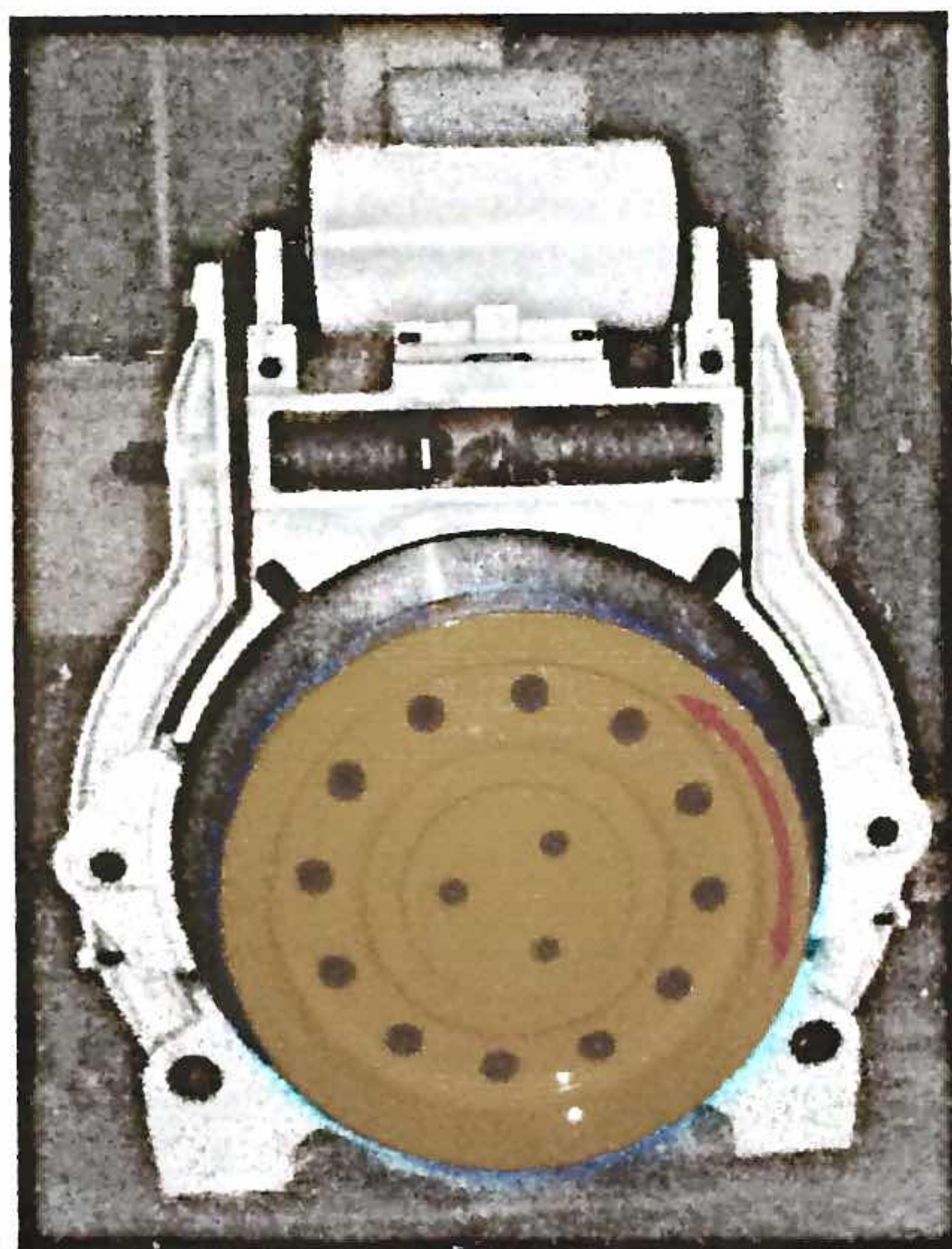


# **INSTRUCTION MANUAL**

## **OF GEARLESS PMS**

### **ELEVATOR TRACTION MACHINE**

#### **WITH OUTER /INTER ROTOR CONFIGURATION**



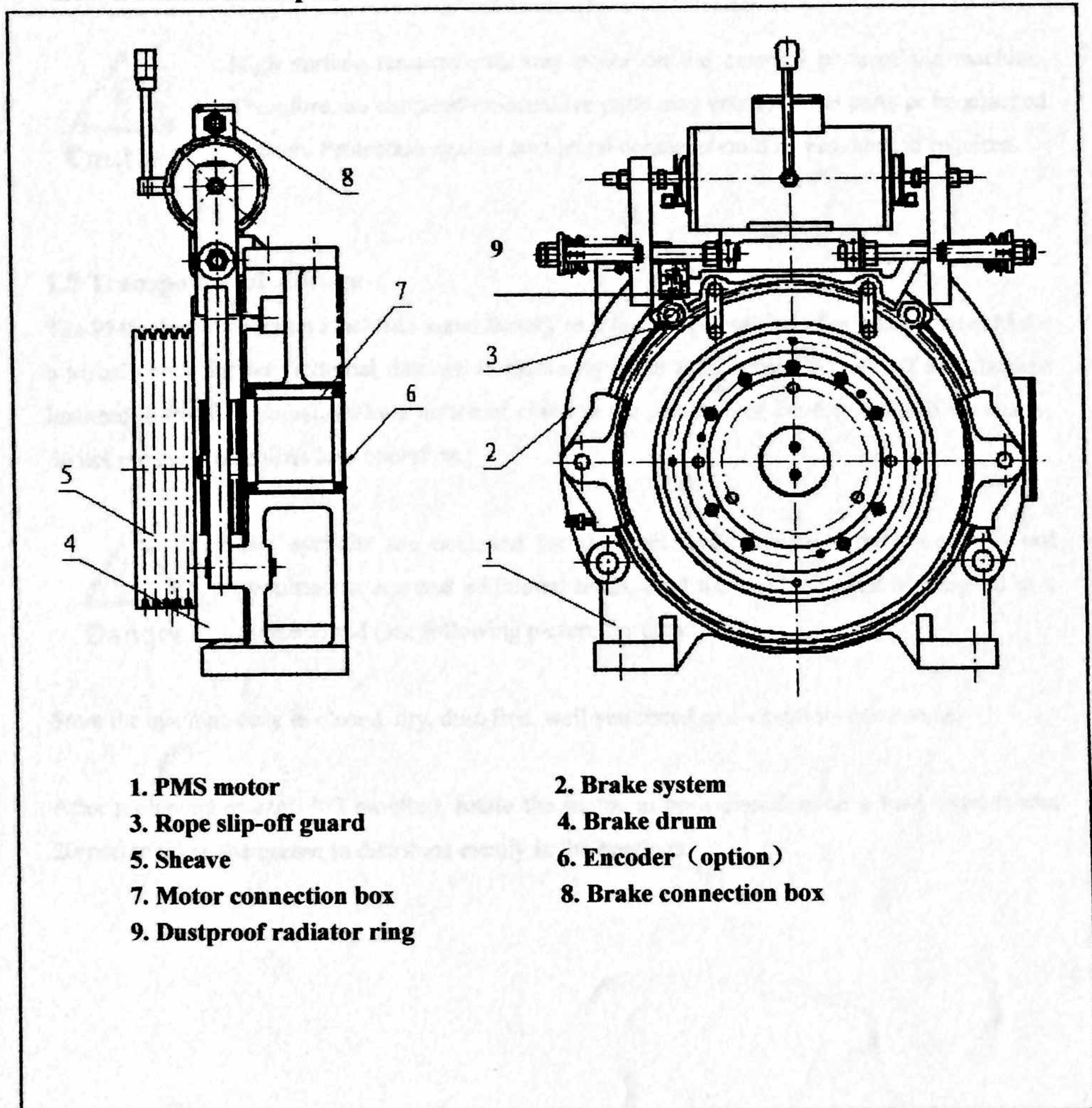
**YZW160100 (OUTER ROTOR)**

**YZW100100 (OUTER ROTOR)**

**XIAN JIDE TRACTION TECHNOLOGY CO.,LTD.**  
**SHANXI HUADE TOOL-MOULD MANUFACTURE CO.,LED.**



## 1.7 Product description



## 1.8 Usage regulation



### Warning

The Gearless PMS elevator traction machines are not designed for direct connection to the three-phase system but are to be operated via an electronic frequency inverter. Direct connection to the system may destroy the motor.

Due to use high-frequency inverter the surface of machine may induce some faradism voltages during the operation of synchronous motors. So the Earthing should be connect at terminal connection box



## Suspend Sketch Map

## 2. Electrical connection

### 2.1 General



**Danger**

The electrical connection of the motor should be down by qualified electric technician.

There must be no foreign bodies, dirt or moisture in the terminal box.

In order to keep the connection is safety and credible, please thought the cable from the water joint in connection box.

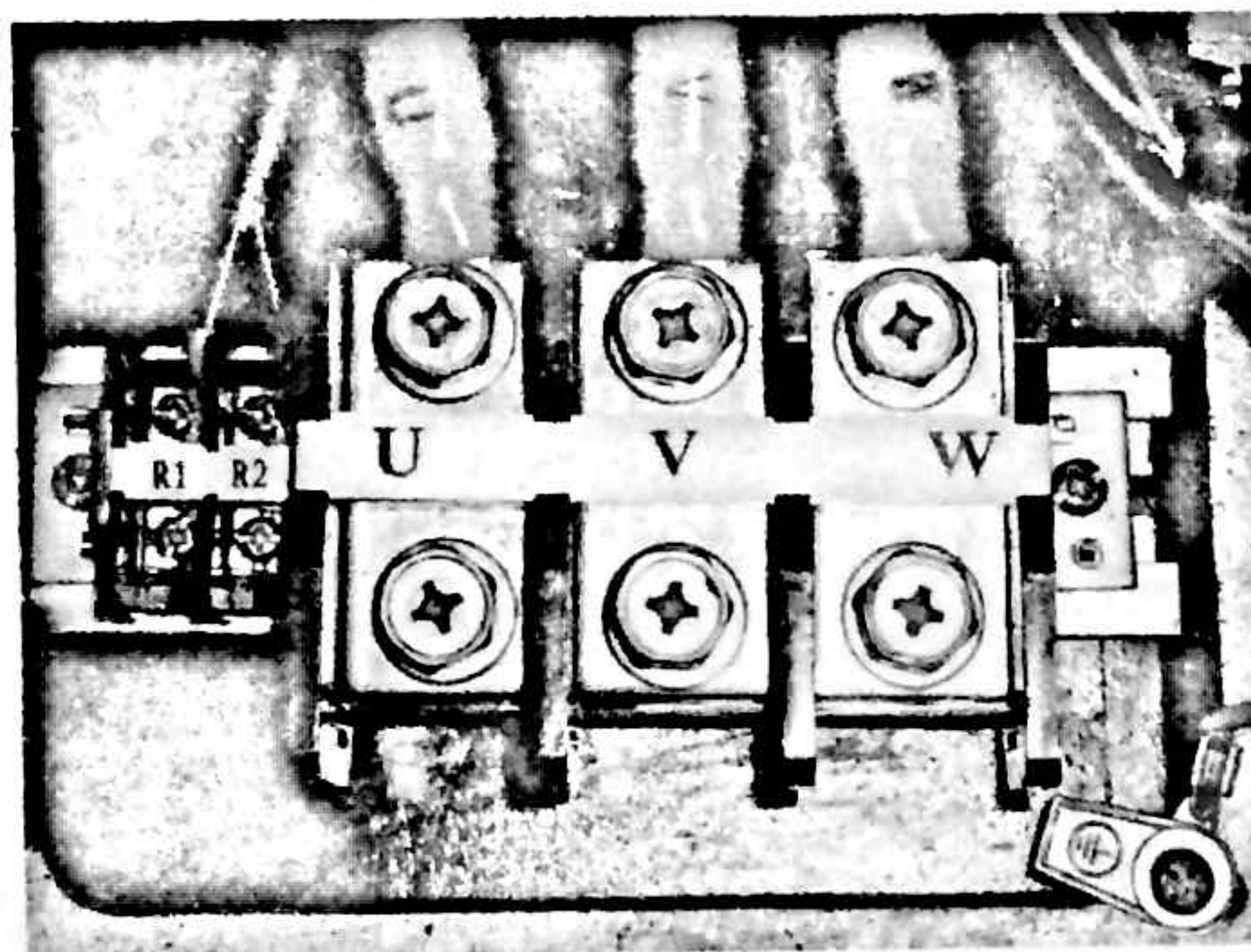
Do not forgot to cover the connection box cover after connection, which can keep out to get an electric shock.

### 2.2 Motor connection



**Warning**

Direct connection to three-phase power is forbid it may destroy the motor.



Connect the frequency inverter output and earthing terminal to motor terminal show in the picture. The connection cable diameter is decide by motor rated current (can refer to frequency inverter instruction manual) . Check the short-circuiting between windings and ground after connection.



## 2.3 Brake and switch

### 2.3.1 Brake

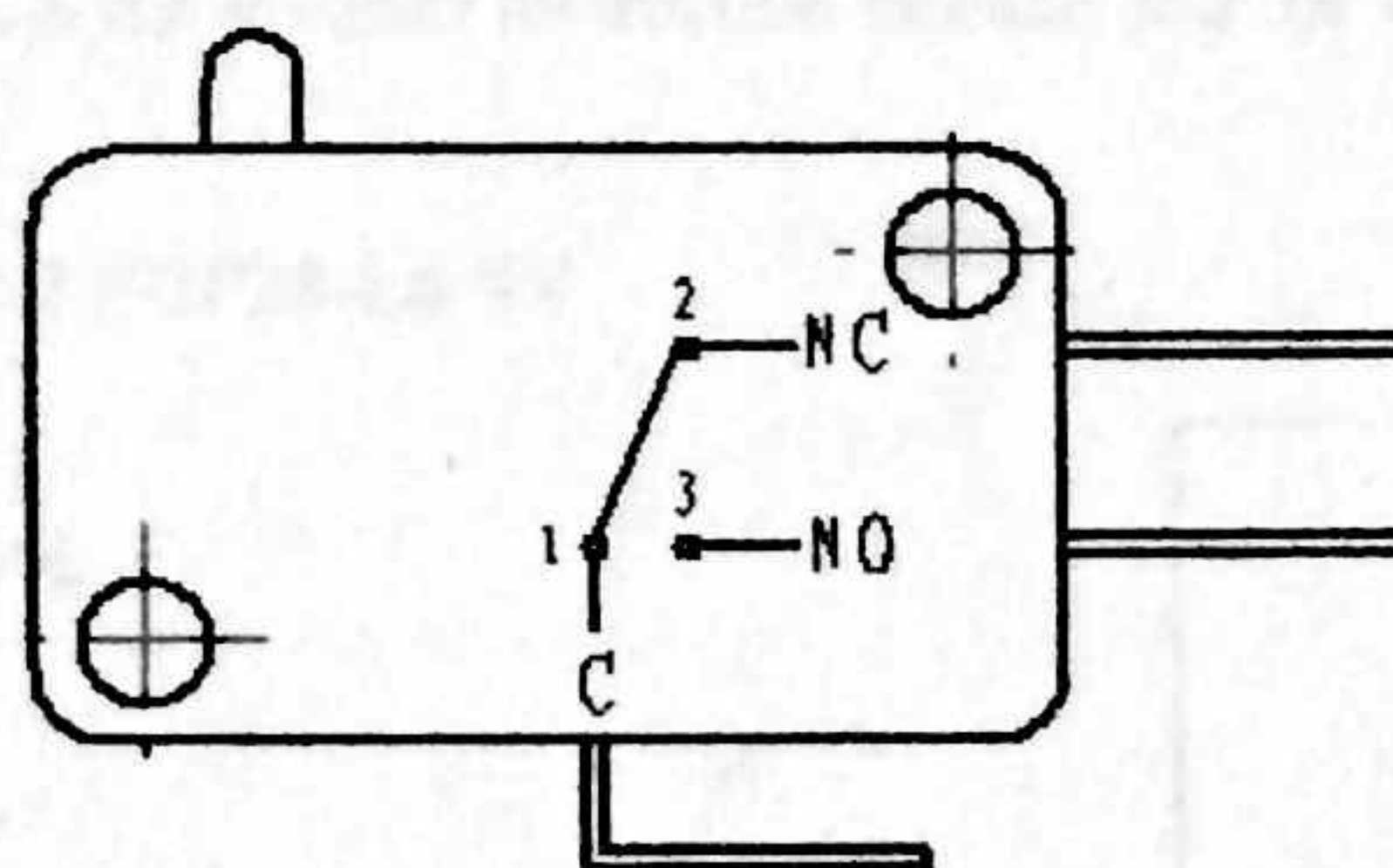
The brake system YZW/N series gearless PMS elevator traction machines use is tradition drum type:

PMS type	Brake type	Voltage	Current	Power
YZN100045	DCT182/1200T2	AC 220V	1.7 A	380W
YZN160045	DCT182/1200T2	AC 220V	2.0 A	440 W
YZW100100	DCT90/1500T2	DC 110V	2×1.6A	330 W
YZW160100	DCT90/1500T2	DC110V	2×1.6A	330W
<b>Remark: Rated voltage AC/DC220V is option</b>				

There is a rectifier in the brake connection board, when you connect the brake support power AC/DC110 or 220V it is no need to differentiate positive pole cathode any more.

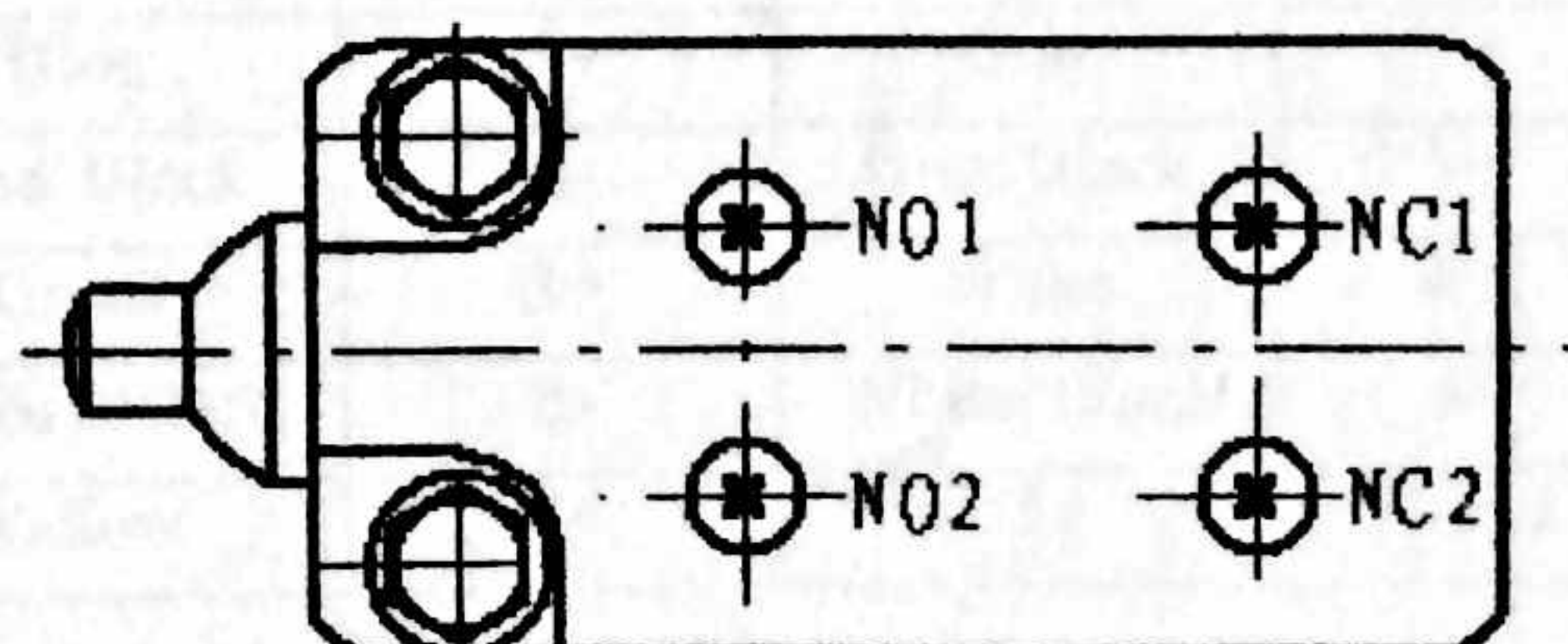
### 2.3.2 Microswitch

There are two-microswitch install in the brake system used to feed back the acting of brake. Customs can connect it according you control system requests. Following picture is an electric sketch map of microswitch.



### 2.3.3 Jigger switch

According to correlative standard requests there must have a jigger switch to feed back whether the jigger wheel is install or not for machine room install costume. Following picture is an electric sketch map of the jigger switch. NC1, NC2 means normal close connection and NO1, NO2 means normal open connection.





2.4 Encoder connection



Warning

Our PMS elevator traction machine must work with the special frequency inverter, which can control the PMS motor. And the inverter it must work in close-loop mode, so there must be a speed/position feed back device (we call it encoder in the following page).

The measuring system of the PMS elevator traction machines is matched to the associated converter.

Our factory can provide some different measuring systems on request. You can select it according to the inverter request. If you have other measuring systems please connect our technical department. We recommend the use of an appropriate cable set to connect the measuring system to the converter system. Cable sets can be supplied as accessories.

Following page is the basic parameter, connection cable color of the encoder we use now. And you can see the detail in the encoder instruction manual.

2.4.1 Pulse Encoder

You can connect the inverter via the inverter instruction manual and the cable color/markers in the ending of cable.

a. TAMAGAWA OIH 60-8192P20-L6-5V

b. Electric parameter:

- Rated voltage: DC5V±5%
- Rated current: ≤200mA
- Resolution: 8192 C/T
- Protection : IP40
- Output Circuit: Line Driver



Connection diagram:

Color	Signal	Color	Signal
Red	DC +5V	Brown	U+
Black	GND	Brown / Black	U-
Blue	A+	Gray	V+
Blue/ Black	A-	Gray/Black	V-
Green	B+	White	W+
Green / Black	B-	White/ Black	W-
Yellow	Z+	/	Shield



Yellow/ Black	Z-	
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**c. TAMAGAWA OIH 100-8192P20-L6-5V**

**d. Electric parameter:**

- Rated voltage: DC5V±5%
- Rated current: ≤200mA
- Resolution: 8192 C/T
- Protection : IP40
- Output Circuit: Line Driver



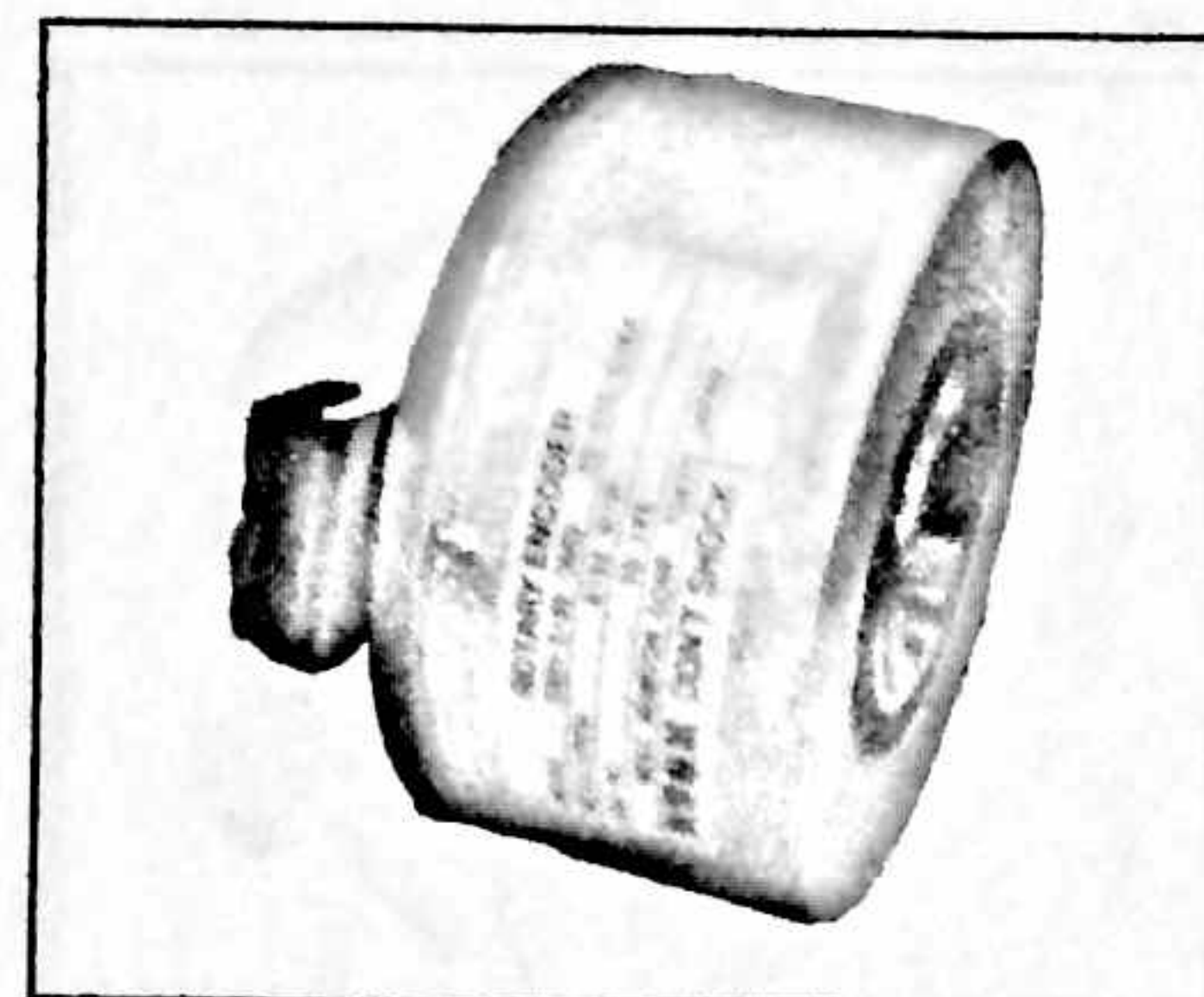
**Connection diagram:**

Color	Signal	Color	Signal
Red	DC +5V	Brown	U+
Black	GND	Brown / Black	U-
Blue	A+	Gray	V+
Blue/ Black	A-	Gray/Black	V-
Green	B+	White	W+
Green / Black	B-	White/ Black	W-
Yellow	Z+	/	Shield
Yellow/ Black	Z-		

**c. NEMICON SBH-8192-5MD**

**Electric parameter:**

- Rated voltage: DC5V±10%
- Rated current: ≤210mA
- Resolution: 8192 P/R
- Protection : IP40
- Output Circuit: Line Driver



**Connection diagram:**

Color	Signal	Color	Signal
Red	DC +5V	Brown	U+
Red/White	GND	Brown / White	U-
Black	A+	Blue	V+
Black/White	A-	Blue / White	V-
Green	B+	Gray	W+
Green/White	B-	Gray / White	W-
Yellow	Z+	/	Shield
Yellow/White	Z-		



Yellow/ Black	Z-	
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c. **TAMAGAWA OIH 100-8192P20-L6-5V**

d. Electric parameter:

- Rated voltage: DC5V±5%
- Rated current: ≤200mA
- Resolution: 8192 C/T
- Protection : IP40
- Output Circuit: Line Driver



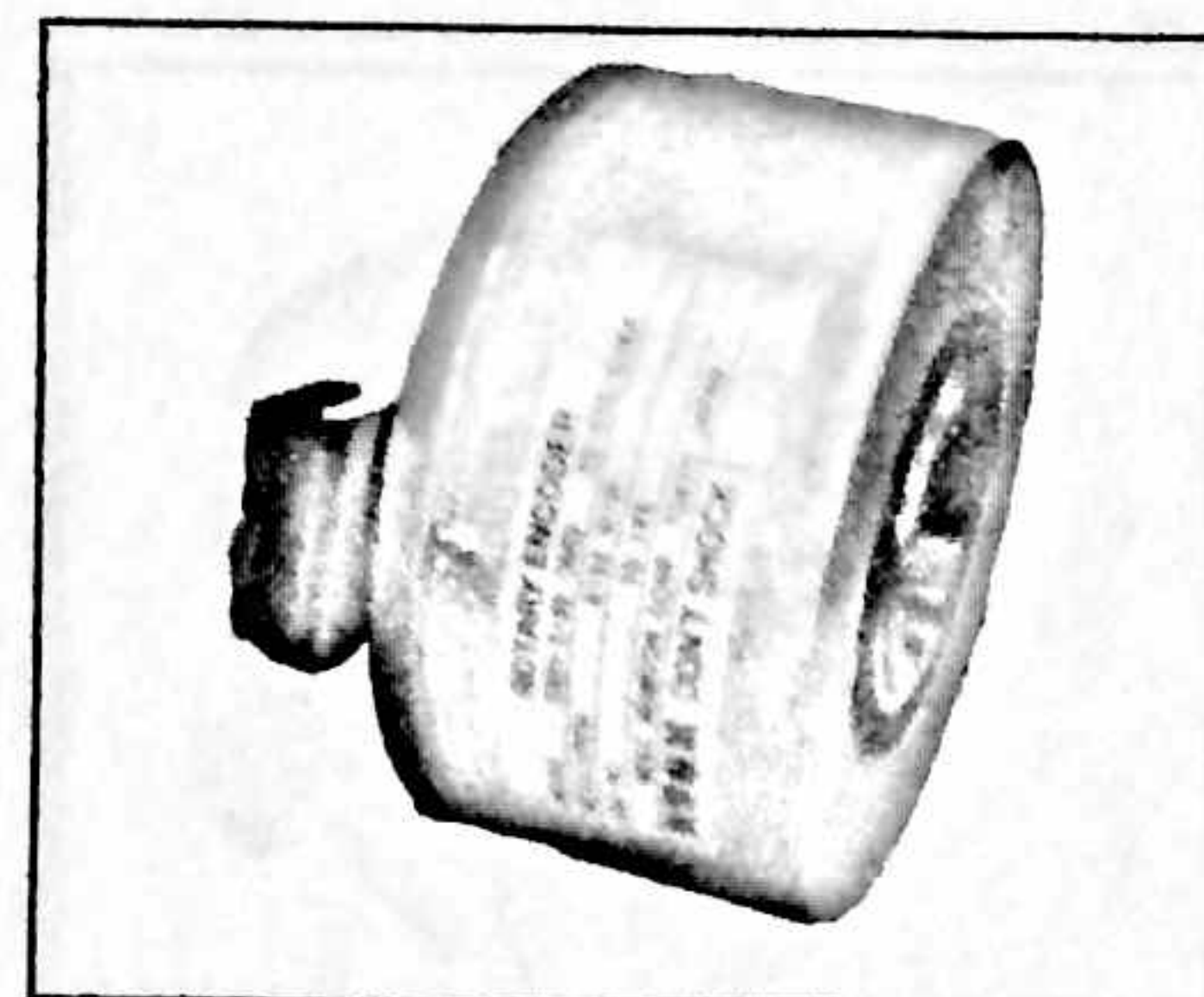
Connection diagram:

Color	Signal	Color	Signal
Red	DC +5V	Brown	U+
Black	GND	Brown / Black	U-
Blue	A+	Gray	V+
Blue/ Black	A-	Gray/Black	V-
Green	B+	White	W+
Green / Black	B-	White/ Black	W-
Yellow	Z+	/	Shield
Yellow/ Black	Z-		

c. **NEMICON SBH-8192-5MD**

Electric parameter:

- Rated voltage: DC5V±10%
- Rated current: ≤210mA
- Resolution: 8192 P/R
- Protection : IP40
- Output Circuit: Line Driver



Connection diagram:

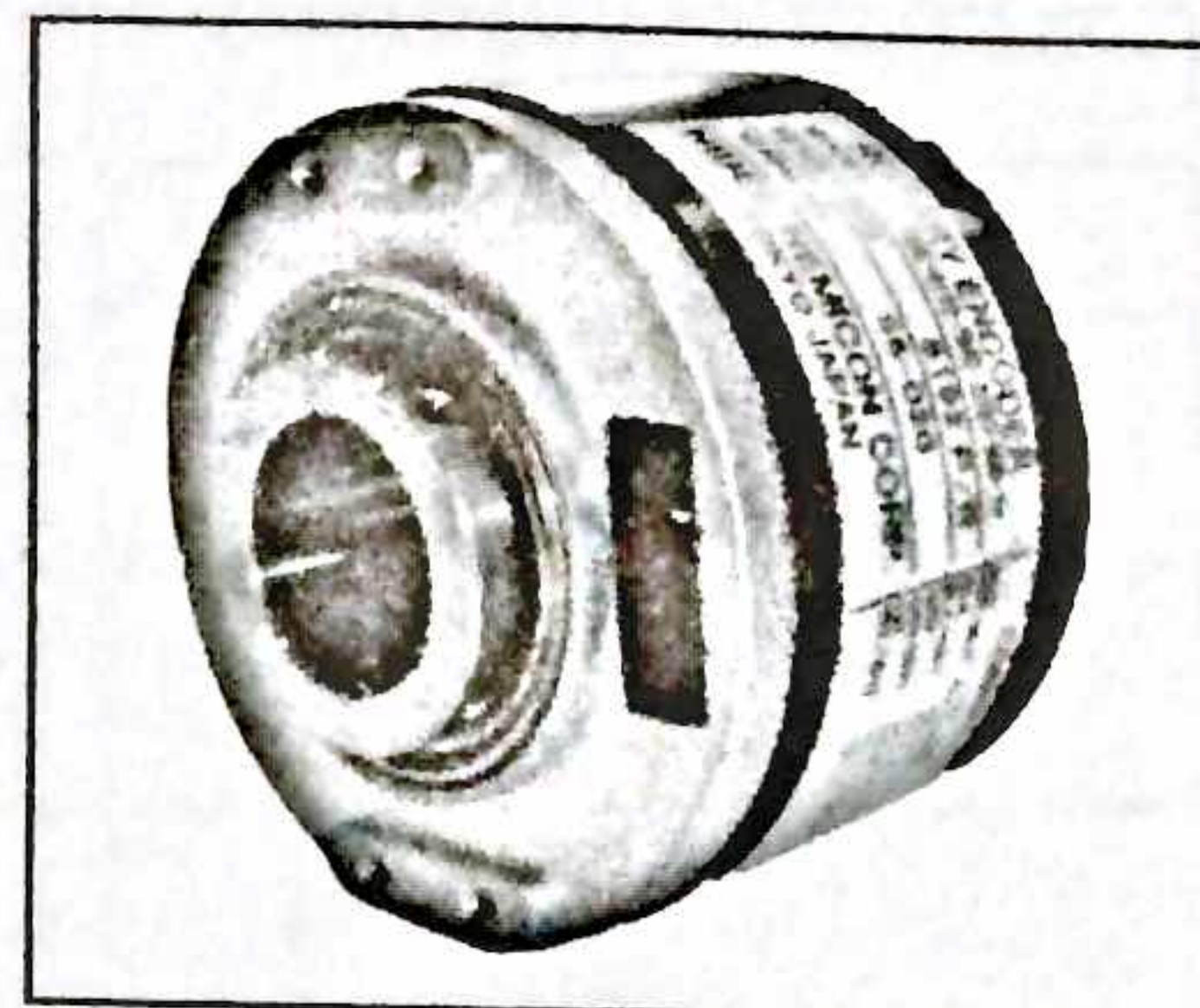
Color	Signal	Color	Signal
Red	DC +5V	Brown	U+
Red/White	GND	Brown / White	U-
Black	A+	Blue	V+
Black/White	A-	Blue / White	V-
Green	B+	Gray	W+
Green/White	B-	Gray / White	W-
Yellow	Z+	/	Shield
Yellow/White	Z-		



#### d. NEMICON SBE-8192-5MD

Electric parameter:

- Rated voltage: DC5V±5%
- Rated current: ≤250mA
- Resolution: 8192 P/R
- Protection : IP40
- Output Circuit: Line Driver



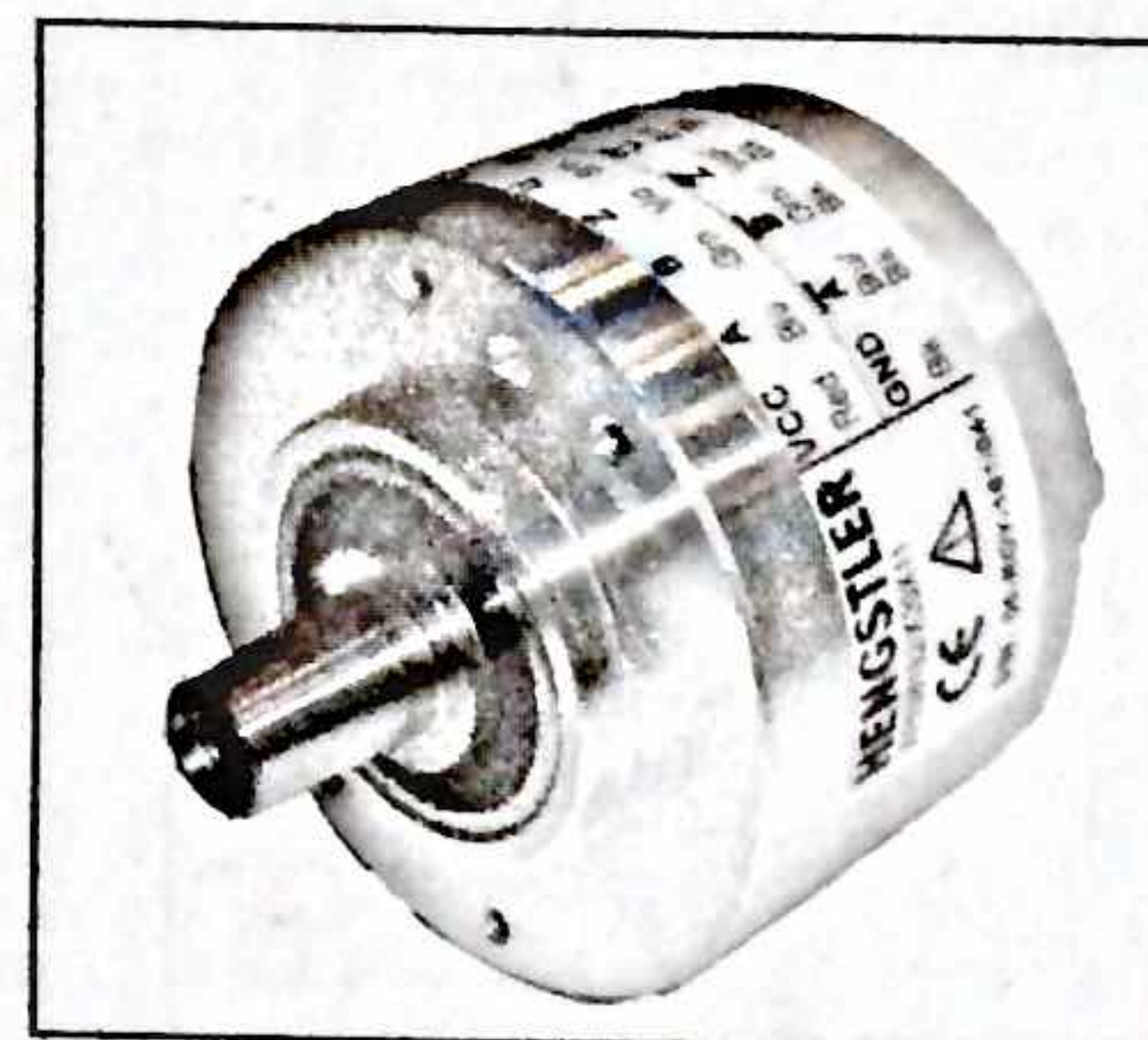
Connection diagram:

Color	Signal	Color	Signal
Red	DC +5V	Brown	U+
Red/White	GND	Brown / White	U-
Green	A+	Blue	V+
Green/White	A-	Blue / White	V-
Gray	B+	Black	W+
Gray / White	B-	Black/White	W-
Yellow	Z+	/	Shield
Yellow/White	Z-		

#### e. HENGSTLER RF53 8192

Electric parameter:

- Rated voltage: DC5V±10%
- Rated current: ≤175mA
- Resolution: 8192 P/R
- Protection : IP51
- Output Circuit: Line Driver



Connection diagram:

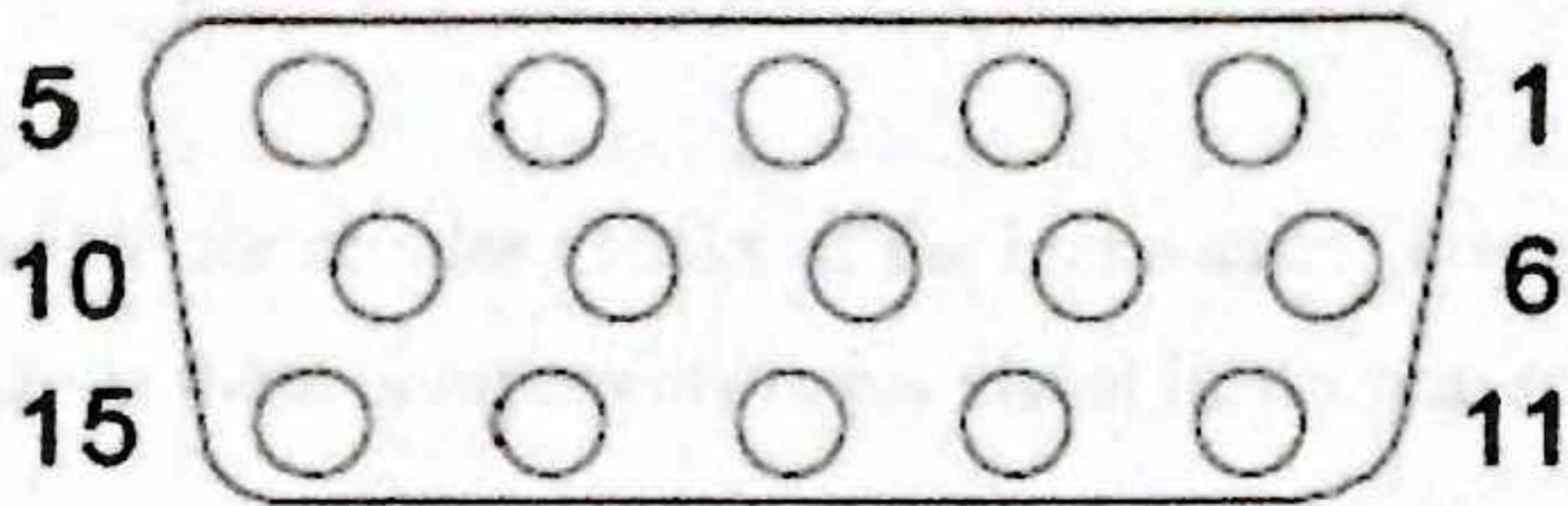
Color	Signal	Color	Signal
Red	DC +5V	Brown	U+
Black	GND	Brown/ Black	U-
Blue	A+	Gray	V+
Blue / Black	A-	Gray/ Black	V-
Green	B+	White	W+
Green / Black	B-	White / Black	W-
Violet	Z+	/	Shield



Violet / Black	Z-	
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### 2.4.2 Sin/Cos Encoder

Alternatively, the machines can be equipped with the sine-cosine encoder types. It connected via a 15-pole signal coupling fitted to the frequency inverter.



15Pin

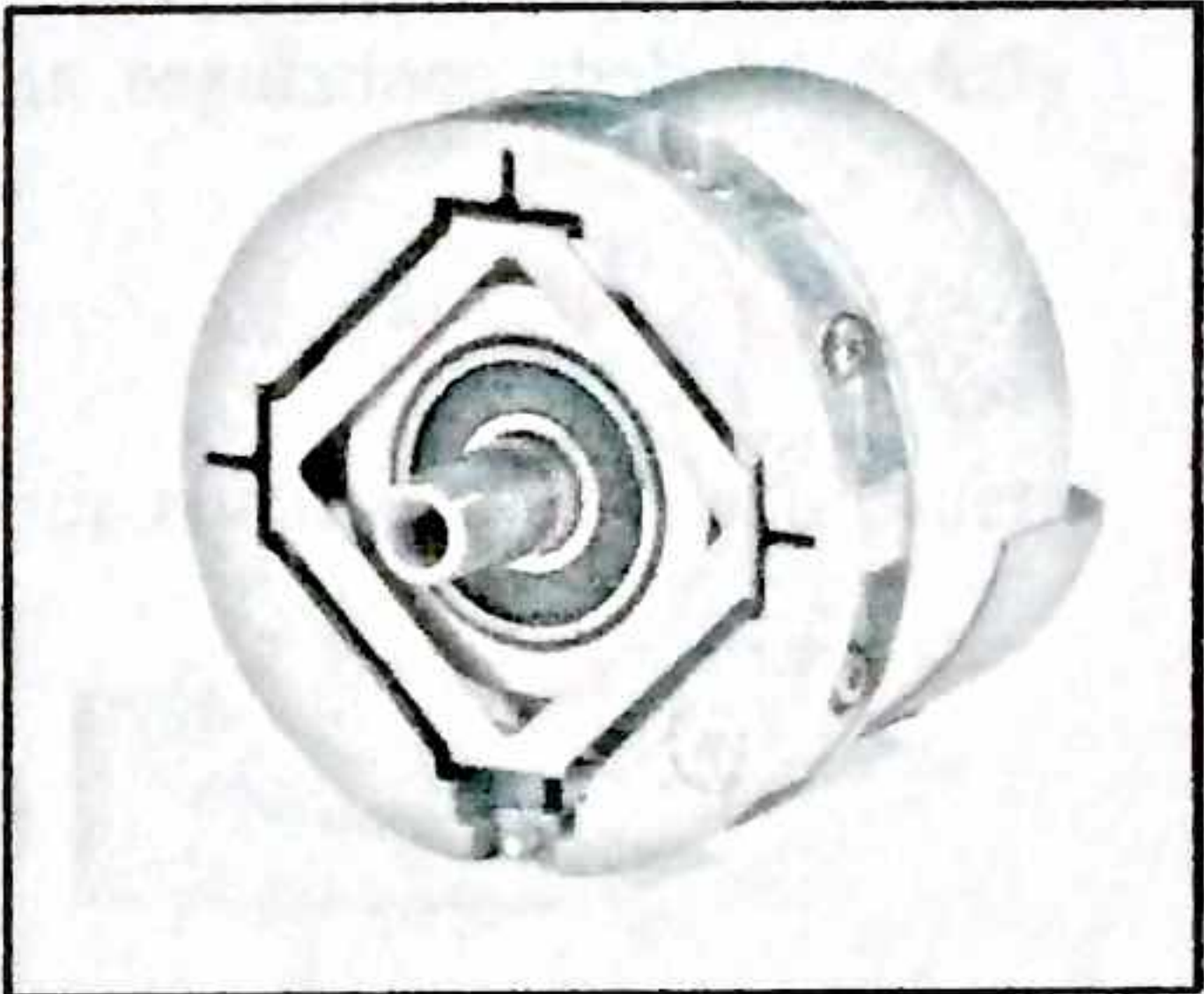
#### a. HEIDENHAIN ERN 1387

(just for YZW100100 YZW160100)

(just for YZN100045 YZN160045)

Electric parameter:

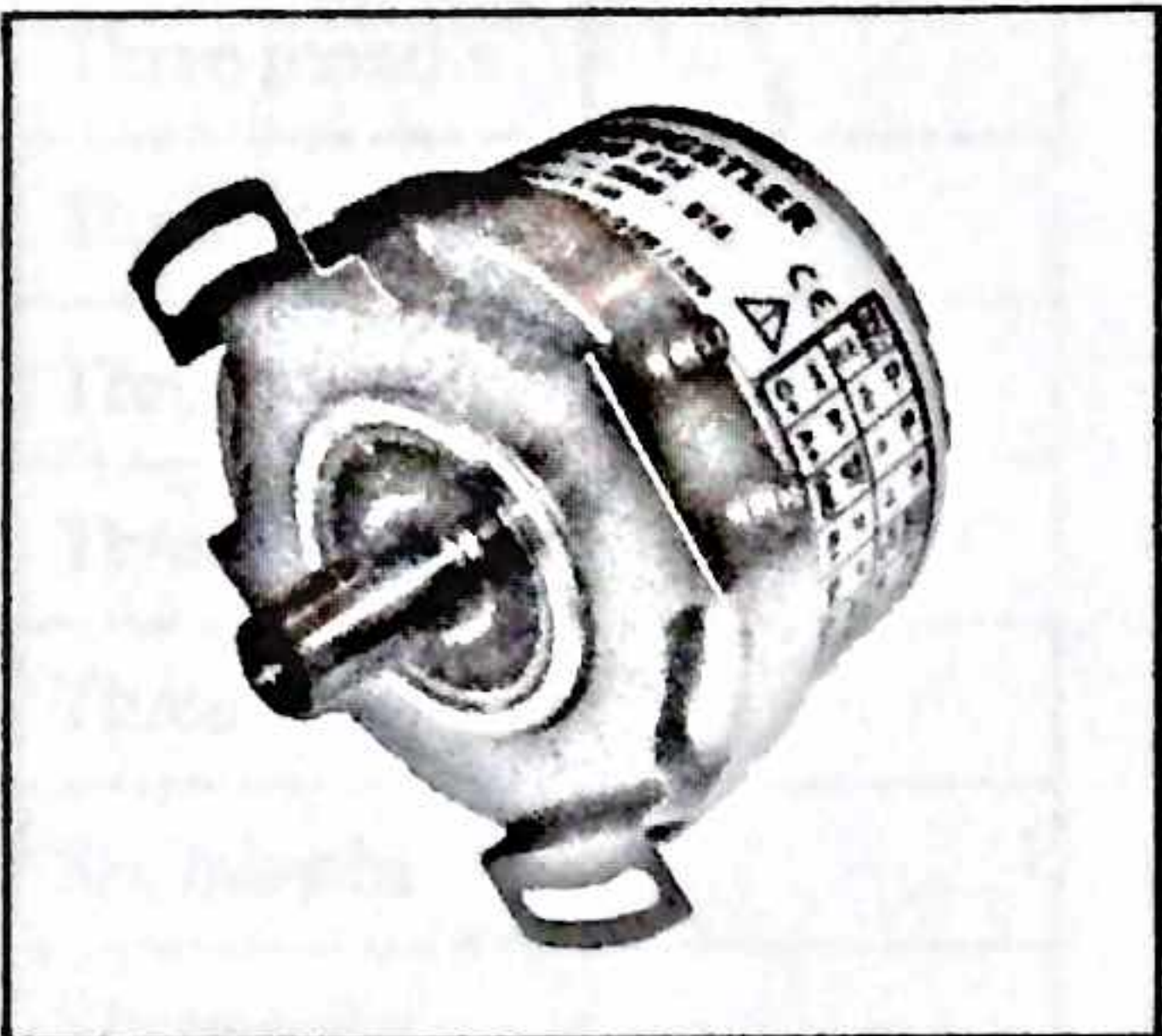
- Rated voltage: DC5V±5%
- Rated current: ≤150mA
- Resolution: 2048
- Protection : IP40



#### b. HENGSTLER S21-2048

Electric parameter:

- Rated voltage: DC5V±5%
- Rated current: ≤150mA
- Resolution: 2048
- Protection : IP40



## 2.5 Earthing

For safety reasons, it is very important that the motor be properly and carefully earthed.



Warning



Use the earthing screw provided on the housing! In addition, connect the protective or earthing conductor in the terminal box as specified respectively.

3. Operation and maintenance

3.1 General

The lift operator is responsible for regular checks of the brake safety components and the traction main sheave, and must include these components in his visual inspection schedules.



Danger

The regulations concerning operation, maintenance and inspection in accordance with the applicable safety regulations in lift construction such as GB/T7588-2003 (equal to EN81-1:1998) "Safety rules for the construction and installation of electric lifts", and other relevant regulations shall be strictly observed.

The operator is responsible for the requirements, which are with regard to applicable safety regulations.

3.2 Maintenance intervals

The following maintenance activities are recommending to be performed:

Check item	Judge benchmark	Cycle	Remark
Brake system	Work effective braking	Three months	
Brake lining thickness	Abrasion<3mm	Three months	
Bearing noise	No abnormal noise	Three months	
Motor vibration	Vibration≤20μm	Three months	
Lubricating bearing	Operate agile、balanced	Three months	Section 3.4
Load current	≤ Rated current	Three months	
Sheave fix state	No loose、damnification	Six months	
Sheave	No serious abrasion	Six months	
Slip-off guard	Keep originality state no displacement	Six months	
Winding insulation resistance	≥3MΩ	Six months	
Connection cable	No aging	Six months	
Clean machine surface	No dust	As required	



### 3.3 Maintenance regulation



**Warning**

Only qualified personnel are allowed to perform any maintenance work. The person who do the maintenance work must take care due to some work must done when the machine running.

### 3.4 Brake operation device



**Danger**

Each PMS elevator traction machine has a manual brake handle device, which is used to escape the person in emergency states. And it is forbid to in normal states.

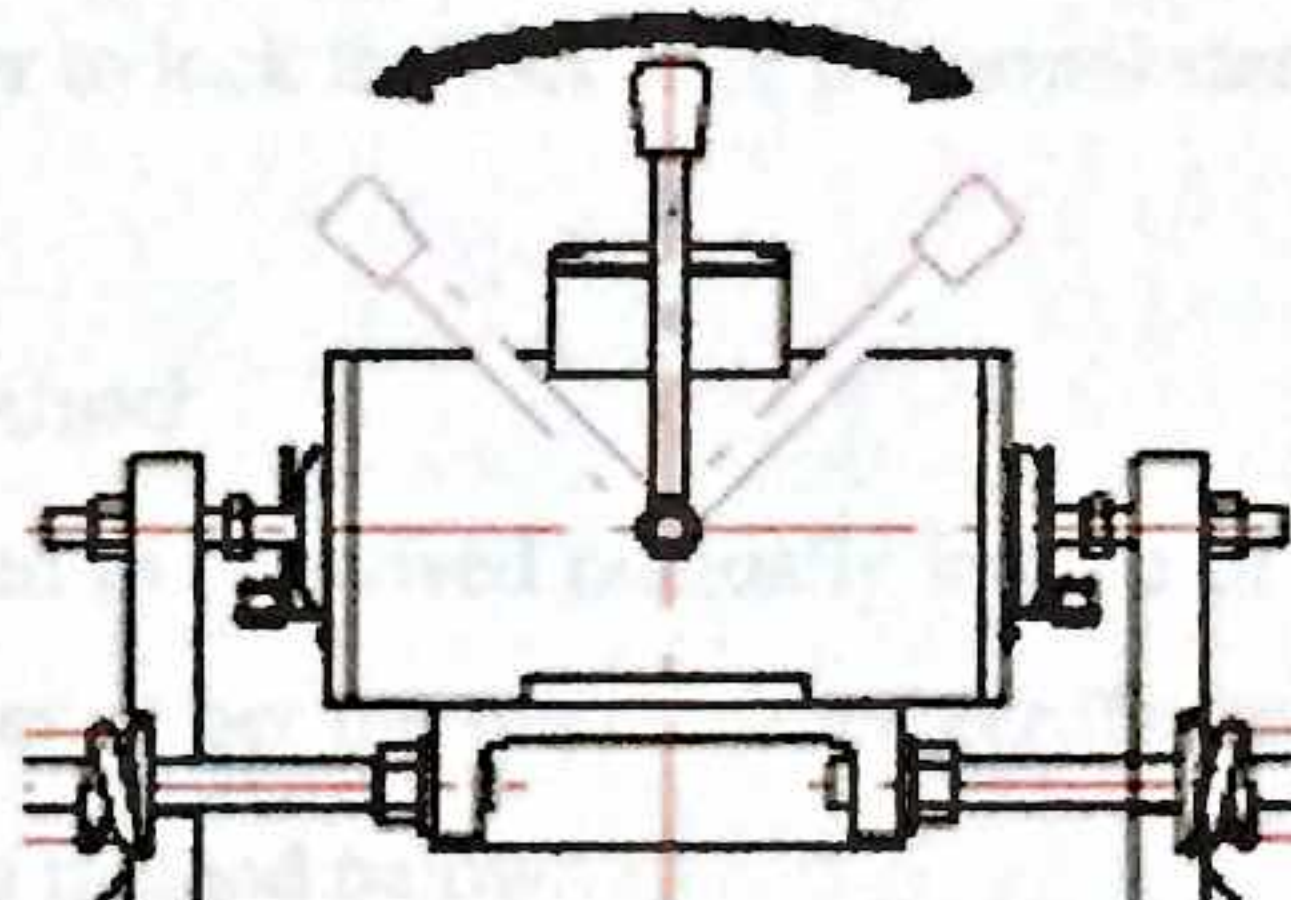
PMS elevator traction machine have two type of manual brake handle: machine room type and roomless type.

#### 3.5.1 Machine room brake operation device

Refer to the machine install in machine room, the following brake handle will be offered. Please operate it as the blow picture show. Do remember to take off the brake handle in normal state.

#### 3.5.2 Roomless brake

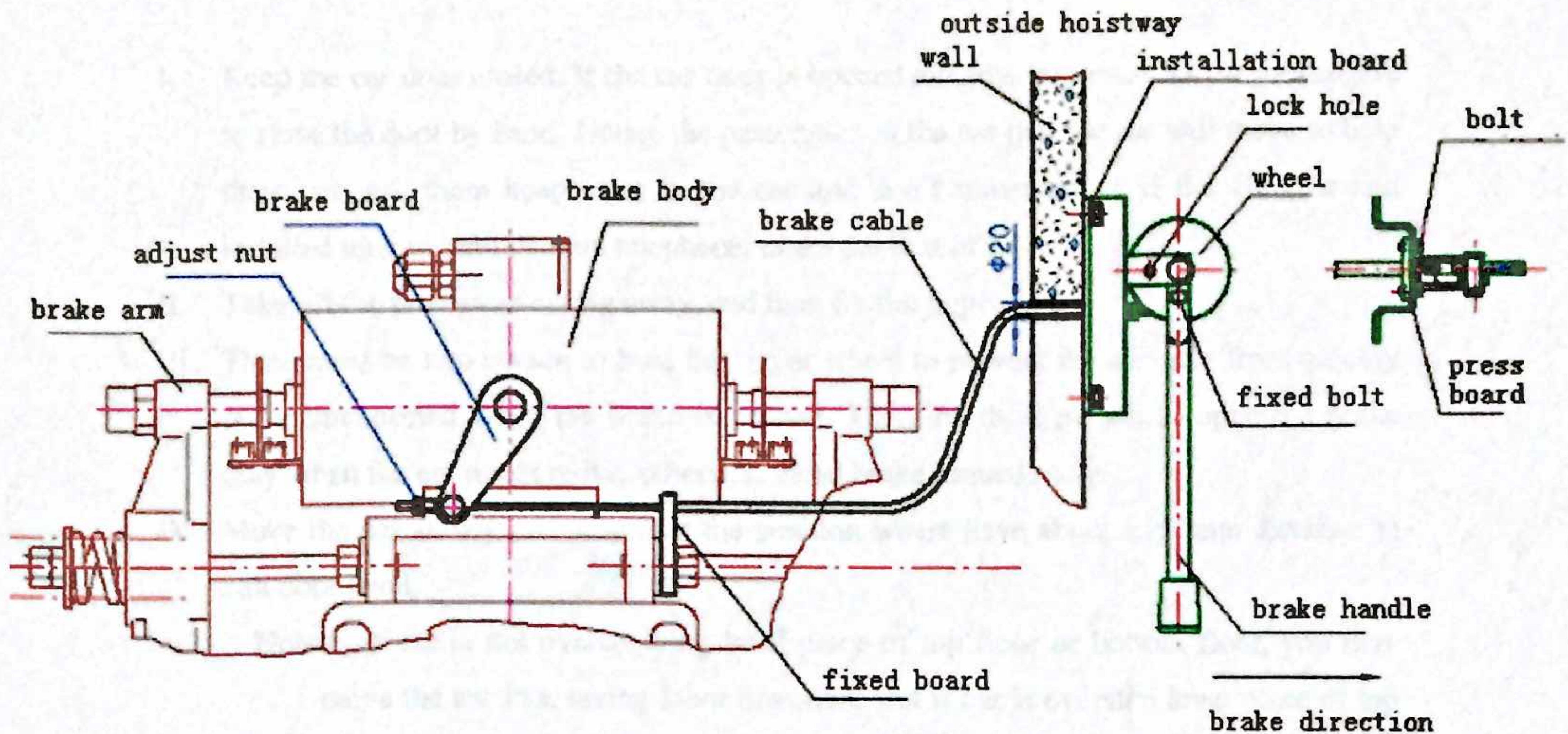
Refer to the machine install brake open device will be the blow picture show.



**operation device**

in roomless, the following offered. Please operate it as





#### Warning

Brakes are safety devices! Only qualified personnel are allowed to perform any assembly, adjusting or maintenance work! The brake handle just can be used in escapes person in emergency states and be operating by profession.

Do remember to lock the lock hole in normal state.

### 3.6 Emergency escape method



#### Warning

If the lift need to be moved manually in case of breakdown or power cuts. The person who must get the maintenance certificate can carry out the rescue work following the method below.

For machine room customer can use the gear in dustproof radiator ring (9), and for roomless customer can use the roomless brake operation device to do the rescue work.



#### Warning

- Cut off the elevator power to prevent it unintentional restarting, but must keep the car illumination.
- Try to make clear the position of car (you may open the hall door by mechanical key to check it).
- When the elevator stop at the place where have about  $\pm 500\text{mm}$  distance to hall door level, the maintain person can open the hall door by mechanical key and open the car door, then help the passengers out of the car safety.
- If the elevators stop at other position, you must move the car by mechanical method to help the passengers out of the car safety. You can do the rescue according to the following steps:



- I. Keep the car door closed. If the car door is opened already, you must let the passengers to close the door by hand. Notice the passengers in the car that the car will move to help them out, ask them keep calm in the car and don't move away( if the elevator had installed intercommunication telephone, make the best of it).
- II. Take off the protective casing away, and then fix the jigger wheel.
- III. There must be two person to hold the jigger wheel to prevent the elevator from quickly move unexpected when the brake is opened. Then the third person to open the brake only when the car needs move, otherwise close brake immediately.
- IV. Move the car slowly and stop it at the position where have about  $\pm 150\text{mm}$  distance to hall door level.

Notes: If car is not overstepping level place of top floor or bottom floor, you may move the car in a saving labor direction. But if car is overstep level place of top floor or bottom floor you must move car to top floor (bottom floor) direction, you can move car by jigger wheel if needed.

- V. Let brake return to normal work state, then open the hall door outside of correspondence level by special key, and pull the car door open, then help the passengers out of the car safety.

### 3.7 Sheave replaces



The safety precautions to be taken when working in the lift well are to be strictly observed for roomless customer.

**Warning** When removing the old traction sheave, secure it against falling down. Three M12 holes for forcing screws (GB/T 5783 M12 $\times$ 50-8.8) are provided in the traction sheave to facilitate disassembly.

When fitting the new traction sheave be sure to assemble all components of the connection in the same manner as those on the old traction sheave. And the normal impulse of the sheave-trough's surface should be test after assemble, it must lower than the GB/T 13435-1992 standard requests.

Note: The sheave and the drum is connected use fast engagement and use the elasticity pin, you can install it according to following steps:

- a. Tighten a pairs of dowel screw into the thread hole at opposite direction in brake drum as guide bolt. Use a lifting device to suspend the heated main sheave and then cover it by the guide bolt, and to aim at the pinhole in the brake drum at same time.
- b. Install the elasticity pin and connecting bolts.



- c. To use a tightening torque of 115 Nm to tighten the 12 connecting bolts between the traction sheave and the brake drum (M12x50-8.8).

### 3.8 Trouble shooting



#### Warning

Repairs other than those described in this operating manual are not permitted to perform. The proper maintenance of the gearless lift machines requires adequately trained specialist personnel and specific devices and auxiliaries.

Following table is presentation and countermeasure of faults:

Fault	Possible cause	Remedy
PMS not work	a. Power cut	Check whether the connection cable is connect credibility The interlocking device whether relief
	b. Inverter misconnection	Check the connection diagram to correct it
	c. Over load or brake not open	Brake not open completely Inverter is over max. Limit Reduce load
	d. Inverter fault	Deal with it according to inverter instruction
	e. Wrong inverter	Change the inverter to PMSM inverter
Protect after start	a. Wrong inverter capability	Change the higher capability
	b. Inverter setting fault	Prolong the accelerate and decelerate time
	c. Over load	Prolong the accelerate and decelerate time
	d. Short-circuiting in winding	Check the winding resistance
	e. Short-circuiting to earthing	Take off the connection cable to recheck it, if still short-circuiting exchange the machine
	f. Short-circuiting in control system	Exchange the fault parts
Abnormal noise or vibration	a. Friction noise	Brake not open complete
	b. Inverter setting fault	Change the inverter PI or operating frequency value
	c. Encoder output single interfered Encoder not fixed credibility	Connect the encoder shield Fix it again firm
	d. Bearing fault	Replace the broken bearing
Electricity in machine seat	a. Not connect the earthing	Find out the problem and correct it
	b. Winding affected with damp Insulation broken Dirt in earthing connection	Desiccation the winding Repair the broken insulation parts Clean the earthing connection
	c. Connection cable insulation	Repair or exchange the connection cable
The temperature. too high	Aeration, radiator not well	Remove the obstruction and the dirt

## 4. Brake system



## 4.1 General



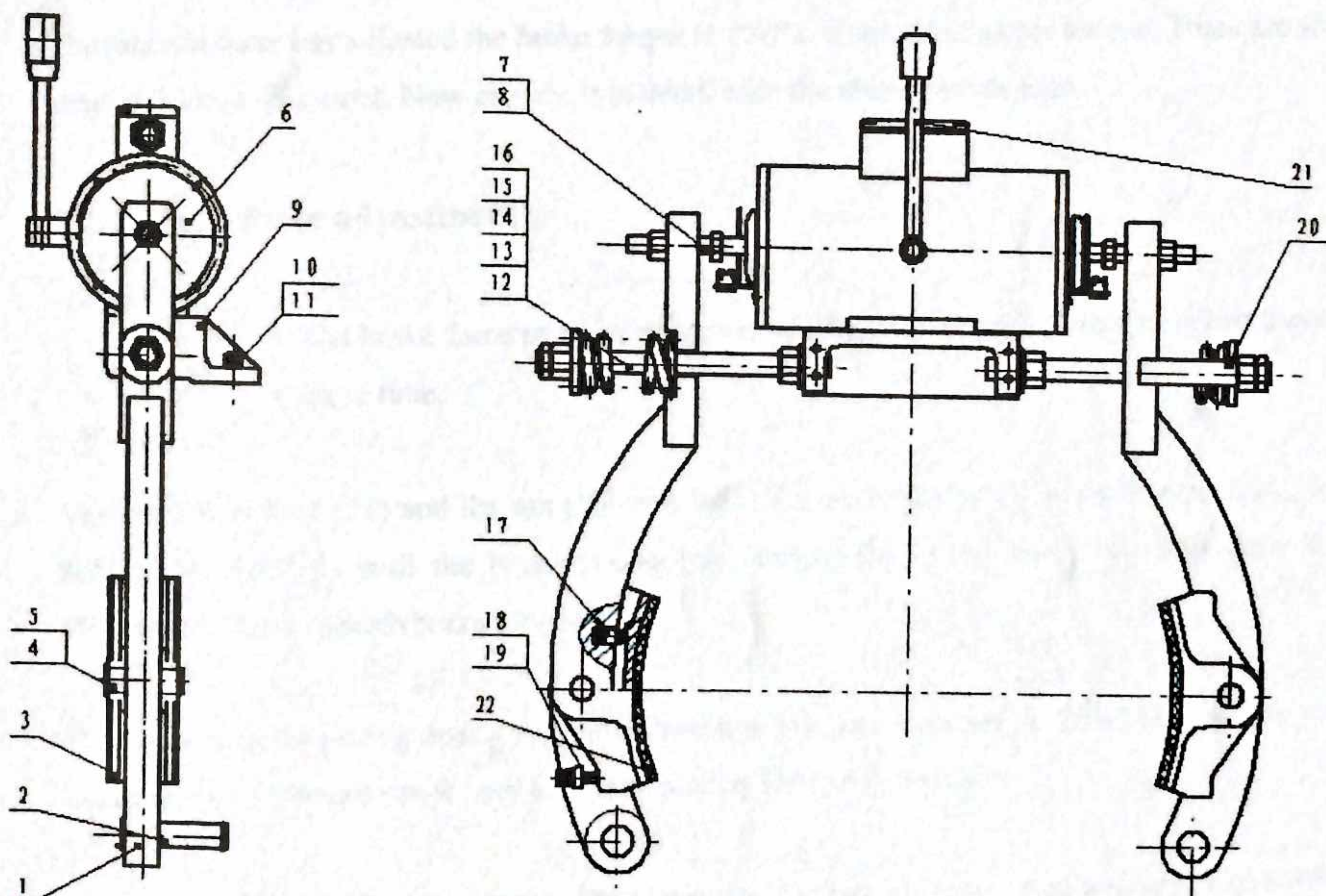
### Warning

Brakes are safety devices! Only qualified personnel are allowed to perform any assembly, adjusting or maintenance work!

The braking torque data listed in our documents are based on the following operating conditions:

- Protect the friction surfaces from oil or grease, rain, splash water, snow and ice;
- Ensure that the brake linings do not come into contact with solvent-containing media;
- Axis direction tolerance of the brake drum, including form deviations max. 0.1 mm;
- Deformation of the brake drum, resulting from the application force of the brake max. 0.1 mm;
- Brake disk surface with a surface roughness of not less than  $Ra\ 3.2\ \mu m$ ;
- Braking reaction time max. 0.8s;
- Brake disk steady-state temperature: max. 180 °C.

### PMS elevator traction machine brake system



NO.	Name	NO.	Name
1	Brake arm	12	Brake spring
2	Pin 1	13	Dowel screw



3	Brake shoes	14	Spring seat
4	Pin 2	15	Nut
5	Retainer ring	16	Lock nut
6	Brake magnet	17	Spring
7	Bolt	18	Screw
8	Nut	19	Lock nut
9	Brake seat	20	Staff guage
10	Screw	21	Brake handle
11	Washer	22	Brake lining

## 4.2 Brake system adjustment

If the braking torque is readjusted unqualified, it is forbid to use the elevator.



### Warning

Before adjust the brake system be sure that the car is no passenger and the car must at terminal station and the counterweight must on the buffer.

The manufacturer has adjusted the brake torque to 250% of the rated motor torque. There are four steps in brake adjustment. Now explain it in detail with the above sketch map.

### 4.2.1 Brake force adjustment



### Warning

The brake force must be adjusting one by one, and it is forbid to adjust them at same time.

Slacken the locknut (16) and the nut (15) and leave the brake spring (12) in a free-position, then tighten the nut (15) until the brake spring just contact the spring seat (14). Then turn it in clockwise to have enough brake torque.

The manufacturer setting brake torque of gearless traction machine is 200-250% of the rated motor torque. Operator can set the torque according following formula:

Example: YZW100100 type gearless PMS elevator traction machine rated torque is 630-670Nm, so according to our factory standard the braking torque  $M_b = 2.5 \times 630-670 \text{ Nm} = 1575-1675 \text{ Nm}$  (250%). So the spring must be compressed  $1575-1675/100 = 15.75-16.75 \text{ mm}$ . So the nut (15) should be turning in clockwise to 5-6.7 circle (pitch of the dowel screw (13) is 2.5mm).

### 4.2.2 Brake shoes adjustment



When there are enough force press the brake arm and the brake lining is close tightly to the brake drum, adjust setting the screw (18) insure that it is contact the brake shoes (3) plant, then turn the bolt 30° in the counterclockwise direction (leave a clearance between the screw (18) and the brake shoes). Finally secure the adjustment with the locknut (19).

#### 4.2.3 Opening distance adjusting

First, push the mobile-core of brake into the brake, then slacken the nut (8) and turn the bolt (7), insure there is 1~2mm clearance between the bolt (7) and brake cap. Second give the power to brake, the clearance between the brake lining (22) and brake drum should within 0.1-0.5mm and to be sure there is no friction. The clearance can be adjusted by the bolt (7), when it in a right position, tightens the bolt (7) up with the nut (7).

#### 4.2.4 Synchronous adjustment

This step should be done at the condition of the brake torque is meet the request.

If the brake arm is open slow, then slacken the nut (15) and locknut (16), if the brake arm is open fast, then tighten the nut (15) and locknut (16).



**Danger**

After the adjustment tight all the locknut up, then do the brake force test.

If the braking torque is readjusted unqualified, you must do the adjustment again. If the braking torque is not qualified, it is forbid to use the elevator.

#### 4.3 Start-up



**Danger**

Make sure that the functional test of the brake is only carried out when the motor is at rest, has been disconnected from the supply and is secured against inadvertent restarting.

Surface temperatures of  $>100\text{ }^{\circ}\text{C}$  may occur in the braking system. For this reason, no temperature-sensitive parts such as normal cables or electronic components may be routed to or fixed to the braking system. Provide appropriate protection against accidental contact, if necessary. If the motor shaft needs to be turned during adjusting work release the braking system by electric or by means of manual release, if necessary.

#### 4.4 Maintenance

When doing any inspection or maintenance work, make sure that:



**Danger**

- a. No inadvertent starting of the motor is possible;
- b. No load moment is acting on the brake drum or on the motor;
- c. After completion of the inspection and maintenance work, the interlocking preventing inadvertent starting of the motor is cancelled
- d. All surfaces providing friction are free from oil or grease; it is not possible to clean an oily or greasy brake lining.

**4.5 Trouble shooting**

Fault	Possible cause	Remedy
Braking system do not work	<ul style="list-style-type: none"> <li>a. Braking system voltage applied at excitation winding too low</li> <li>b. Braking torque set too large</li> <li>c. Braking open distance is too small</li> <li>d. Brake winding broken</li> </ul>	Check brake supply voltage electrical connection Reduce brake torque setting Readjust the brake open distance Replace the broken winding
Braking torque can not meet request	<ul style="list-style-type: none"> <li>a. Braking torque set too low</li> <li>b. The distance between mobile-core and brake cap setting too small</li> </ul>	Check and readjust brake torque (4.2.1) Readjust it (4.2.3)
Brake noise too big	<ul style="list-style-type: none"> <li>a. The brake open distance setting too big</li> </ul>	Readjust the brake open distance
Braking system no feed back	<ul style="list-style-type: none"> <li>a. Microswitch broken</li> <li>b. The position of microswitch is install not correct</li> </ul>	Replace the broken winding Readjust the microswitch install position

**5. Commissioning with inverter****5.1 General****Danger**

The commissioning with the inverter work must be done by qualified electric technician.

Due to there may be have shake in running-in work, please fix the PMS elevator traction machine in a fixed frame.



## 5.2 Checking before usage



### Caution

Before start work make sure that the traction machine, encoder and brake is connect correct. And do not forget the insulation and earthing.

Check the power capability and the earthing cable are correct. The temporarily support power is not recommend, and it must have the safe isolation from supply.

## 5.3 Motor parameter setting

Usually when running in with inverter divided into two parts: PMS parameters and system position (PG) learning. You may need same necessary parameters to set into the inverter on this process.

There are two different methods to set the parameters into the inverter:

- a. Set the factory value in nameplate or in operation manual to the inverter direct.
- b. Setting the basic parameters then use the inverter motor learning function to lean the other parameters.

Because there are so many different inverter in the market, and them have different name, expressive manner or unit to one parameter. You can see the detail of the motor learning method in the inverter instruction manual.

## 5.4 Inverter self-learning condition and method

Inverter self-learning is a very important part in running in work, and it will have much matter with the traction machine running steady and safe in future.

Following condition must be insure before start the self-learning work:

- a. No load in sheave (before hang up the rope);
- b. Electrify the brake and the sheave can running free;
- c. Encored mechanical install and signals connection correct;
- d. Familiar with the performance of the inverter you use.

In order to make the commissioning work process successfully, please do it according to following steps:

- a. Electrify the inverter, set the parameter of PMS elevator traction machine and encoder. Then turning the sheave in both directions to check whether the inverter speed feed back is correct. If the inverter court failure, please check the connection and the setting.



- b. Start the self-learning function then read out the parameter, and do is about 10~15 times the tolerance must with 10%.



**Caution**

The motor speed abnormal or vibration too big may happen during this process. This may be cause by the wrong connection of motor phase. You can do it again after replace the discretional two phases.

There may have some difference in different inverter self-learning process, you can do it according to the inverter instruction manual requests.

- c. Set the motor run at both direction at a low speed to check whether it running steady. And it can start and stop under the inverter commands.
- d. Set the inverter parameter to final state and let it running in the rated speed to check the no-load current is normal.

## 6. Encoder installation

### 6.1 General

Installation, checking and replace of the encoder must be down by qualified maintainer at power cut state.

If the customer ordered the encoder when order the PSM elevator traction machine, the encoder will be installed and tested before it leaving factory.



**Caution**

If the customer buy the encoder yourself, you can install it according to following step:

### 6.2 Installation regulation



**Caution**

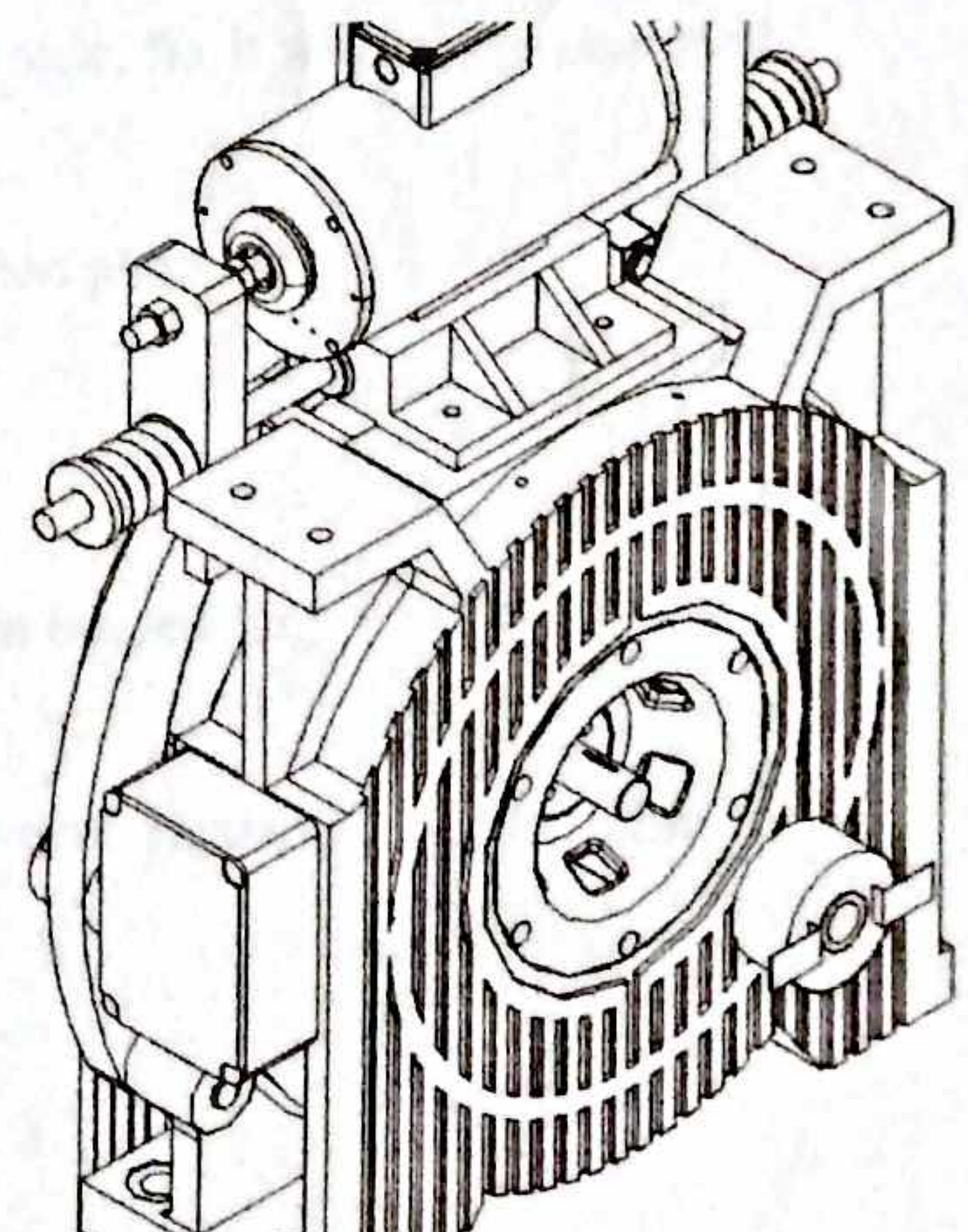
Encoder is a very exact equipment part so it must be take care during installation.

### 6.3 Installation

#### 6.3.1 Hollow-shaft

Fit for OIH100/SBH100 ( $\Phi 30$  hollow-shaft、key、reed) ,  
SBE60 ( $\Phi 20$  hollow-shaft、key、reed) :

- a. Take off the burr on the connection shaft;
- b. Check the shaft jerk value with centesimal meter, the





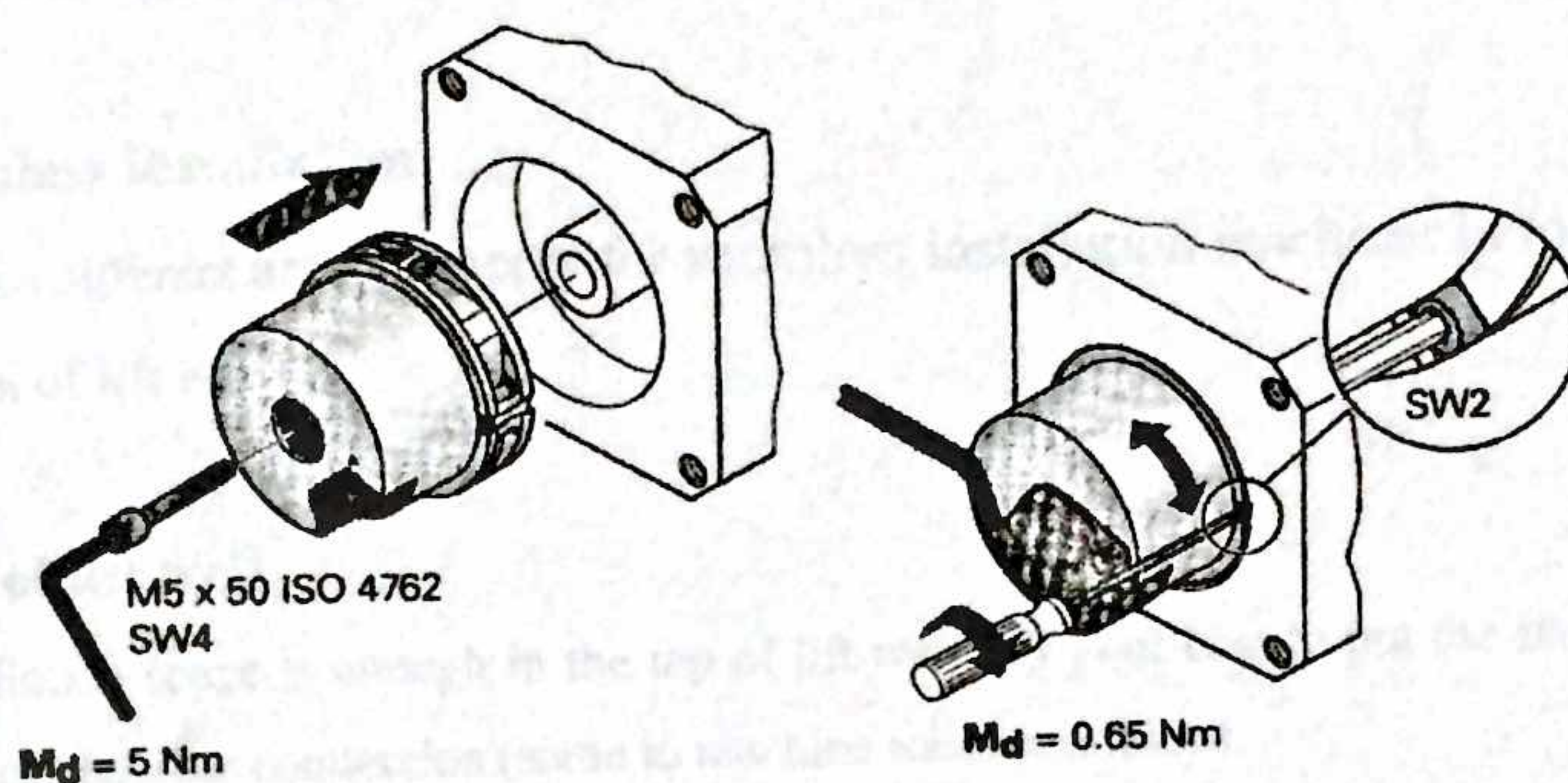
tolerance should within 0.05mm;

- Install the key in the shaft, and smear some lubricates oil in the shaft.
- Install the encoder in the shaft (reed must in rear);
- Fix the connection plate in the rear cover, and then fix the reed in the connection plate.

### 6.3.2 Cone shaft

Fit for HEIDENHAIN ERN 1387 (cone shaft, screw, expansion shell bolt), HENGSTLER S21-8192, RF53 8192 (cone shaft, screw, reed):

ERN 1387.3523



- Open the rear cover;
- Take off the burr in connection cone hole;
- Open the encoder cover then pull the cone shaft into the cone hole. Use the fix bolt accessory of encoder thought the encoder to fix the encoder in the shaft. Finally connect the signal cable and cover the rear cover;
- Refer to ERN1387, it have a expansion cover in the rear side, fix it with expansion shell bolt show in the picture;
- Refer to S21/RS53, you should fix the reed in the connection plate.

## 7. PMS traction machine installation

### 7.1 General

Protect the traction machine to be damnification in suspending.



**Caution**

YZW PMS elevator traction machine is adapt to used in small machine room or roomless.

### 7.2 Machine room installation



b. Change the pull force to press force by use the beam to press the top plant in the top of the machine.

c.

#### 7.4 Absorber installations

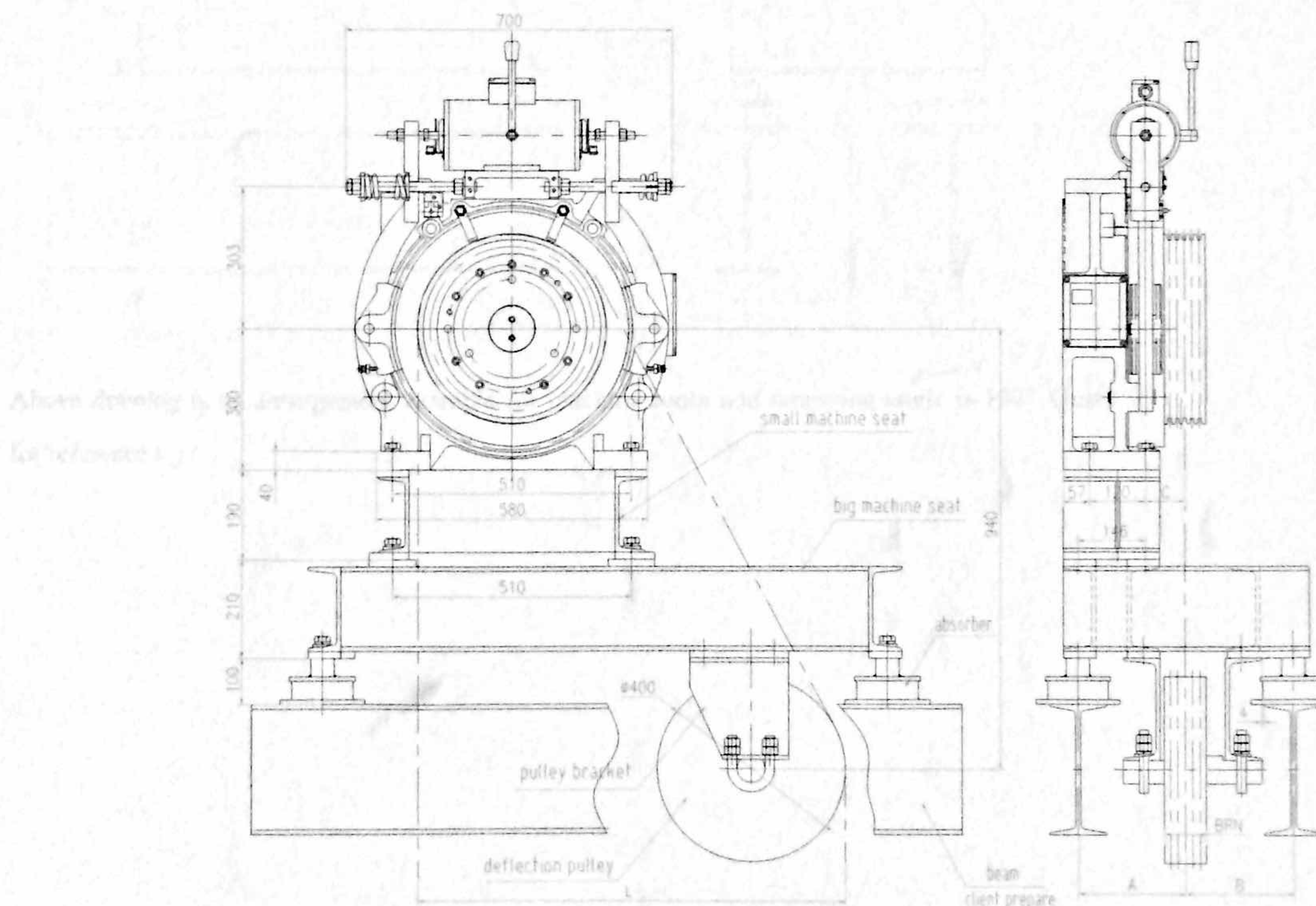
The arrangement and performance of the absorber have much to do with the elevator performance and comfort. Because the absorber can absorb vibration and reduce the noise.

The performance and the number of absorber is decided by the elevator system.

Make sure there is no exposed in the top and bottom plant, and the acting force of the absorber must be equably.

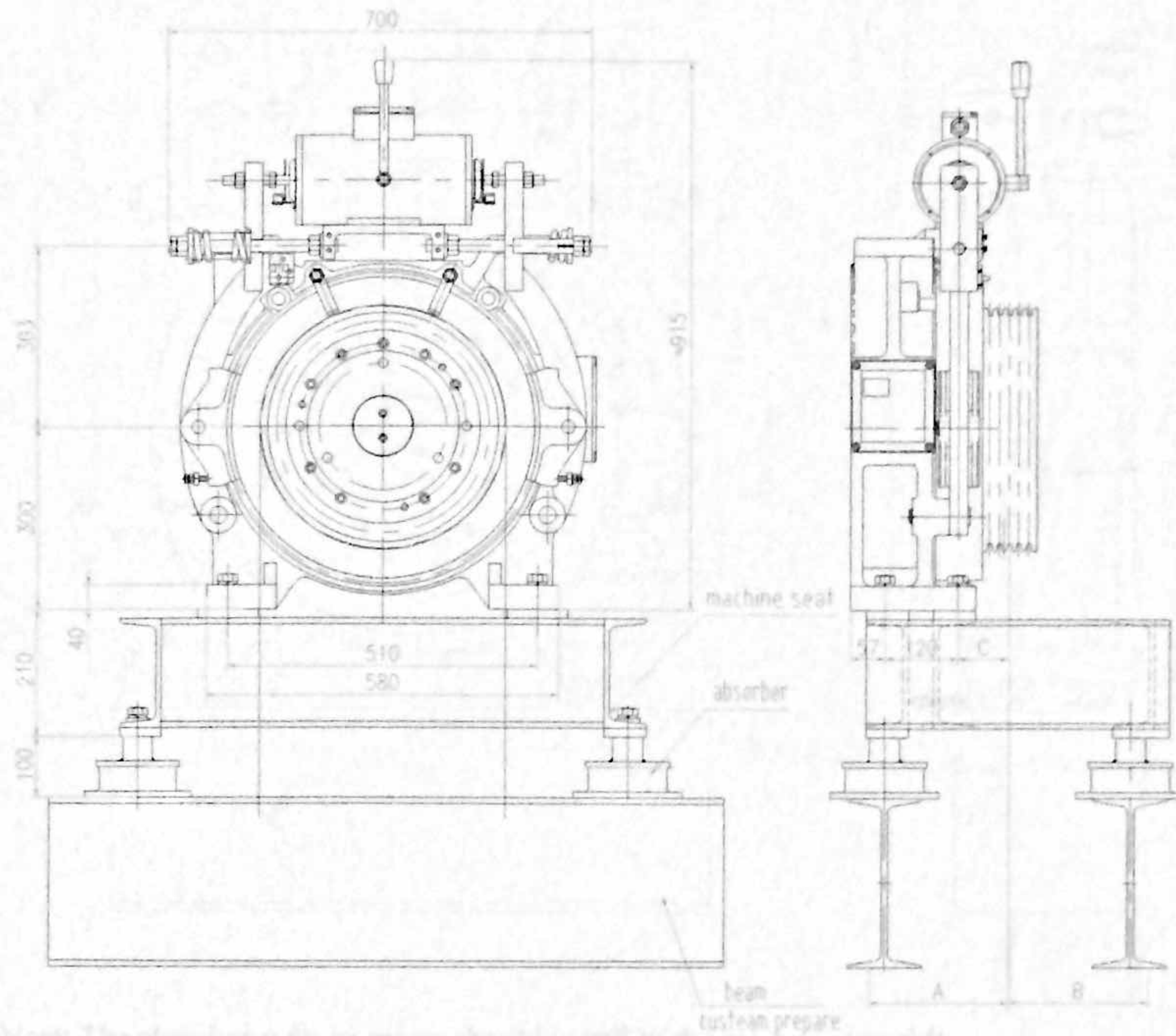
Try your best to arrange the deflection pulley and traction machine in one absorber system.

#### 7.5 Machine room arrangement example (just for reference)



Above drawing is an arrangement example for machine room with deflection pulley and wrapping angle is  $< 180^\circ$  (just for reference) .





Above drawing is an arrangement example for machine room and wrapping angle is  $180^\circ$  (just for reference) .







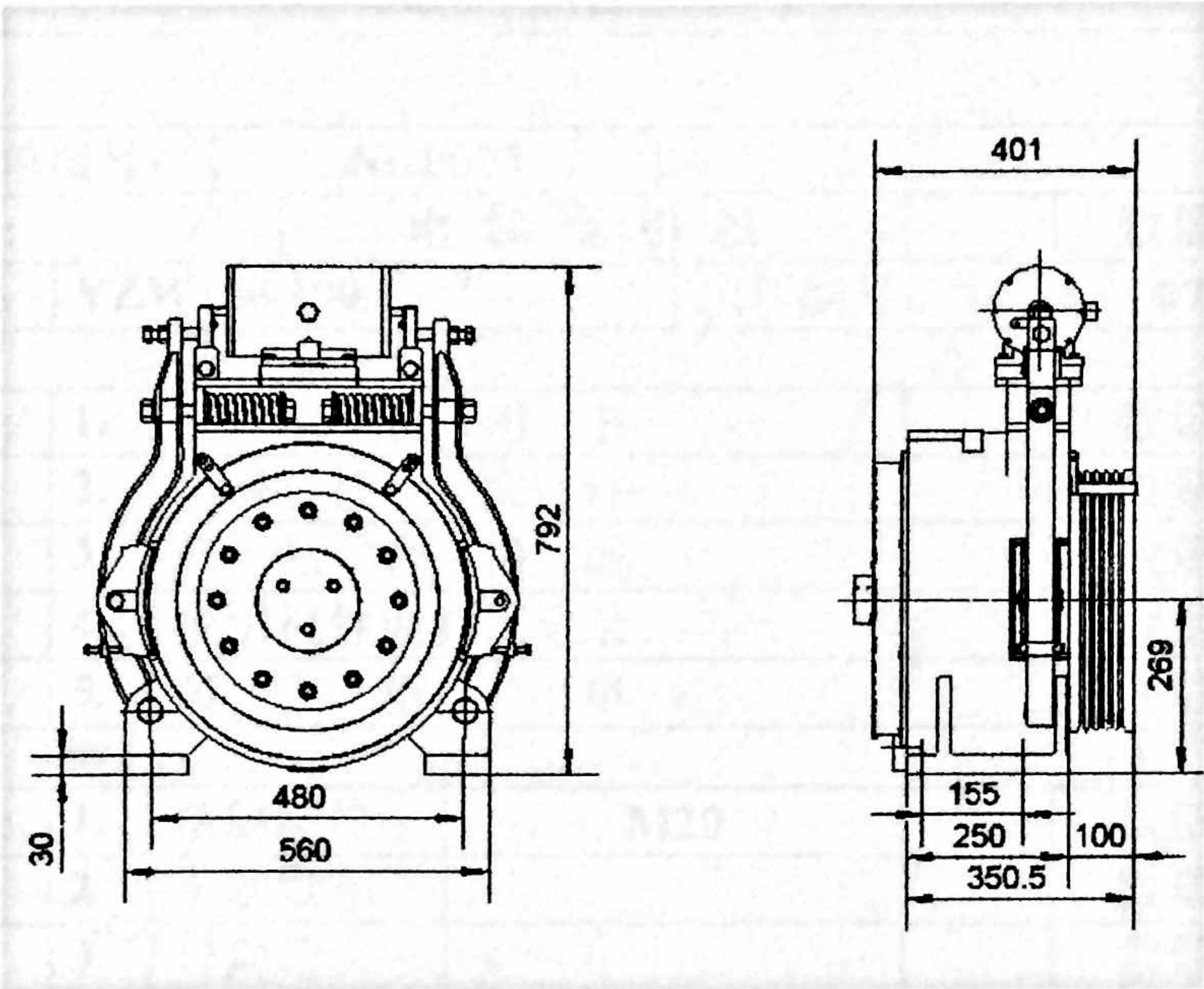
Type	Carrying capacity (kg)	Speed (m/s)	Rope-wheel diameter (mm)	Rope-slot (mm <sup>2</sup> )	Motor current (A)	Rotate speed (rpm)	Rated frequency (Hz)	Rated torque (Nm)	Rated power (kW)	Lift height (m)
YZW/N160100	1000	1.6	410	6×10 (pitch16)	22.5	150	25	682	10.7	≤ 100~120m
YZW/N175100		1.75			24.2	163	27.1		11.7	
YZW/N200100		2.0			27.5	186	31		13.3	
YZW/N250100		2.5			32.5	234	39		16.7	
YZW/N300100		3.0			44.3	281	46.8		20	
YZW/N400100		4.0	480	8×12 (pitch16)	63.5	318	53.1	800	26.7	
YZW/N160125	1250	1.6	410	8×10 (pitch16)	28.7	150	25	868	13.6	
YZW/N175125		1.75			31.0	163	27.1		14.8	
YZW/N200125		2.0			36.0	186	31		17.0	
YZW/N250125		2.5			41.3	234	39		21.2	
YZW/N300125		3.0			54.3	281	46.8		25.5	
YZW/N400125		4.0	480	8×12 (pitch16)	76.8	318	53.1	1020	34.0	
YZW/N160150	1500	1.6	410	10×10 (pitch16)	32.1	150	25	1023	16.0	
YZW/N175150		1.75			36.5	163	27.1		17.5	
YZW/N200150		2.0			41.0	186	31		20.0	
YZW/N250150		2.5			49.2	234	39		25.0	
YZW/N300150		3.0			65.5	281	46.8		30.0	
YZW/N400150		4.0	480	10×12 (pitch16)	89.3	318	53.1	1200	40.0	
YZN-160175	1750	1.6	410	10×10 (pitch16)	45.0	150	25	1220	19.0	
YZN-175175		1.75			49.0	163	27.1		21.0	
YZN-200175		2.0			54.0	186	31		23.8	
YZN-250175		2.5			68.0	234	39		30.0	
YZN-300175		3.0			76.3	281	46.8		36.0	
YZN-400175		4.0	480	10×12 (pitch16)	99.6	318	53.1	1370	45.6	



YZW160100

YZW100100

Machine room arrangement size



Brake

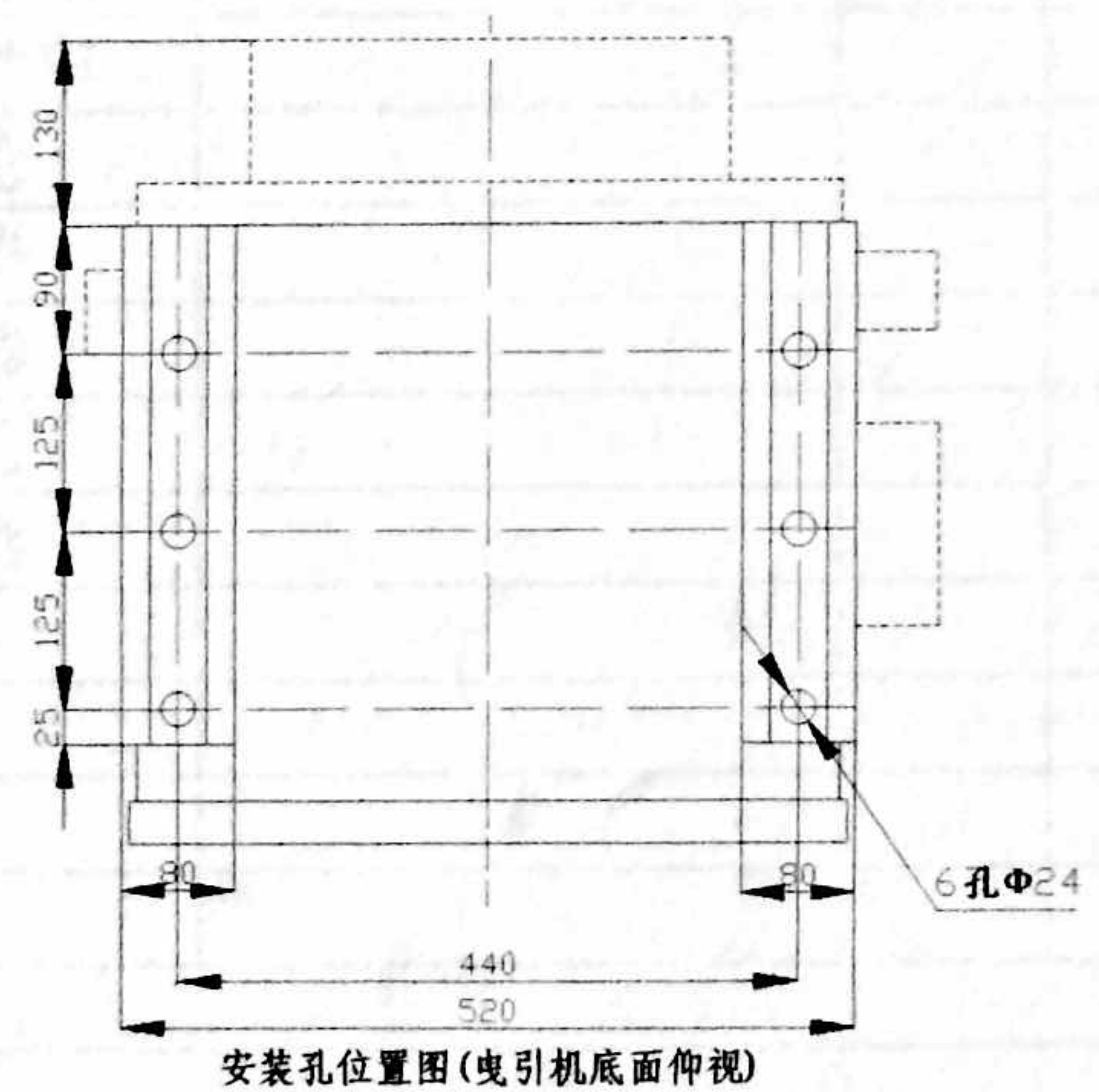
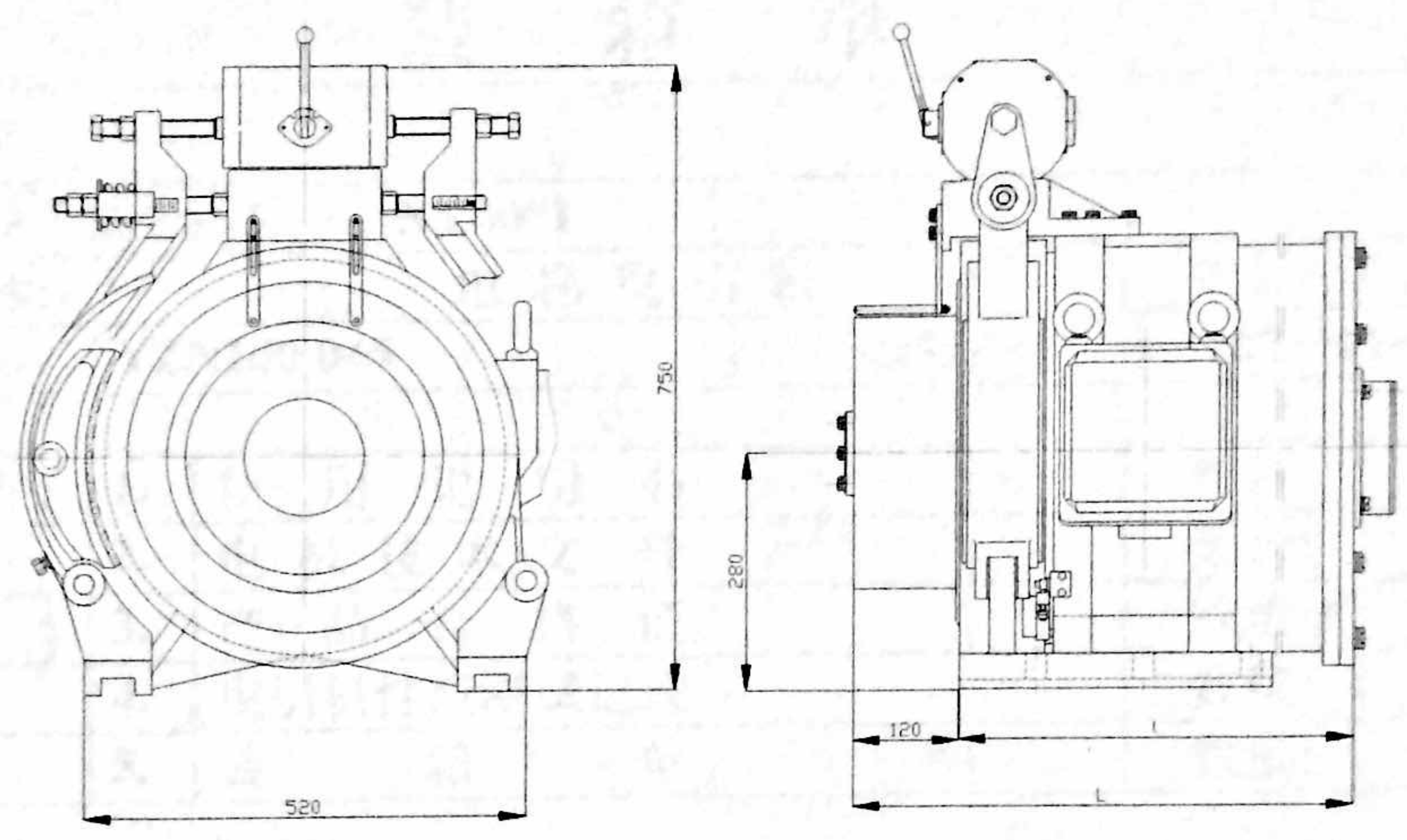
The brake system YZW/N series gearless PMS elevator traction machines use is tradition drum type:

PMS type	Brake type	Voltage	Current	Power
YZW100100	DCT90/1500T2	DC 110V	2×1.6A	330 W
YZW160100	DCT90/1500T2	DC110V	2×1.6A	330W
Remark: Rated voltage DC110 is option				

There is a rectifier in the brake connection board, when you connect the brake support power AC/DC110 or 220V it is no need to differentiate positive pole cathode any more.



**YZN160045**  
**YZN100045**  
**Machine room arrangement size**



安装孔位置图(曳引机底面仰视)

**Brake**

The brake system YZN series gearless PMS elevator traction machines use is tradition drum type:

PMS type	Brake type	Voltage	Current	Power
YZN100045	DCT182/1200T2	AC 220V	1.7 A	380W
YZN160045	DCT182/1200T2	AC 220V	2.0 A	440 W
Remark: Rated voltage AC220V is option				

There is a rectifier in the brake connection board, when you connect the brake support power AC/DC110 or 220V it is no need to differentiate positive pole cathode any more.



<b>Документ с машиной</b>					
<b>Сианьская</b> <b>буксированная</b> <b>техническая</b> <b>компания имени 'Ти Дэ'</b>					
<b>Комплектность</b>					
Номер указанного листа упаковки:		<b>№.0001</b>			
<b>Наименование товара:</b>		<b>Буксированная машина подъемника</b>		<b>Количество:</b>	<b>1</b>
<b>Стандарт:</b>	<b>YZN100 045</b>		<b>Номер выпуска:</b>	<b>07—01—0001</b>	
<b>Технический документ :</b>	<b>1.</b>	Потребительная инструкция		<b>Количество:</b>	<b>1</b>
	<b>2.</b>	Техническая документация электромашин		<b>Количество:</b>	<b>1</b>
	<b>3.</b>	Сертификат о качестве		<b>Количество:</b>	<b>1</b>
	<b>4.</b>	Протокол сертификационных испытаний		<b>Количество:</b>	<b>1</b>
	<b>5.</b>	Комплектность		<b>Количество:</b>	<b>1</b>
<b>Приложение:</b>	<b>1.</b>	Анкерный болт	<b>M20</b>	<b>Количество:</b>	<b>4</b>
	<b>2</b>	Тормозной ключ		<b>Количество:</b>	<b>1</b>
	<b>3</b>	Направляющий шкив		<b>Количество:</b>	
	<b>4</b>	Буферная установка		<b>Количество:</b>	
	<b>5.</b>	Ограничитель		<b>Количество:</b>	
	<b>6.</b>	Натяжной шкив		<b>Количество:</b>	
	<b>7.</b>	Буфер		<b>Количество:</b>	