TOHO

ELECTRIC CHAIN HOIST

(Capacity: 0.25~3T)

1P/110~240V/50HZ or 60HZ

OPERATING INSTRUCTIONS

WARNING

This hoist should not be installed, operated or maintained by any person who has not read all the contents of these general instructions. Failure to read and comply with these instructions or any one of the limitations noted herein can result in bodily injury and/or property damage.

1、Warning

a) Shall be sure the hoist with correct earth connection before applied to operation.
b) Before lifting a load, examine the load chain to ensure that there is no twist, kink, and no turn-over of bottom hook for multi-falls.
c) The hoist is only used for load within capacity, any application for over rated capacity is forbidden.
d) Ensure lift a load vertically, diagonally lift or tow a load is not allowed beyond 10degree.
e) While operating, any person is prohibited to stand or work underneath the load.
f) Do not lift any load with the load chain as slinging tackle.
g) Never apply any load to the tip of hook for lifting.
h) While lifting, do not operate the hoist for rapid up and down repetitively.
i) Don't run the hoist out of the limit position.
j) Never lift a load using 2 or more than 2 sets hoists simultaneously.
k) Don't dismantle and adjust the limit load device by users themselves.
l) Measuring the load by limit load device is forbidden.
m) The load chain should be properly lubricated with suitable oil or grease before applied to lifting purpose, and periodically lubrication is necessary in normal operation.
n) When lifting, the slings should be properly put into the hook throat with the safety latch properly closed.

2、Application

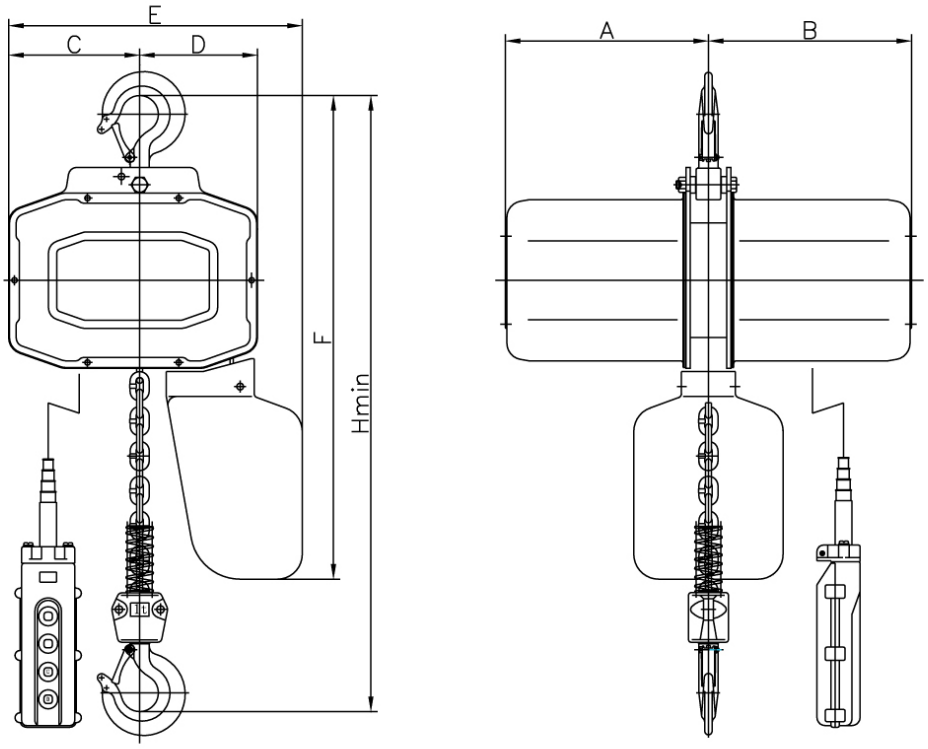
HH-B series electric chain hoist is our newly developed product based on Japanese and Germany technology with the features of compact structure, light weight, easily operation and nice appearance. The hoist is widely used for the lifting purpose which occur in factories, mines, ports, warehouses and etc, it can be used together with cranes as an integrate part of a overhead craning system, serving as an efficient equipment, our hoist promises a improved work condition and high efficiency.

3、Features

1) Safe and reliable
   a) Brake: adopting D.C. normal close brake, without asbestos. Once the motor stop, the brake can hold the load safely and timely.
   b) This hoist is equipped with electronic limit load device, which prevent chain being over tight.
   c) Friction clutch: which can make the motor idle running to avoid damage under overload and over tight revolving.
   d) The motor is equipped with heat protection device, which preventing the motor to be damaged under overheat.
   e) Top and bottom hooks are made of high tensile alloy steel with special heat treatment. It prevents the hook from breaking and being deformed gradually under a sudden extra-load.
   f) Load chain is carbonized with good wear property and long using life.
   g) Chain container serves as a storage bag, keeping the load chain clear of dirt and dust, and without chuck while falling down freely.

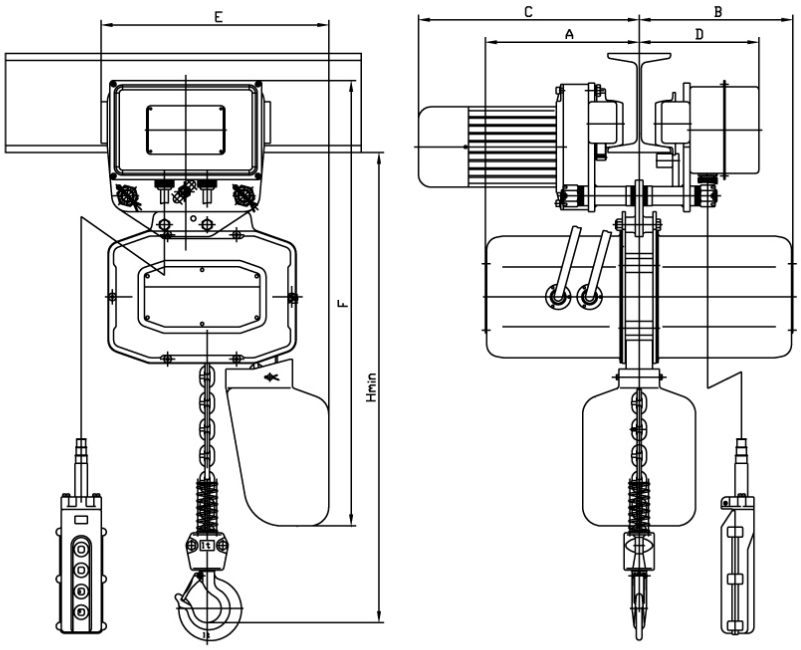
4、Dimension & Specification

4.1 ELECTRIC CHAIN HOIST



Model		HH-B025	HH-B05	HH-B10	HH-B20	HH-B30
Rated Load (ton)		0.25	0.5	1	2	3
Standard Lift (m)		3	3	3	3	3
Lifting Speed (m/min)	50HZ	8	7	6	3	2
	60HZ	9.6	8.4	7.2	3.6	2.4
Motor Power (kw)		0.45	0.8	1.2	1.2	1.2
Power Supply		1P/110~240V/50HZ or 60HZ				
INS Class		F				
Working level / %ED		M4 / 30%				
Dimension of Load chain		Φ5×15	Φ7.1×21			
Strands of Load chain		1	1	1	2	3
Test load (ton)		0.31	0.625	1.25	2.5	3.75
Cable Length(m)		2.5	2.5	2.5	2.5	2.5
Net Weight (kg)		28	55	60	65	70
Extra weight per meter of extra lift (kg)		0.55	1.1	1.1	2.2	3.3
Minimum headroom Hmin(mm)		430	520	550	630	710
Main dimensions (mm)	A	210	245	245	245	245
	B	210	245	245	245	245
	C	116	158	158	124	124
	D	104	142	142	176	176
	E	262	350	350	350	350
	F	500	600	600	650	660

4.2 ELECTRIC CHAIN HOIST WITH TROLLEY



Model		HH-BX025	HH-BX05	HH-BX10	HH-BX20	HH-BX30
Rated Load (ton)		0.25	0.5	1	2	3
Standard Lift (m)		3	3	3	3	3
Lifting Speed (m/min)	50HZ	8	7	6	3	2
	60HZ	9.6	8.4	7.2	3.6	2.4
Lifting Motor Power (kw)		0.45	0.8	1.2	1.2	1.2
Running Speed (m/min)	50HZ	20	20	20	20	15
	60HZ	24	24	24	24	18
Running Motor Power (kw)		0.2	0.2	0.2	0.3	0.3
track width（mm）		74~124	74~124	74~124	74~124	102~152
Power Supply		1P/110~240V/50HZ or 60HZ				
INS Class		F				
Working level / %ED		M4 / 30%				
Dimension of Load chain		φ5×15	φ7.1X 21			
Strands of Load chain		1	1	1	2	3
Test load (ton)		0.31	0.625	1.25	2.5	3.75
Cable Length(m)		2.5	2.5	2.5	2.5	2.5
Net Weight (kg)		62	90	95	100	138
Extra weight per meter of extra lift (kg)		0.55	1.1	1.1	2.2	3.3
Minimum headroom Hmin(mm)		500	520	550	640	720
Main dimensions (mm)	A	210	245	245	245	245
	B	210	245	245	245	245
	C	352	352	352	352	352
	D	190	195	200	200	200
	E	350	363	363	363	363
	F	650	710	710	760	800

5、Technical Specification:

1) Relative humidity: <85%
2) Ambient temperature: -25℃－40℃
3) Working class: M4
4) Level of Protection: IP54
5) Power: 1P/110~240V/50HZ or 60HZ
6) Chain size: Φ5×15/Φ7.1X 21
7) The hoist can not be used under an environmental conditions of flammable, explosive or corrosive air.

6、Working class and using life

The hoist shall be operated as per fixed working class to ensure safety and long using life. (table 3-1)

Table 3-1 M4

Load cond.	Explanation	Load spectrum factor	Daily operating time (h)	Total operating time (h)
1, Light load	Seldom lifting rated load, generally for light lifting	0.125	2-4	6400
2, Medium	Sometimes lift rated load, generally lift. Medium Load.	0.25	1-2	3200
3, Heavy	Often lift rated load, generally for heavy load lifting.	0.5	0.5-1	1600
4, Extra heavy	Frequently lifting rated load.	1.0	0.25-0.5	800

7、Installation instruction

1) Installation and test operating
   a) When HH-B series is applied to use, install the hoist to a support structure, switch on it as the nameplate indicated, and push the button to watch the running direction of load hook, if its moving follow the button direction, it means the wires are rightly connected to power supply, otherwise, the connection failure, please correct it by exchanging any two wires' connection.
   b) Before operating a new hoist for its first lifting, it should be operated without load for 15 minutes to ensure the running is ok, same procedure should be given to a hoist which has been out of usage for a long time.

2) Maintenance

Maintenance should be effected by personnel specially designated every year, and great attention paid to the below parts and components.

a) Load chain: with daily duty service, the chain should be always oiled or lubricated by grease, in the meantime, a periodically inspection for abrasion is needed. Refer to the illustration figure for the inspection, if any one of the phenomenon in the figure occurs, the chain must be replaced.

b) Brake device: when maintenance every three months, it should be cleaned to ensure it clear of dust and oil, also, the inspection should be given to the working space of brake device, if abrasion of brake disc more than the maximum working space (1mm), then the working space should be adjusted over again, and if abrasion of friction disc near to the aluminum core, the brake disc should be replace in time, otherwise, the brake device can be damaged.

c) Gearing: cleaned and grease lubricated (i.e.no.1) every year.

d) Bearing: cleaned and grease lubricated (i.e.no.1) every year.

e) Hooks: to be checked periodically for the deformation and abrasion measurement, if the wear or deformation measures up 10% of the standard sizes (ref to illustrated figure), please change the hooks.

f) Hooks: to be checked periodically for the deformation and abrasion measurement, if the wear or deformation measures up 10% of the standard sizes (ref to illustrated figure), please change the hooks

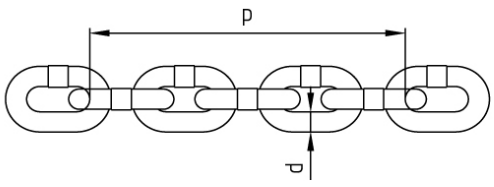
3)Repairing warning

Once the hoist damaged or can not be operated normally, shall consult with local supplier or the designated maintenance, users are not allowed to open or repair the hoist by themselves.

4)Illustration figure for chain inspection

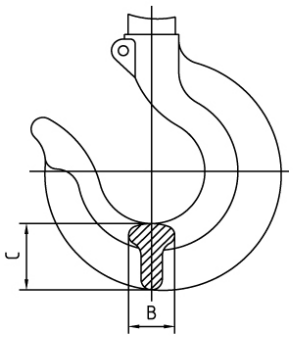
If chain is abraded over the limit value, which must be replaced with a new one.

Dia. of chain (d)	Wearing Limit value (d)	Measure links	standard value (p)	Wearing Limit value (p)
5mm	4.5	5	75.5	78
7.1mm	6.4mm	5	106mm	109.2mm



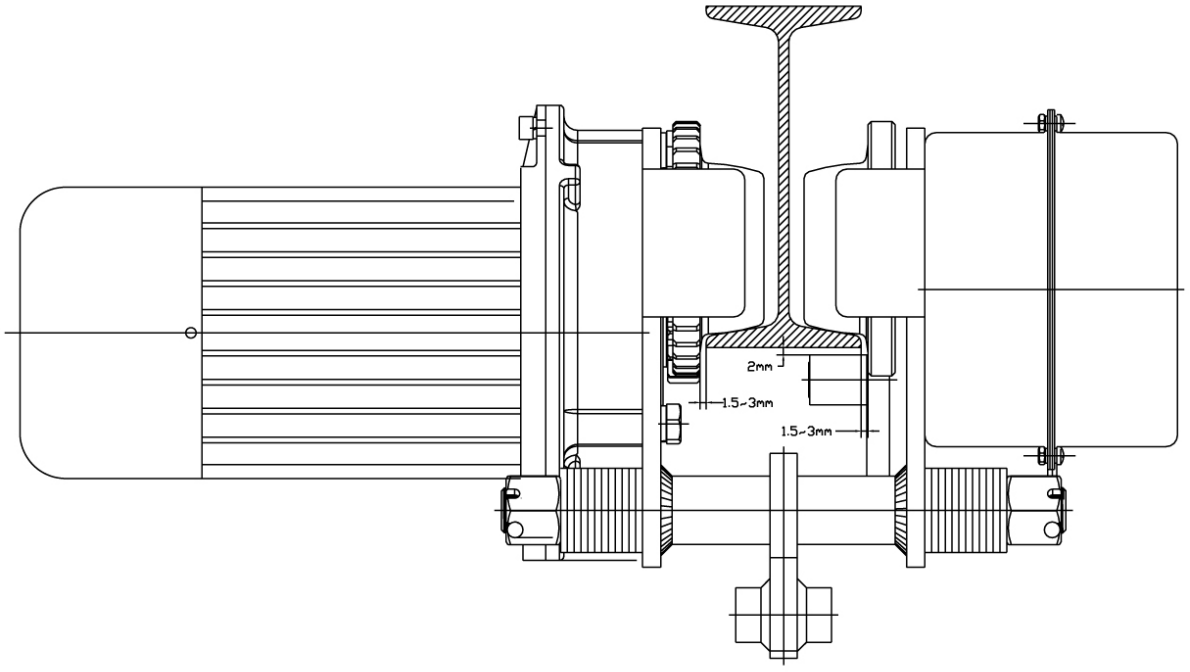
5) Illustration figure for hook inspection

If the size “b” and “c” is smaller than the 90% of the standard size, please replace with new one.



capacity (t)	B (mm)		C (mm)	
	Normal Size	Abnormal Size	Normal Size	Abnormal Size
0.25	17.5	15.7	23	20.7
0.5	19	17	26	23.4
1	19.5	17.5	27	24.3
2	22	19.8	32	28.8
3	24	21.6	35	31.5

6) Installation of trolley

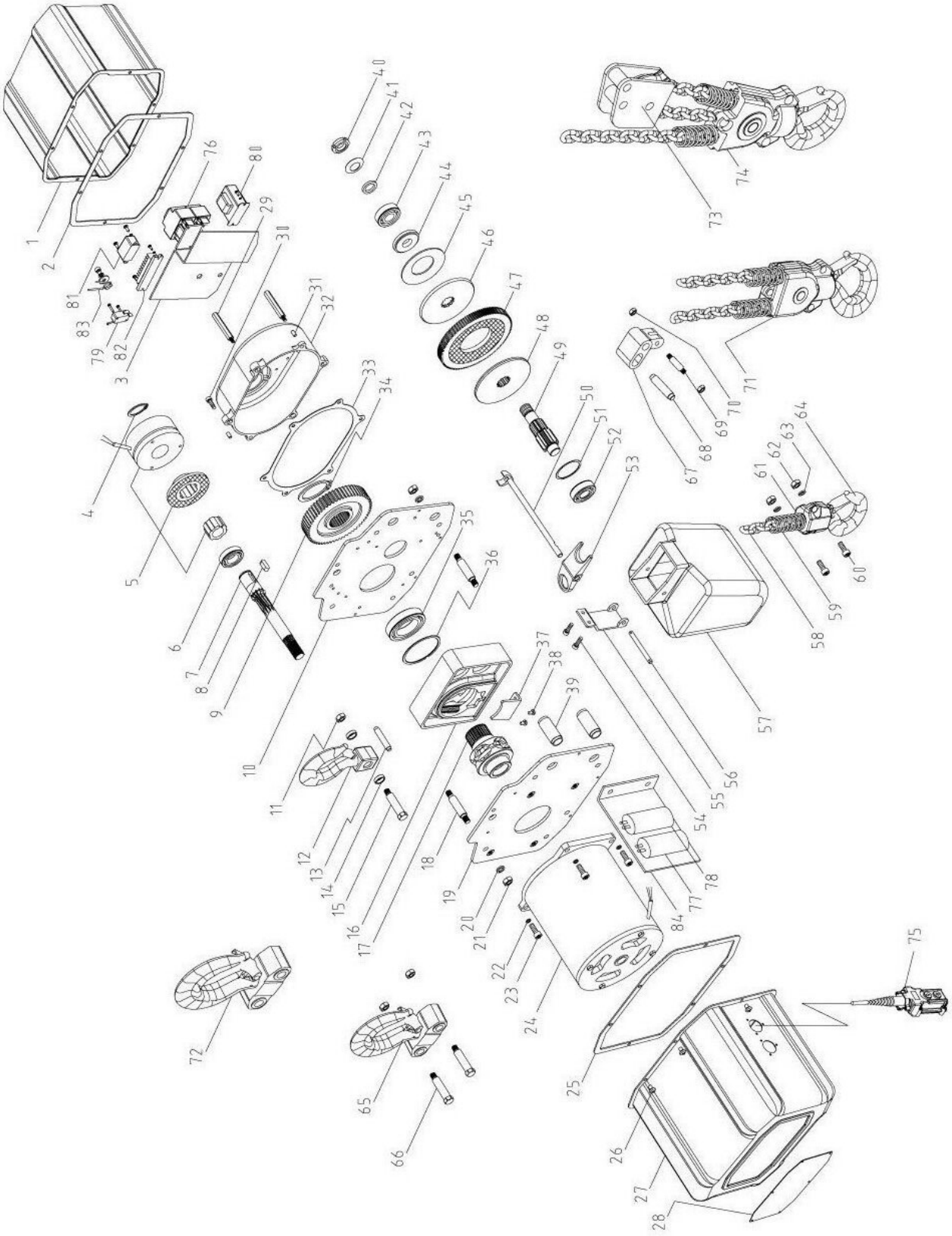


8、Malfunctions and settlements:

NO.	Malfunctions	Causes	Settlements
1	The hoist refuse to operate under switch on.	Wires unconnected or loose result power off	Check and fasten all the wire connection points.
		Electrical parts damaged	Replace the damaged part
2	Hoist refuse to operate, and the braking parts has wuwu bee noise.	Voltage is too low.	Operate under rated voltage.
3	After switch off, the load drop while braked.	Dust or oil on brake disc	Clean the disc
		Severe abrasion of disc	Replace the disc
4	Hoist still operate while the control button released.	The conductor damaged	Replace conductor
5	Chain run with strange noise.	The chain no lubricated Properly	Lubricate chain by oil or grease
		The chain or sprocket wheel worn	Change with new ones.
6	Leakage of electricity	The earth connection is not ok	Ensure good earth connection
		High humidity in the air	Improve the environment
		Dust on the electrical Parts	Keep the parts clear to dust

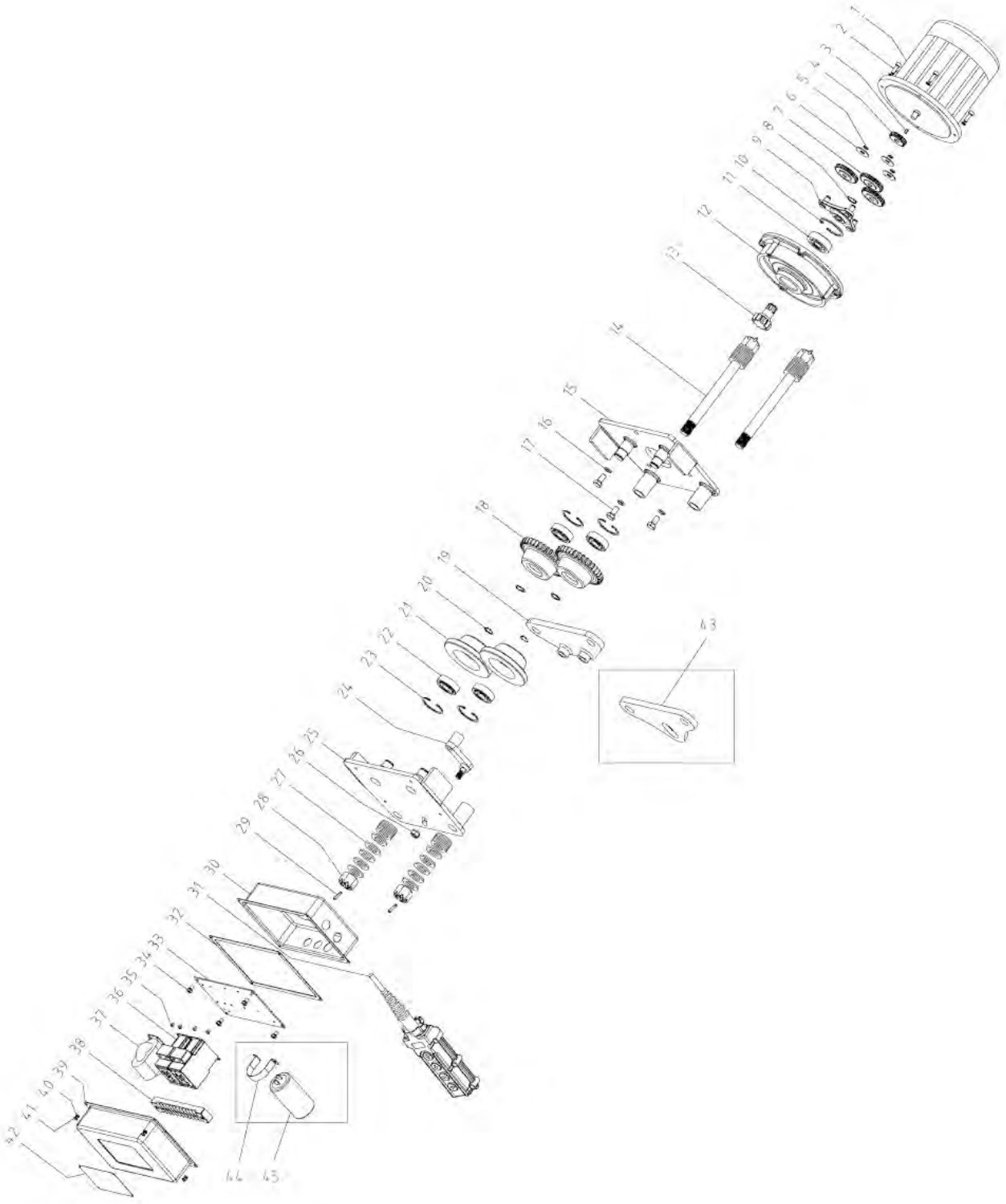
9、 Exploded drawing and parts list

9.1 ELECTRIC CHAIN HOIST



NO.	Part name	Quantity	NO.	Part name	Quantity
1	Cover A	1	43	Rolling bearing 6004Z	1
2	Motor cover packing	1	44	Spring set	1
3	Electric board A	1	45	Spring	1
4	Axle race 25	1	46	Friction disk pressing panel	1
5	Brake assembly	1	47	Big Gear A	1
6	Rolling bearing 6005Z	1	48	Limit device base	1
7	Pinion gear A	1	49	Pinion gear B	1
8	Flat key 8×7×20	1	50	Limiter rotating axle	1
9	Big gear B	1	51	Stop ring 47	1
10	Right side plate	1	52	Rolling bearing 6204ZN	1
11	Hex nut M10	10	53	Limiter baffle	1
12	Top hook	1	54	Screw M6×16	2
13	Hook holder stop lever	1	55	Chain container hanging plate	1
14	Hook axle washer	2	56	Connecting pole	1
15	Hook axle	1	57	Chain container	1
16	Chain container	1	58	Load chainφ7.1×21	1
17	Chain sprocket	1	59	Limit spring	2
18	Staying pole	4	60	Hex bolt M8×30	2
19	Left side plate	1	61	Bottom hook assembly	2
20	Spring washer 10	8	62	Hex nut M8	2
21	Hex nut M10	8	63	Spring washer 8	2
22	Spring washer 8	4	64	Bottom hook	1
23	Hex screw M8×20	4	65	Top hook assembly(2t)	1
24	Motor assembly	1	66	Hook axle (2t)	2
25	Motor cover packing	1	67	Chain suspension holder (2t)	1
26	Screw M6×8	12	68	Connecting pin(2t)	1
27	Cover B	1	69	Pin (2t)	1
28	Name plate	2	70	Hex nut M8(2t)	2
29	Rivet screw	2	71	Bottom hook assembly (2t)	1
30	Hex screw M6×20	4	72	Top hook assembly(3t)	1
31	Spring locating pin 6×16	2	73	Top pulley assembly (3t)	1
32	Gear case	1	74	Bottom hook assembly (3t)	1
33	Gear case space	1	75	Push button	1
34	Axle race 42	1	76	contactor	3
35	Rolling bearing 6009ZN	1	77	Run capacitor（30/80 μ F）	1
36	Stop ring 75	1	78	Start capacitor（170/600 μ F）	1
37	Load chain baffle	1	79	Limit switch	2
38	Screw M6×10	2	80	Transformer	1
39	Conduit	2	81	Rectifier	1
40	Nut M20×1.5	1	82	Amphenol connector	1
41	Stop washer 20	1	83	Torsional spring	1
42	Nut washer	1	84	Electric board B	1

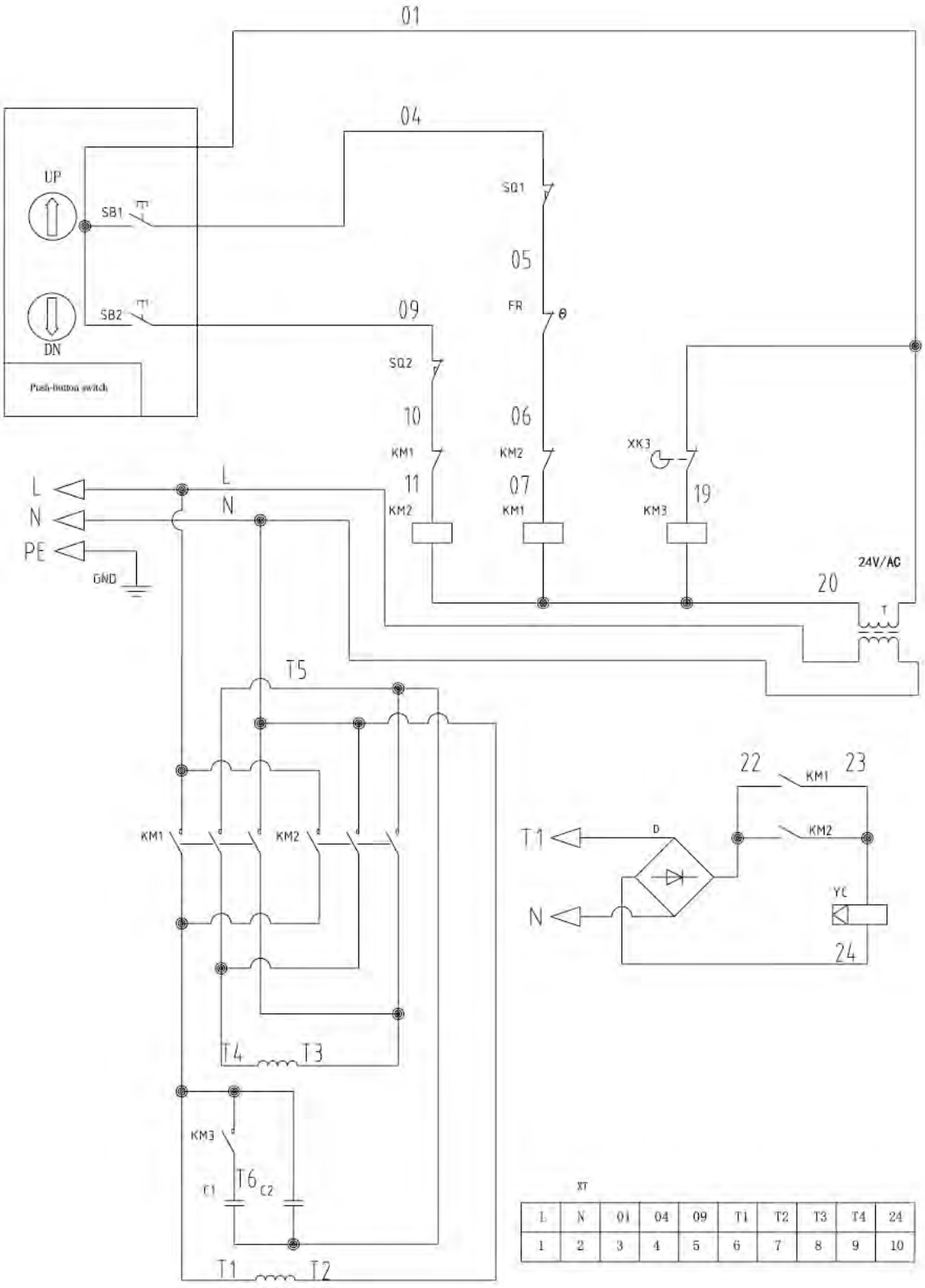
9.2 ELECTRIC TROLLEY



NO.	Part name	Quantity	NO.	Part name	Quantity
1	Motor	1	42	Name plate	1
2	Hex screw M6×25	4	43	Hanger plate B	1
3	Flat key 4×4×10	1	44	Fixing bracket	1
4	Sun wheel	1	45	Capacitor（30 μ F）	1
5	Axle race 10	3			
6	Flat washer	3			
7	Planet wheel	3			
8	Axle race 20	1			
9	Planet carrier	1			
10	Circlip for hole 52	1			
11	Rolling bearing 6304Z	1			
12	Gear box	1			
13	Gear shaft	1			
14	Hanging shaft	2			
15	Left panel assembly	1			
16	Spring washer 10	3			
17	Hex bolt M10*25	3			
18	Driving wheel	2			
19	Hanger plate A	1			
20	Axle race 20	4			
21	Passive wheel	2			
22	Rolling bearing 6204Z	4			
23	Circlip for hole 47	4			
24	Balance assembly	1			
25	Right panel assembly	1			
26	Nut M10	1			
27	Plat washer	48			
28	Slotted hex nut M20	8			
29	Cotter pin 4*40	4			
30	Electric control box	1			
31	Push button	1			
32	Seal	1			
33	Electrical installation board	1			
34	Hex screw M6×10	4			
35	Cross-recess screw M4*12	12			
36	Contactor	2			
37	transformer	1			
38	Terminal block	1			
39	Electric box cover	1			
40	Nut M4	4			
41	Cross-recess screw M4*10	4			

10、ELECTRICAL DRAWING

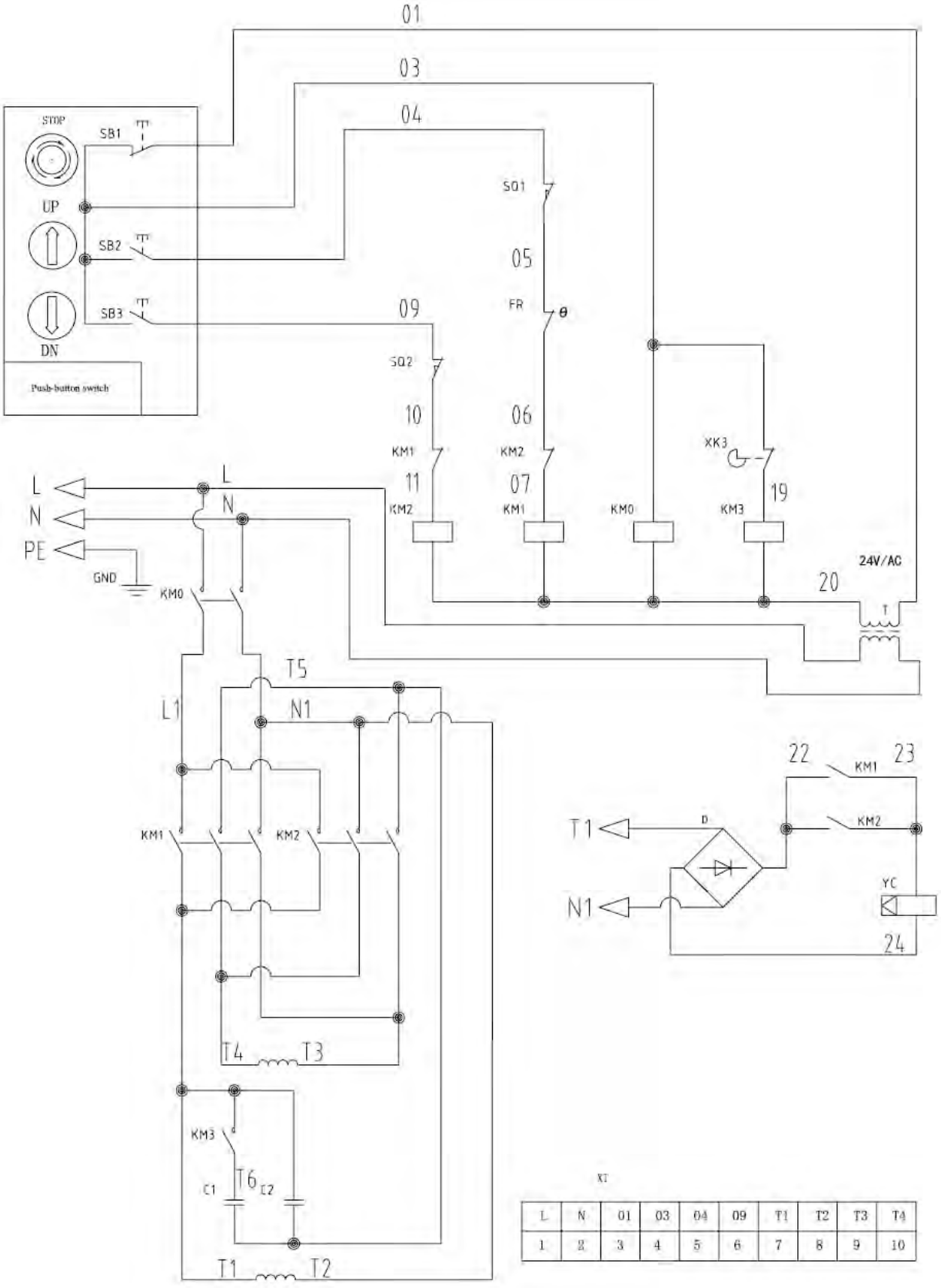
10.1 Electric chain hoist（Up + Down）



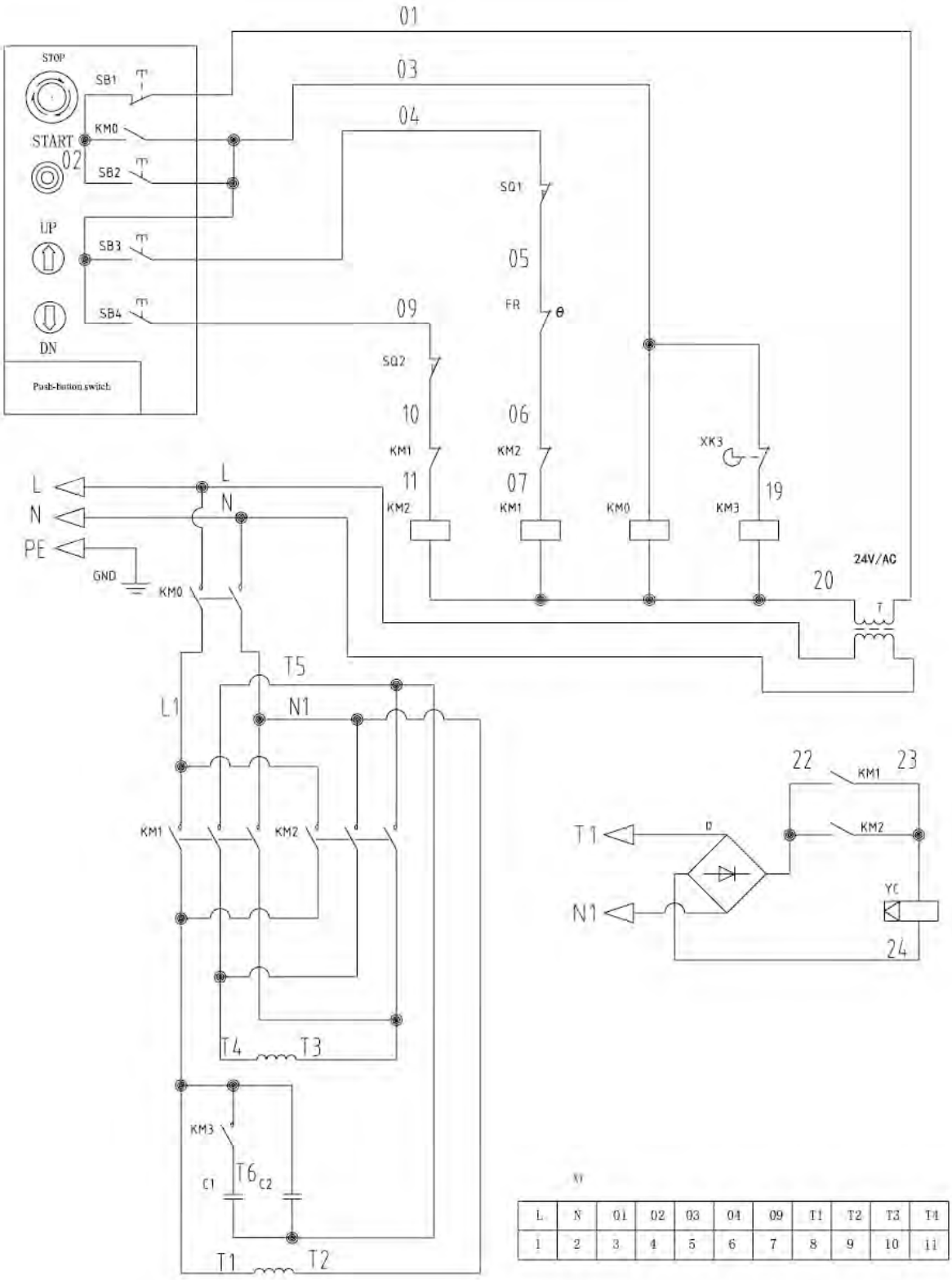
XT

L	N	01	04	09	T1	T2	T3	T4	24
1	2	3	4	5	6	7	8	9	10

10.2 Electric chain hoist（Stop + Up + Down）

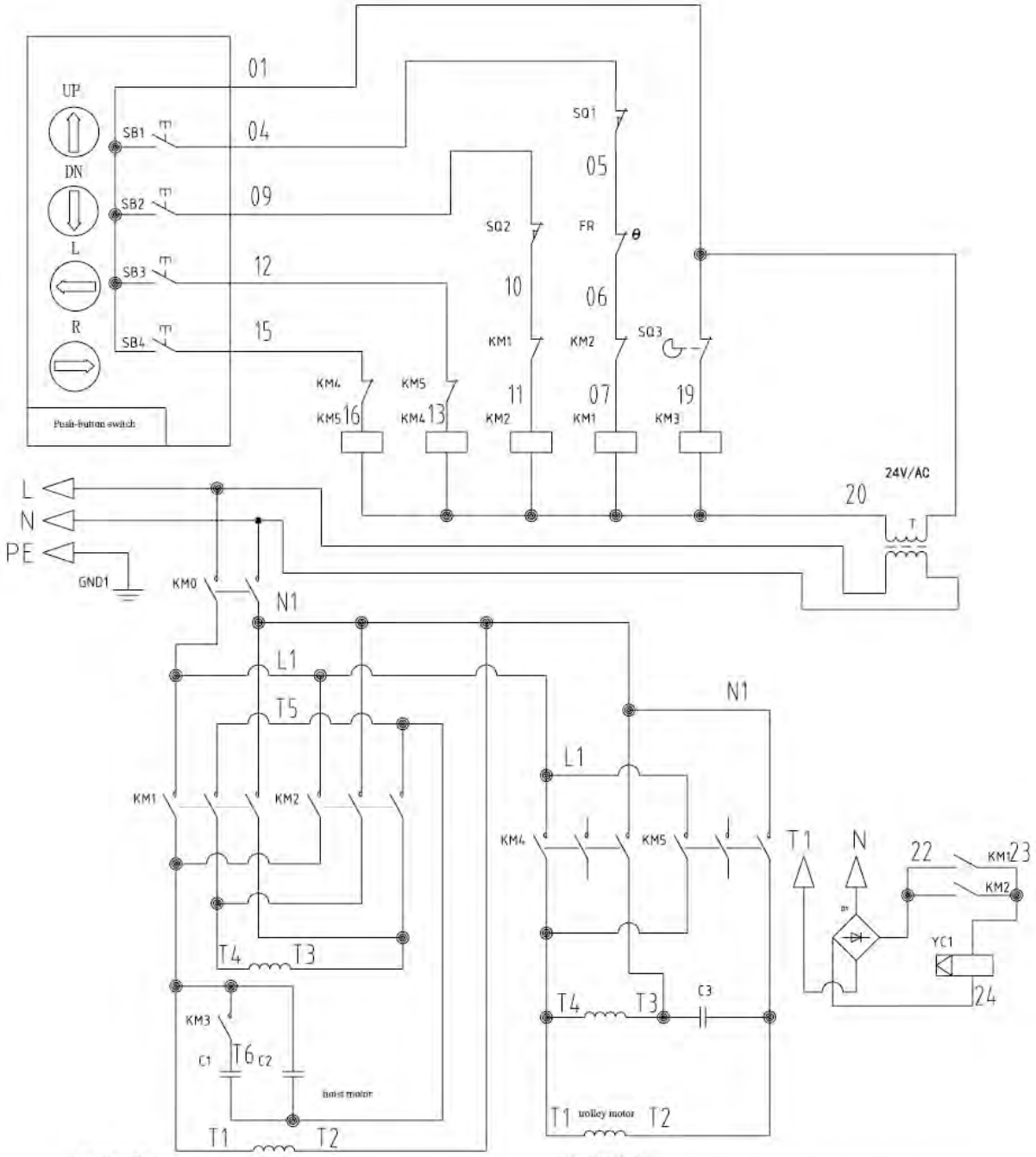


10.3 Electric chain hoist（Stop + Start + Up + Down）



L	N	01	02	03	04	09	T1	T2	T3	T4
1	2	3	4	5	6	7	8	9	10	11

10.4 Electric chain hoist with trolley（Up + Down + Left + Right）



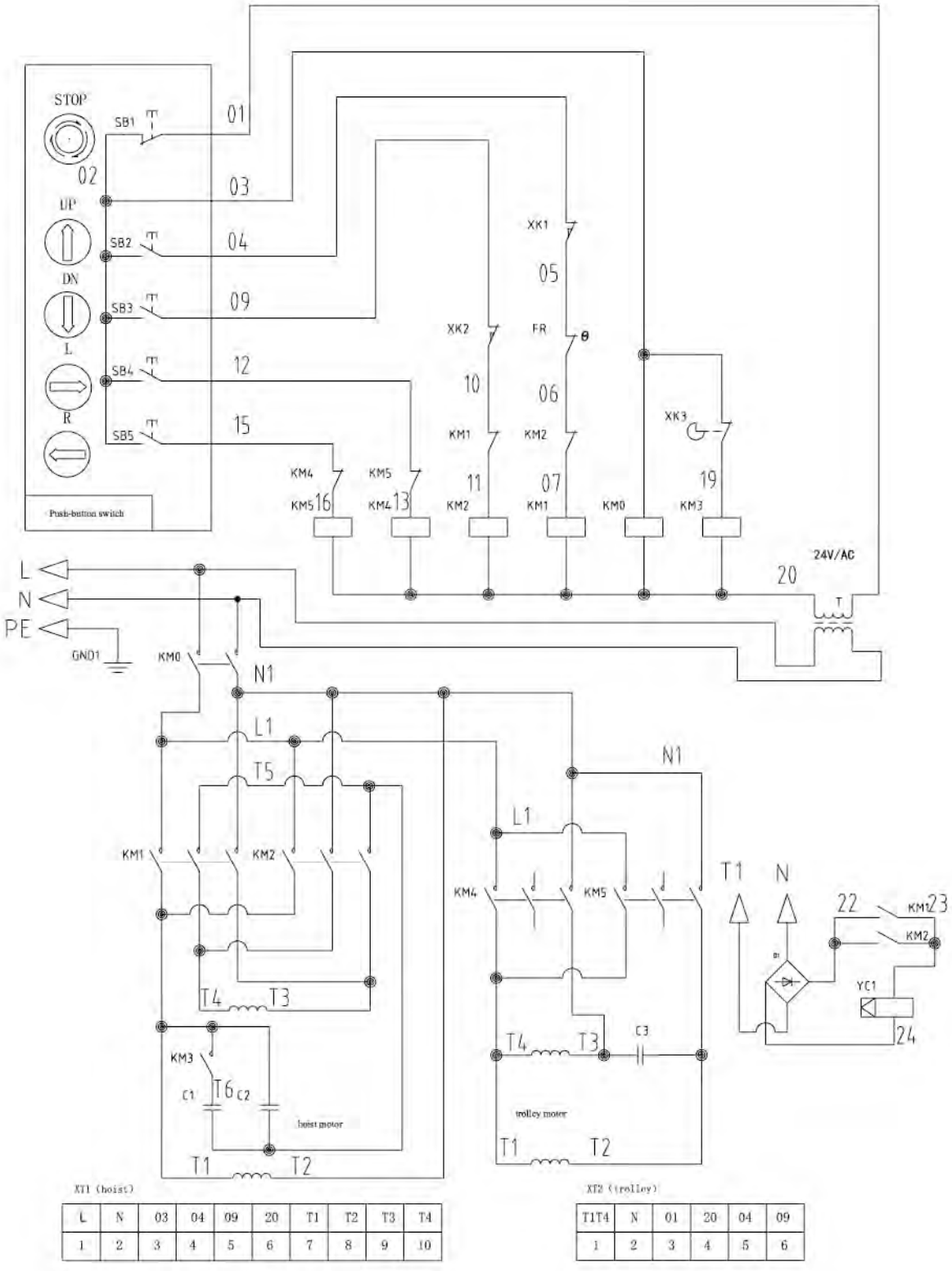
XT1 (hoist)

L	N		04	09	20	T1	T2	T3	T4
1	2	3	4	5	6	7	8	9	10

XT2 (trolley)

L	N		T1T4	T2	T3	01	04	09	20
1	2	3	4	5	6	7	8	9	10

10.5 Electric chain hoist with trolley（Stop + Up + Down + Left + Right）



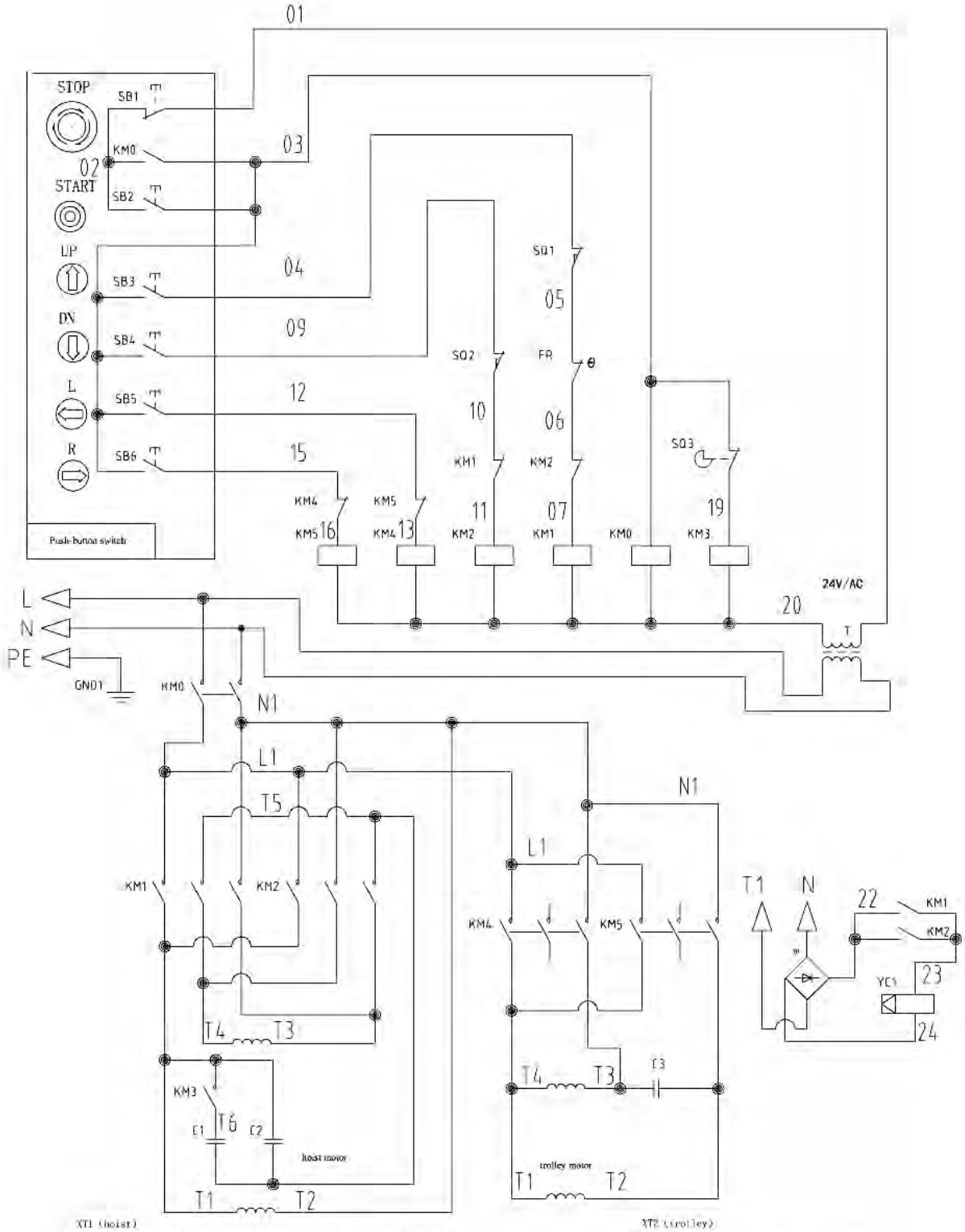
XT1 (hoist)

L	N	03	04	09	20	T1	T2	T3	T4
1	2	3	4	5	6	7	8	9	10

XT2 (trolley)

T1T4	N	01	20	04	09
1	2	3	4	5	6

10.6 Electric chain hoist with trolley（Stop + Start + Up + Down + Left + Right）



XT1 (hoist)

L	N		04	09	20	T1	T2	T3	T4
1	2	3	4	5	6	7	8	9	10

XT2 (trolley)

01	02	03	20	04	09
1	2	3	4	5	6