DELIXI
ELECTRIC
德力西电气

CDC19s Series
Switching capacitor contactors

NAVIGATOR Series

User Manual

Please carefully read this User Manual before installing and operating the product, and keep this manual properly for future reference

CDC19s Series Switching Capacitor Contactor

Safety Notice

Please carefully read this instruction before the installation, operation, run, maintenance, and inspection, and follow the contents of the instruction to properly install and operate this product.

 **Danger:**

- **Do not operate the contactor with your wet hands;**
- **Do not touch the energized parts during operation;**
- **Mark sure that the product is deenergized during the maintenance and service;**

 **Caution:**

- The installation, maintenance and service shall be performed by the qualified professional;
- Please confirm that the product voltage, current, frequency and usage category meet the requirements before use;
- Please turn on teh control loop for no-load operation test, and then power on the load after no any abnormality is found during test;
- Please tighten the terminal blocks regularly and remove the deposited dust;
- Do not allow foreign objects fall into the product:
- Not used for jogging;
- To purchase accessories, please select the matching accessories provided by our company;
- If found any damage or abnormal sound when unpacking, please refuse to use it and contact the supplier;
- When scrapping the product, please dispose the product waste properly. Thanks for your cooperation.

About CDC19s Series Product

- Panel Introduction

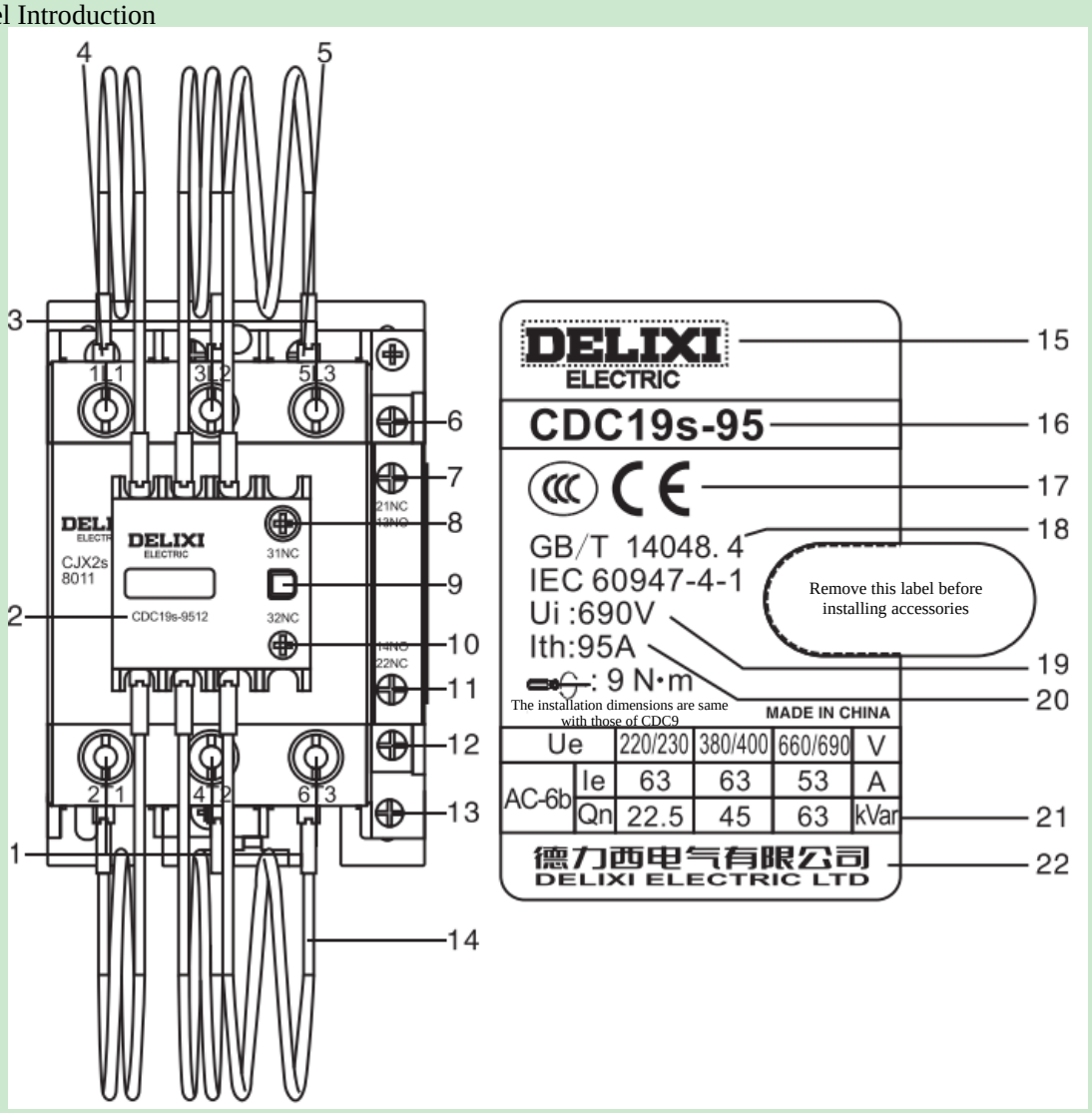


Fig. 1 Product Diagram

Legends:

1 - Main circuit outlet terminal 2/T1, 4/T2, 6/T32
2 - Product model
3 - Main circuit inlet terminal 1/L1, 3/L2, 5/L3
4 - Coil inlet terminal A1
5 – Coil outlet terminal A2
6 – Normally-closed auxiliary inlet terminal 21NC
7 – Normally-open auxiliary inlet terminal 13NO

8 – Normally-closed auxiliary inlet terminal 31NC
9 – Pre-charged contact set
10 - Normally-open auxiliary outlet terminal 32NC
11 - Normally-open auxiliary outlet terminal 14NO
12 – Normally-closed auxiliary outlet terminal NC 22
13 – Coil outlet terminal A2
14 - Current limiting reactor
15 – Company logo
16 - Product model
17 – Certification mark
18 – Standards: GB/T 14048.4, IEC 60947-4-1
19 - Insulation voltage Ui
20 – Ith: Resistive free air current
21 - Ue, Ie, and controllable capacitor capacity under the usage category
22- Company name

● Technical Parameters

Main circuit

Table 1 Technical parameters of main circuit

Product model	Rated insulation voltage Ui V	Rated operating current Ie A	Rated operating voltage Ue A	Resistive free air current I_{th} A	Controllable capacity			Inrush current suppression capacity
					220/230V	380/400V	660/690V	
					Rated capacity Q_n kVar			
CDC19s-25	690	17	220/230V 380/400V 660/690V	25	6	12	18	35Ie
CDC19s-32		24		32	9	18	26	
CDC19s-43		29		43	10	20	36	
CDC19s-63		43		63	15	30	48	50Ie
CDC19s-95		63		95	22.5	45	63	
CDC19s-115		87		125	35	60	92	
CDC19s-150		115		200	46	80	/	60Ie
CDC19s-170		130		200	52	90	/	

Aux. circuit

Table 2 Basic parameters of the auxiliary circuit

Usage category	Rated insulation voltage Ui	Resistive free air current Ith	Control capacity		Rated operating current Ie	
			Making	Breaking	220V	380V
AC-15	690V	10A	3600VA	360VA	1.6A	0.95A
DC-13			33W		0.15A	-

Normal Operation, Installation, and Transport Conditions

● Normal Operation and Installation Conditions

(1) The ambient air temperature is not higher than +40℃, and is not below -5℃; the average value within 24 hours does not exceed +35℃;

(2) The altitude of the installation site does not exceed 2000m;

(3) The relative humidity of the atmosphere does not exceed 50% at the maximum ambient temperature of +40℃, and a higher relative humidity is allowed lower temperatures, such as 90% at +20℃. Protective measures shall be taken for condensation occasionally occurred due to temperature changes;

(4) The installation position should be vertical, and the inclination angle in each direction should not exceed ±5°;

(5) Installed in a place where there is no shock vibration for rain and snow intrusion;

(6) Pollution level: Level 3;

(7) Installation category: Class III;

(8) Rated impulse withstand voltage Uimp: CDC19s-25~43; CDC19s-63~170: 6kV;

(9) Rated frequency: 50Hz;

(10) Protection grade: CDC19s-25~115 IP20, CDC19s-150, 170 IP00;

(11) Suitable for 8h working system, intermittent working system, uninterrupted working system, and short-time working system.

● Normal Storage and Transport Conditions

(1) Temperature: -25℃ ~ +55℃, up to +70℃ in a short time (24h);

(2) Relative humidity: ≤95%;

(3) Please handle the product gently, do not upside it down, and prevent harsh collision during transport. The product shall not be affected by the rain or snow intrusion during transportation and storage.

Install product

● All contactors are installed with screws, and CDC19s-25, 32, and 43 are also be mounted on a 35mm mounting rail and CDC19s-63, 95, and 115 can be mounted on a 35mm or 75mm rail.

● The outline and installation dimensions of contactor are shown in Fig. 2, Fig. 3, Fig. 4 and Table 3.

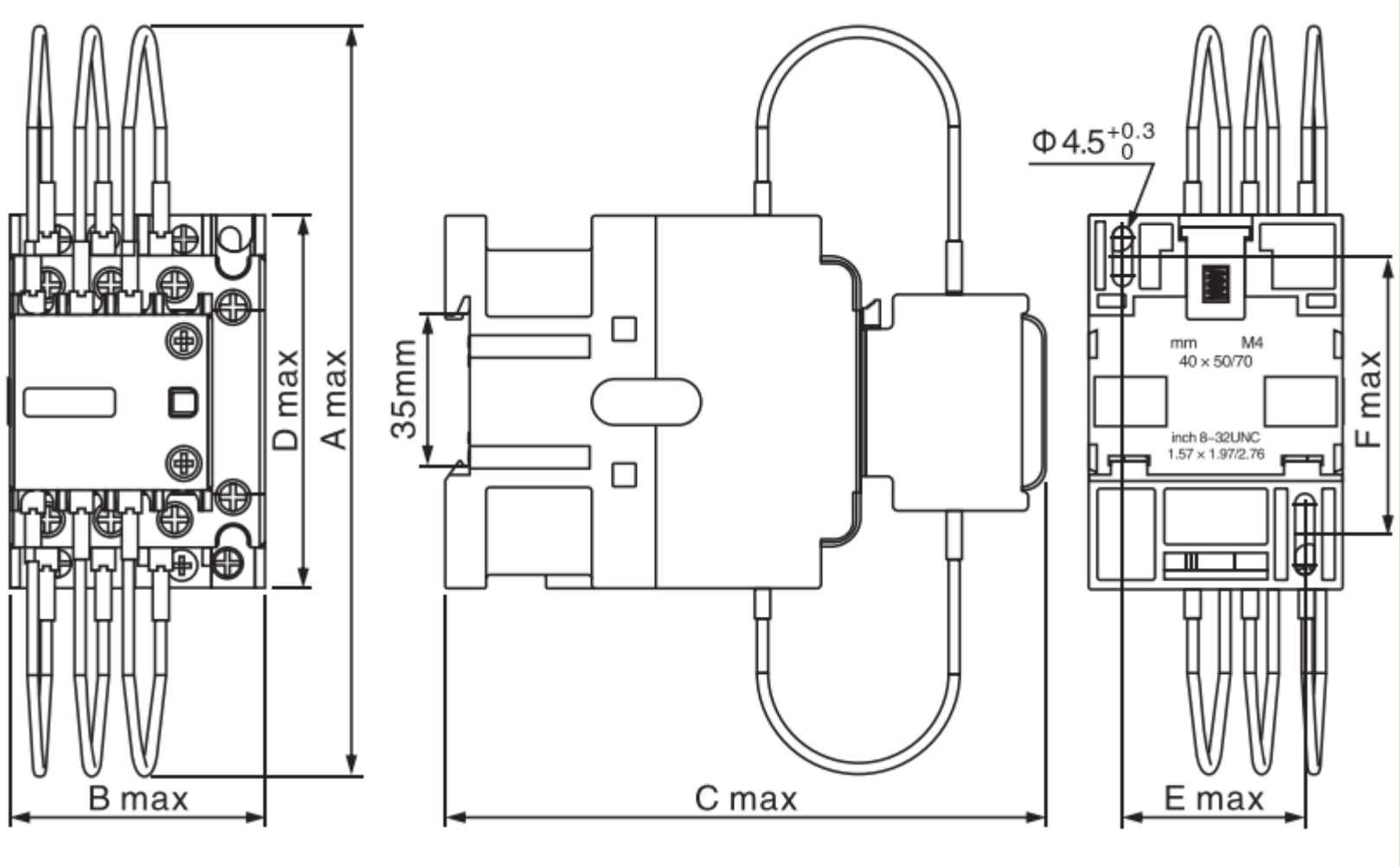


Fig. 2 Outline and installation dimensions of CDC19s-25, 32, 43

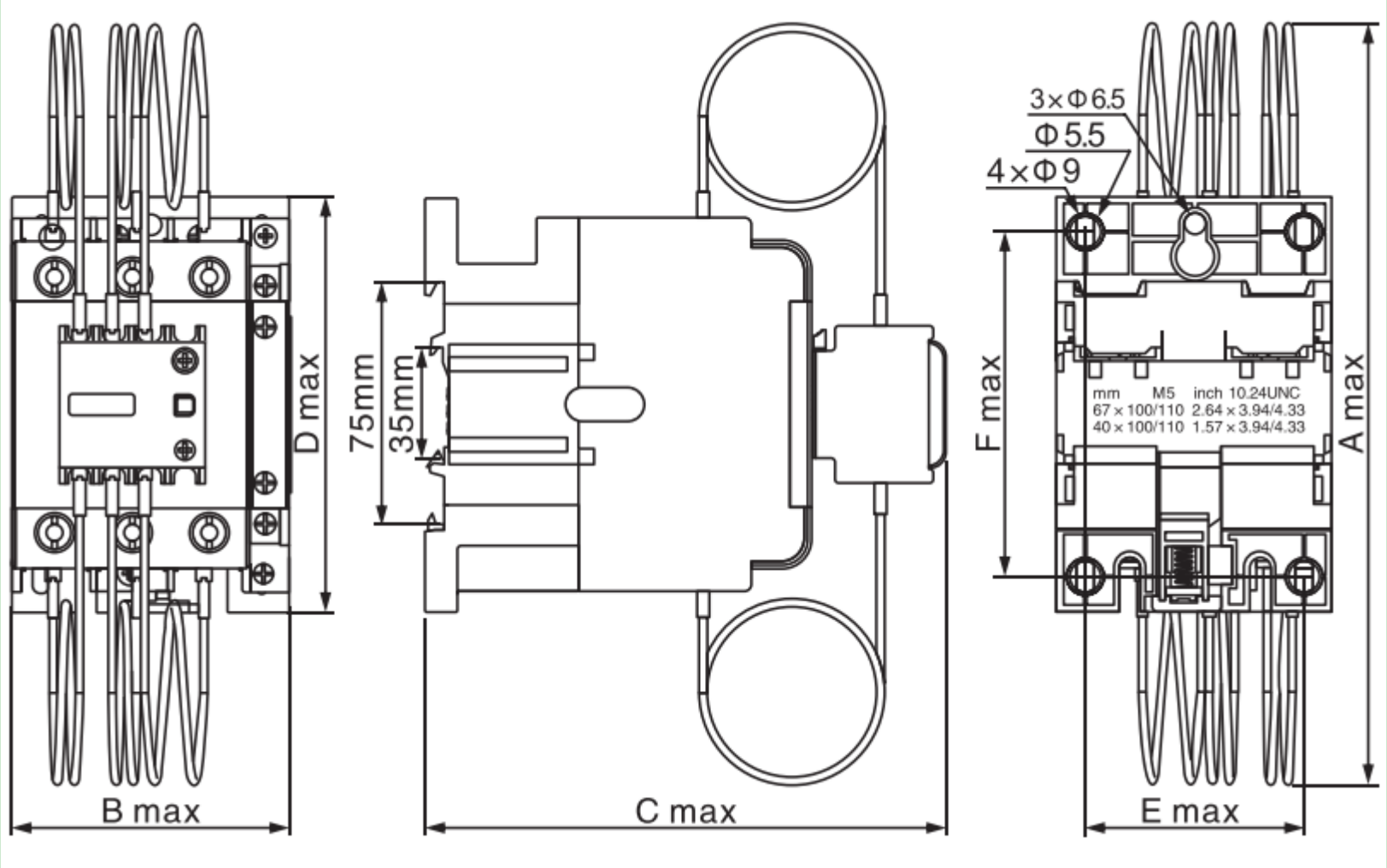


Fig. 3 Outline and installation dimensions of CDC19s-63, 95, 115

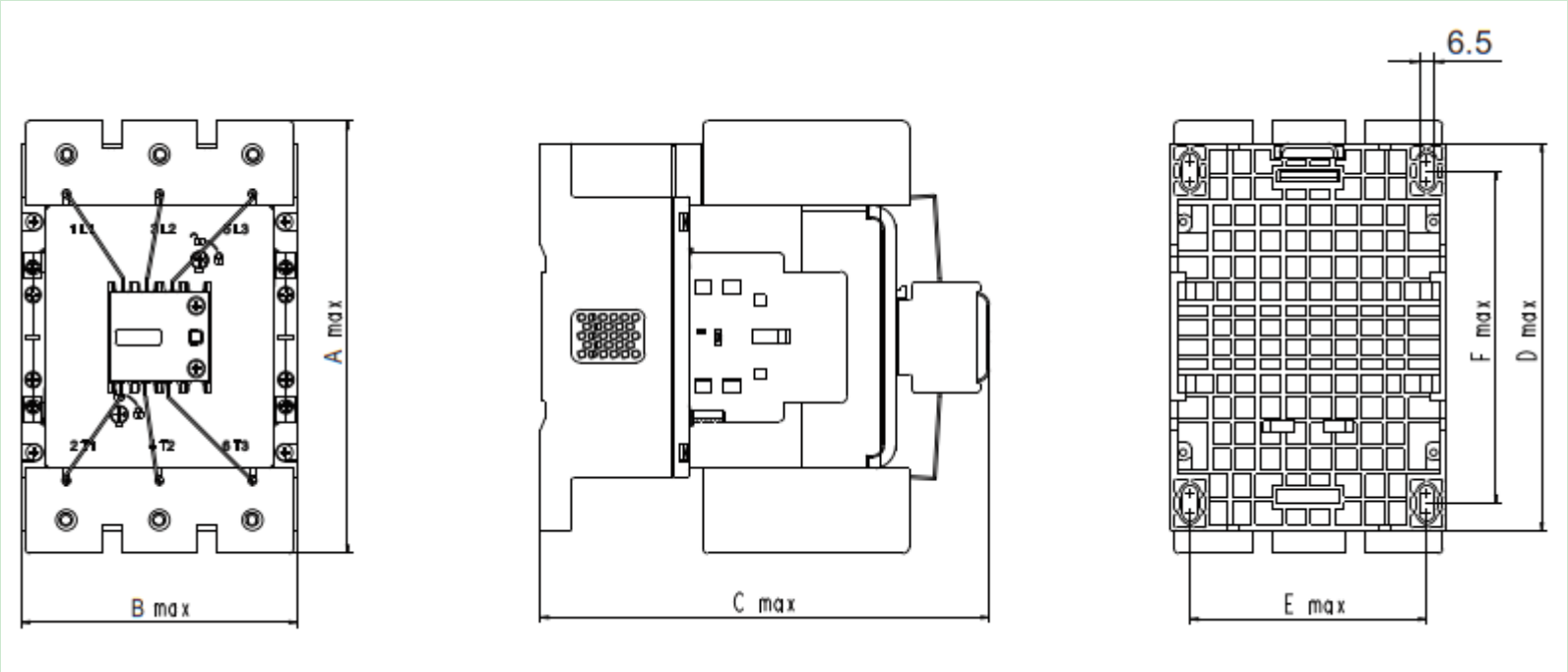


Fig. 4 Outline and installation dimensions of CDC19s-150, 170

Table 3 Outline and installation dimensions

Unit: mm

Model	Outline dimensions				Installation dimensions	
	Amax	Bmax	Cmax	Dmax	Emax	Fmax
CDC19s–25	176	45.5	122	74.5	35	50/60
CDC19s–32	180	56.5	132	83	40	50/60
CDC19s–43	180	56.5	132	83	40	50/60
CDC19s–63	190	74.5	154	127.5	59	100/110
CDC19s–95	190	85.5	160	127.5	67	100/110
CDC19s–115	190	85.5	160	127.5	67	100/110
CDC19s–150	188.5	120	193	168.5	103.5±0.5	135±1/153±1
CDC19s–170	188.5	120	193	168.5	103.5±0.5	135±1/153±1

Debugging and Operation

- Check whether the technical parameters of product comply with the operation requirements;
- Please separate the resistance wires between the phases after installation;
- The inlet line and outlet line of contractor must be connected firmly to prevent burns to the terminals and products due to terminal block overheating caused by loose connection;
- The insulation resistance of the electrical appliance selected for the discharge device in the power factor compensation equipment shall be greater than √2Ue;
- Power on the control circuit and conduct the no-load operation test, and then connect the load after no abnormality is found during test;
- Prevent foreign matters falling into the product;
- It is recommended to select SCPD according to type 1 coordinated protection; the model of fuse is shown in Table below.

Table 4 Model of matching fuse

Product model	CDC19s–25	CDC19s–32	CDC19s–43	CDC19s–63	CDC19s–95	CDC19s–115	CDC19s–150	CDC19s–170
Model of matching fuse of main circuit	RT16–32A	RT16–40A	RT16–50A	RT16–80A	RT16–100A	RT16–125A	NGTC2–160A	NGTC2–200A
Model of matching fuse of auxiliary circuit	RT16–10A							

●The recommended sectional area and tightening torque of the wire of the terminal block are listed in Table 5.

Table 5 Recommended sectional area and tightening torque of the wire of the terminal block

Product model			CDC19s-25	CDC19s-32/43	CDC19s-63	CDC19s-95/115	CDC19s-150/170
Main circuit wiring							
Soft wire without terminal block	One wire	mm^2	1...4	1.5...10	4...25	6...50	$95mm^2$
	Two wires	mm^2	1...4	1.5...6	4...16	6...25	/
Soft wire with terminal block	One wire	mm^2	1...4	1...6	4...25	6...50	/
	Two wires	mm^2	1...2.5	1...4	4...10	6...16	/
Hard wire without terminal block	One wire	mm^2	1...4	1.5...6	4...25	6...50	/
	Two wires	mm^2	1...4	1.5...6	4...10	6...25	/
Tightenin torque		N.m	1.2	1.8	5	9	12
Control and aux. loop wiring							
Soft wire without terminal block	One wire	mm^2	1...4				
	Two wires	mm^2					
Soft wire with terminal block	One wire	mm^2	1...2.5				
	Two wires	mm^2					
Hard wire without terminal block	One wire	mm^2	1...4				
	Two wires	mm^2					
Tightenin torque		N.m	1.2				

Maintenance and Service

● Tighten the terminal blocks of contractor firmly on a regular basis, and remove the deposited dust, otherwise the risk of fire or short circuit may occur;

● Small metal particles sprayed around the contactor or on the arc hood should be removed, and the contactor shall stop when the contact surface is burnt until the base material is exposed.

Fault Analysis and Solution

The common fault analysis and solution see Table 6.

Table 6 Common fault analysis and solution

Fault	Cause	Solution
The iron core cannot be pulled in or the suciton force is insufficient (that is, the contact is closed but the iron core is not completed pulled in)	1. The power supply voltage is too low or fluctuates too much; 2. The power capacity of the operating circuit is insufficient or the wire is broken, wiring is incorrect and the control contact has poor contact; 3. The technical parameters of coil are inconsistent with the working conditions; 4. The product itself is damaged (such as coil broken or burnt, and mechanical movable part blocked).	1. Incease the power voltage; 2. Increase the power capacity; replace the line; repair the control contact; 3. Replace the contactor; 4. Eliminate the blockage fault, and replace the contactor.
No release or slow release	1. Contact fusion welding; 2. The mechanical movable part is blocked; 3. There is oil strin or dust sticking to the pole face of the iron core.	1. Eliminate the fuse welding fault, and repair or replace contactor; 2. Eliminate the blockage fault; 3. Clean the pole face of the iron core.
Coils are overheated or burnt	1. The power voltage is too high or too low; 2. The technical parameters (such as rated voltage, frequency, on-load factore and applicable working system) of the coil are inconsistent with the actual operation; 3. The moving part is blocked; 4. The pole face of iron core is unfatted or stuck with dust.	1. Adjust the power voltage; 2. Replace the contactor; 3. Eliminate the mechancial blockage fault; 4. Clean the pole face.
Large noise issued from the electromagnets (AC)	1. The power voltage is too low; 2. The magnetic system is skewed or mechanically blocked, making that the iron core cannot be pulled in flattly; 3. The pole face of iron core is rusted or intruded by foreign matter; 4. The short-circuit ring is broken or the pole face of iron core is worn excessively and uneven.	1. Increase the operating loop voltage; 2. Adjust the magnetic system or eliminate the mechanical blockage fault; 3. Clean the pole face; 4. Replace the contactor.
Contact fusion welding	1. The operating frequency is too high or the product is overloaded; 2. Short circuit at the load side;	1. Replaced by an appropriate contactor: 2. Eliminate short circuit fault.
Resistance wire burnt	The resistance will be burnt if the closing current is too large beyond the suppression capacity of this switching capacitor contactor when the contactor is closed.	Replaced by an appropriate contactor

Company Commitment

Under the condition that users follow the use and storage conditions and the product are well sealed, within 24 months from the production date, our company will provide repair and replacement service free of charge for any damage or abnormal operation due to poor manufacture quality. A paid repair will be provided if the warranty period expires. For any damage due to one of the following situations, a paid repair will be given even if within the warranty period:

(1) Improper operation, maintenance, or storage;
(2) Modified without permission or improper repair;
(3) Damage due to falling off or caused during installation after purchase;
(4) Force majeure such as earthquakes, fires, lightning strikes, abnormal voltages, and secondary disasters; If you have any question, please contact the dealer or our company's customer service department.

Customer service hotline: 400-826-8008

DELIXI ELECTRIC 德力西电气

Certificate

DELIXI ELECTRIC LTD

Name: Capacitor changeover contactor

Model: CDC19s Series

This product passes the inspection and is allowed to be shipped.

Standard: GB/T 14048.4

Inspector: Check 06

Production date: See label on inner box

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