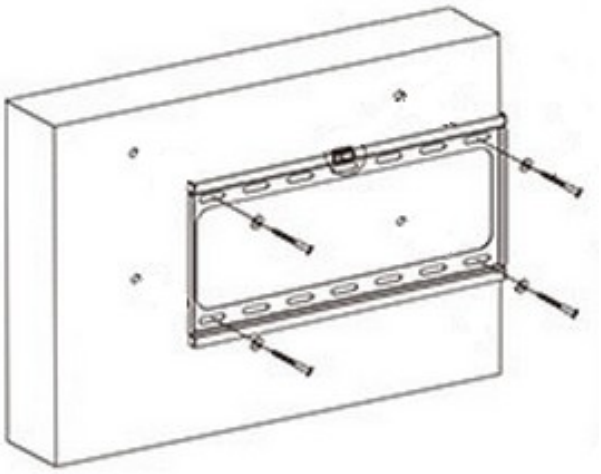


No.	Article	Designation	Quantity
	20.02.01.9917	**Wall Mounting Kit**	

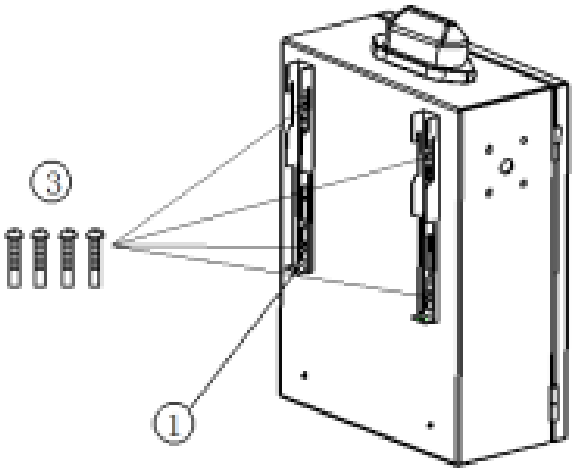
1		Profile bar	2
2		Bracket	1
3		Screws M6×30	4
4		Insulating piece	4
5	**70.05.16.0806**	**Mounting screws M8**	**4**

2.4.1.1. Assembly instruction

- Use the mounting hole on the bracket as a template. Using a suitable drill, drill 4 holes for the mounting screws in the wall or in a suitable location on the control cabinet.
- Assemble the bracket, tighten the four mounting screws, and attach the bracket.



- Using the M6x30 screws and the insulation piece, mount the profile rod on the back of the control cabinet.



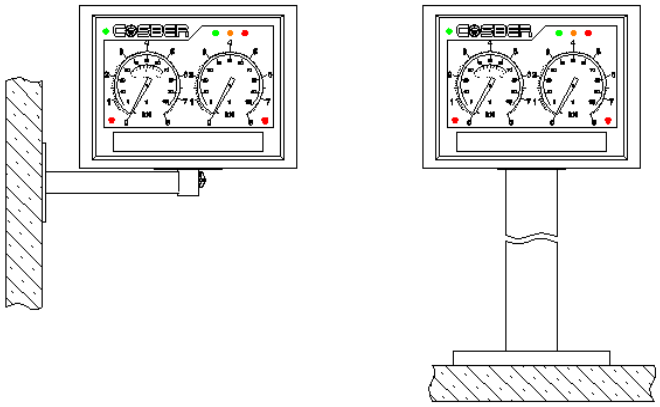
- Hook the two profile rods into the holder from above and make sure that the box sits horizontally.
- Tighten the screws to prevent the bracket from slipping.

HINT!

- When drilling and assembling, the operator should always wear safety goggles and a protective mask. If an electric drill is used, measures should be taken to protect against electric current.
- Be aware that objects can fall at any time while working! Personnel must comply with the applicable requirements for personal protective equipment (PPE) during installation.

2.5 Mounting the analog display

The analog display can be mounted on a wall mount or on a pedestal.

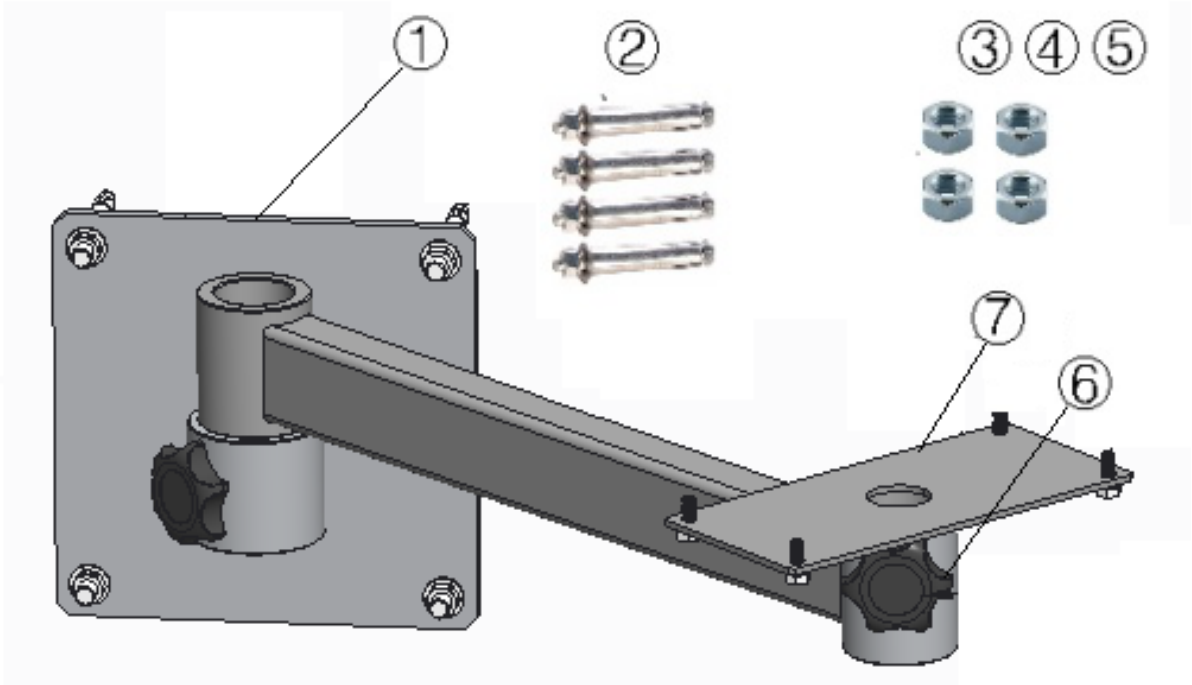


The analog display includes the following components:

No.	Article	Designation
1		Analogue display 2 x 40 kN
2	20.02.01.9908	Wall mount (including mounting accessories)
3	20.02.01.9913	Column (including mounting accessories)

2.5.1 Wall

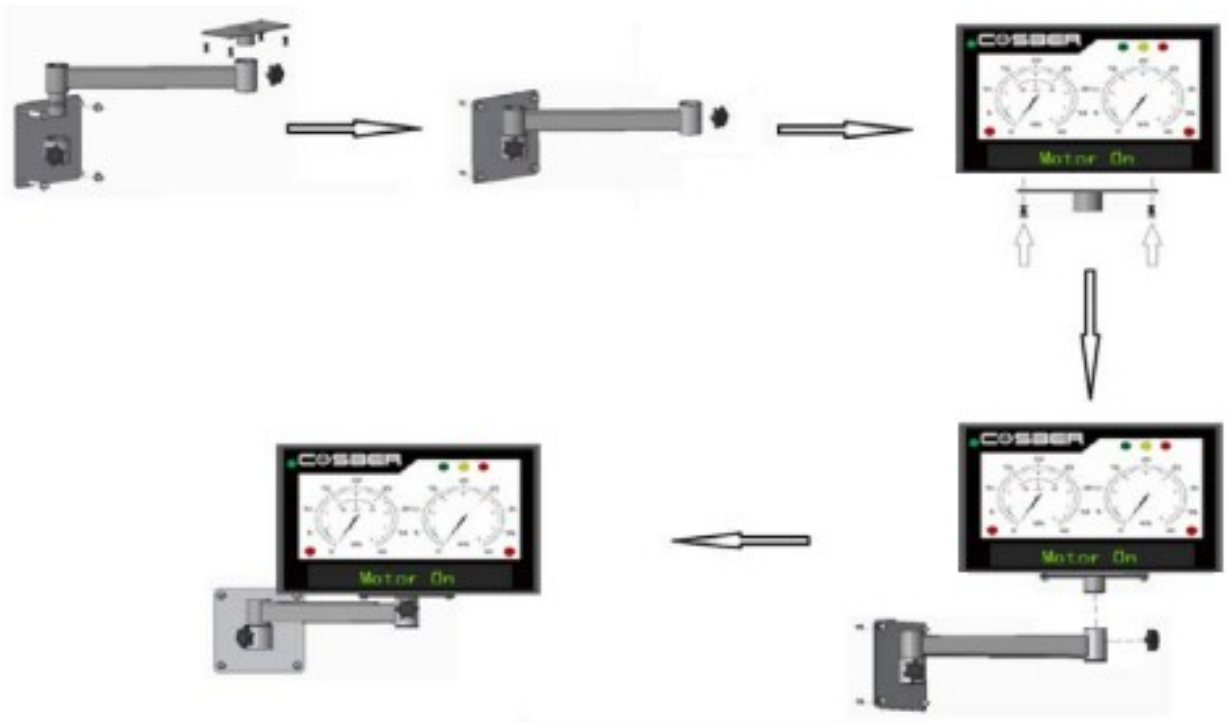
2.5.1.1. Swivel Arm Description



No.	Kind. No.	Designation	Quantity
1	20.02.01.9922	Wall bracket	1
2	70.05.16.1209	Mounting screws M10	4
3	70.05.17.0601	Nut M6	4
4	70.05.18.0601	Disc 6	4
5	70.05.18.0602	Spring washer 6	4
6	70.05.19.0082	Screws M8×10	1
7	20.02.01.9925	Support plate	1

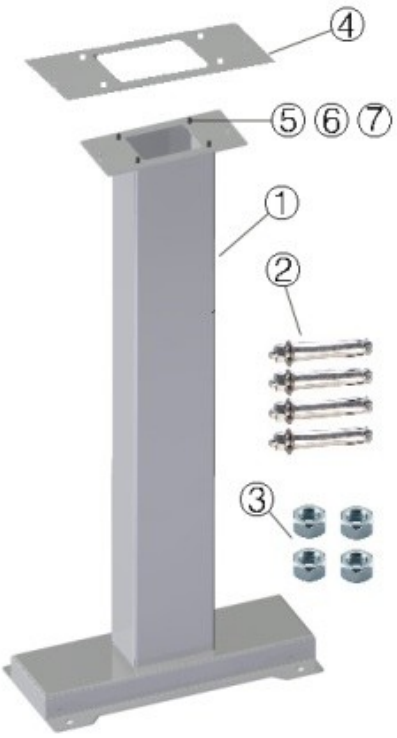
2.5.1.2. Swivel Arm Assembly

- Use the mounting hole on the wall bracket as a template. Using a suitable drill, drill 4 holes in the wall for the fixing screws.
- Tighten the four mounting screws and attach the wall bracket to the wall.
- Mount the analog display on the wall bracket and secure it with 4 hex nuts.
- Adjust the angle of the analog display and tighten the thumbscrew.



2.5.2 Column

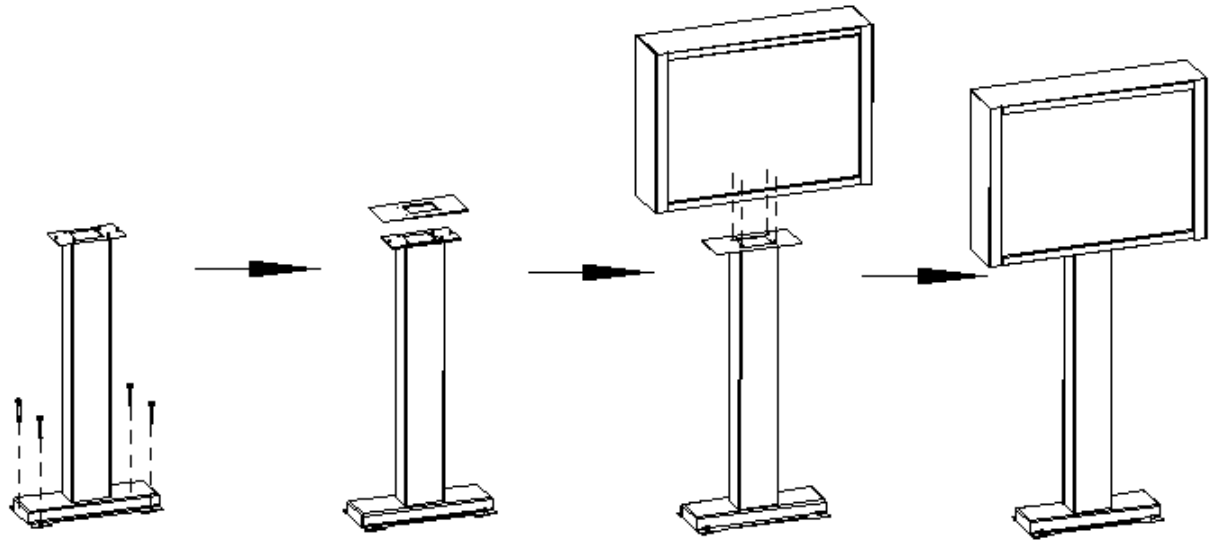
2.5.2.1. Column Description



No.	Kind. No.	Designation	Quantity
	20.02.15.2002	**Column complete**	**1**
1	20.02.01.9912	Column	1
2	70.05.16.1209	Mounting screws M10	4
3	70.05.17.0601	Hexagon Nut M6	4
4	20.02.01.9914	Mounting plate	1
5	70.05.16.0605	Hexagon Bolt M6x30	4
6	70.05.18.0601	Disc 6	4
7	70.05.18.0602	Spring washer 6	4

2.5.2.2. Column assembly

- Use the mounting hole on the foot of the column as a template. Using a suitable drill, drill 4 holes in the ground for the fixing screws.
- Tighten the four fastening screws and attach the column to the ground. Hold the column vertically during installation.
- Mount the mounting plate on the column and insert the screws.
- Mount the analog display on the mounting plate and secure it with 4 hex nuts.

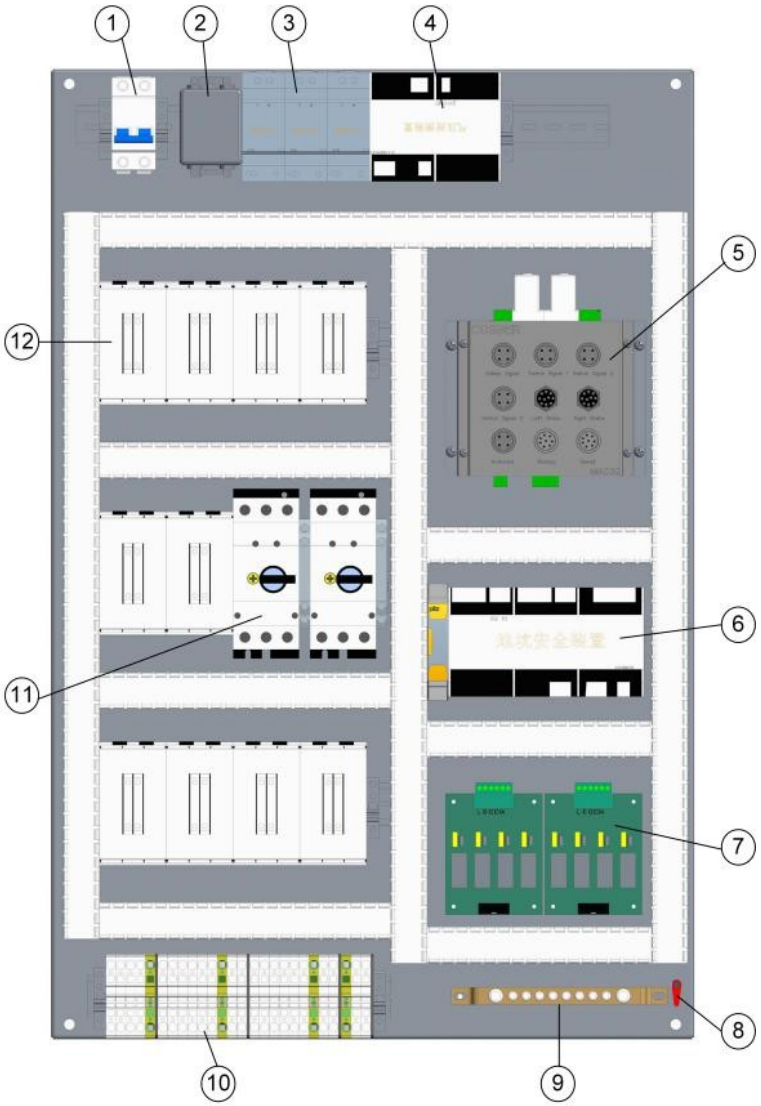


3 Switchboard

BEFORE CONNECTING THE POWER CABLE, CHECK THAT THE MAIN SWITCH IS IN THE OFF POSITION.

WARNING!

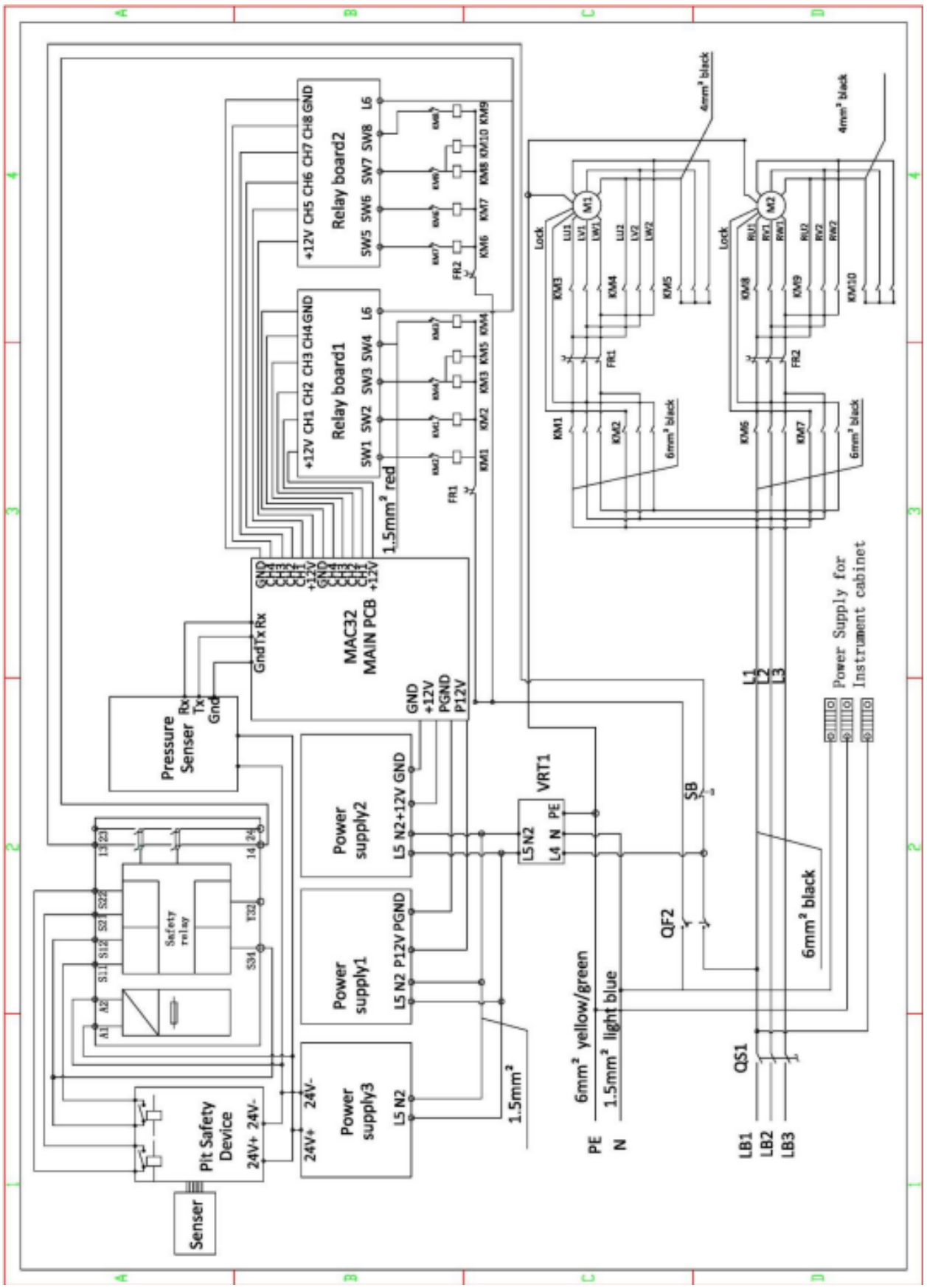
3.1 Control cabinet description.



No.	Description	Function
1	Three-phase disconnect switch	The 3x25 A disconnect switch is automatically disconnected in the event of an overload. It must then be reset manually.
2	Filter	It filters out disturbances and harmonies in the power supply
3	Power supply	Powers the motherboard, sensors, and other low-voltage elements
4	Barometric pressure sensor	Used to collect barometric pressure data
5	Motherboard	The motherboard controls the motor rotation via the relay card. This is also where the sensor signal is received and converted into test data. The data is then displayed via the instrument's control cabinet or computer.
6	Mine safety device	Ensures operator’s safety in the pit

7	Relay Board	Controls the on/off state of the AC contactor
8	Grounding sign	Serves to protect the protective conductor
9	Grounding terminal	For the protective conductor
10	Terminal Block	Block for connecting external electrical wires and the internal cable of the control cabinet
11	Protection	Overcurrent protection
12	AC contactor	The AC contactor is controlled by the relay card: forward and backward rotation of the motor left and right

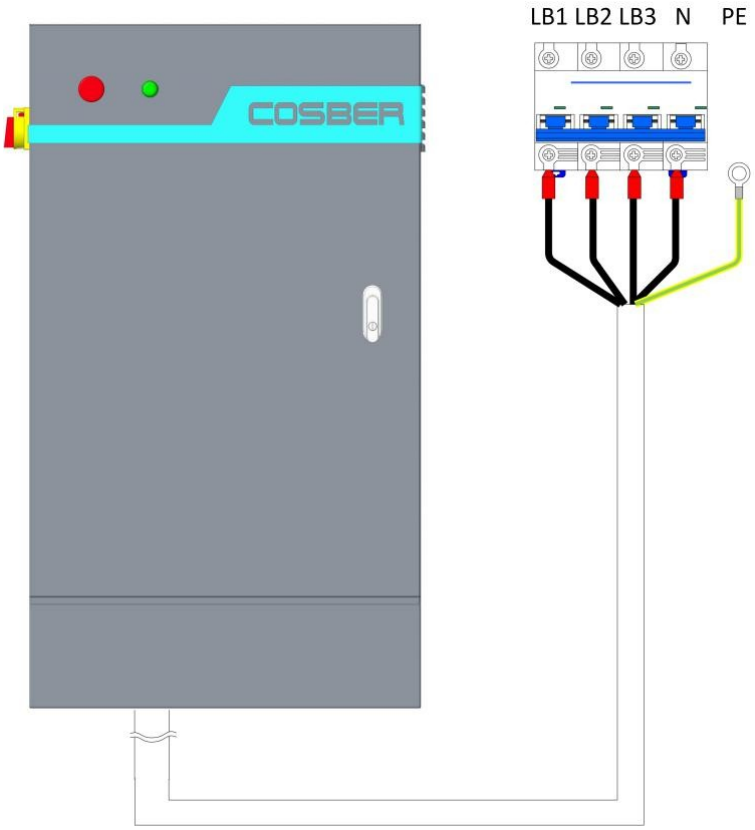
3.2 Schematic



3.3 Electrical connections

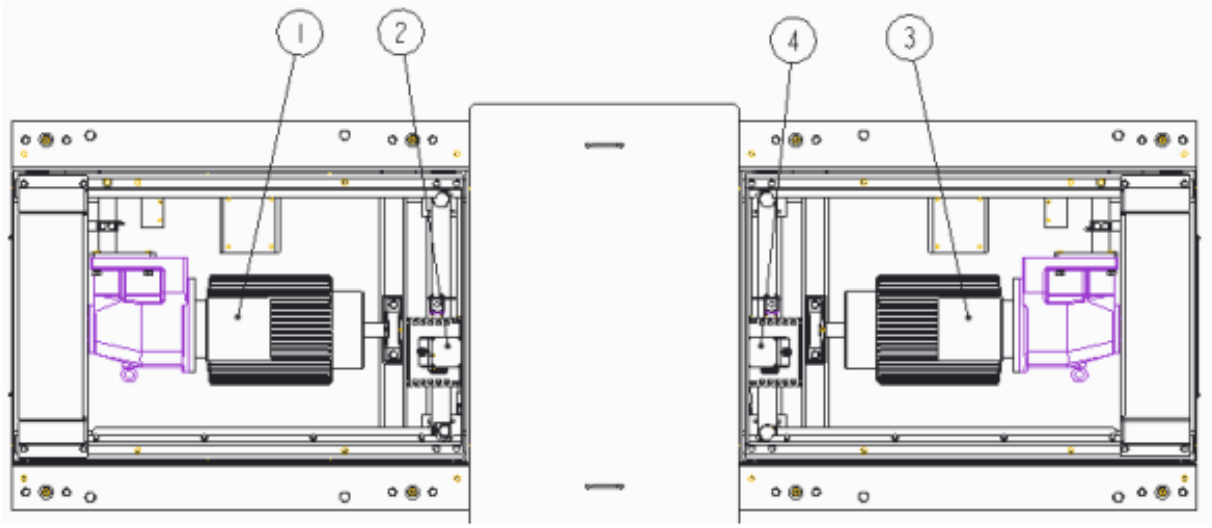
3.3.1 Main power cable connection

Connect the power cable from the control cabinet to the distribution box on site. Note that the wires L1, L2, L3, N and PE must be connected according to the instructions on the power cable.



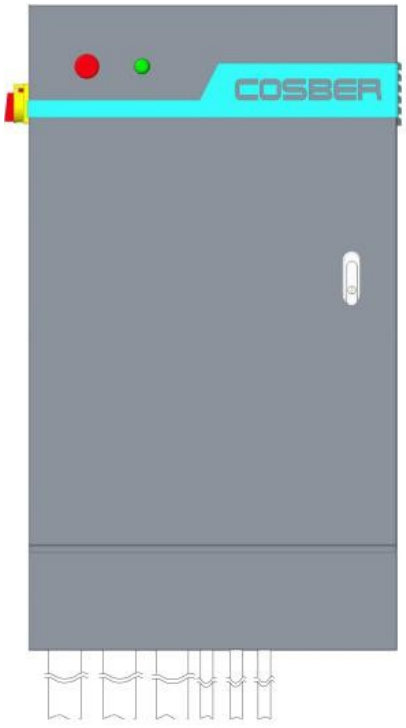
3.3.2 Connection of the roller set

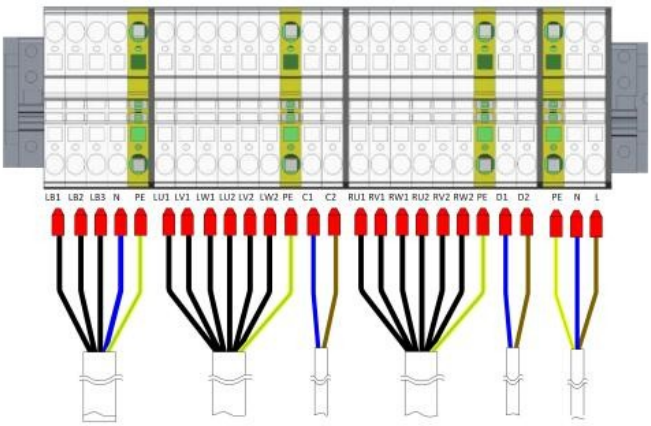
3.3.2.1. Roller Set Cable Description



No.	Description	Management
1	Gear motor left	Power cable motor left
2	Junction box left	Signal cable left
3	Gear motor right	Power cable motor right
4	Junction box right	Signal cable right

3.3.2.2. Connection of the motor power cables





No.	Description	Connection
1	Motor Power Cable	Terminal block (left to right)

		LU1 LV1 LW1 LU2 LV2 LW2 PE C1 C2 RU1 RV1 RW1 RU2 RV2 RW2 PE D1 D2 COM NO1 COM NO2 GND N L

- Connect the power cables to the left motor cable labels on the brake test bench with LU1, LV1, LW1, LU2, LV2, LW2 and PE.

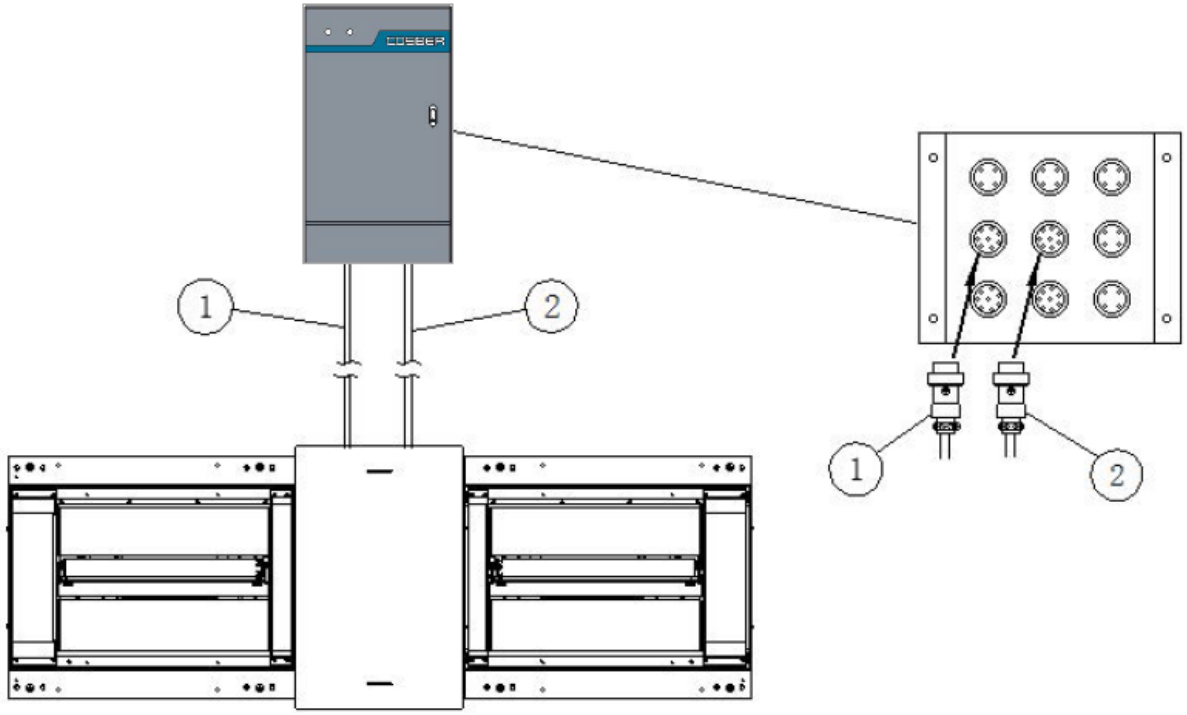
  Left engine lock: C1 and C2.

- Connect the power cables to the correct engine cable labels on the brake test bench with RU1, RV1, RW1, RU2, RV2, RW2 and PE.

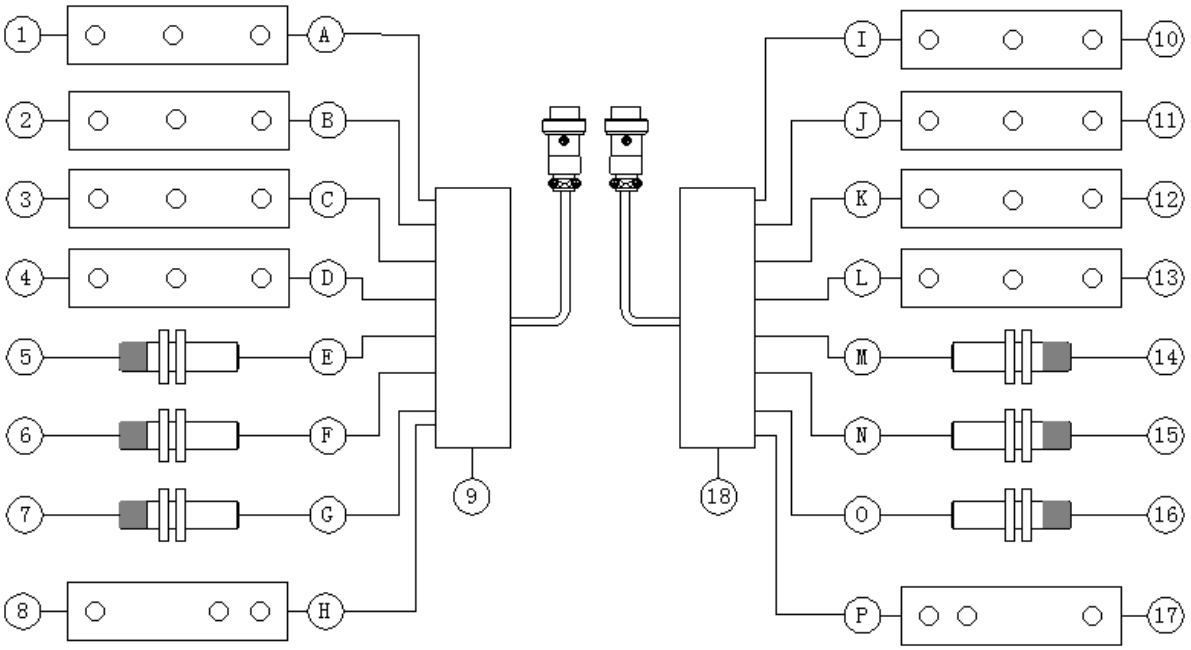
  Right motor lock: D1 and D2.

- Signal line of the left bank in place: COM and NO1.
- Signal line for the right bank: COM and NO2.
- The yellow-green grounding wire must be connected to the grounding terminal.

3.3.2.3. Connection of the signal cables



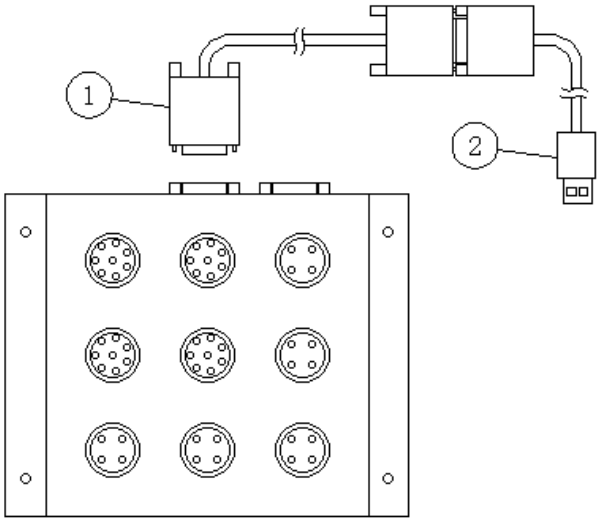
No.	Description	Connection
1	Brake test bench left signal cable	Connection to "Brake Left"
2	Brake test bench signal cable right	Connection to "Brake Right"



No.	Description	Cable No.	Signal
1	Left Weight Sensor 1	One	+12 V
			GND
			SIG 1
2	Left Weight Sensor 2	B	+12 V
			GND
			SIG 2
3	Left Weight Sensor 3	C	+12 V
			GND
			SIG 3
4	Left Weight Sensor 4	D	+12 V
			GND
			SIG 4
5	Proximity switch for the left roll	E	P12V
			SIG 5
6	Presence switch for left wheel	F	P12V
			SIG 6
7	Proximity switch for the left wheel speed	G	P12V
			SIG 7
8	Left brake sensor	H	+12 V
			GND
			SIG 8
9	Left junction box		
10	Right Weight Sensor 1	G	+12 V
			GND
			SIG 1

11	Right weight sensor 2	H	+12 V
			GND
			SIG 2
12	Right weight sensor 3	G	+12 V
			GND
			SIG 3
13	Right weight sensor 4	H	+12 V
			GND
			SIG 4
14	Proximity switch for the right roller	J	P12V
			SIG 5
15	Pushbutton for right wheel	K	P12V
			SIG 6
16	Right wheel speed proximity switch	L	P12V
			SIG 7
17	Right brake sensor	H	+12 V
			GND
			SIG 8
18	Right junction box		

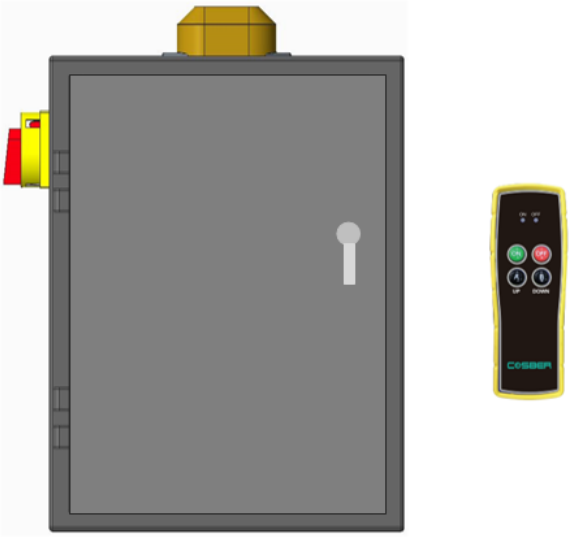
3.3.3 Connecting to a PC



No.	Description	Connection
1	Serial Cable	Motherboard COM1
2	Serial to USB cable	PC

- Plug the serial cable connector to COM1 on the motherboard in the control cabinet, connect the other end to the USB adapter cable, and plug the USB connector into the PC.

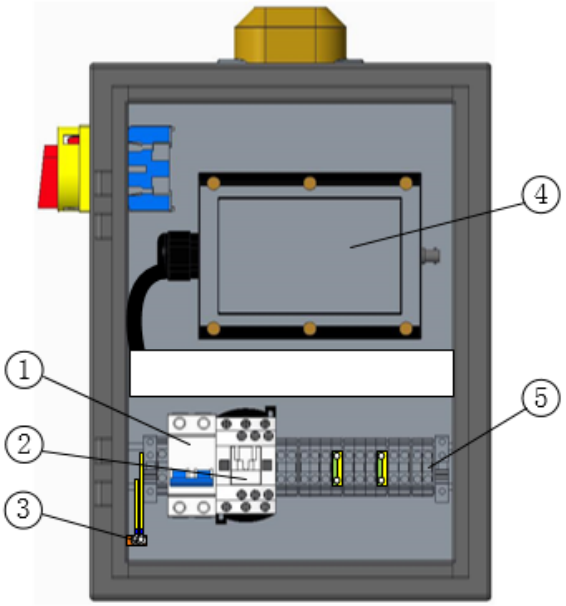
4 Connection hub control box (optional)



4.1 Description Hub Remote Control

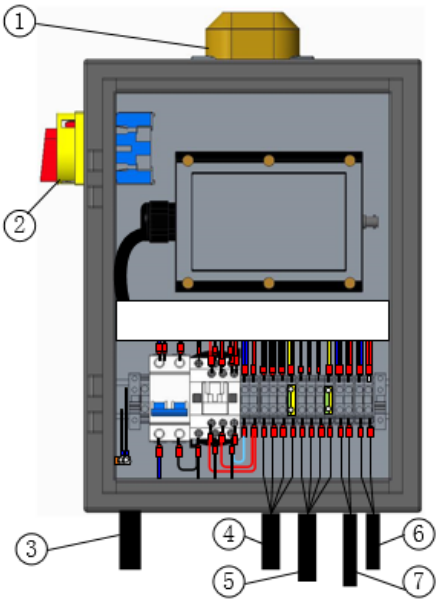
Key	Function
ON (Green)	Remote Control Hub Function Switched On
OFF (Red)	Remote control hub turned off
UP (A)	Platform Up button
DOWN (B)	Button Platform Down

4.2 Description Hub control box (inside)



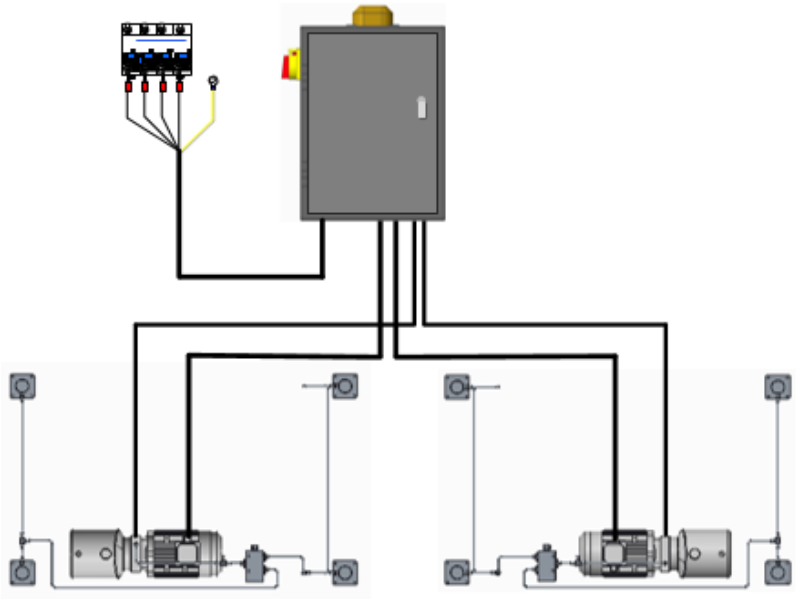
No.	Description	Function
1	Single-phase disconnect switch	Its main function is to protect the remote-control circuit. In the event of a short circuit, it switches off the power to protect the system from damage.
2	AC contactor	The AC contactor is controlled by the remote control for raising/lowering the roller set.
3	Grounding terminal	For the protective conductor
4	Remote control	Remote control transmission and reception function
5	Terminal Block	Block for connecting external electrical wires and the internal cable of the control cabinet

4.3 Description Hub control box (outside)



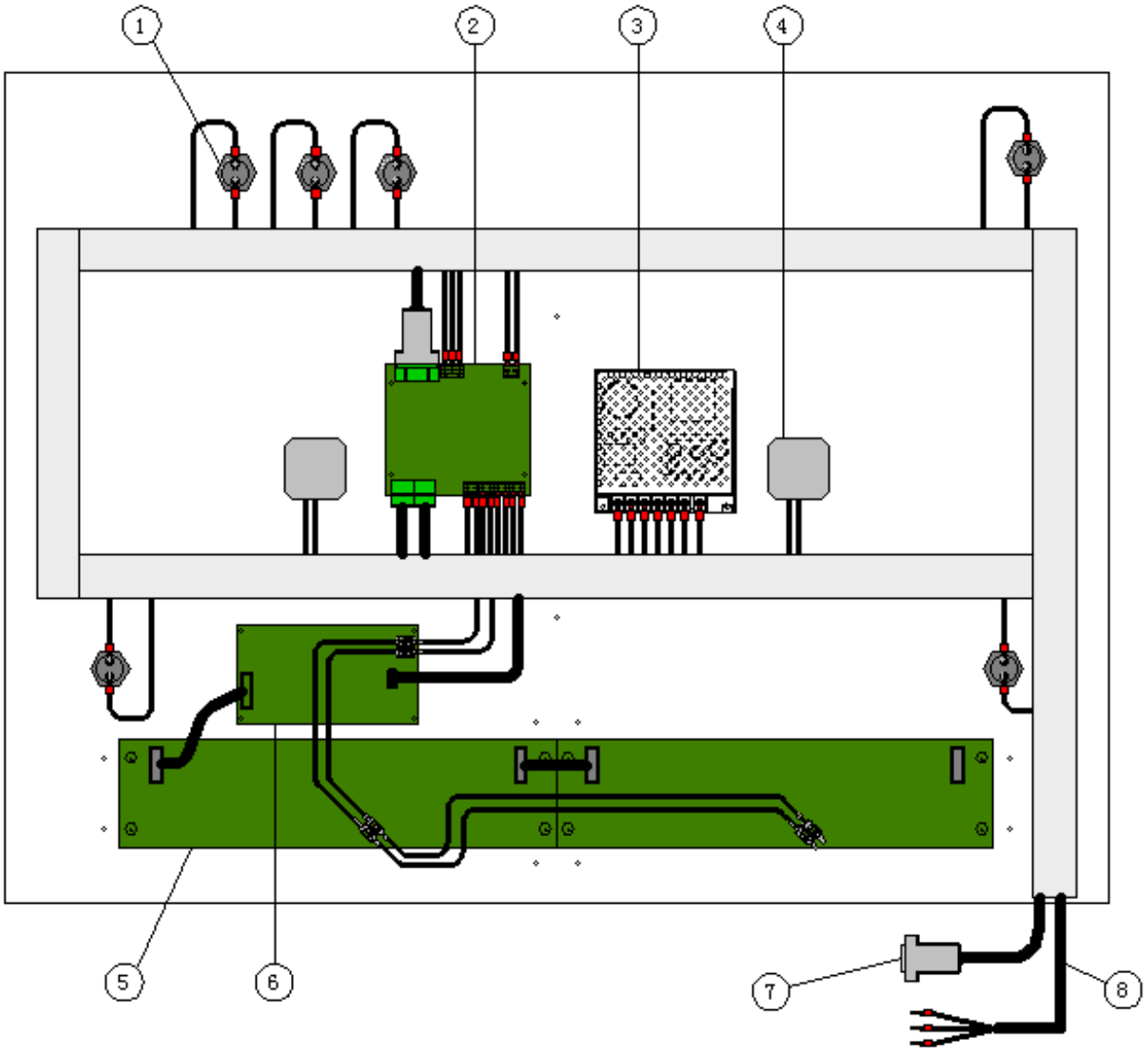
No.	Description	Function
1	Warning light	Serves as a warning/reminder
2	Main switch	Power on/off
3	Power cord	Used to connect to the power supply
4	Cable hydraulic motor (left)	Hydraulic motor electrical cable (test bench left)
5	Cable hydraulic motor (right)	Hydraulic motor electrical cable (right test bench)
6	Signal line solenoid valve (left)	Used to control the pressure relief of the oil cylinder
7	Signal line solenoid valve (right)	Used to control the pressure relief of the oil cylinder

4.4 Connection diagram for hub control box



5 Analog Display

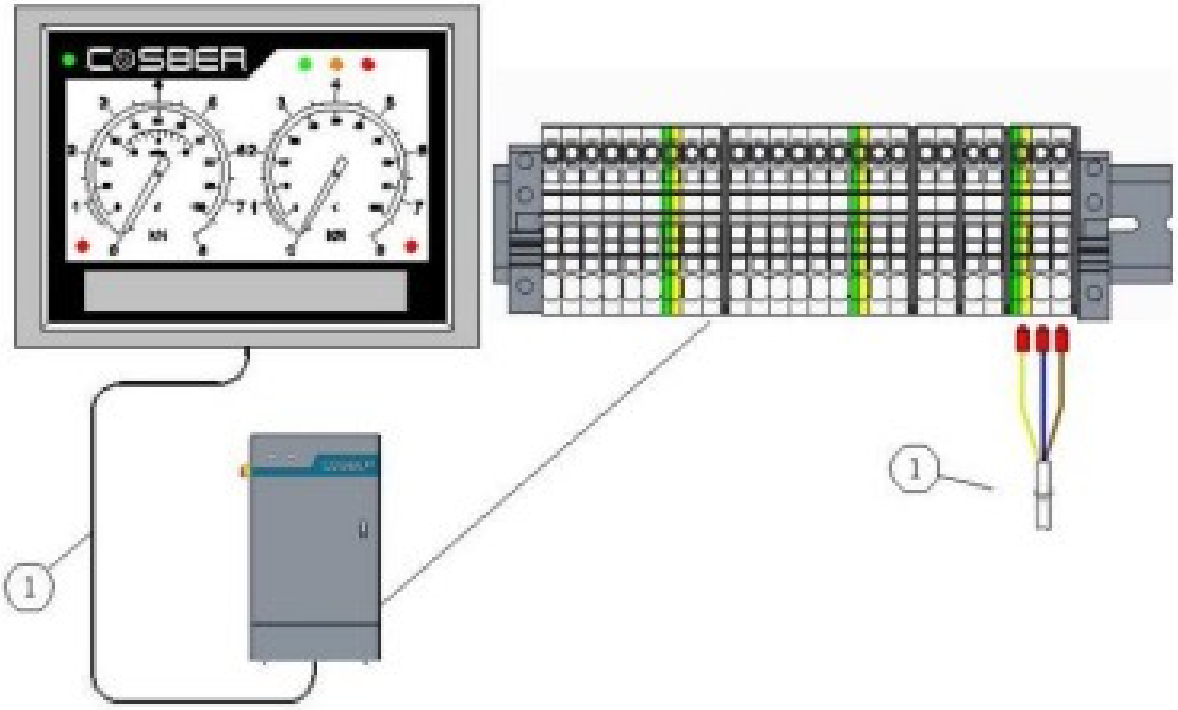
5.1 Analog Display Description



No.	Description	Function
1	Indicator lights	Indicate the operating status of the instrument's control cabinet
2	Motherboard	Processes data and display the test results
3	Power supply	Provides the power for operation
4	Stepper	Move the firsthand the scoreboard
5	PCB LED Display	Displays the test results
6	Driver Board Display	Controls the board for the LED display
7	Serial signal cable	Transmits data and is plugged into the motherboard of the control cabinet
8	Power cord	Connection to the terminal block in the control cabinet

5.2 Electrical connections

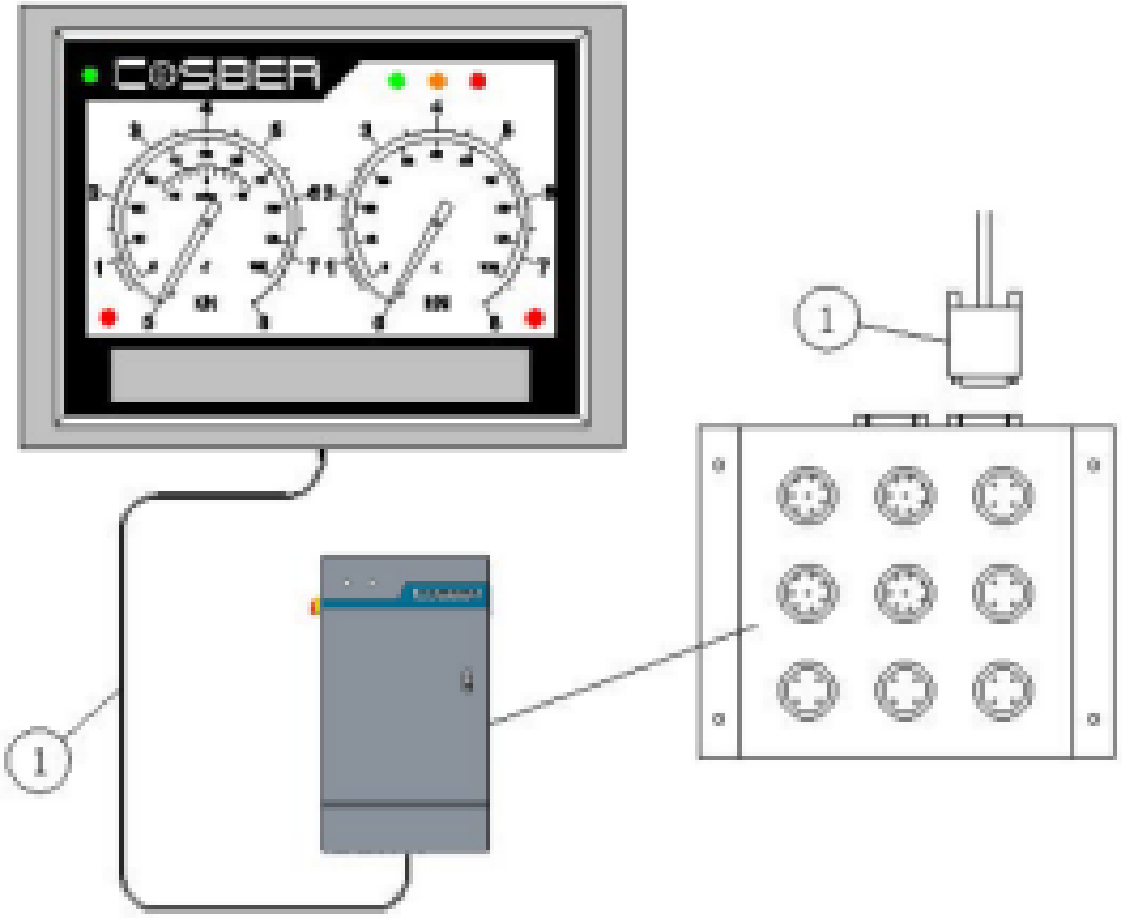
5.2.1 Connecting the power cable



No.	Description	Connection
1	Power cord	Terminal N L GND in the control cabinet

- Connect the power cable from the analog display to the terminal in the control cabinet. Note that the wires N, L, and GND must be connected according to the instructions on the power cable.

5.2.2 Connection of the signal cable



No.	Description	Connection
1	Signal	Control board COM2

- Plug the signal cable connector into the analog display motherboard, then connect it to COM2 on the cabinet board.

6 Start

6.1 Installation checklist

- Before starting up the system for the first time, check that all assembly work has been completed properly.
- Before checking the wiring, check that the main switch is in the OFF position.

1) Check that the system and all accessories are fully assembled.
2) Check if there are suitable disconnectors at the site.
3) Check that all components are properly assembled.
4) Check that the motor power cable of the brake test bench is properly connected to the terminal in the control cabinet.

5) Check that the brake test bench signal cable is properly connected to the motherboard in the control cabinet.
6) Check that the main power cable of the control cabinet is properly connected to the disconnect switch.
7) Check whether the protective conductor is connected.
8) Check that the serial cable on the main control panel of the control cabinet is properly connected to the USB port of the PC.
9) Check that the power cable of the analog display is properly connected to the terminal in the control cabinet.
10) Verify that the analog display serial signal cable is properly connected to the motherboard in the control cabinet.

6.2 Check at startup.

WARNING!

BEWARE OF ELECTRIC SHOCK WHEN SWITCHING ON THE MAIN SWITCH. IF AN ELECTRIC SHOCK OR ELECTRICAL LEAKAGE CURRENT OCCURS, YOU MUST DISCONNECT THE POWER SWITCH IMMEDIATELY.

- Turn on the power switch on the control cabinet and check whether the operating light appears.
- Turn on the 3-phase disconnect switch and the single-phase disconnect switch in the control cabinet and check whether the internal circuit in the control cabinet is operating normally.
- When you turn on the power, make sure that all the lights on the analog display light up, the pointers are moving, and the display is showing something. After starting, the pointer returns to its original position, the operating light appears, and the other lights go out.
- Start the software program and check if the engine rotation is correct.
- Start the software program and check that the system signal is correct.

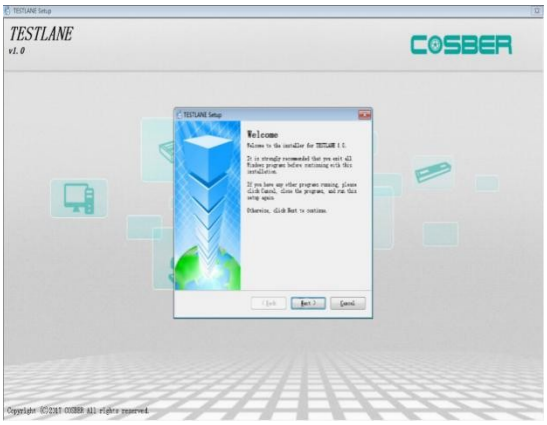
ATTENTION!

ENSURE THAT ALL COMPONENTS ARE CORRECTLY ASSEMBLED AND PROPERLY WIRED BEFORE USING THE EQUIPMENT.

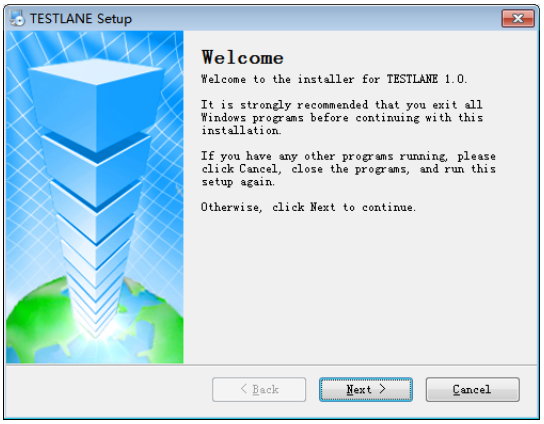
7 Software system

7.1 Installation of the program

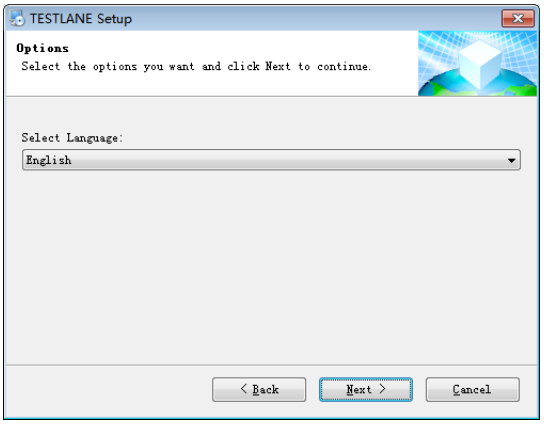
1. Open the installer and click on NEXT



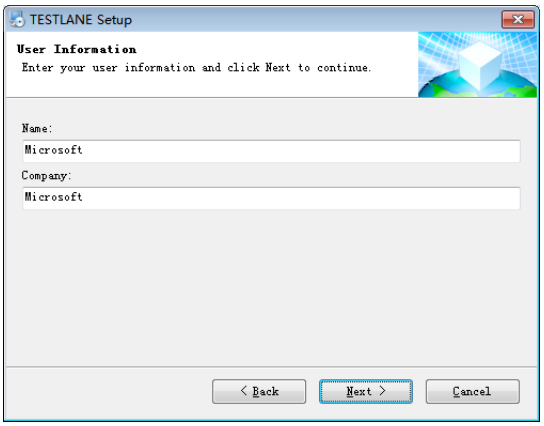
2. Click on NEXT



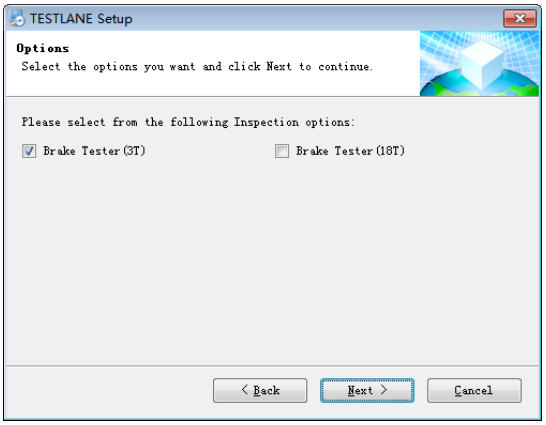
3. Select your language and click on NEXT



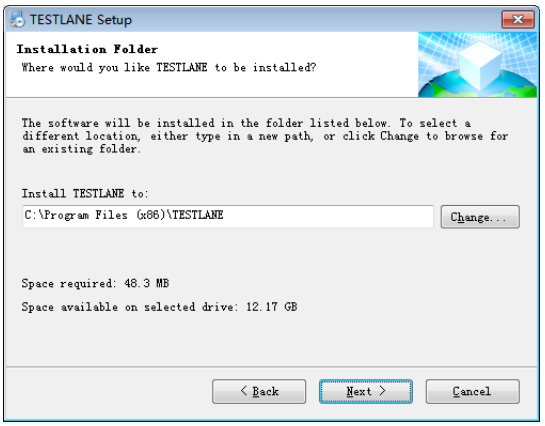
4. Enter your user details and click on NEXT



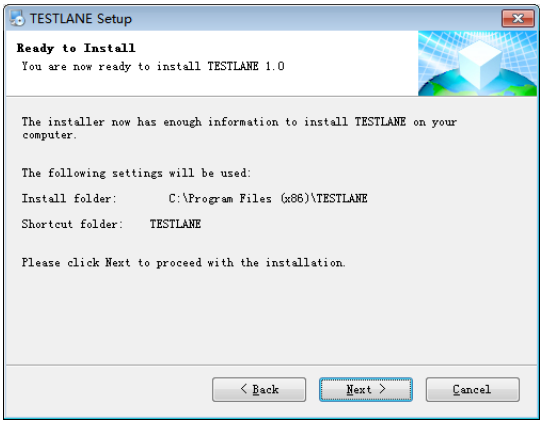
5. Select your model and click on NEXT



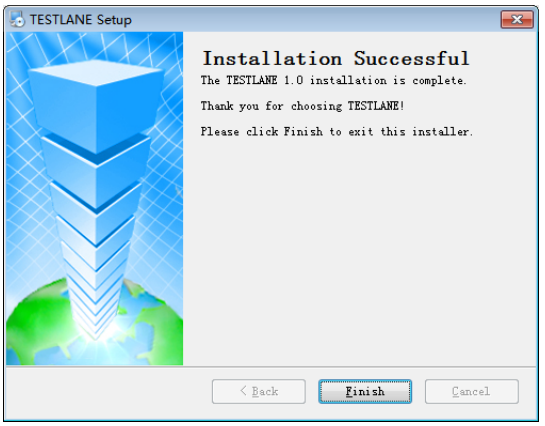
6. In the directory, select the folder for installation and click NEXT



7. Confirm all the details before starting the installation and click on NEXT



8. Wait for the progress bar to go through and then click Finish



8 Notes

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