CODEMA
Cranes & Components

Operating and Maintenance Book

Electric chain hoist



CAUTION - IMPORTANT

Installers, operators, and maintenance engineers are required to read thoroughly this manual book before use and strictly follow. Please keep this manual book to use the hoist safely and maintain them in the future.

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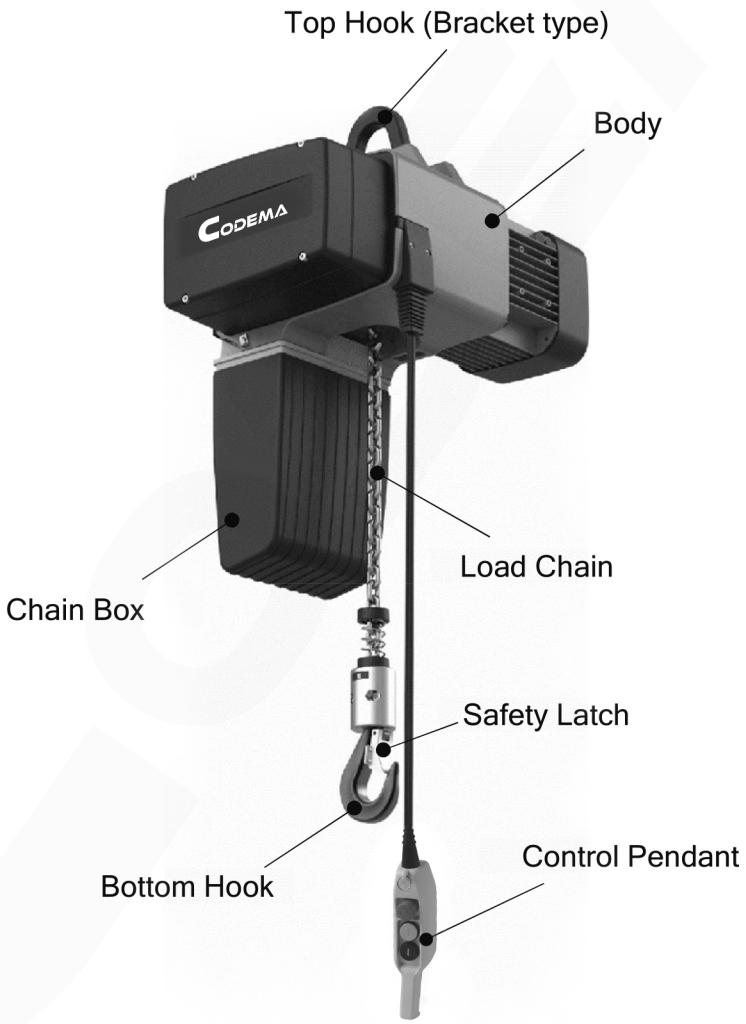
7 Circuit Diagram 14

1 General Information

1.1 Electric Chain Hoist

Electric chain hoists are made of the best selected materials and the best production facilities by our professional skilled engineers under strict quality control. All of the hoists are tested to assure absolutely safety and desirable performance.

1.2 Name of each part



1.3 Disclaimer

This operating and maintenance book must be read thoroughly and carefully before installing and operating.

The company does not assume any responsibility for the damage caused by the following reasons:

- Natural disaster such as fire, flood, thunderbolt, earthquake
- Non-compliance with the operating instructions
- Exceeding the product specifications
- Using by untrained operators
- Faulty of the attachment which are not part of the product
- Modification without the manufacturer's approval

* Wearing parts are not within scope of the responsibility.

1.4 Spare Parts Requirement

Using the ungenuine or unauthorize spare parts could cause the failure of the entire system and result in unsafe use and life damage. Any damage caused by using the ungenuine or unauthorize spare parts is not the responsibility of the manufacturers, distributors, and agents.

1.5 CODEMA Electric Chain Hoists

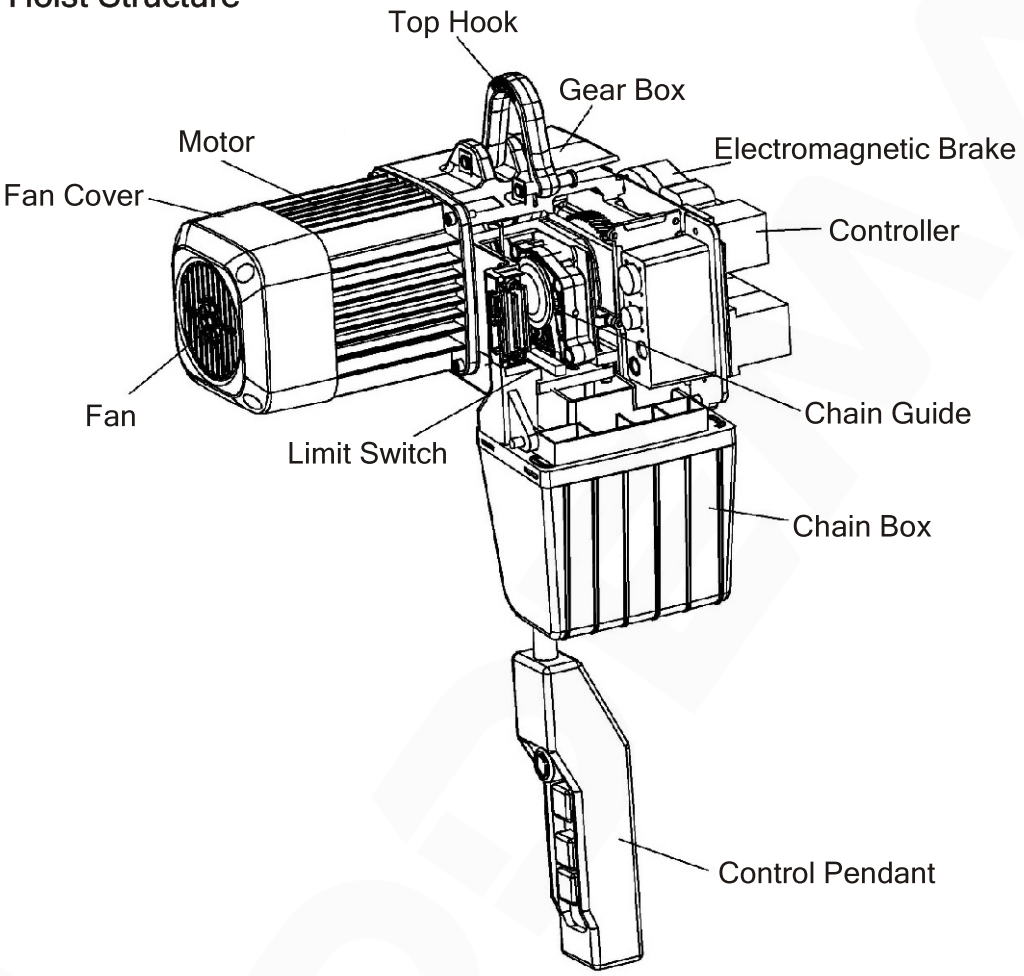
CODEMA offers reliable electric chain hoists designed for safe and efficient lifting and handling of loads in industrial, commercial, and workshop applications.

CODEMA electric chain hoists are available in different lifting capacities and configurations to meet a wide range of material-handling requirements. Depending on the model, they can feature three-phase power supply, low-voltage controls, and lifting heights suitable for various lifting applications.

The **CODEMA HOIST** includes electric chain hoists with capacities such as **250 kg, 500 kg, 1,000 kg, 2,000 kg and 3,000 kg** providing a practical solution for professional lifting operations.

2 Technical Information

2.1 Hoist Structure



2.2 Standard Specification

Hoist Duty Factor	: Dual speed – 60 %ED
	(High speed / Low speed :40 / 20 %ED)
Hoist Duty Classification	: FEM 2M / ISO M5
Motor Insulation Class	: Class F
Noise Level	: 70 dB or less (at 1 m away from the hoist)
Protection	: **Hoist - IP65, Pendant Giovenzana - IP65**
Power Supply	: **3P 220V 60Hz**
Operating Voltage	: 24VAC

2.3 Storage Environment

The hoist and its accessories should be stored in the place with the following requirements:

- Dust-free and Dry (Relative humidity not over 60%)
- Temperature: -40°C to +70°C
- Avoid heat radiation
- Avoid mechanical vibration
- Avoid rapid temperature fluctuations (water from condensation)
- All metal parts coated with machine oil (rust prevention)

2.4 Operating Environment

The hoist should be operated in the place with the following requirements:

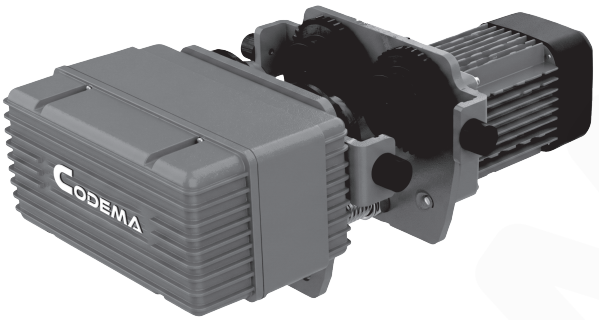
- Relative humidity not over 80%
- Temperature: -40°C to +40°C
- Altitude not over 1,000 meters
- Indoor (Rain protection is needed for outdoor operation)

3.Technical Data

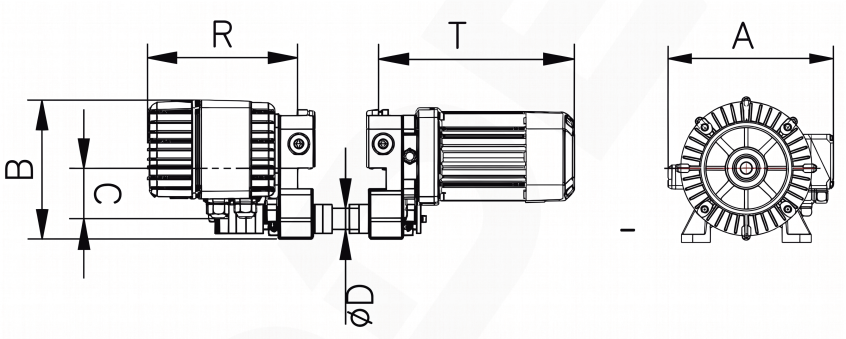
3.1 Technical Data Electric Hoist and Electric Trolley

	LOAD (KG)	SPEED	LIFTING SPEED	MOTOR POWER	CHAIN DIAMETER	LIFTING HEIGTH	FALL	VOLTAGE	CONTROL VOLTAGE	FEM / ISO	PROTECTION	NET WEIGHT
CM0.25-01M	250 KG	2 SPEED	9.6 / 2.4	0.96 / 0.24 KW	5.15 MM	6 m	1 / 1	220V	24 V	2M / M5	IP65	29 KG
CM0.5-01M	500 KG	2 SPEED	9.6 / 2.4	0.96 / 0.24 KW	5.15 MM	6 m	1 / 1	220V	24 V	2M / M5	IP65	37 KG
CM0.5-02M	500 KG	2 SPEED	4.8 / 1.2	0.45 / 0.12 KW	5.00 MM	6 m	2 / 1	220V	24 V	2M / M5	IP65	42 KG
CM0.1-02M	1,000 KG	2 SPEED	4.8 / 1.2	0.96 / 0.24 KW	5.00 MM	6 m	1 / 2	220V	24 V	2M / M5	IP65	52 KG
CM0.2-02M	2,000 KG	2 SPEED	4.8 / 1.2	2.16 / 0.54 KW	7.1 MM	6 m	2 / 1	220V	24 V	2M / M5	IP65	72 KG
CM03-02MET	3,000 KG	2 SPEED	4.8 / 1.2	3.24 / 0.84 KW	10.00 MM	6 m	2 / 1	220V	24 V	2M / M5	IP65	110 KG
CM03-02MET	3,000 KG	2 SPEED	4.8 / 1.2	4.5 / 1.13 KW	10.30 MM	6 m	2 / 1	220V	24 V	2M / M5	IP65	176 KG
CM05-02MET	5,000 KG	2 SPEED	4.8 / 1.2	4.8 / 1.2 KW	11.20 MM	6 m	2 / 1	220V	24 V	2M / M5	IP65	172 KG

UROPEAN ELECTRIC ELECTRIC TROLLEY



Technical Parameters



MODEL	LOAD (KG)	LIFTING SPEED	MOTOR POWER	NIET WEIGHT
ET-0.25	250 KG	14.4 m/min	0.4 kW	15 KG
ET-05	500 KG	14.4 m/min	0.4 kW	20 KG
ET-01	1,000 KG	14.4 m/min	0.55 kW	28 KG
ET-02	2,000 KG	14.4 m/min	0.66 kW	35 KG
ET-03	3,000 KG	14.4 m/min	0.75 kW	55 KG
ET-05	5,000 KG	14.4 m/min	1.1 kW	76 KG

3.2 Installation and Test running

3.2.1 Hanging the electric chain hoist in the working position

3.2.2 For the hoist which has more than one fall of load chain, Examine the load chain to ensure that there are no twists. The twists can cause by the accidentally turnover of the bottom hook.





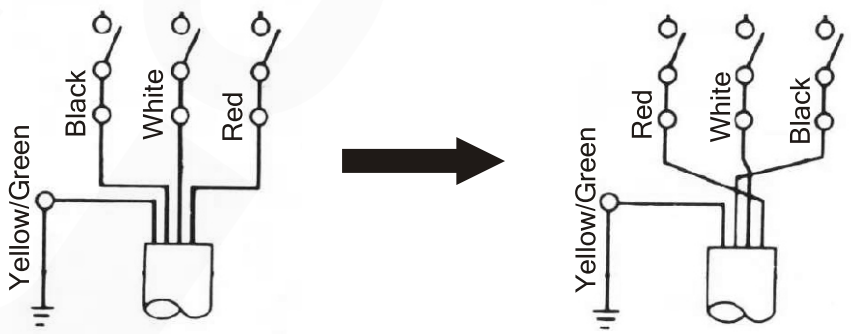
Proper Chain



Twisted Chain

3.2.3 Connect the power cord of the hoist to power source. Black, white, and red of the hoist's cord connect to R, S, and T phase of power source. Yellow/green is for earth cord.

3.2.4 Test the phase sequence; First, Loosen the red emergency button on the control pendant. Press the up and down on control pendant and determine the direction of the hoist operation. If the bottom hook moves up (Hoisting) when you push up button – same direction, the connection is correct. But, if the bottom hook moves down (Lowering) when you push up button – opposite direction, you have to interchange the position of two wires (ex. Black and Red) of the power cord as illustrated in the picture below.



3.2.5 Test the limit switch; Press the up and down buttons of the control pendant that raises the bottom hook to the highest position and lowers the bottom hook to the lowest position, to check the upper and lower limit switches are working properly.

3.2.6 Test the emergency switch; Press the red emergency switch on the control pendant. After that, press the up and down buttons and the hoist must have no action. On the other hand, loosen the emergency switch. After that, press the up and down buttons and the hoist must work properly.

4 Operation Process

4.1 How to use safely

4.1.1 DO NOT lift the load over person and do not allow any person to stay or enter the area where the load moves.

4.1.2 DO NOT operate the hoist to lift, or transport people and do not let the people stay on the lifted load.

4.1.3 DO NOT lift the load exceed the rated load of the hoist and the rated load of the hanging or supporting structure.

4.1.4 DO NOT lift the load at angle. Lift load vertically only.



4.1.5 DO NOT lift the load while the load chain is twisted.

4.1.6 DO NOT abuse the limit switch mechanism by frequent over-hoisting and over-lowering.

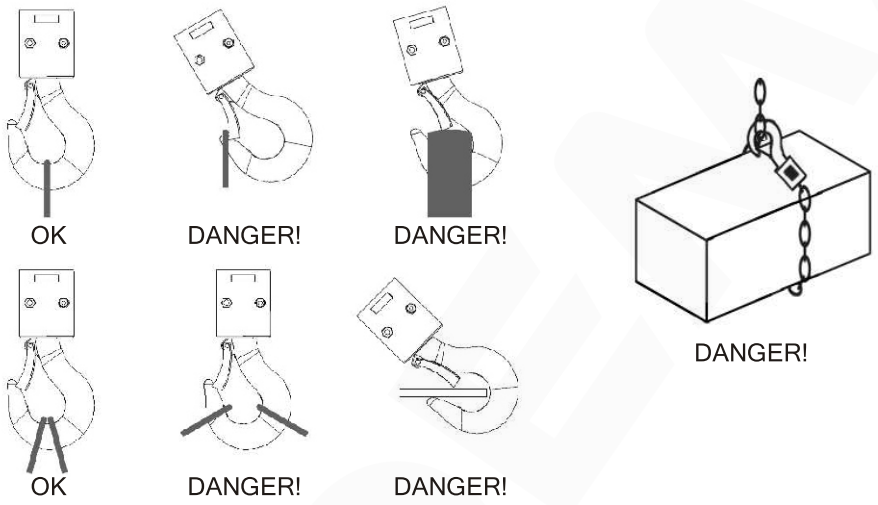
4.1.7 Press the buttons on the control pendant all the way down to ensure the contacts are completely contacted.

4.1.8 DO NOT operate the hoist while the load is swinging and shock loading. For example, do not drop the load from the truck while hoisting the load. The swinging load and shock load may make the load double in a brief time and make the mechanical wear to the hoist. So, the hoist's lifetime will be shortened.

4.1.9 Avoid jogging – the switching of the hoist's motion from on to off quickly. Jogging will increase the electrical wear significantly and the hoist's lifetime will be shortened too.

4.1.10 Lift the load at the proper point of the bottom hook and always close the safety latch properly before operating.

- DO NOT lift load at the tip of the bottom hook.
- DO NOT lift load when the angle of sling at the hook is too wide.
- DO NOT lift load too large that the safety latch cannot close properly.
- DO NOT bind the load with the load chain directly.



4.1.11 DO NOT operate the hoist if the hoist has abnormal noise.

4.1.12 DO NOT operate the hoist if the hoist moves in the direction which opposites to the indication on the push button of control pendant.

4.1.13 DO NOT operate the hoist if the hoist moves in the direction which opposites to the indication on the push button of control pendant.

5 Maintenance Process

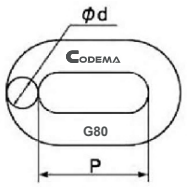
5.1 Inspection and Maintenance Schedule

Check List	After Installation	Before each Operation	Annual Inspection
1 Check the circuit breaker and wire - The voltage is correct. - The circuit breaker operates normally. - The wire is not damaged.	X		X
2 Check the control pendant - The emergency button operates normally. - The load moves in the same direction as the indicator of the control pendant.	X	X	X
3 Check the control cord - The control cod is not damaged	X	X	X
4 Check the load chain lubrication - The lubrication is not too dry.	X	X	X
5 Check the load chain defect - The chain is not damaged, deformed, cracked, worn out, or elongated.			X
6 Check the chain box - The chain box is not damaged, deformed, cracked, or missing.	X	X	X
7 Check the limit switches - The up and down limit switches operate normally.	X	X	X
8 Check the supporting structure - The structure has no crack and deformation.	X		X
9 Adjust the friction clutch	Every 10 years		
10 Check the brake operation - The brake works normally, has no slip.	X	X	X
11 Check the brake wear - The thick of brake disc is not too thin.	Every 5 years		
12 Check the fasteners - The bolts, nuts, and lock pins are not missing and well tightened.	X		X

Check List	After Installation	Before each Operation	Annual Inspection
13 Check the bottom hook - The hook is not damaged, deformed, cracked, or worn out. - The safety latch is not damaged, deformed, or missing - The bearing is smooth.	X	X	X
14 Check the gear box - The oil inside the gear box does not leak out.	X		X
15 Replace oil inside the gear box	Every 10 years		

5.2 Load Chain Inspection

If the dimension d or P of the load chain exceeds the limit or the chain is worn out, change the entire length load chain immediately. Welding the load chain is absolutely prohibited.



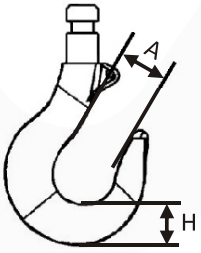
Chain size	d (mm)		P (mm)	
	Std.	Min.	Std.	Max.
5.0 mm	5.0	4.5	15.0	15.4
7.1 mm	7.1	6.4	21.0	21.6
10.0mm	10.0	9.9	30.2	30.4
11.2mm	11.2	11	31.2	31.4
11.3mm	11.3	11.1	30.8	31.1

*** Replaced chain must be surface hardened according to manufacturer standard.



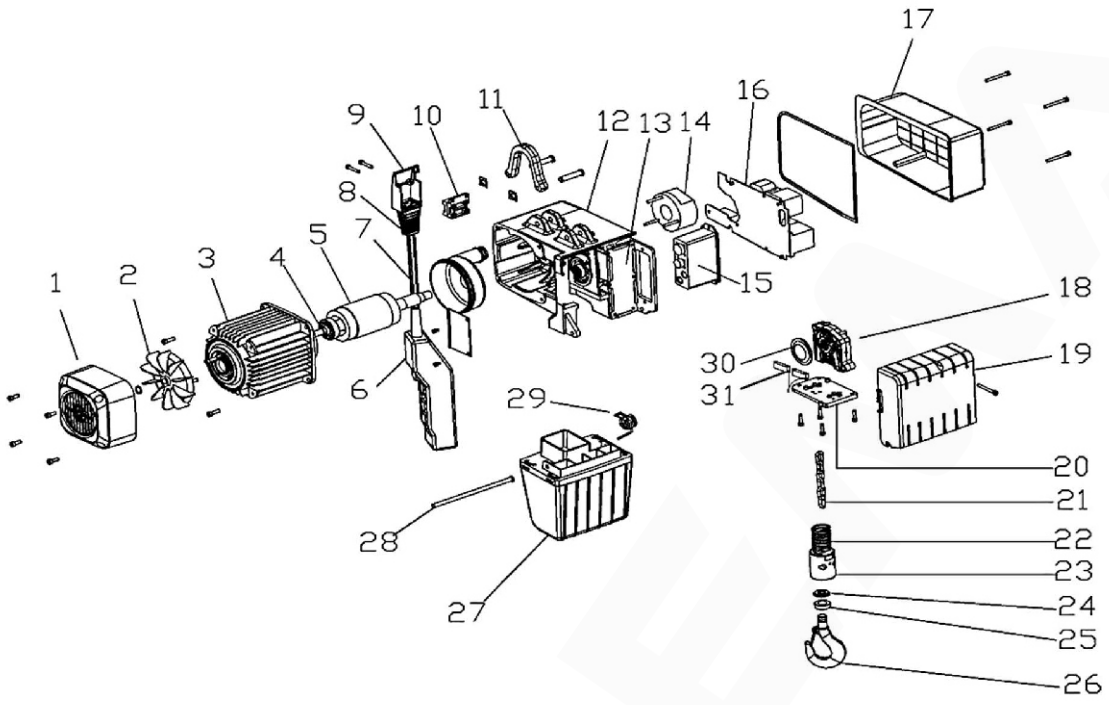
5.3 Bottom Hook Inspection

If the dimension A or H of the bottom hook exceeds the limit, change the bottom hook immediately.



Hook size	A (mm)		H (mm)	
	Std.	Max.	Std.	Min.
125 / 250 / 500 kg	27.0	29.7	25.0	23.8
1,000 kg	35.0	38.5	30.0	28.5
2,000 kg	51.0	56.1	35.0	33.3
3,000kg	57.0	62.7	40	39.5
5,000kg	50.0	55	58	57

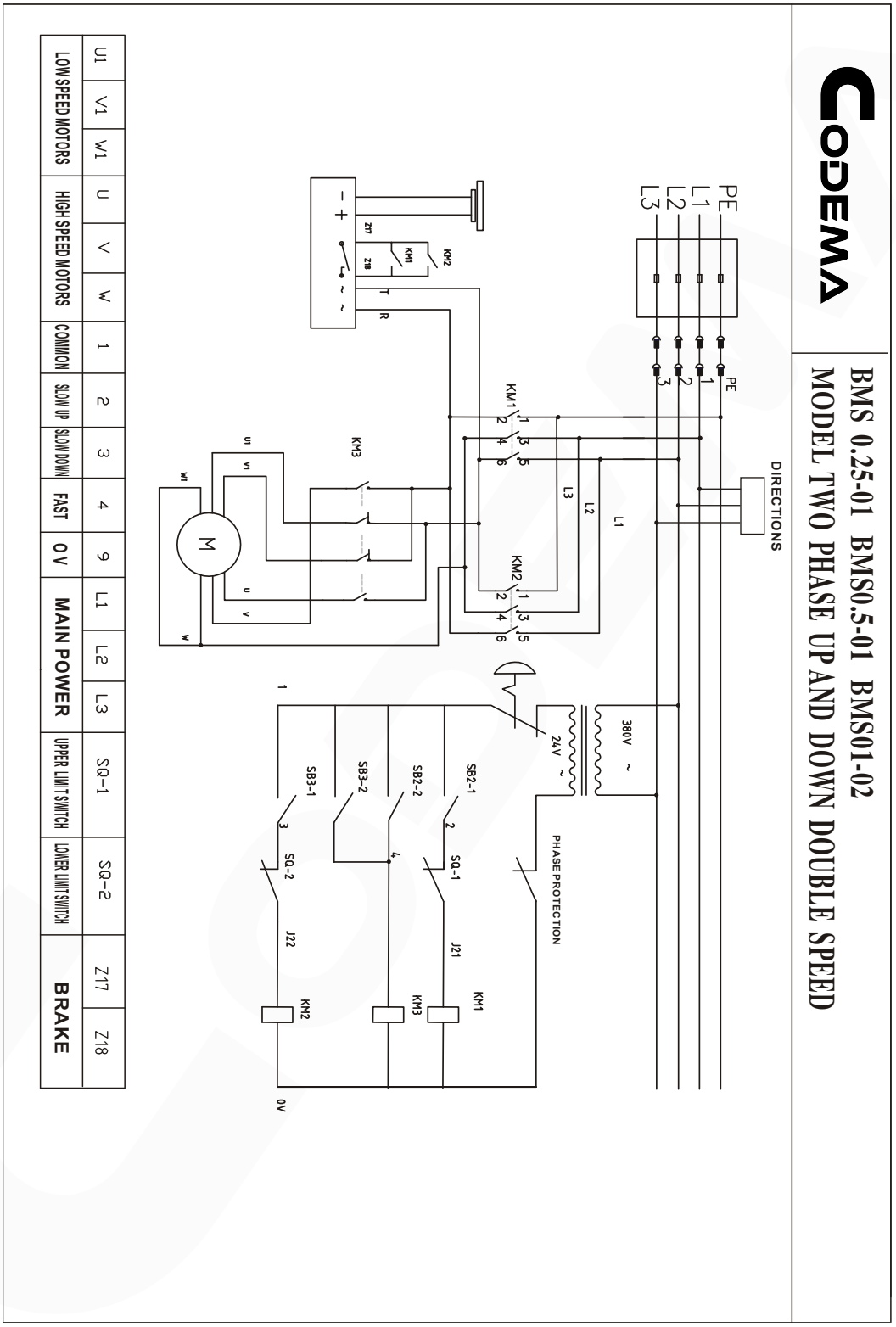
6 Spare parts



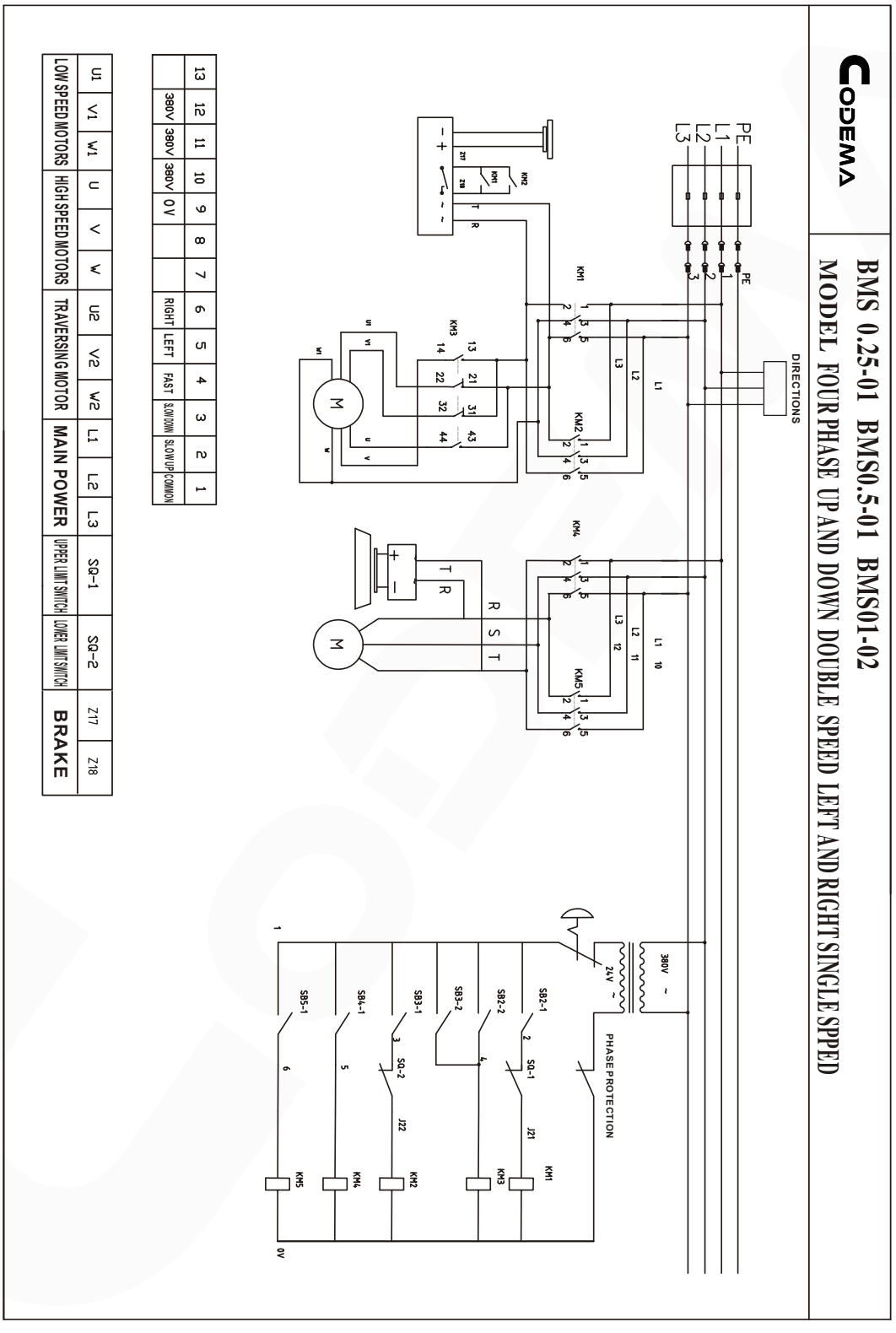
No.	Part Name	Quantity	Remark
1	Fan cover	1 pc	
2	Fan	1 pc	
3	Motor	1 pc	
4	Motor shaft	1 pc	
5	Rotor	1 pc	
6	Control pendant	1 pc	
7	Control cord	1 pc	
8	Bushing	1 pc	
9	Control clamp cover	1 pc	
10	Control cord clip	1 pc	
11	Top hook	1 pc	
12	Gearbox	1 set	
13	Gearbox cover	1 pc	
14	Brakes	1 set	
15	Outlet box	1 pc	

No.	Part Name	Quantity	Remark
16	Controller installation plate	1 set	
17	Control box cover	1 pc	
18	Chain guide	1 set	
19	Body cover	1 pc	
20	Chain guide plate	1 pc	
21	Chain	1 pc	*Length depends on Height of Lift*
22	Limit spring	1 pc	
23	Bottom hook shell	1 pc	
24	Washer	1 pc	
25	Bearing	1 pc	
26	Bottom hook	1 pc	
27	Chain box	1 pc	
28	Chain box pin	1 pc	
29	Chain box spring	1 pc	
30	Chain guide dust cover	1 pc	
31	Limit switch	1 set	

BMS 0.25-01 BMS0.5-01 BMS01-02
MODEL TWO PHASE UP AND DOWN DOUBLE SPEED



U1	V1	W1	U	V	W	1	2	3	4	9	L1	L2	L3	SQ-1	SQ-2	Z17	Z18
LOW SPEED MOTORS			HIGH SPEED MOTORS			COMMON	SLOW UP	SLOW DOWN	FAST	0 V	MAIN POWER			UPPER LIMIT SWITCH	LOWER LIMIT SWITCH	BRAKE	

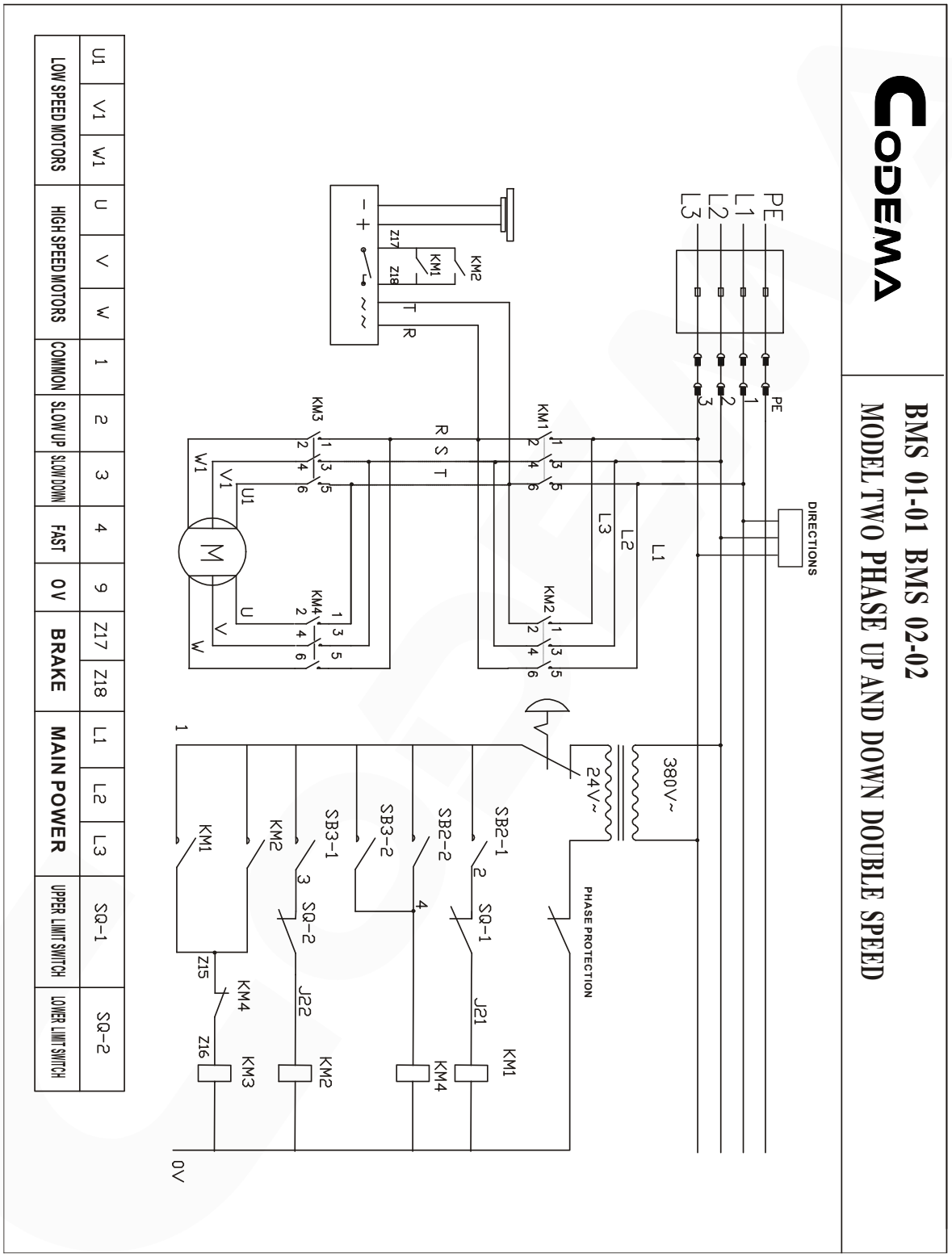


13	12	11	10	9	8	7	6	5	4	3	2	1
	380V	380V	380V	0V			RIGHT	LEFT	FAST	SLOW DOWN	SLOW UP	COMMON

U1	V1	W1	U	V	W	U2	V2	W2	L1	L2	L3	SQ-1	SQ-2	Z17	Z18
LOW SPEED MOTORS			HIGH SPEED MOTORS			TRAVERSING MOTOR			MAIN POWER			UPPER LIMIT SWITCH	LOWER LIMIT SWITCH	BRAKE	

BMS 01-01 BMS 02-02

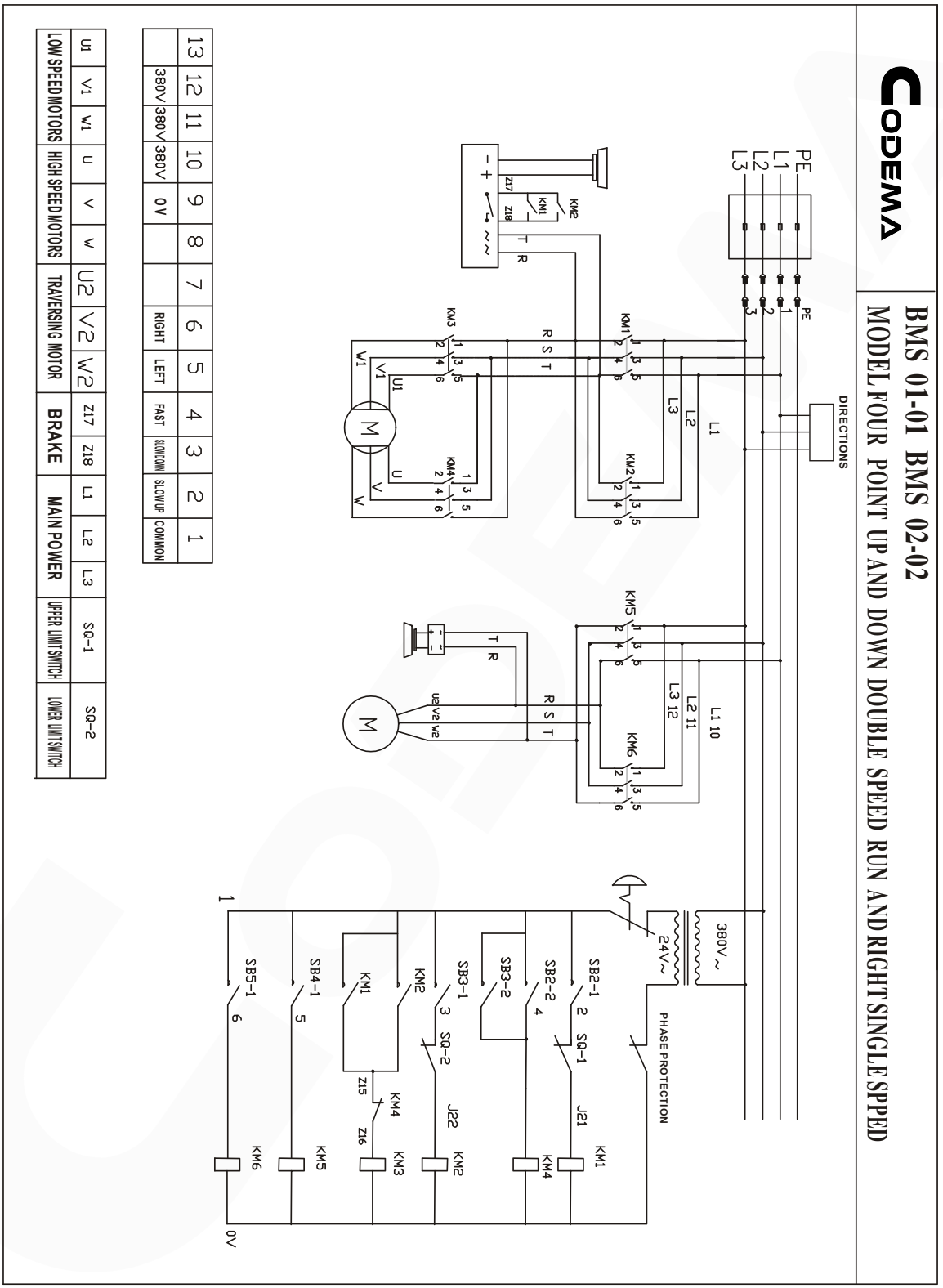
MODEL TWO PHASE UP AND DOWN DOUBLE SPEED



U1	V1	W1	U	V	W	1	2	3	4	9	Z17	Z18	L1	L2	L3			
LOW SPEED MOTORS			HIGH SPEED MOTORS			COMMON	SLOW UP	SLOW DOWN	FAST	0V	BRAKE		MAIN POWER			UPPER LIMIT SWITCH	LOWER LIMIT SWITCH	
																SQ-1	SQ-2	

BMS 01-01 BMS 02-02

MODEL FOUR POINT UP AND DOWN DOUBLE SPEED RUN AND RIGHT SINGLE SPPED

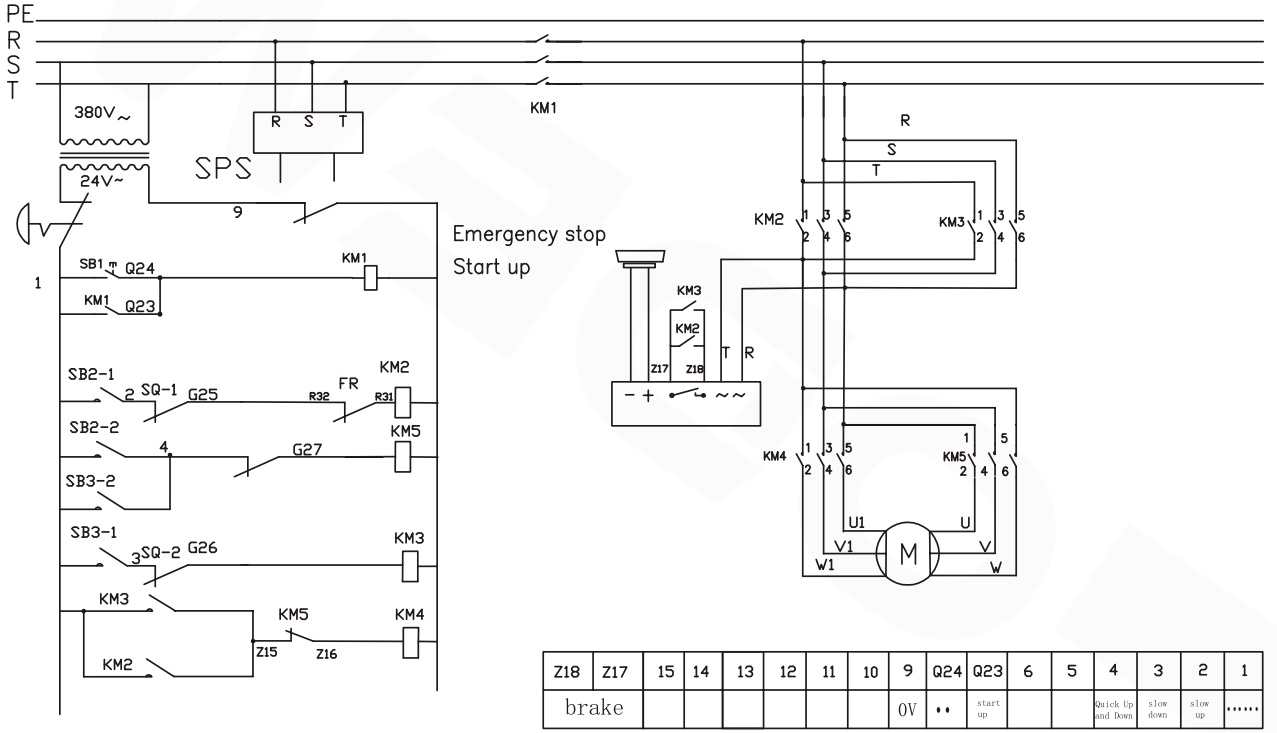


13	12	11	10	9	8	7	6	5	4	3	2	1
	380V	380V	380V	0V			RIGHT	LEFT	FAST	SLOWDOWN	SLOW UP	COMMON

U1	V1	W1	U	V	W	U2	V2	W2	Z17	Z18	L1	L2	L3	SQ-1	SQ-2
LOW SPEED MOTORS			HIGH SPEED MOTORS			TRAVERSING MOTOR			BRAKE		MAIN POWER			UPPER LIMIT SWITCH	LOWER LIMIT SWITCH

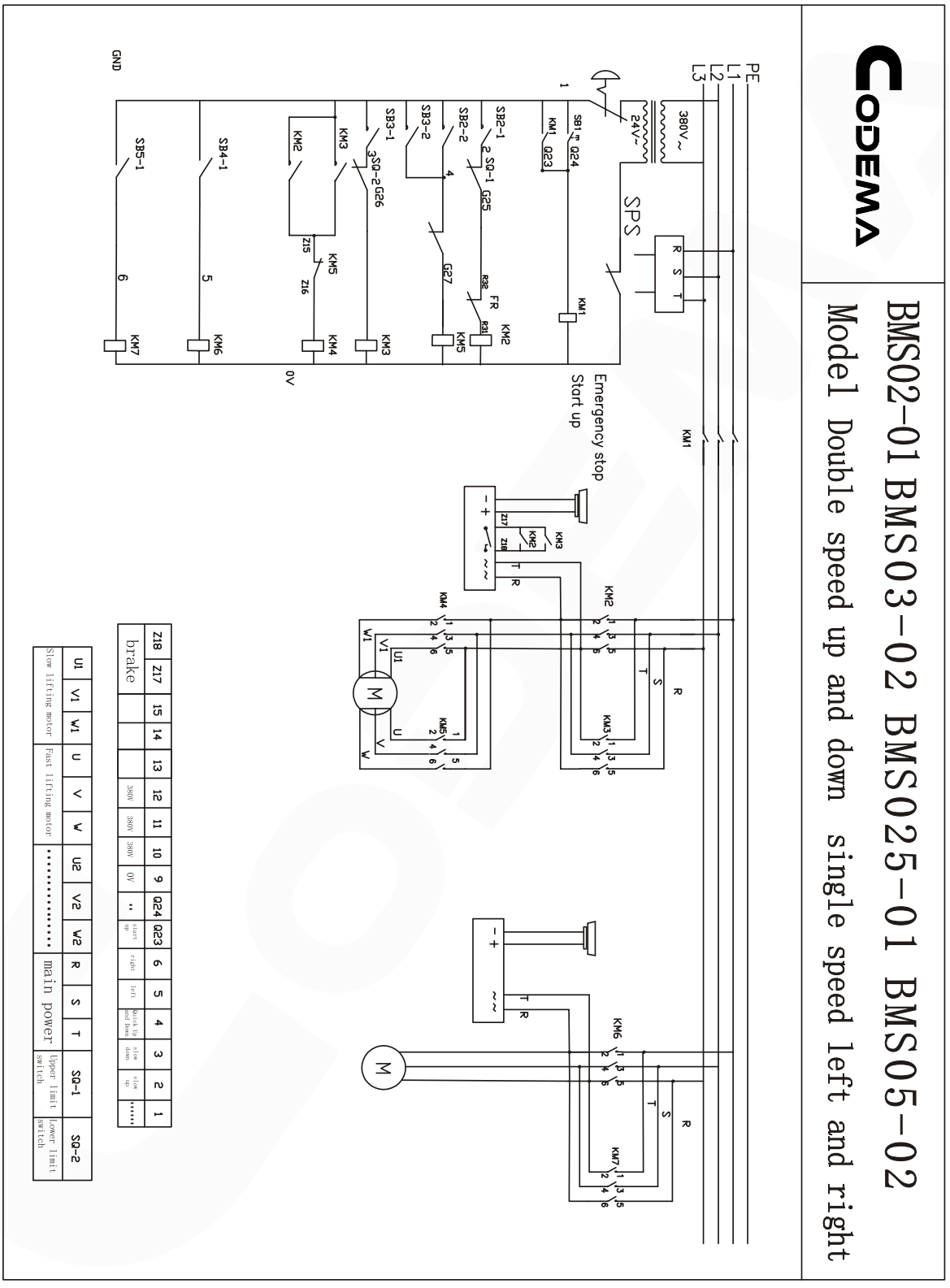
BMS02-01 BMS03-02 BMS025-01 BMS05-02

Model Up and down double speed



Z18	Z17	15	14	13	12	11	10	9	Q24	Q23	6	5	4	3	2	1
brake								0V	••	start up			Quick Up and Down	slow down	slow up	.....

U1	V1	W1	U	V	W	U2	V2	W2	R	S	T	SQ-1	SQ-2
Slow lifting motor			Fast lifting motor						main power			Upper limit switch	Lower limit switch


BMS02-01 BMS03-02 BMS025-01 BMS05-02
Model Double speed up and down single speed left and right
CODEMA
PE
L1
L2
L3
380V~
24V~
SPS
R S T
KM1
SB1-1
Q24
Q23
Emergency stop
Start up
SB2-1
SQ-1
Q25
SB2-2
SB3-2
Q27
R32
FR
R31
KM2
KM5
SB3-1
SQ-2
Q26
KM3
KM2
ZI5
ZI6
KM5
KM4
SB4-1
KM6
SB5-1
KM7
GND
0V
ZI7
ZI8
KM3
KM2
KM4
KM2
KM3
KM5
KM6
KM7
U1
V1
W1
M
R
S
T
U
V
W
Z18 ZI7 15 14 13 12 11 10 9 Q24 Q23 6 5 4 3 2 1
brake
3800V
3800V
3800V
0V
Current up
right
left
Quickly up and down
slow down
slow up
U1 V1 W1 U V W U2 V2 W2 R S T SQ-1 SQ-2
Slow lifting motor
Fast lifting motor
main power
Upper Limit switch
Lower limit switch

For ordering the hoist's spare parts in the future.

Please fill the hoist's information below:

Model: .....

Capacity: .....

Speed: .....

Load chain Dai.: .....

Height of lift: .....

Purchasing Date: .....

Supplier: .....

CODEMA

CODEMA INDUSTRIAL PRODUCTS GMBH A M LINDEKAMP 415 VELBERT GERMANY

International Edition