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NDC5K-630-1700TU (2000V) 系列 真空接触器使用说明书 NDC5K-630-1700TU (2000V) series Vacuum Contactor Using Instruction



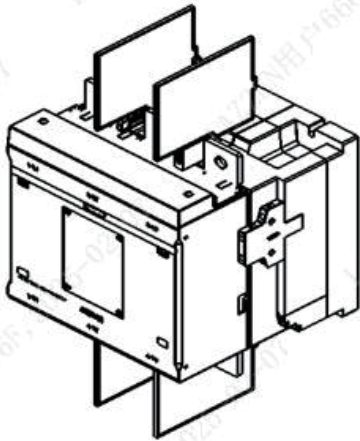
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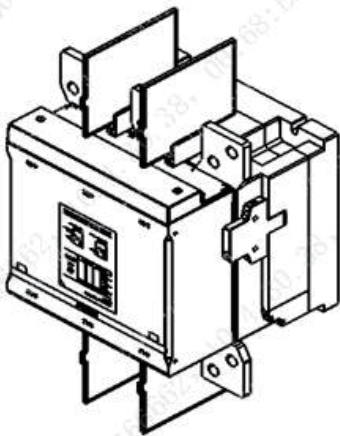


1、适用范围与用途

630-1700TU（2000V）系列真空接触器（以下简称接触器）主要用于光伏、风电行业，供远距离接通分断电路，也可以用在工控行业远距离接通和分断及频繁起动控制交流电动机，还可控制交流电动机可逆运转或反向制动。



NDC5K-630、800 TU 真空接触器



NDC5K-1450、1700 TU 真空接触器

 警告！产品安装、操作、维修必须具备专业资质的电工遵照相关制度、法规、安装标准及安全规范完成。

2、主要技术参数

参数名称			具体参数描述			
规格			NDC5K-630 TU	NDC5K-800 TU	NDC5K-1450 TU	NDC5K-1700 TU
极数			3			
约定自由空气发热电流 I _{th} /A			1050	1310	1450	1720
额定电流/A	AC-1 U _e ≤ 2000V	θ ≤40 ° C	1050	1310	1450	1720
		θ ≤50 ° C	931	1250	1450	1720
		θ ≤55 ° C	888	1155	1450	1720
		θ ≤65 ° C	850	1100	1184	1450
		θ ≤70 ° C	700	900	1080	1350
额 定 功 率 /KW	AC-1, +40℃	380/400V	650	766	914	1071
		660/690V	1130	1330	1576	1861
		1000V/1140V	1712	2015	2044	2417
每极平均功耗/W		I _{th} 下	69	96	135	188

额定工作电压/U _e			AC690V , AC1140V,AC2000V			
绝缘电压/U _i			AC2000V			
冲击耐受电压/U _{imp}			14kV			
额定限制短路电流 “2”型配合		试验电流	50kA（适配快速熔断器）			
额定控制电压/U _c			AC/DC：110V-250V			
控制电压范围			(θ ≤60℃), 50/60Hz 线圈, 吸合：0.7U _{cmin} -1.1U _{cmax}			
			(60℃ ≤ θ ≤70℃), 50/60Hz 线圈, 吸合：U _{cmin} -U _{cmax}			
			(θ ≤70℃), 50/60Hz 线圈, 释放：0.2U _{cmin} -0.6U _{cmax}			
控制回路过电压保护			在保持状态下, 控制电压 U _c > 1.3U _{cmax} 时产品释放以保护内部电路			
冷态,1.0 *U _c 下线圈功耗 (控制变压器阻抗电压 ≤ 0.7)	吸合	交流 VA	1200VA			
		直流 W				
	保持	交流	45VA（视在） 20W（有功）			
		直流	15W			
动作时间		A1-A2 控制		从 A1-A2 得电到, 主触点闭合：30-120ms		
				从 A1-A2 失电到, 主触点断开：33-70ms		
		PLC 控制 (DC24V)		PLC 信号输入到主触点闭合：30-90ms		
				PLC 信号输入到主触点断开：10-40ms		
额定接通能力/A		2000V	1050	1310	1450	1720
额定分断能力/A		2000V	1050	1310	1450	1720
U _c 下机械寿命/万次 操作频率			300			
			600 次/h			
电气寿命/ 万次	AC -1	2000V	5 万次 150 次/小时 （2000V 分断电流 ≤500A）			
短时耐受电流 (从冷态开始, θ ≤ 40℃, 此前 60 分钟 无电流)		1s	8000A		10000A	
		10s	7200A		8000A	
		30s	5200A		5200A	
		1min	4000A		4000A	
		3min	2500A		3000A	
		10min	1700A		2000A	
		15min	1500A		1800A	
主电路接线能力 (多根铜排要求上下夹排)		带接线头的线缆 mm ²	min 50 max 240	min 50 max 240	/	
		铜排宽度 mm	50	60	70	80
		单根铜排厚度 mm	5	5	5	5
主电路接线螺栓			M12	M12	M12	M12
紧固扭矩 /N.m			35 ± 5	35 ± 5	35 ± 5	35 ± 5
重量 /Kg			16	16	18	18
产品执行标准			GB/T 14048.4, IEC 60947-4-1			
辅助触头参数						
辅助触点符合 GB/T 14048.5 , IEC 60947-5-1			每个接触器均有一个 NO 和一个 NC 辅助触点, 这些触点通过同一个可移动的触点支架, 以机械方式连接在一起			
镜像触点符合 GB/T 14048.4 , IEC 60947-4-1			每个接触器上的 NC 触点与主触头的状态成镜像			

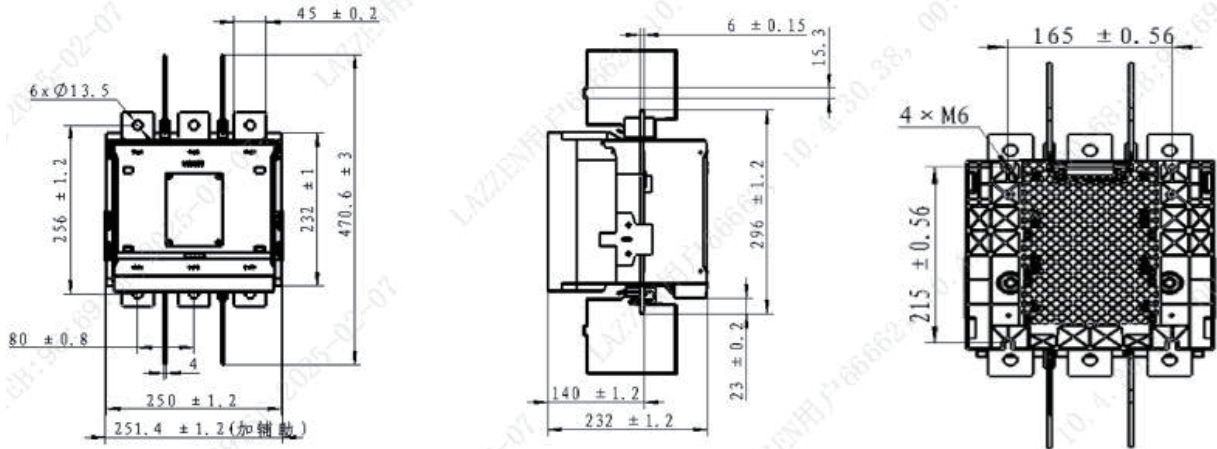
型号		F1-11L/C5K-800		F1—11LS/C5K-800	
额定绝缘电压		690V		250V	
耐受冲击电压		6kV		2.5kV	
约定自由空气发热电流 Ith		16A		0.1A	
使用类别		AC-15 DC-13		AC-14 DC-12	
额定工作电压/电流		AC-15	230V 50/60Hz 6A	AC-14	125V 50/60Hz 0.1A
			400V 50/60Hz 4A		/
			500V 50/60Hz 1.5A		/
		DC-13	DC24V 6A	DC-12	DC30V 0.1A
			DC48V 2.8A		/
			DC220V 0.3A		/
gG 熔丝保护		16A		/	
可接通最小负载		24V 10mA		12V 5mA	
防护能力		IP60 （端子 IP20）		IP67（端子 IP20）	
电气寿命		100 万次		30 万次	
机械寿命		300 万次		300 万次	
接线能力	硬线	1 根/2 根 1…4mm²			
	非预制端头软线	1 根/2 根 0.75…2.5 mm²			
	预制端头软线	1 根/2 根 0.75…2.5 mm²			
接线螺钉		M3.5			
紧固扭矩		1.2N.m ± 0.2			

3、安装方式

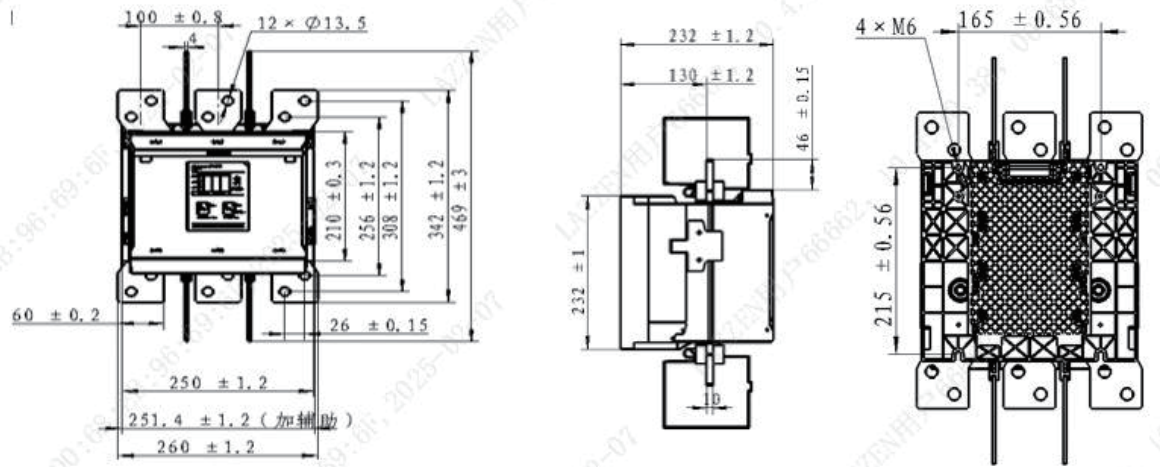
产品须使用螺栓安装 (以 NDC5K-800 为例)	
禁止安装方式	

4、安装尺寸

NDC5K-630、800 TU 总装图及尺寸

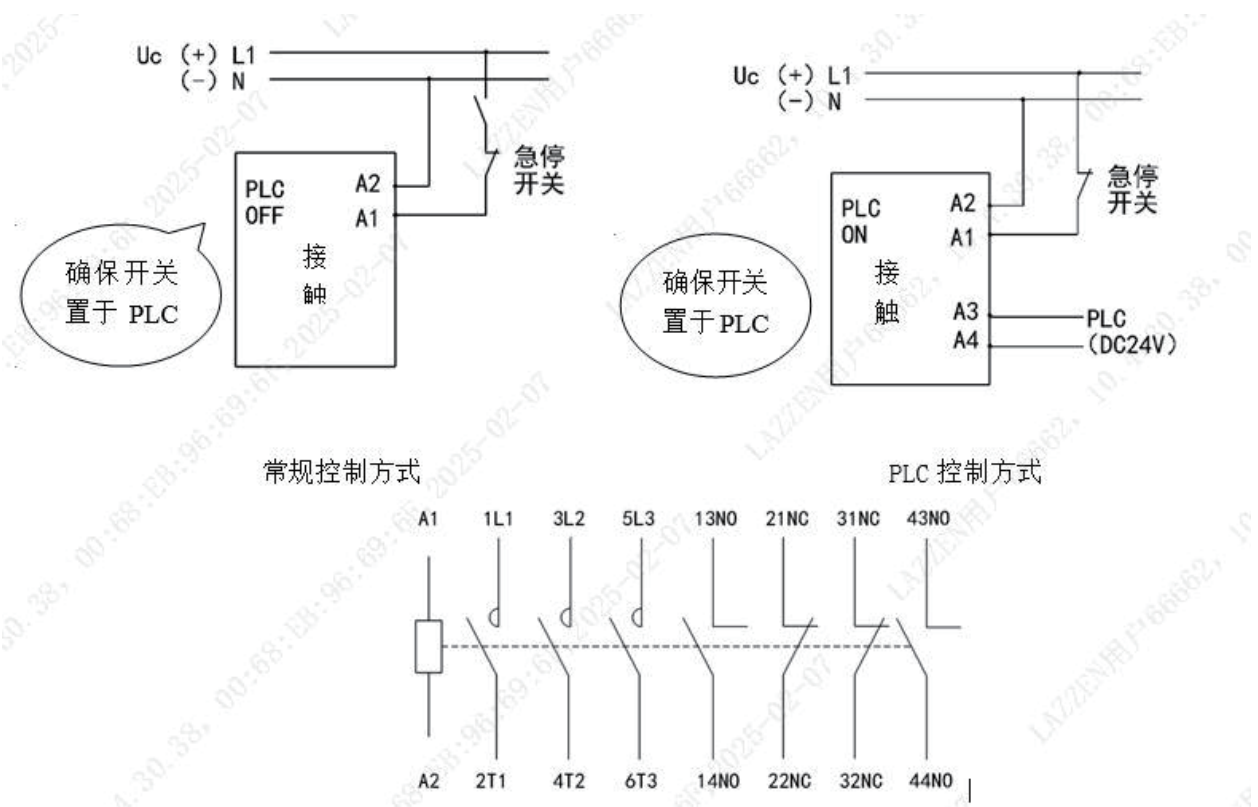


NDC5K-1450、1700 TU 总装图及尺寸



5、接线方式

1)接线图



NDC5K-630~1700 接线图

2)主回路接线端子连接导线能力（见表 1）及力矩（见表 2）

表 1

规格	主电路连接能力			
	标准铜排 宽度 mm	单根铜排 厚度 mm	带接线头的软线 mm ²	绞合线 mm ²
NDC5K-630 TU	50	5	min 50 max 240	min 70 max 240
NDC5K-800 TU	60	5		
NDC5K-1450 TU	70	5	----	----
NDC5K-1700 TU	80	5	----	----

1)铜排数量根据实际运行额定电流选择，要求能长期稳定承载额定电流

2)多根铜排要求上下排布，如下图所示

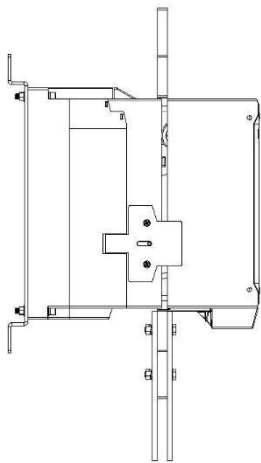


表 2

规格	主回路接线螺栓	紧固扭矩 M（N.m）
NDC5K-630 TU	M12	24
NDC5K-800 TU		35
NDC5K-1450 TU		
NDC5K-1700 TU		

3) 控制电路

⚠ 变压器阻抗电压 $U_k \leq 0.7$ ，并且到 A1-A2 端线路压降不大于 5%

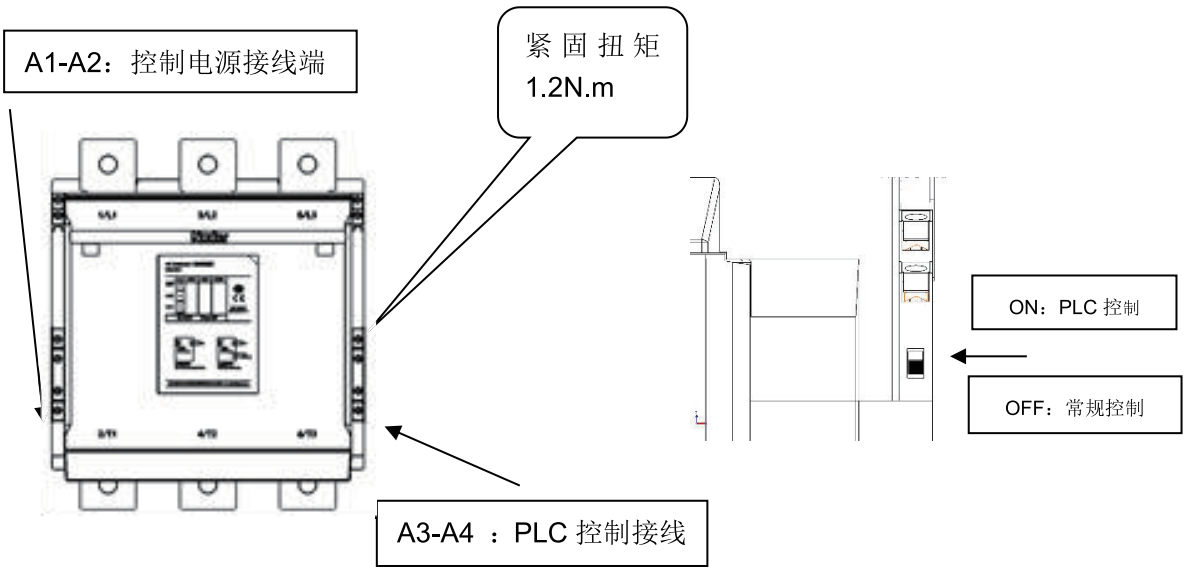
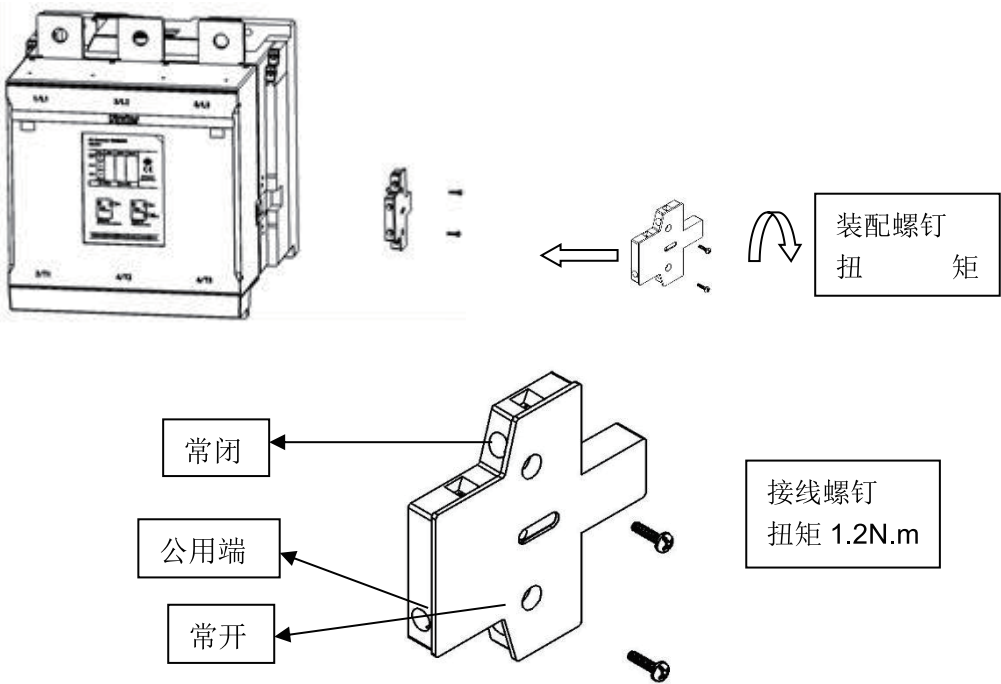


表 3

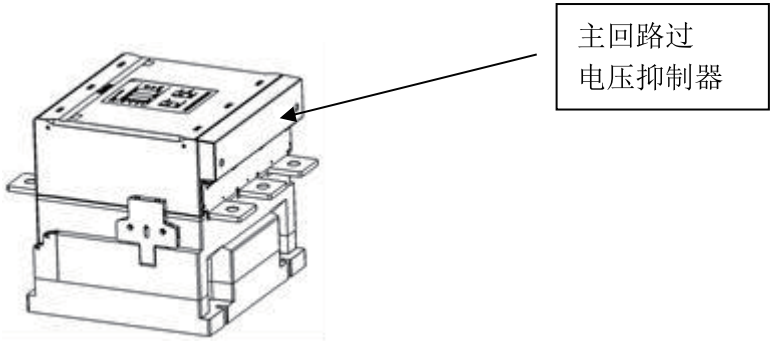
控制回路及 辅助回路 接线能力	硬线	1 根/2 根 1…4mm²
	非预制端头软线	1 根/2 根 0.75…2.5 mm²
	预制端头软线	1 根/2 根 0.75…2.5 mm²

6、附件说明

1) 辅助触头组

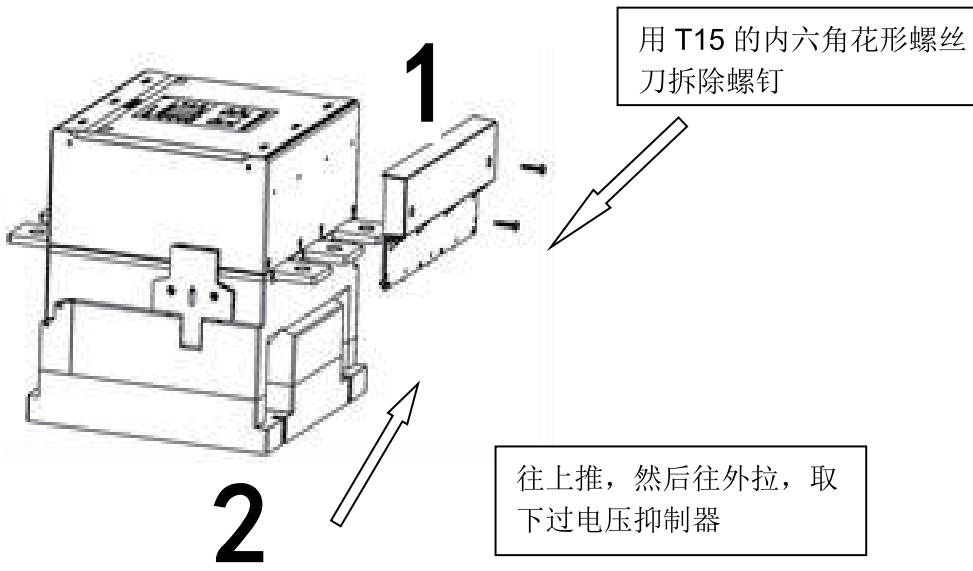


2) 过电压抑制器



当产品和变频器一起使用时，或者主电路具有很强的谐波负载时，必须去除主回路过电压抑制器，当产品进行耐压测试时，必须去除主回路过电压抑制器。

注意：
过电压抑制器必须
装在负载端一侧



7、使用和维护

环境温度	标准工作温度：-25℃～+60℃ 标准控制电压下工作最大允许温度范围：-40℃～+70℃ 贮存：-40℃～+80℃
污染等级	“3级”，应避免在引起爆炸危险的介质、腐蚀金属及破坏绝缘的有害气体和导电尘埃的环境中
安装类别	“Ⅲ”类
冲击与振动	参考规格书
运输和储存条件	温度范围为-40～+80℃之间，处于极端温度下而不操作的电器不应承受不可逆的损坏，在置于正常条件下后电器应能按照规定正常操作
安装与使用	● 应按规定的条件和使用环境安装； ● 主回路接线螺栓和线圈接线螺钉应按规定力矩拧紧； ● 连接导线应紧固在配电柜架上。接触器不应承受导线的重量。固紧导线前，应该使母排或电缆端子平面与接触器接线端平面平行。用螺栓连接导线和接触器接线端后，接触器不应该承受各种机械应力； ● 安装完毕使用前应在主回路不带电的情况下，使线圈通电分合数次，确认无误后方可投入使用； ● 接触器必须可靠接地，以免发生事故；

8、注意事项

- 使用前务必检查线圈电压是否与控制电源电压相符。

8、订货须知

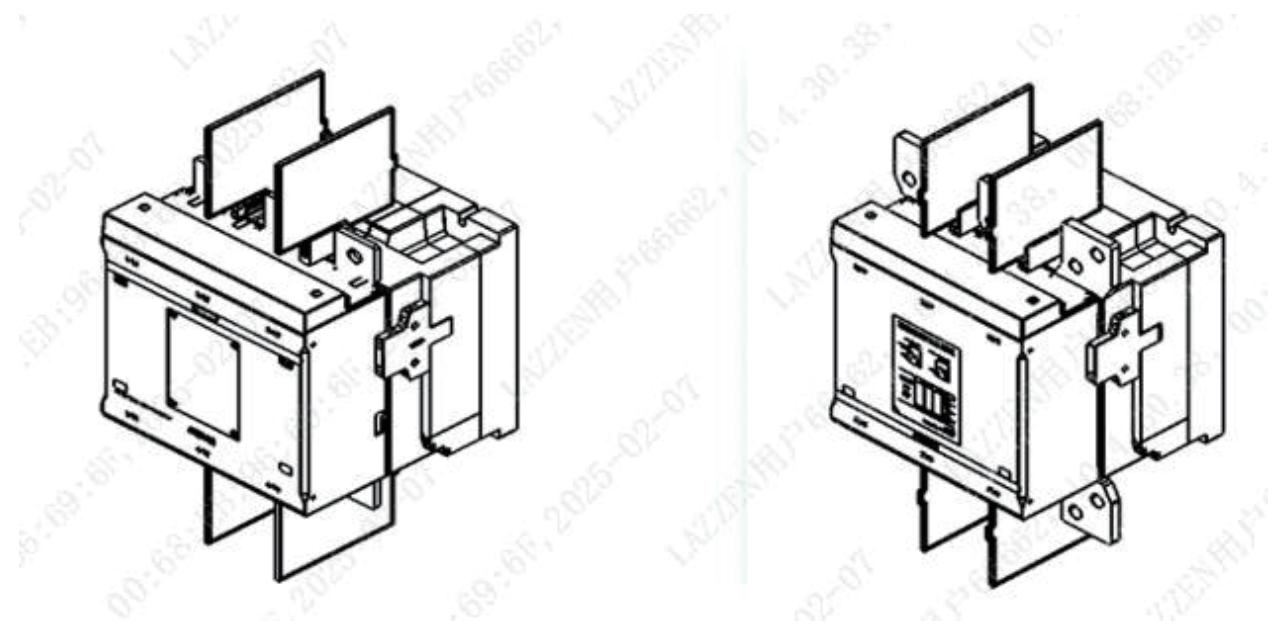
- 辅助触头组、过电压抑制器为分离件，可单独订货。
- 请写明接触器的名称、型号、规格及订货数量。

例如：交流接触器 NDC5K-630 TU AC/DC 110 ~ 250V 10 台

表示额定工作电流为 AC-1 时为 1050A, 控制电压为 AC/DC 110 ~ 250V 50/60Hz 的标准型产品，
订货数量为 10 台。

1. Applicable Scope and Purpose

The 630-1700TU (2000V) series of vacuum contactors (hereinafter referred to as the contactor) are mainly used in the photovoltaic and wind power industry, for remote connecting and breaking of the circuit. The contactor can also be used in the industrial control sector for remotely connecting & breaking, and frequently starting & controlling AC motors, which can control the inverse operation or reverse brake of the AC motors.



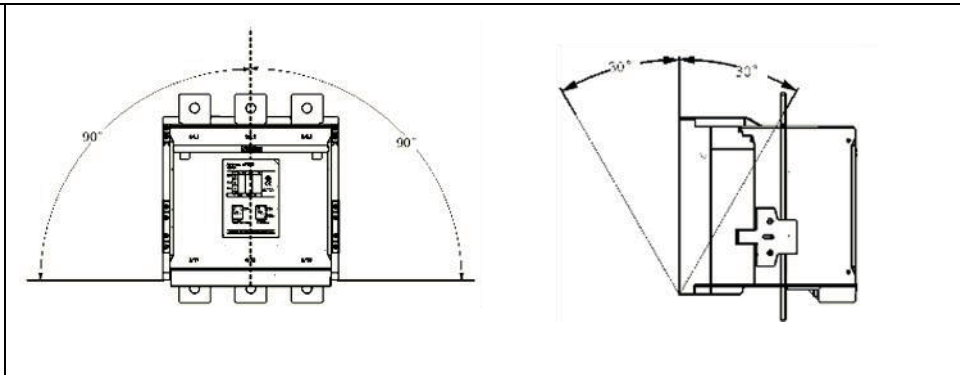
NDC5K-630~1700 TU series



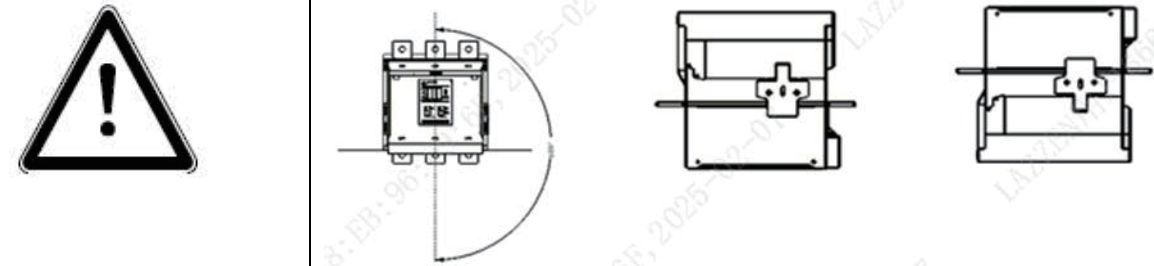
Warning! Installation, operation and maintenance of the product must be done by professional qualified electricians in accordance with the related systems, regulations, installation standards and safety specifications.

2. Installation Mode

For bolt installation of the product
(Take NDC5K-1700 series as an example)

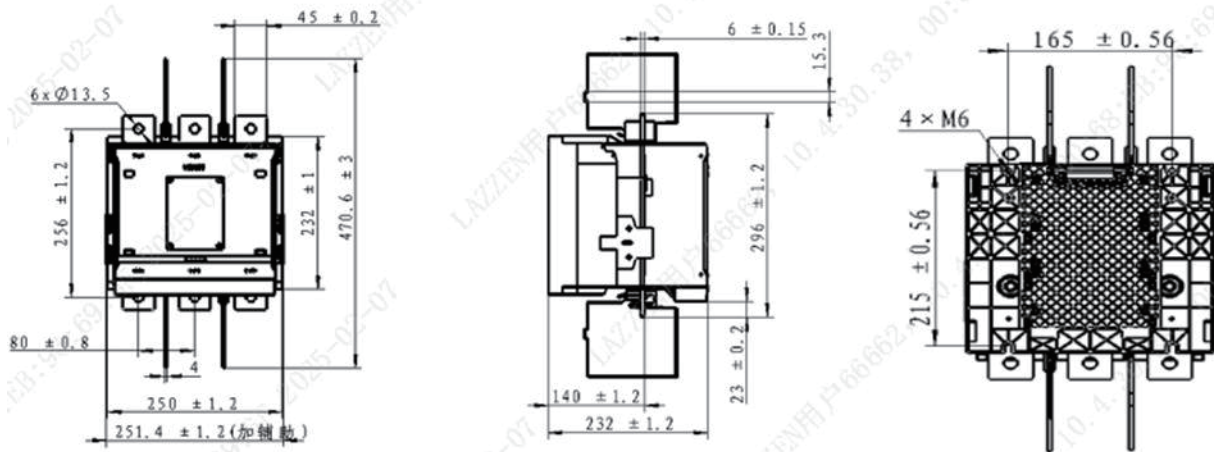


Prohibition

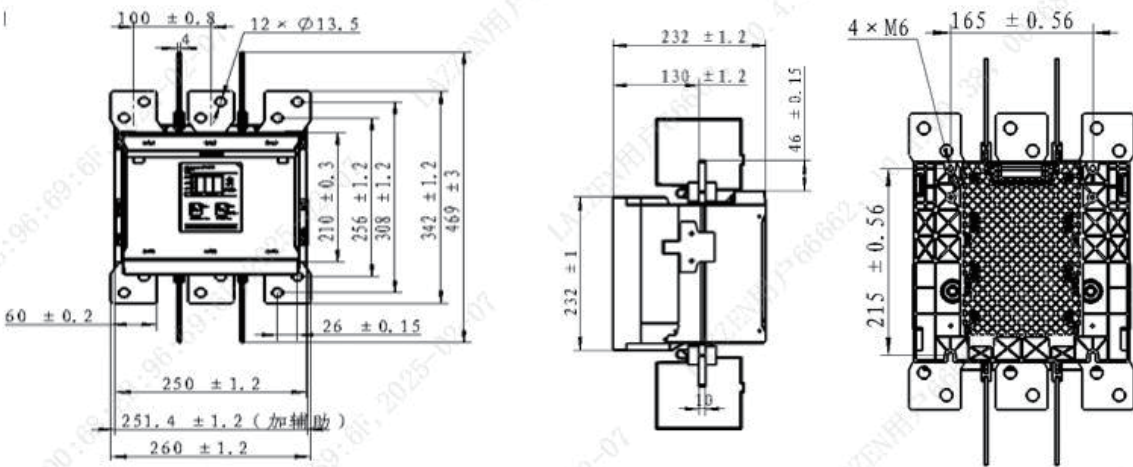


3. Installation Dimensions

6.1 NDC5K-630、800 TU 总装图及尺寸

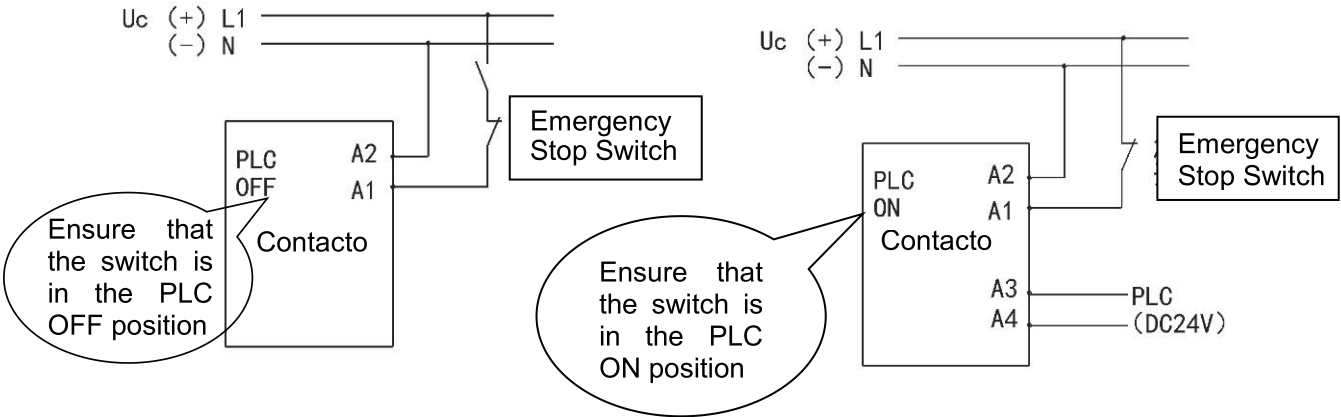


6.2 NDC5K-1450、1700 TU 总装图及尺寸



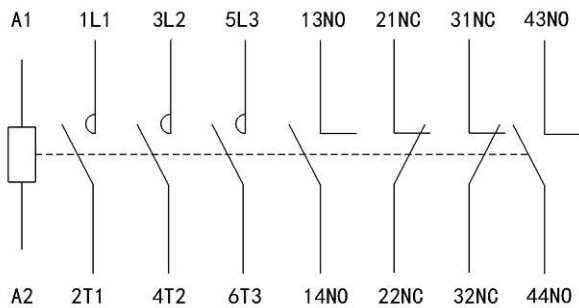
4. Wiring Mode

1) Wiring diagram



Common Control Mode

PLC Control Mode



Wiring Diagram of NDC5K-630~1700 TU

2) Connecting wire capacity (see Table 1) and torque (see Table 2) of the main circuit terminal

Table 1

Specification	Connecting capacity of the main circuit			
	Standard copper bar Width mm	Single copper bar Thickness mm	Cord with a connector mm ²	Stranded wire mm ²
NDC5K-630 TU	50	5	min 50 max 240	min 70 max 240
NDC5K-800 TU	60	5		
NDC5K-1450 TU	70	5	----	----
NDC5K-1700 TU	80	5		

- 1) Choose the quantity of the copper bar according to the actual operating rated current, which shall carry the rated current stably for a long time
- 2) Multiple copper bars shall be arranged up and down, shown as below

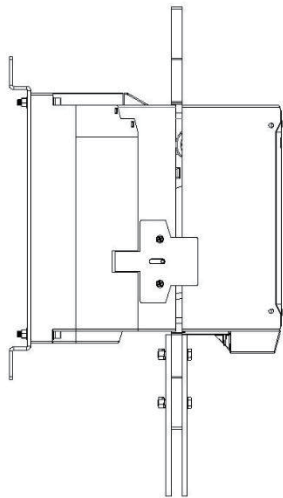


Table 2

Specification	Main circuit connection bolt	Tightening torque M (N.m)
NDC5K-630 TU	M12	24
NDC5K-800 TU		35
NDC5K-1450 TU		
NDC5K-1700 TU		

3) Control circuit

! The control transformer features the impedance voltage $U_k \leq 0.7$ with the line drop no more than 5% to the A1-A2 side

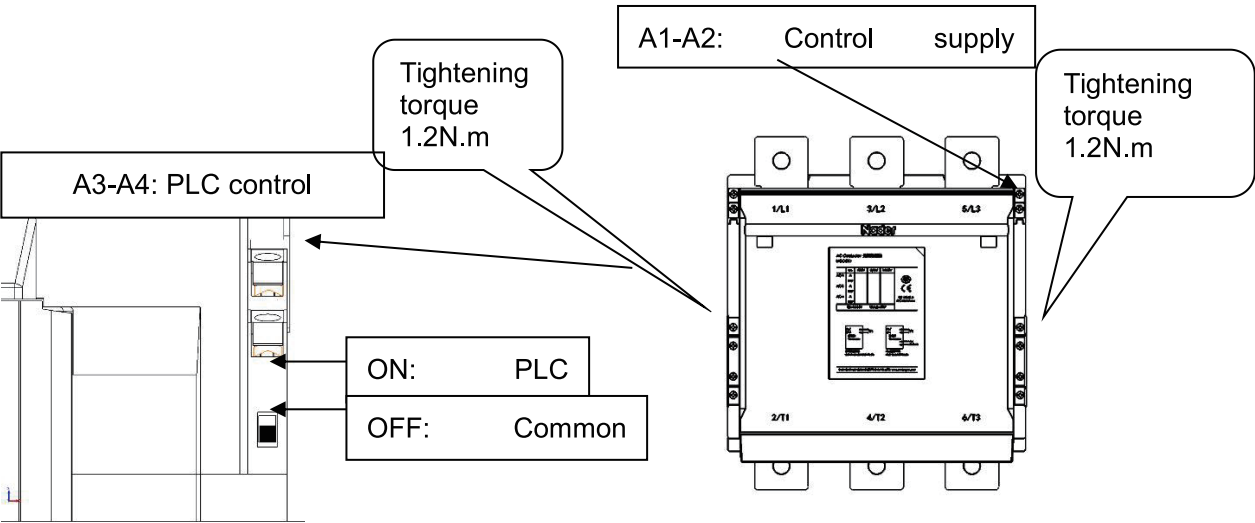
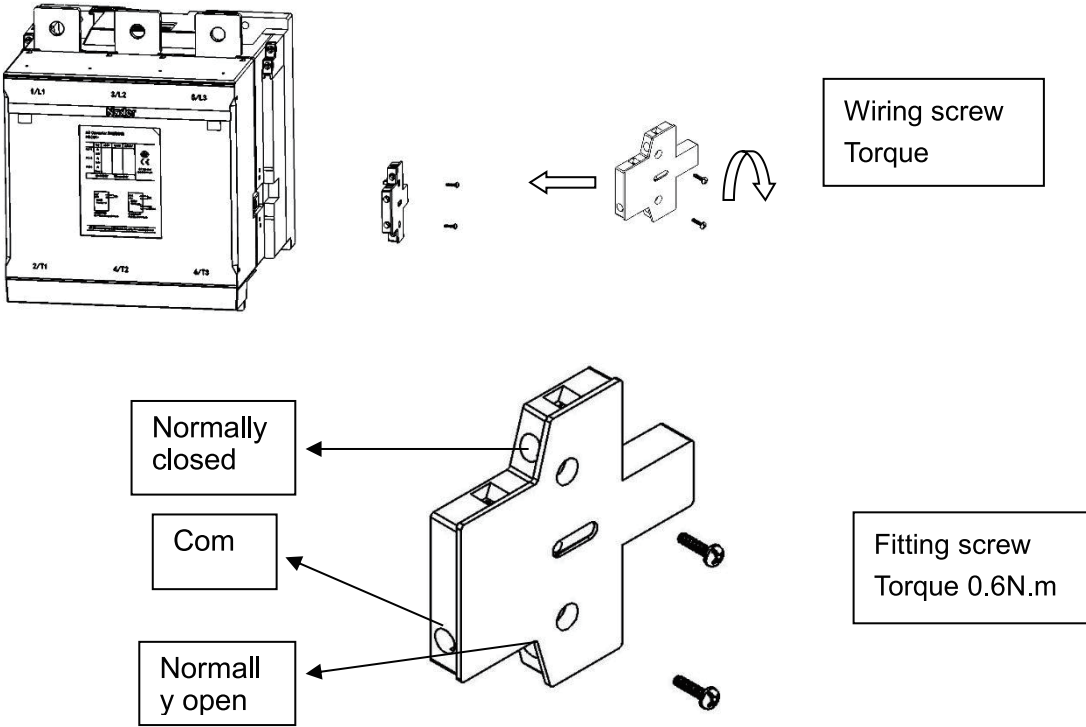


Table 3

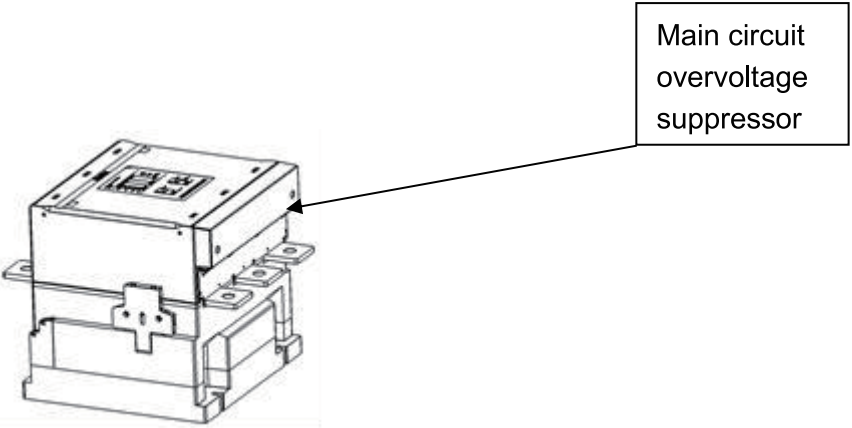
Connection capacity of the control circuit and auxiliary circuit	Hard wire	1 piece/2 pieces 1...4mm ²
	Non-prefabricated end cord	1 piece/2 pieces 0.75...2.5 mm ²
	Prefabricated end cord	1 piece/2 pieces 0.75...2.5 mm ²

5. Accessory Description

2) Auxiliary contact set

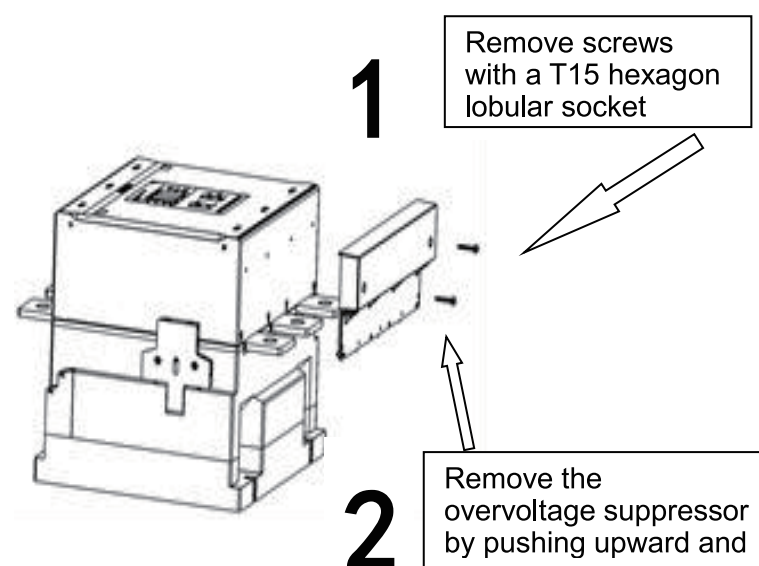


2) Overvoltage suppressor



When it is used with the inverter, or the main circuit has the strong harmonic load, be sure to remove the main circuit overvoltage suppressor; to conduct the withstand voltage test, be sure to remove the main circuit overvoltage suppressor

Note:
The overvoltage suppressor must be installed on one side of the



6. Use and Maintenance

Ambient temperature	Standard operating temperature: -25℃~+60℃ Maximum allowed temperature range under the standard control voltage: -40℃~+70℃ Storage temperature: -40℃~+80℃
Pollution level	"Level 3"; the product shall not be used in environment with explosion hazardous media, harmful gases with metal corrosion and insulation destruction and conductive dusts
Installation category	Category "III"
Shock and vibration	Refer to the specification
Transport and storage conditions	Temperature range: -40~+80℃; electrical appliances shall not suffer irreversible damage without operation under extreme temperature conditions, which shall operate normally according to the requirements after placed under the normal condition
Installation and use	- To be installed according to the specified conditions and operating environment; - The main-circuit connection bolt and coil terminal screw shall be tightened as per the specified torque; - Connecting wires shall be fastened in the distribution cabinet rack. The contactor shall not bear the weight of the wire. Before fastening the wire, the bus terminal or cable terminal plane shall be parallel with the contactor terminal plane. After the wire and contactor terminal are connected with bolts, the contactor shall not be subjected to various mechanical stresses; - After installation prior to use, turn on and off the coil several times with power on and the main circuit de-energized, and put it into use after confirmation; - The contactor must be reliably grounded to avoid accidents;

7. Precautions

- Before use, be sure to check that the coil voltage complies with the control power voltage.

8. Order Note

- Coils, circuit boards and phase insulated partitions can be ordered separately as wear parts.
- Please specify the name, model, specification and order quantity of the contactor.
For example: AC contactor NDC5K-630 TU AC/DC 110~250V 10 sets
It represents that when the rated operating current is AC-1 1030A, standard type of the control voltage is AC 110~250V 50/60Hz and DC 110~250V with the order quantity of 10 sets.

