



**CDC19s** Switching capacitor contactors

Product model	Spec. code	Aux. contact	Coil voltage
CDC19s	25	11	M
	25: 25 32: 32 ...	11: 1 normally open + 1 normal closed 20: 2 normally open + 0 normal closed ...	F: 110V M: 220V Q: 380V
	115: 115 150: 150 170: 170	21: 2 normally open + 1 normal closed 32: 3 normally open + 2 normal closed Note: 32 is only suitable for 150A, 170A	



**RoHS**

Learn more at  
[www.cn-delixi.com](http://www.cn-delixi.com)  
Contact our support team at  
[dlx@delixi-sh.com](mailto:dlx@delixi-sh.com)

**CDC19s About Series Product**

● **Panel Introduction**

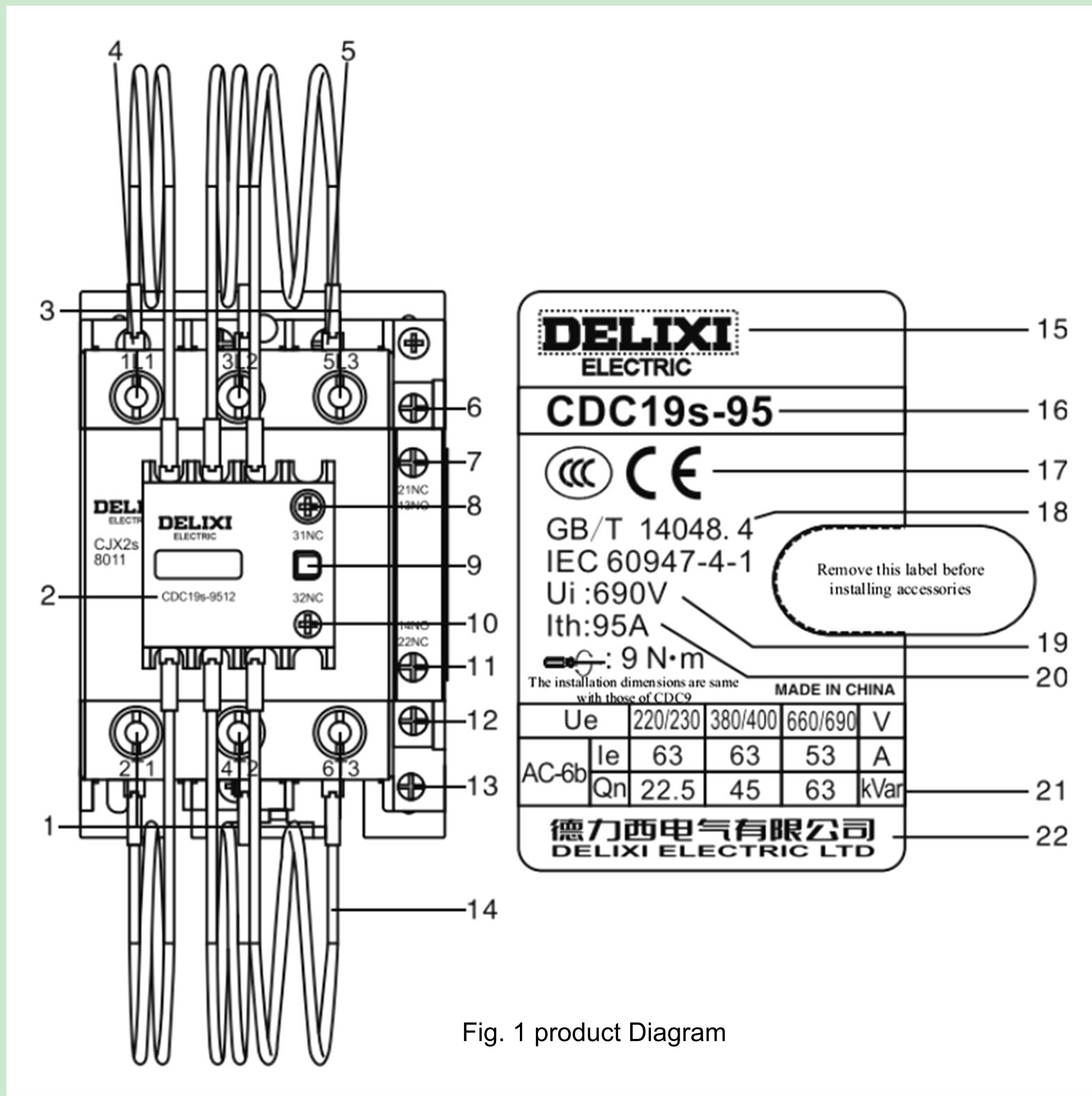


Fig. 1 product Diagram

**Legends:**

- 01. Main circuit outlet terminal 2/T1, 4/T2, 6/T32
- 02. Product model
- 03. Main circuit inlet terminal 1/L1, 3/L2, 5/L3
- 04. Coil inlet terminal A1
- 05. Coil outlet terminal A2
- 06. Normally-closed auxiliary inlet terminal 21NC
- 07. Normally-open auxiliary inlet terminal 13NO
- 08. Normally-closed auxiliary inlet terminal 31NC
- 09. 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

### About Series Product

#### Quick facts: CDC19s switch

The capacitive contactor is suitable for switching three-phase single-pole or multi-pole capacitor banks in power systems with AC 50/60Hz, rated operating voltage up to 690V, and can control the capacitor capacity up to 60kVar under the AC-6b usage category to improve the power factor. The contactor is equipped with an inrush current suppression device, which can effectively reduce the impact of closing current on the capacitor bank

Contactor model	Rated capacity of controllable capacitor (kvar)		Auxiliary contacts		Order code
	220/230V	380/400V		Normally closed NC	Ith(A)
CDC19s-25	6	12	1	1	CDC19s 25 11*
			2	0	CDC19s 25 20*
			0	2	CDC19s 25 02*
CDC19s-32	9	18	1	1	CDC19s 32 11*
			2	0	CDC19s 32 20*
			0	2	CDC19s 32 02*
CDC19s-43	10	20	1	1	CDC19s 43 11*
			2	0	CDC19s 43 20*
			0	2	CDC19s 43 02*
CDC19s-63	15	30	1	2	CDC19s 63 11*
			2	1	CDC19s 63 20*
CDC19s-95	22.5	45	1	2	CDC19s 95 11*
			2	1	CDC19s 95 20*
CDC19s-115	35	60	1	2	CDC19s 115 11*
			2	1	CDC19s 115 20*
CDC19s-150	46	80	3	2	CDC19s 150 32*
CDC19s-170	52	90	3	2	CDC19s 170 32*

► Note:

The number of poles 3 is extremely common and is not indicated in the model number. For the “\*” in the CDC19s ordering code, it can be represented by the coil voltage code

Coil voltage code			
Coil voltage (V)	110	220/230, 220V (150/170)	380/400, 380V (150/170)
*	F	M	Q

**CDC19s Main technical parameters**



Contactor model		CDC19s-25	CDC19s-32	CDC19s-43	CDC19s-63	CDC19s-95	CDC19s-115	CDC19s-150	CDC19s-170	
<b>Main circuit characteristics</b>										
Rated operating voltage (Ue)	V	380/400								
Rated insulation voltage (Ui)	V	690								
Controllable capacitor rated current	AC-6b 380V A	17	29	36	43	72	87	115	130	
Rated capacity of controllable capacitor (Qn)	AC-6b 220V kVar	6	9	10	15	22.5	35	46	52	
	AC-6b 380V kVar	12	18	20	30	45	60	80	90	
Agreed heating current	A	25	32	43	63	95	125	200	200	
Control surge capacity	A	≤35I <sub>n</sub>			≤55I <sub>n</sub>			≤60I <sub>n</sub>		
Mechanical life	10,000 times					100				
Electrical life	AC-6b 380V 10,000times	15				12				
Operating frequency	AC-6b 380V times/hour	300				120				
Wiring capability	Copper conductor cross-sectional area mm <sup>2</sup>	4								
<b>Main circuit terminal wiring capacity</b>										
Flexible wire	1 conductor mm <sup>2</sup>	1~4	1.5~10	1.5~10	4~25	6~50	6~50	95	95	
Without terminal blocks	2 conductor mm <sup>2</sup>	1~4	1.5~6	1.5~6	4~16	6~25	6~25	—	—	
Soft wire	1 conductor mm <sup>2</sup>	1~4	1~6	1~6	4~25	6~50	6~50	—	—	
With terminal blocks	2 conductor mm <sup>2</sup>	1~2.5	1~4	1~4	4~10	6~16	6~16	—	—	
Hard wire	1 conductor mm <sup>2</sup>	1~4	1.5~6	1.5~6	4~25	6~50	6~50	—	—	
Without terminal blocks	2 conductor mm <sup>2</sup>	1~4	1.5~6	1.5~6	4~10	6~25	6~25	—	—	
Tightening torque	N m	1.2	1.8	1.8	5	9	9	12	12	
<b>Coil</b>										
control power supply Voltage (Us)	AC 50Hz V	110、220、380、220/230、380/400								
Allow control loop voltage	Attract V	The installation tilt angle is : ±22.5° : 85%~110% Us The installation tilt angle is : ±5° : 70%~120%						AC: 70% ~ 120% (vertical installation) AC/DC: 85% ~ 110%		
	Freed V	The installation tilt angle is : ±22.5° : 20% ~ 75% Us The installation tilt angle is : ±5° : 20% ~ 65%						AC: 20% ~ 75% AC/DC: 10% ~ 70%		
<b>Auxiliary contacts</b>										
Auxiliary contact		11、20、02			12、21			32		
Agreed heating current (I <sub>th</sub> )	A	10								
Minimum load that can be switched on		6V × 10mA								
Certification		CCC、CE								

**CDC19s About Series Product**

● **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 the 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.

**CDC19s About Series Product**

● **Technical parameters**

**Main circuit**

Table 1 Technical parameters of main circuit

Product model	Rated insulation voltage $U_i$ V	Rated operating current $I_e$ A	Rated operating voltage $U_e$ 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 $U_i$	Resistive free air current $I_{th}$	Control capacity		Rated operating current $I_e$	
			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

- (01) The ambient air temperature is not higher than +40°C, and is not below -5°C; the average value within 24 hours does not exceed +35°C;
- (02) The altitude of the installation site does not exceed 2000m;
- (03) The relative humidity of the atmosphere does not exceed 50% at the maximum ambient temperature of +40°C, and a higher relative humidity is allowed lower temperatures, such as 90% at +20°C. Protective measures shall be taken for condensation occasionally occurred due to temperature changes;
- (04) The installation position should be vertical, and the inclination angle in each direction should not exceed  $\pm 5^\circ$ ;
- (05) Installed in a place where there is no shock vibration for rain and snow intrusion;
- (06) Pollution level: Level 3;
- (07) Installation category: Class III;
- (08) Rated impulse withstand voltage  $U_{imp}$ : CDC19s-25~43; CDC19s-63~170: 6kV;
- (09) 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°C ~ +55°C, up to +70°C in a short time (24h);
- (2) Relative humidity:  $\leq 95\%$ ;
- (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.

**CDC19s About Series Product**

● **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,.3,.4 and Table 3.

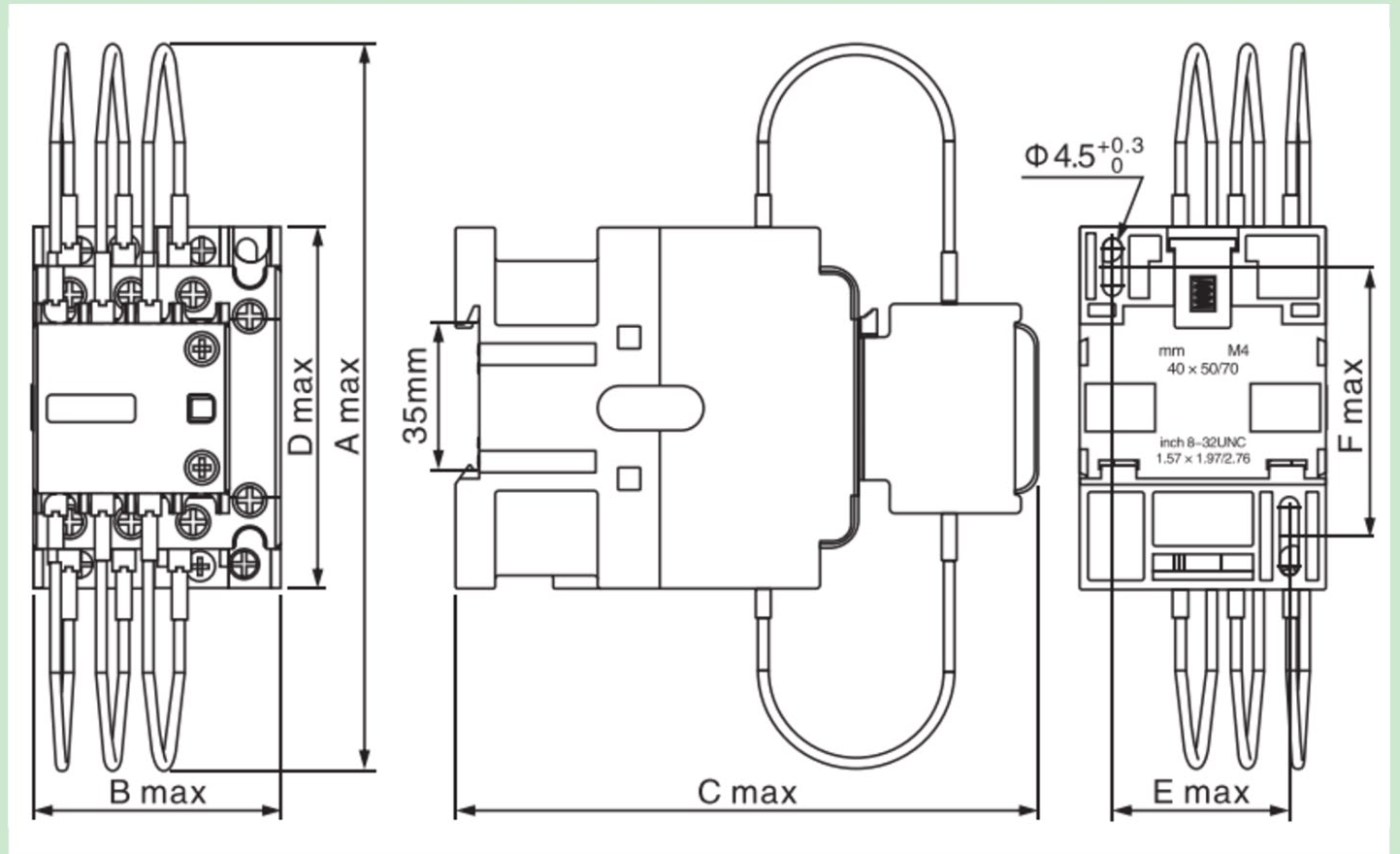


Fig. 2 Outline and installation dimensions of CDC19s-25, 32, 43

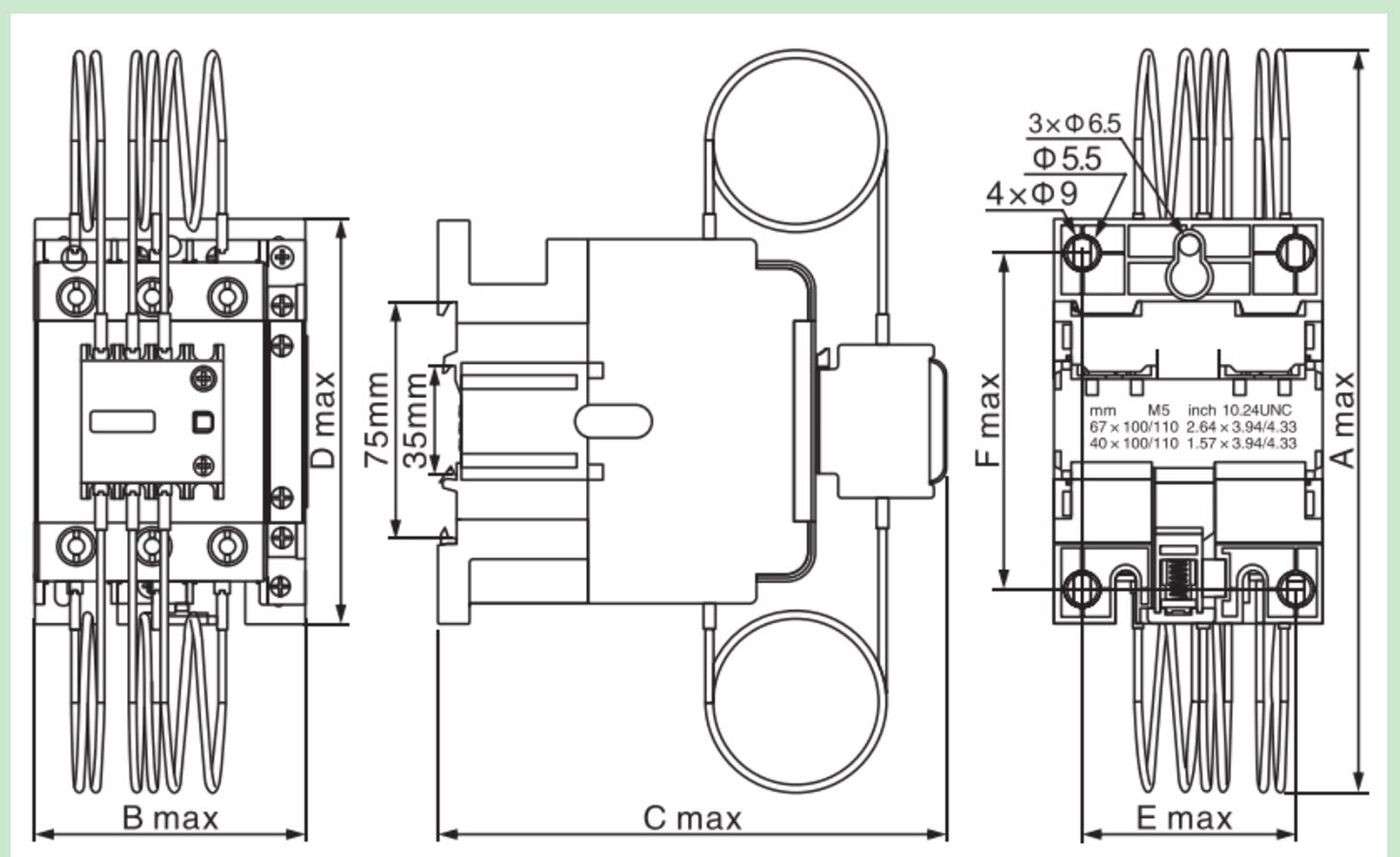


Fig. 3 Outline and installation dimensions of CDC19s-63, 95, 115

**CDC19s About Series Product**

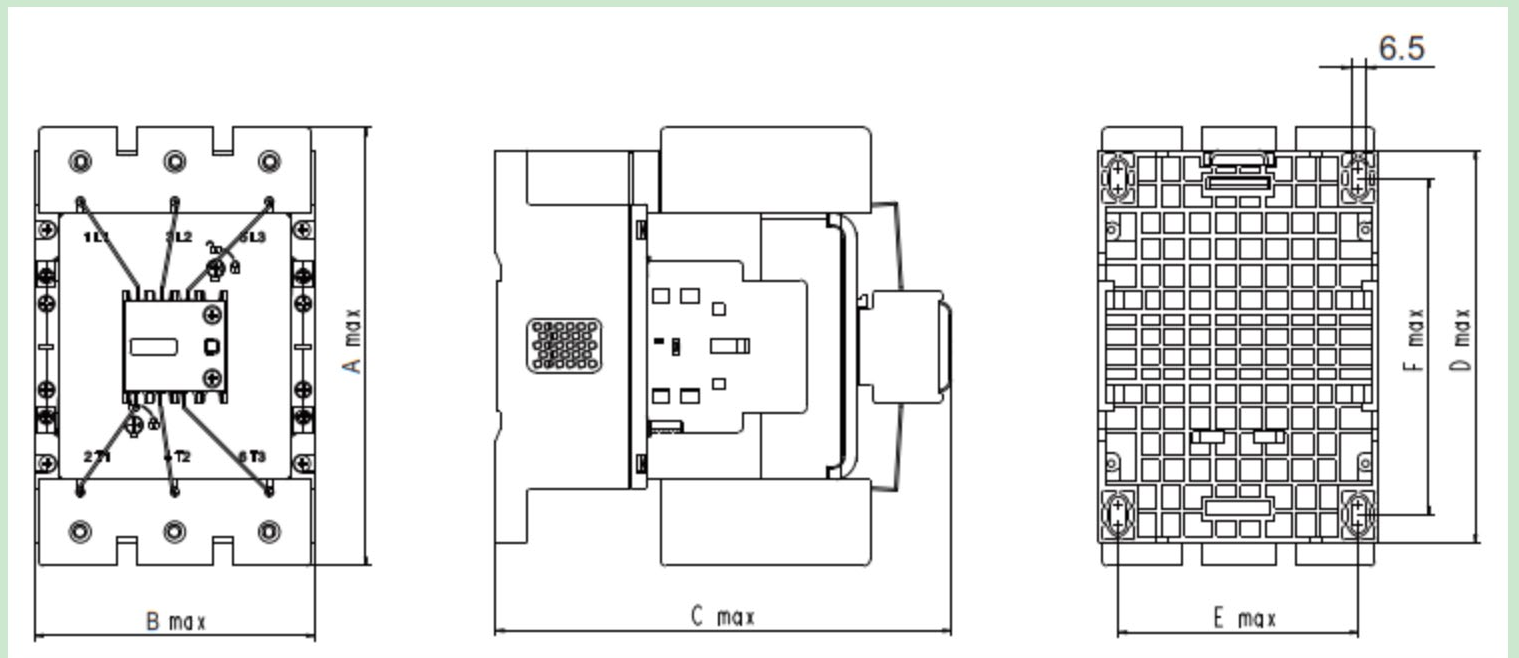


Fig. 4 Outline and installation dimensions of CDC19s-150, 170

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  $\sqrt{2}U_e$ ;
- 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.



**CDC19s About Series Product**

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
<b>Main circuit wiring</b>						
Soft wire without terminal block	One wire	mm <sup>2</sup>	1...4	1.5...10	4...25	6...50 95mm <sup>2</sup>
	Two wires	mm <sup>2</sup>	1...4	1.5...6	4...16	6...25 /
Soft wire with terminal block	One wire	mm <sup>2</sup>	1...4	1...6	4...25	6...50 /
	Two wires	mm <sup>2</sup>	1...2.5	1...4	4...10	6...16 /
Hard wire without terminal block	One wire	mm <sup>2</sup>	1...4	1.5...6	4...25	6...50 /
	Two wires	mm <sup>2</sup>	1...4	1.5...6	4...10	6...25 /
Tightenin torque		N.m	1.2	1.8	5	9 12
<b>Control and aux. loop wiring</b>						
Soft wire without terminal block	One wire	mm <sup>2</sup>	1...4			
	Two wires	mm <sup>2</sup>	1...4			
Soft wire with terminal block	One wire	mm <sup>2</sup>	1...2.5			
	Two wires	mm <sup>2</sup>	1...2.5			
Hard wire without terminal block	One wire	mm <sup>2</sup>	1...4			
	Two wires	mm <sup>2</sup>	1...4			
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 suction 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. Increase 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 stain 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.

**CDC19s About Series Product**

Table 6 Common fault analysis and solution

Fault	Cause	Solution
The iron core cannot be pulled in or the suction force is insufficient (that is, the contact is closed but the iron core is not completely pulled in)	<ol style="list-style-type: none"> <li>1. The power supply voltage is too low or fluctuates too much;</li> <li>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;</li> <li>3. The technical parameters of coil are inconsistent with the working conditions;</li> <li>4. The product itself is damaged (such as coil broken or burnt, and mechanical movable part blocked).</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase the power voltage;</li> <li>2. Increase the power capacity; replace the line; repair the control contact;</li> <li>3. Replace the contactor;</li> <li>4. Eliminate the blockage fault, and replace the contactor.</li> </ol>
No release or slow release	<ol style="list-style-type: none"> <li>1. Contact fusion welding;</li> <li>2. The mechanical movable part is blocked;</li> <li>3. There is oil stain or dust sticking to the pole face of the iron core.</li> </ol>	<ol style="list-style-type: none"> <li>1. Eliminate the fuse welding fault, and repair or replace contactor;</li> <li>2. Eliminate the blockage fault;</li> <li>3. Clean the pole face of the iron core.</li> </ol>
Coils are overheated or burnt	<ol style="list-style-type: none"> <li>1. The power voltage is too high or too low;</li> <li>2. The technical parameters (such as rated voltage, frequency, on-load factor and applicable working system) of the coil are inconsistent with the actual operation;</li> <li>3. The moving part is blocked;</li> <li>4. The pole face of iron core is unfatted or stuck with dust.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the power voltage;</li> <li>2. Replace the contactor;</li> <li>3. Eliminate the mechanical blockage fault;</li> <li>4. Clean the pole face.</li> </ol>
Large noise issued from the electromagnets (AC)	<ol style="list-style-type: none"> <li>1. The power voltage is too low;</li> <li>2. The magnetic system is skewed or mechanically blocked, making that the iron core cannot be pulled in flatly;</li> <li>3. The pole face of iron core is rusted or intruded by foreign matter;</li> <li>4. The short-circuit ring is broken or the pole face of iron core is worn excessively and uneven.</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase the operating loop voltage;</li> <li>2. Adjust the magnetic system or eliminate the mechanical blockage fault;</li> <li>3. Clean the pole face;</li> <li>4. Replace the contactor.</li> </ol>
Contact fusion welding	<ol style="list-style-type: none"> <li>1. The operating frequency is too high or the product is overloaded;</li> <li>2. Short circuit at the load side;</li> </ol>	<ol style="list-style-type: none"> <li>1. Replaced by an appropriate contactor;</li> <li>2. Eliminate short circuit fault.</li> </ol>
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



安装可用螺钉紧固，也可扣装在35mm或75mm的标准安装导轨上

The installation can be fastened with screws and can be fastened to the standard installation guide of 35mm or 75mm.



规格齐全，满足更高控制容量需求

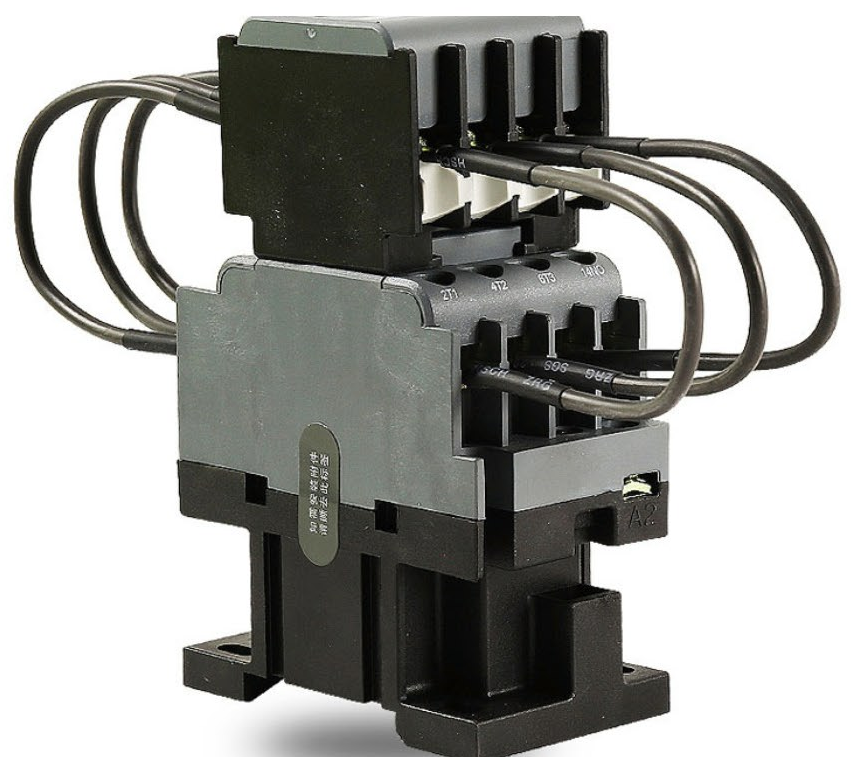
— 新增115A规格，控制容量提升至60kvar，满足更高控制容量需求，同时降低客户整体成本；

Complete specifications to meet higher control capacity requirements  
— New 115A specifications, control capacity to 60KVAR, to meet higher control capacity demand, and reduce the overall cost of customers;



完美外观，提升柜体形象— 正面红色商标，更易识别；  
— 一体化标牌，永不脱落；— 电阻丝套管，光滑美观

Perfect appearance, upgrade the image of the cabinet  
— positive red trademark, more easily recognizable;  
— Integrated signs, never fall off;  
Resistance wire casing, smooth and beautiful



适用于交流50Hz/60Hz、额定工作电压最高至690V，  
在AC-6b使用类别下可控制电容器容量至60Kvar的电力系统中，切换三相单极或多极电容器组，  
以改善功率因数。接触器带有抑制涌流装置，能有效地减少合闸电流对电容器组的冲击。

It is suitable for AC 50Hz/60Hz and rated working voltage up to 690V. In the power system that can control capacitor capacity to 60Kvar under AC-6b usage category, switch three-phase monopolar or multipole capacitor bank to improve power factor. The contactor has a suppressing inrush device, which can effectively reduce the impact of the closing current on the capacitor bank.



CDC19s Series  
Switching capacitor contactor

# NAVIGATOR Series User Manual



## 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



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

### DELIXI ELECTRIC LTD

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