NDW2G series

Product Specification of Disconnecting Switch

Project Name: NDW2G Disconnecting Switch

Project No.: P15056

Prepared by: Huang Jianjun Tian Jing

Date: July 12th, 2021

Revision History					
Version	Revision Reason/Content	Implementation Date	Prepared by	Reviewed by	Approved by
0	Newly prepared and issued	April 7, 2016	He Guibo	Zhang Yan	Cao Jin
1	Update the 2D drawing with the installation dimensions, add DC1500V parameters.	August 8, 2016	He Guibo	Zhang Yan	Cao Jin
2	1、 Distinguish the rated voltage of the DC products 3p and 4p 2、 Update the encoding rules and ordering notes 3、 Update the installation dimension drawing 4、 Rearrange some contents	October 31, 2018	Luo Guorui	He Guibo	Yang Yuyong
3	1、 Combine TH thermal-humidity products into power generating products 2、 Add the thermal-humidity standard (at +55°C, 95% relative humidity)	December 24, 2018	Zhang Ying	Zhuang Yangyang	Yang Yuyong
4	1、 Correct the terms, such as no-voltage release, rocker and energy storage 2、 Correct the outline dimensions of the product and the dimensions of the copper wiring busbar 3、 Correct relevant sizes of 4000 frame size of 3200A~4000A drawout type	July 30, 2020	Zhou Yongqian	Zhang Ying	Yang Yuyong
5	1、 Correct product structure siagram 2、 Correct terms of electrical control accessories 3、 Correct terms of draw-out type disconnecting switch rocker working position	2020/08/25	Chen Kai	Zhou Yongqian	Wang Qinshan
6	Add NDW2G-4000HU relative contents	2021/07/12	Tian Jing	Huang Jianjun	Yin Jiacan

Contents

Chapter 1 Product Overview

Product overview 1

1.1 NDW2G product series

NDW2G-2000

NDW2G-4000

1.2 Rated current of NDW2G disconnecting switch

Rated current (A) / Frame current	400	630	800	1000	1250	1600	2000	2500	3200	4000
NDW2G-2000 NDW2GF-2000										
NDW2GZ-2000 NDW2GZF-2000										
NDW2G-4000 NDW2GF-4000										
NDW2GZ-4000 NDW2GZF-4000										

1.3 Breaking capacity and short-time withstand current of NDW2G disconnecting switch

Disconnecting switch	NDW2G-2000/ NDW2GF-2000	NDW2G-4000/ NDW2GF-4000	NDW2GZ-2000/ NDW2GZF-2000	NDW2GZ-4000/ NDW2GZF-4000
Number of poles	3, 4	3, 4	3, 4	3, 4
Rated current In 40°C	400A～2000A	800A～4000A	400A～2000A	800A～4000A
N-pole rated current	100%In			
Rated operational voltage Ue	AC415V, AC690V	AC415V、AC690V 、AC800V、AC1000V/1140V	DC750V (3P) DC1000V (4p), DC1500V (4p)	DC750V (3p), DC1000V (4p), DC1200V (4p), DC1500V (4p)
Rated short circuit making capacity Icm (peak value) kA[1)]	143kA	220kA	80kA	100kA
Rated short time withstand current Icw (effective value) 1s kA [1)]	65kA	100kA	35kA	50kA

Note: 1) AC415V for AC products, and DC750V for DC products

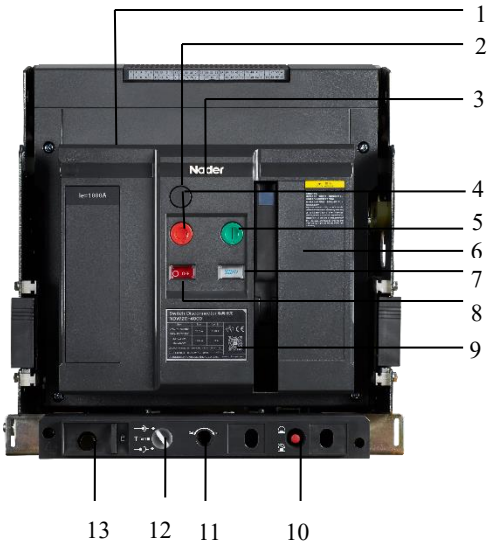
1.4 Structural Features

■ Installation structure

Fixed type

Drawout type

■ Brief Description of Structure and Indications

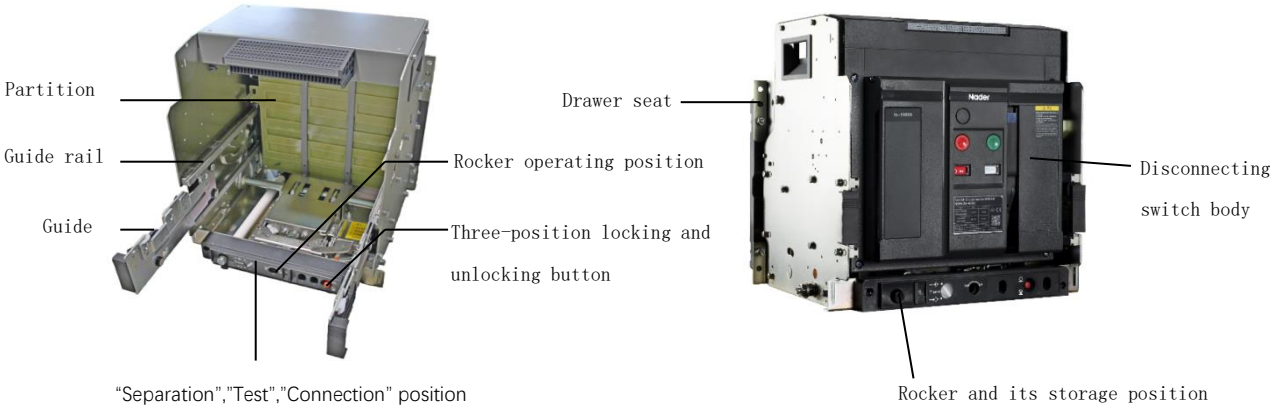


1. Specification sign
2. Disconnected position key lock (Optional function)
3. Nader sign
4. Disconnection button
5. Counter （ Optional function）
6. Energy releasing and storing indicator
7. Opening and closing indication
8. Nameplate
9. Counter (added function)
10. “Connection”, “Test”, “Separation” position locking and unlocking devices
11. Rocker operating position
12. "Connection", "Test" and "Separation" position indicator
13. Rocker and its storage position

Note: 1 ~ 9 is fixed type, while 1 ~ 13 is drawout type.

■ Structure of drawout-type disconnecting switch

Drawout type disconnecting switch is composed of the disconnecting switch body and the drawer seat. The drawer seat has guide rails on both sides. There's a movable guide plate on the guide rail. The disconnecting switch is placed on the left and right guide plates. The drawout type disconnecting switch connects to the main circuit by inserting the busbar on the disconnecting switch body into the bridge contact on the drawer seat.



1.5 Design Features

1.5.1 Disconnecting switch for humid-hot and plateau

NDW2GF can meet the use under the environment condition of plateau and low temperature below 40°C, is in line with the GB/T20645 Technical Requirements of the Plateau Low-voltage Apparatus under Special Circumstances, and has passed standard related test.

NDW2GF and NDW2GZF can meet the requirements of the three-proofing products, namely, moisture-proofing, mould-proofing and salt spray-proofing, and complies with "Technical Requirements of Tropical Type Low-voltage Apparatus" (JB-T834) while having passed the following standard related tests:

- Thermal-humidity test: GB/T 2423.4-2008 Environmental Testing for Electric and Electronic Products. Part 2: Test Method Test Db: Alternating Thermal

-humidity (12h + 12h Cycle)

- Mould growth test: GBT2423.16-2008 Environmental Testing for Electric and Electronic Products. Part 2: Test Method Test J and Guidelines: Mould

Growth

- Enclosure protection grade: GB/T 4208-2008 Enclosure Protection Grade (IP code)
- Salt spray test: GB/T2423.18-2012 Environmental Testing Part 2: Test Method Test Kb: Salt spray, Alternating salt spray (Sodium chloride solution)

1.5.3 Convenient wiring mode

Either zero flashover or upper and lower wiring is OK.

Wiring mode: horizontal wiring, horizontal extended wiring, vertical wiring, vertical extended wiring and so on.

1.5.4 Efficient arc extinguishing

The design of the disconnecting switch arc extinguishing chamber and contact system has a number of invention patents. It adopts the principle of air-blast arc extinguishing, optimizes the arc extinguishing gate design, increases the driving force of arc, and improves the arc extinguishing ability of the product.

1.5.5 High electrical life and short-circuit withstand capacity

The body design adopts high strength DMC material, and has high impact strength and insulating properties. The design of the double-contact structure improves the electric life of products; the optimized design of the mechanism realizes compensation to the contact pressure, and improves the product reliability and short circuit tolerance ability.

1.5.6 Multiple safety protection devices

It has drawout type disconnecting switch door interlocking, drawout type triolocation locking and unlocking device and disconnected position key lock, connection terminal protective cover, closing ready device and other protection devices.

1.6 Conforming Standards and Certification

GB/T 2423.4-2008 Environmental Testing for Electric and Electronic Products - Part 2: Test Method - Test Db: Thermal, Humidity, 12h +12h cyclic

GB/T 4207-2012 Methods for the Determination of the Proof and the Comparative Tracking Indices of Solid Insulating Materials

GB/T 14048.1-2012 Low-voltage Switchgear and Control Equipment - Part 1: General Principles (IEC 60947-1:2011, MOD)

GB/T 14048.3-2017 Low-voltage Switchgear and Control Equipment - Part 3: Switches, Disconnectors, Switch-disconnectors and Fuse-combination units

GB/T 14092.3-2009 Environmental Condition for Machinery Products - High Altitude

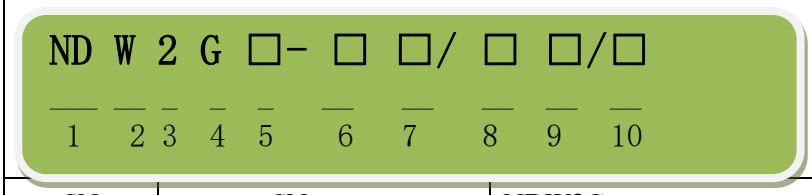
GB/T 19608.3-2004 Classification of Special Environmental Condition Part 3: Plateau

GB/T 20645-2006 Specific Environmental Condition - Technical Requirements of Low-voltage Apparatuses for Plateau

GB/T 20626.3-2006 Specific Environmental Condition - Electric and Electronic Products for Plateau - Part 3: Protection Requirement of Thunder and Lightning, Pollution, Condensation

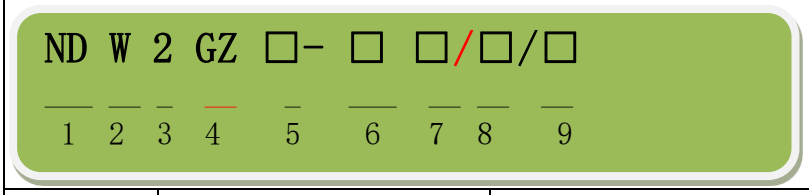
The product has obtained China Compulsory Certification (CCC) for products.

1.7 Product Model



SN	SN name	NDW2G
1	Enterprise code	ND-"Nader" brand low-voltage electrical appliance
2	Product code	W – Air Circuit Breaker
3	Design code	2
4	Derived code	G - Disconnecting switch
5	Derived code	Not-marked - Conventional, F - Power generation products
6	Frame size level current	20-2000, 40-4000
7	Breaking type	HU-high voltage level Not marked-not high voltage level
8	Installation mode	Non-marked - fixed type, C - drawout type
9	Rated current	04-400A, 06-630A, 08-800A, 10-1000A, 12-1250A, 16-1600A, 20-2000A, 25-2500A, 32-3200A, 40-4000A
10	Number of poles	3-3 poles, 4-4 poles

Note: 1.For the HU breaking type, serial 8 is behind serial 9, e.g.: NDW2G-40HU/40C
2.No.5 Derived code "F", is applicable for Windpower and Plateau



SN	SN name	NDW2GZ
1	Enterprise code	ND-"Nader" brand low-voltage electrical appliance
2	Product code	W – Air Circuit Breaker
3	Design code	2
4	Derived code	G - Disconnecting switch Z - DC
5	Derived code	Not-marked - Conventional, F - Power generation products
6	Frame size level current	20-2000, 40-4000
7	Installation mode	Non-marked - fixed type, C - drawout type
8	Rated current	08-800A, 10-1000A, 12-1250A, 16-1600A, 20-2000A, 25-2500A, 32-3200A, 40-4000A
9	Number of poles	3-3 poles, 4-4 poles

Note: 1.No.5 Derived code "F", is applicable for Windpower and Plateau

Chapter 2 Technical Characteristics

Technical Characteristics 2

2.1 Technical Parameter List of NDW2G Disconnecting switch

Disconnecting switch model		NDW2G-2000/ NDW2GF-2000			NDW2G-4000/ NDW2GF-4000	
Rated current In (A) (+40℃)		400, 630, 800	1000, 1250, 1600	2000	800, 1000, 1250, 1600, 2000, 2500	3200, 4000
N-pole rated current		100%In				
Rated operational voltage Ue		AC415V, AC690V			AC415V、AC690V、AC800V、AC1000/1140V	
Rated frequency F		50/60Hz				
Rated insulation voltage Ui		AC1000V			AC1000V(AC415V、AC690V) AC1250V(AC800V、AC1000/1140V)	
Rated impulse withstand voltage Uimp		12kV				
Number of poles		3, 4				
Full break time		≤30ms				
Closing time		≤70ms				
Rated short circuit making capacity Icm (peak value) kA	AC415V	143			220	
	AC690V	110			187	
	AC800V	-			154	
	AC1000/ 1140V	-			121	
Rated short-time withstand current Icw (effective value) 1s kA	AC415V	65			100	
	AC690V	50			85	
	AC800V	-			70	
	AC1000/ 1140V	-			55	
With external protection relay, Ultimate breaking capacity at maximum delay of 0.4s (kA)	AC415V	65			100	
	AC690V	50			85	
	AC800V	-			70	
	AC1000/ 1140V	-			55	
Utilization category		AC-22A, AC-23A				
Operation performance (times)	Electrical Life AC415V	8000			8000	
	Electrical Life AC690V	5000			3000	
	Electrical Life AC800V	-			2000（800A～1600A） 1000（2000A～4000A）	
	Electrical Life AC1000/ 1140V	-			2000（800A～1600A） 1000（2000A、2500A） 600（3200A、4000A）	
	Mechanical Life Maintenance-free	15000			10000	
	Mechanical Life With maintenance	25000			15000	
Installation mode	Fixed type	▲			▲	
	Drawout type	▲			▲	

<table>
<tr><td rowspan="2">Wiring method of the main circuit</td><td>Fixed type</td><td colspan="3">Horizontal wiring, L wiring, Horizontal extended wiring</td><td colspan="2">Horizontal wiring, vertical wiring, horizontal extended wiring, vertical extended wiring</td></tr>
<tr><td>Drawout type</td><td colspan="3">Horizontal wiring, vertical wiring, L-type wiring, Horizontal extended wiring</td><td colspan="2">Horizontal wiring, vertical wiring, horizontal extended wiring, vertical extended wiring</td></tr>
<tr><td rowspan="4">Boundary dimension: W×D×H (mm)</td><td>Fixed type 3P</td><td colspan="3">362×331×397</td><td colspan="2">428×300×393.5</td></tr>
<tr><td>Fixed type 4P</td><td colspan="3">457×331×397</td><td colspan="2">543×300×393.5</td></tr>
<tr><td>Drawout type 3P</td><td colspan="3">375×398×432</td><td>435×403×432
（800~2500A）</td><td>435×397.5×432
（3200A、4000A）</td></tr>
<tr><td>Drawout type 4P</td><td colspan="3">470×398×432</td><td>550×403×432
（800~2500A）</td><td>550×397.5×432
（3200A、4000A）</td></tr>
<tr><td rowspan="4">Weight (kg)</td><td>Fixed type 3P</td><td>39</td><td>40</td><td>41</td><td>59</td><td>60</td></tr>
<tr><td>Fixed type 4P</td><td>48</td><td>49</td><td>50</td><td>70</td><td>71.5</td></tr>
<tr><td>Drawout type 3P</td><td>68</td><td>70</td><td>71</td><td>97</td><td>103</td></tr>
<tr><td>Drawout type 4P</td><td>86</td><td>88</td><td>91</td><td>114</td><td>120</td></tr>
<tr><td colspan="7">Note: ▲ represents this function is available</td></tr>
</table>

2.2 Technical Parameter List of NDW2GZ DC Disconnecting switch

Disconnecting switch model			NDW2GZ-2000/ NDW2GZF-2000			NDW2GZ-4000/NDW2GZF-4000	
Rated current In (A) (+40℃)			800	1000, 1250, 1600	2000	1250, 1600 2000, 2500	3200, 4000
Rated operational voltage Ue			DC750V (3P) DC1000V (4p), DC1500V (4p)			DC750V (3p), DC1000V (4p), DC1200V (4p), DC1500V (4p)	
Rated insulation voltage Ui			DC1500V				
Rated impulse withstand voltage Uimp			12kV				
Number of poles			3P in series, 4P in series				
Full break time			≤30ms				
Closing time			≤70ms				
Rated short circuit making capacity Icm (peak value) kA		DC750V	80			100	
		DC1000V	52.5			52.5	
		DC1500V	35			50	
Rated short-time withstand current Icw (effective value) 1s kA		DC750V	35			50	
		DC1000V					
		DC1500V					
Utilization category			DC-22A, DC-23A				
Operation performance (times)	Electrical life	DC750V	3000			1000	
		DC1000V	2000			800	
		DC1500V	1000			500	
	Mechanical life	Maintenance-free	15000			10000	
		With maintenance	25000			15000	
Installation mode		Fixed type	▲			▲	
		Drawout type	▲			▲	
Wiring method of the main circuit		Fixed type	Horizontal extended wiring			Horizontal extended wiring	
		Drawout type	Horizontal extended wiring			Horizontal extended wiring	
Boundary dimension: W×D×H (mm)		Fixed type 3P	362×331×397			428×300×393.5	
		Fixed type 4P	457×331×397			543×300×393.5	
		Drawout type 3P	375×398×432			435×403×432 （800~2500A）	435×397.5×432 （3200A、4000A）
		Drawout type 4P	470×398×432			550×403×432 （800~2500A）	550×397.5×432 （3200A、4000A）
Weight (kg)		Fixed type 3P	39	40	41	59	60
		Fixed type 4P	48	49	50	70	71.5
		Drawout type 3P	68	70	71	97	103
		Drawout type 4P	86	88	91	114	120
Note: ▲ represents this function is available							

Chapter 3 Accessories

Accessories 3

3.1 Accessories list

Accessory name	For which kind of disconnecting switches	Supply mode
Off-position key lock	Fixed type/drawout type	Optional ordering for customers
Door interlocking	Drawout type	Optional ordering for customers
Disconnecting switch three-position locking device	Drawout type	Standard configuration
Auxiliary switch	Fixed type/drawout type	Standard configuration
Closed electromagnet	Fixed type/drawout type	Standard configuration
Shunt release	Fixed type/drawout type	Standard configuration
Motor operating mechanism	Fixed type/drawout type	Standard configuration
Phase partition	Fixed type/drawout type	Optional ordering for customers
Closing ready signal output device	Fixed type/drawout type	Optional ordering for customers
Undervoltage release	Fixed type/drawout type	Optional ordering for customers
Counter	Fixed type/drawout type	Optional ordering for customers
Dustproof cover	Fixed type/drawout type	Optional ordering for customers
Door frame	Fixed type/drawout type	Optional ordering for customers

3.2 Electrical Control Accessories

3.2.1 Closed electromagnet（standard configuration）

Closed electromagnet is mainly composed of coil, iron core component and electronic parts. In the condition of mechanism energy storage, as long as the closed electromagnet is energized, the disconnecting switch can be closed.

◆ Action features of the closed electromagnet.

1) When the power supply voltage of the closed electromagnet maintains at 85%~110% of the rated control supply voltage Us , operation of the closed electromagnet can make reliable closing of the disconnecting switch;

2) Closed electromagnet is the short-time duty-type;

3) There is the control circuit inside to ensure the long-time energizing, which shall be >200ms. The user cannot connect it with the auxiliary switch point of the disconnecting switch in series.

◆ Technical Parameters of Closed Electromagnet

Rated insulation voltage (Ui)	Rated control supply voltage (Us)	Instantaneous power
400V	AC380V/AC400V 50/60Hz	620VA
	AC220V/AC230V 50/60Hz	500VA
	DC220V	500W
	DC110V	400W
	DC24V	145W

3.2.2 Shunt release（standard configuration）

Shunt release is mainly composed of coil, iron core component and electronic parts, which can make the disconnecting switch disconnect by remote operation.

◆ Action features of the shunt release

1) When the power supply voltage of the shunt release maintains at 70%~110% of the rated control supply voltage, operation of the shunt release can make the disconnecting switch disconnect;

2) Shunt release is the short-time duty-type;

3) There is the control circuit inside to ensure the long-time energizing, which shall be >200ms. The user cannot connect it with the auxiliary switch point of the disconnecting switch in series.

◆ Technical Parameters of Shunt Release

Rated insulation voltage (Ui)	Rated control supply voltage (Us)	Instantaneous power
400V	AC380V/AC400V 50/60Hz	620VA
	AC220V/AC230V 50/60Hz	500VA
	DC220V	500W
	DC110V	400W
	DC24V	145W

3.2.3 Motor operating mechanism

The Disconnecting switch can only be closed after the motor operating mechanism make the Disconnecting switch to store energy in advance.

◆ Operation features

1） If the rated supply voltage of the motor operating mechanism is between 85%~110% , energy storage of the disconnecting switch can be made in place.

2) The motor will close the power supply automatically and stop operation after it stores energy in place.

3) The motor operating mechanism can realize the automatic pre-energy storing.

◆ Technical Parameters of Motor Operating Mechanism

Rated insulation voltage (Ui)	Energy storage time	Rated control supply voltage (Us)	Operating power	
			2000 frame size	4000 frame size
400V	3s~5s	AC220V/AC230V AC380V/AC400V (50/60Hz)	85VA (3P), 110V (4P)	110VA
		DC220V/DC110V	85VA (3P), 110V (4P)	110W
		DC24V	/	/

3.2.4 Undervoltage release

◆ Action features of the undervoltage release

1) When the applied voltage drops, even slowly drops to 35%~70% of the rated operational voltage, the undervoltage release will work to disconnect the disconnecting switch;

2) When the applied voltage is less than 35% of the rated operational voltage of the undervoltage release, the undervoltage release will make the disconnecting switch cannot be closed;

3) When the applied voltage is 85%~110% of the rated operational voltage of the undervoltage release, the undervoltage release can be closed reliably to guarantee the reliable closing of the disconnecting switch.

◆ Undervoltage release can be divided into two types (instantaneous release and delayed release), which is mainly composed of coil, iron core component and electronic parts.

◆ Undervoltage delayed release

The undervoltage delayed release sets the delay time of the release action through toggling the toggle switch on the undervoltage delayed device. The delay time is set as 1 s, 3 s, 5 s as required, and the factory default is 1 s.

◆ See the table below for the power consumption of undervoltage release.

Power Consumption Table of Undervoltage Release

Rated insulation voltage (Ui)	Frequency (f)	Rated operational voltage (Ue)	Operating power
400V	50/60Hz	AC380V(AC400V)	5.2W
		AC220V(AC230V)	3.9W
		DC220V	3.9W
		DC110V	3.9W
		DC24V	3.5W

3.2.5 Loss-of-voltage release

◆ Action features of the loss of voltage release

1） When the applied voltage suddenly drops to 0~35% of the rated operational voltage, the loss of voltage release will work to disconnect the circuit breaker;

2） When the applied voltage is less than 35% of the rated operational voltage of the loss of voltage release, the loss of voltage release will make the circuit breaker cannot be closed;

3) When the applied voltage is 85%~110% of the rated operational voltage of the loss of voltage release, the loss of voltage release can guarantee the reliable closing of the disconnecting switch.

4) When the applied voltage drops no less than 35% of the rated operational voltage, the loss of voltage release can be closed to guarantee the reliable closing of the disconnecting switch.

◆ The loss of voltage release can be divided into instantaneous release and delayed release, which is mainly composed of coil, iron core component and electronic parts.

◆ Loss of voltage delayed release

The loss-of-voltage delayed release sets the delay time of the release action through toggling the toggle switch on the loss-of-voltage delayed device. The delay time is set as 1 s, 3 s, 5 s as required.

◆ See the table below for the power consumption of loss of voltage release.

Rated insulation voltage (Ui)	Frequency (f)	Rated operational voltage (Ue)	Operating power
400V	50Hz/60Hz	AC220V(AC230V)	1.75W
		AC380V(AC400V)	1.35W

3.3 Signal Output Accessories

3.3.1 Auxiliary switch

◆ The conventional thermal current of the auxiliary switch is 10 A;

◆ Auxiliary contact form: Four-groups switch, Six-groups switch, Four normally opened and four normally closed, Six normally opened and six normally closed.

◆ Technical Parameters of Auxiliary Contact

Applicable frame size		4000	2000
Kind of contact elements and number of auxiliary circuits		■Four-groups switch ■Four normally opened and four normally closed ■Six-groups switch ■Six normally opened and six normally closed	■Four normally opened and four normally closed ■Four-groups switch ■Six normally opened and six normally closed ■Six-groups switch
Minimal load		2mA/DC15V	
Conventional free air thermal current I_{th}		10A	
Breaking capacity of Auxiliary	DC-12	0.3A/DC250V	5A/DC250V
	AC-12	10A/AC250V	10A/AC250V
	DC-13	0.2A/DC220V	1.2A/DC220V
	AC-15	3A/AC400V	3A/AC400V

3.3.2 Closing ready signal output device

Closing ready signal output device of the disconnecting switch is the output signal device that reflects the operating mechanism to achieve the closed state. It can output signals if it meets the following mechanical states. See the table below for technical parameters.

◆ Disconnecting switch in opening state
◆ Energy storage in place
◆ No disconnection instruction
◆ Undervoltage release closing in place
◆ Controller fault tripping reset

3.3.3 Secondary wiring terminal

◆ For the number of secondary wiring terminal, there is a total of 62 groups (identical for the fixed type and drawout type); see Chapter 8 for the definition and its electrical wiring diagram of each terminal number.

◆ See the table below for parameters of the secondary wiring terminal

Item	Parameter
Connection mode	Clamping
Flame retardant rating, according to UL 94	V0
Pollution level	3
Voltage category	III

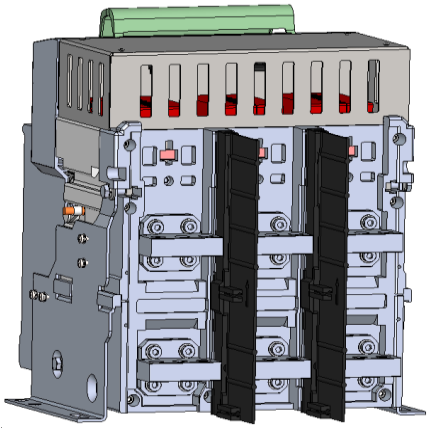
Material group	IIIa
Applicable connection standards	GB/T 14048.7-2016
Maximum load current	10A
Rated current	10A
Rated voltage	500V
Minimum cross section area of the rigid (flexible) conductor	0.5mm^2
Maximum cross section area of the rigid (flexible) conductor	1.5mm^2
Recommended striping length	10 ± 1mm
Minimum test pull-force after the conductor connection	30N

3.4 Safety Accessories

3.4.1 Phase partition

Divided into fixed type and drawout type, the phase partition is installed in the groove between all the phase bus bars, used to increase the insulation strength between phases of the main circuit so as to prevent the short circuit in case of the insulation breakdown and improve the power reliability. It is a optional accessory, see the piectures below.

- Conventional phase partition



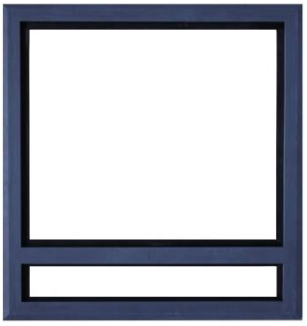
Phase partition and bracket

3.4.2 Counter

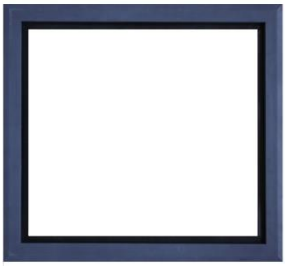
Counter is used to record the number of the "close-open" operation of the disconnecting switch.

3.4.3 Doorframe

Divided into fixed type and drawout type, it is mainly placed on the door of the cubicle for sealing effect, and can make the protection level of the disconnecting switch reaches IP40. It is beautiful and practical.



Drawout type



Fixed type

3.4.4 Dustproof cover

Installed on the beam of the wiring terminal, it can prevent dust and other debris falling into the terminal of the wiring terminal, leading to poor contact. It is an optional accessory.

3.5 Locks

3.5.1 Off-position key lock (on the disconnecting switch)

◆ This key lock is locked on the manually disconnected position of the disconnecting switch. When the key is anticlockwise locked and pulled out, The disconnecting switch cannot carry out closed operation, so as to prevent irregular operation. Model and type are shown in the table below.

Models and types of Off-position key locks

Model	Name	Number of disconnecting switches	Number of keys
SF11	One lock one key	1	1
SF21	Two locks one key	2	1
SF31	Three locks one key	3	1
SF32	Three locks two keys	3	2
SF53	Five locks three keys	5	3

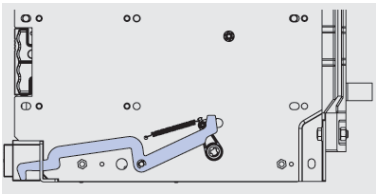
3.5.2 Drawout-type three-position lock (standard configuration on the drawer seat)

On the drawer seat, there's "connection", "test" and "separation" position status, which is indicated through an indicator.

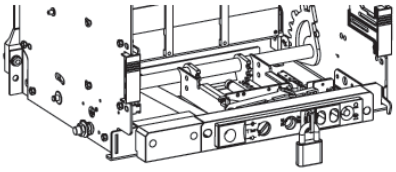
When the handle rolls, the Disconnecting switch will be locked at these three positions, and it can be unlocked only through the unlock button (red), as shown in Figure 23.

3.5.3 Door interlock (on the drawer seat)

It is installed on the right or the left side of the drawer seat. When the drawout type disconnecting switch is in the separation position, it can avoid opening of the cubicle door.



3.5.4 Drawout type disconnecting switch “separation” position lock (on the drawer seat)



At any position, when the rocker is not placed in the rocker working place, you can lock the rocker working place of draw-out circuit breaker through padlocks, and then the rocker cannot be inserted in the rocker working place, thus you cannot conduct the roll in or roll out operations. The padlock is prepared by users, and it is with a lock beam diameter of 4mm to 8mm.

It is usually applied to the following occasions: When the draw-out product is in the separation place, and the rocker is not placed in the rocker working place, pull out the black pull rod at the bottom of drawer seat, and use the lock beam through the pull rod. Then you can only pull out the circuit breaker body and cannot roll it to “test” or “connection” places.

Chapter 4 Field of Application

Field of Application 4

NDW2G-2000 and 4000 disconnecting switch (hereinafter referred to as "disconnecting switch") is applicable for AC/DC system, rated working voltage 400A-4000A, rated working voltage AC1140V（NDW2G-4000）and below, DC1500V and below; and it is mainly installed in the low-voltage distribution circuit to make the main circuit turn on and off, and acts as an isolation.

4.1 Operating Environment

4.1.1 Ambient temperature

Applicable environment temperature is -25℃ ～+ 70℃, the average within 24 h shall not be more than +35℃.

If the ambient temperature is below -25°C～-40°C, then NDW2GF and NDW2GZF products may be chosen. If the ambient temperature is higher than +40℃, the user needs to reduce the capacity.

See Table 2 for the derating factor of the disconnecting switch.

Table 2

Ambient temperature	+40℃	45°C	-50°C	55°C	60°C	70°C
Allowable continuous rated current	1.0In	0.95In	0.89In	0.85In	0.78In	0.63In

Note: The above data is calculated according to the test and theory. The data represent only guidelines and recommendations.

4.1.2 Atmospheric environment conditions

When the ambient air temperature is +40℃, the relative humidity of atmosphere shall not be more than 50%. At low temperature, a higher relative humidity is allowed, for example, in case of +25℃, the relative humidity of atmosphere can be 90%. For condensation due to temperature change, dehumidification or corresponding measures should be taken.

NDW2GF and NDW2GZF meet GB/T2423.4, with alternating and cyclic thermal humidity (temperature 55°C, relative humidity 95%). For the condensation due to temperature change, it is required to take the dehumidification or corresponding measures, or contact the manufacturer.

4.1.3 Altitude

Altitude of the installation site shall not exceed 2,000 m.

If the altitude of the installation site is between 2,000 m to 5000m, it can be specially customized. For the working performance, refer to the correction value in the following table (Table 3).

Table 3

Altitude	2000m	3000m	4000m	5000m
Power frequency withstand voltage	3500V	3150V	2500V	2000V
Rated current	1.0In	0.93In	0.88In	0.82In

4.1.4 Anti-corrosion level

Salt mist: Level 2, complying with the requirements in "Environmental testing for electric and electronic products" (GB/T 2423.17-2008)

4.1.5 Pollution level

Pollution level: Level 3

The disconnecting switch can be operated in the industrial environment specified in IEC 60664-1. However, we still recommended that it shall be installed in a switchgear device with suitable temperature and no excessive dust pollution.

4.1.6 Shockproof requirements

The disconnecting switch can ensure resistance to electromagnetic or mechanical shock, and has passed the GB/T 4798.3 standard test;

Amplitude: ±1.5 mm (2-9 Hz);

Constant acceleration: 5 m/s² (9-200 Hz);

Super strong shock may result in damage to the parts, and impact the reliable action of the disconnecting switch.

4.1.7 Electromagnetic interference

The disconnecting switch can resist the following electromagnetic interference

- Overvoltage caused by electromagnetic interference;
- Overvoltage due to aging of the distribution system or environmental interference;
- Radio wave;
- Electrostatic discharge.

The disconnecting switch has passed the electromagnetic compatibility (EMC) test stipulated by following standards

- GB/T 14048.3-2017

The above tests can ensure that the disconnecting switch won't wrongly occur tripping.

4.2 Installation conditions

With the vertical gradient no more than 5°, the disconnecting switch shall be installed under the environment condition without explosion danger, conductive dust or the possibility of corroding metal and damaging the insulation.

4.2.1 Installation category

The disconnecting switch's main circuit and undervoltage release coils, power transformer primary coil installation category is IV; the rest auxiliary circuit and control circuit installation category is III.

4.2.2 Protection class

IP30 and IP40 (installed in a cubicle and equipped with a protective door frame).

4.2.3 Utilization category

AC-22A, AC-23A, DC-22A, DC-23A

4.3 Reference Specifications of Disconnecting Switch's Main Circuit Copper Bar (Table 4)

Table 4

Rated current of housing Inm (A)	Rated current In (A) 40°C	Copper bar specification	
		Dimensions	Number
2000	400, 630	60mm×5mm	2
	800	60mm×5mm	2
	1000	60mm×5mm	2
	1250	60mm×10mm	2
	1600	60mm×10mm	2
	2000	60mm×10mm	3
4000	800, 1000, 1250, 1600, 2000, 2500	100mm×5mm	4
	3200, 4000	100mm×10mm	5

Note: 1. The table indicates the copper bar specifications adopted when the disconnecting switch is under the ambient temperature of +40°C and the open wide installation under the heating condition meets the stipulation in GB 14048.3. If the temperature is higher than +40°C, the quantity of copper bar should be increased, or the capacity should be reduced.

2. The above data is calculated according to the test and theory, and for reference only.

3. The maximum permissible temperature of the copper bar is no more than +110°C.

4. The electrical gap of copper bar is ≥15mm with the altitude more than 5, 000m and relative humidity more than 90%; the electrical gap shall be adjusted according to the content of 7.1.1 Table 1 in GB/T 20645.

4.4 The power loss of the incoming and outgoing lines of the disconnecting switch (ambient temperature +40°C) is as shown in Table 5:

Table 5

Frame size level	Power loss of the fixed type	Power loss of the drawout type
2000	≤208 VA	≤380 VA
4000	≤650 VA	≤900 VA

Note: The above power loss value is measured when the disconnecting switch is powered on test current (maximum rated current of the disconnecting switch) In for 8 h and after the main circuit temperature rise tends to the steady state. The test method is in accordance with G.2 in Appendix G of GB14048.2.

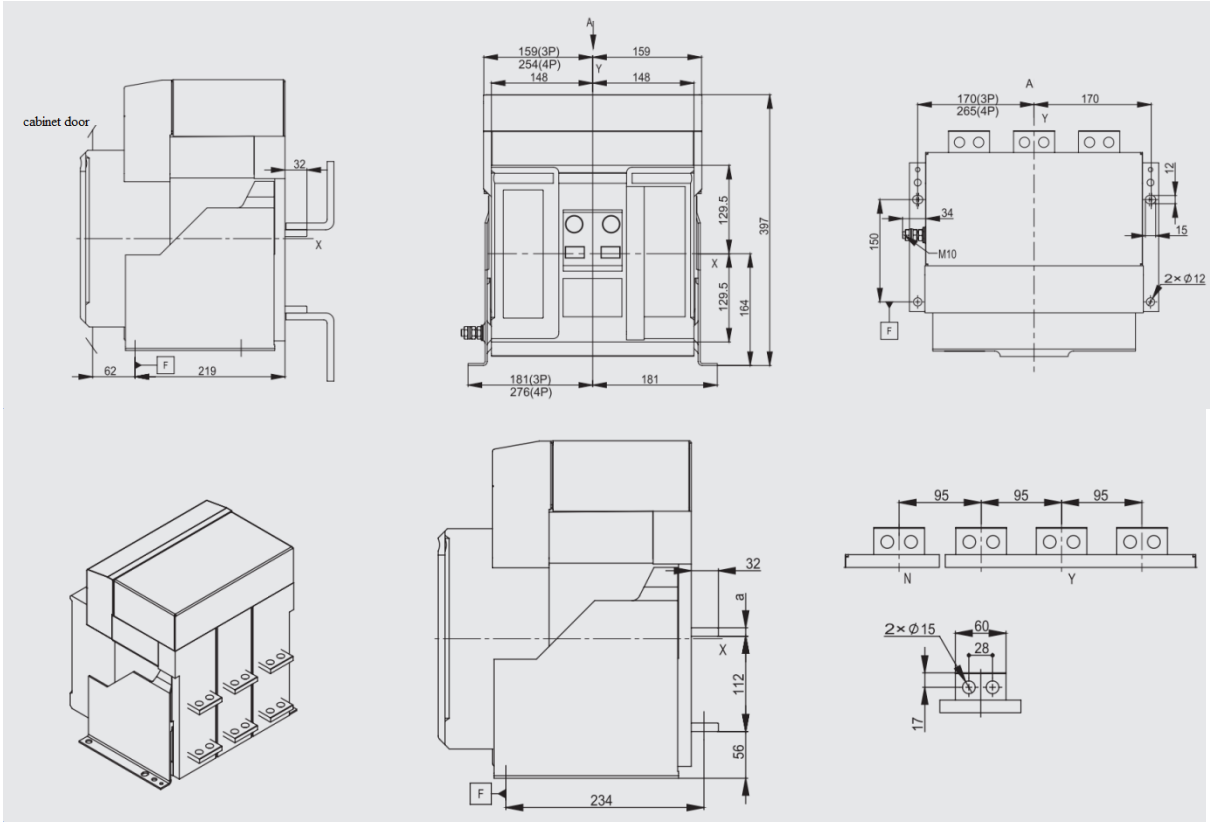
Chapter 5 Outline and Installation Dimensions

Outline and Installation Dimensions 5

5.1 NDW2G-2000/NDW2GF-2000

NDW2G-2000/NDW2GF-2000 fixed wiring

Dimensions Fixed Details

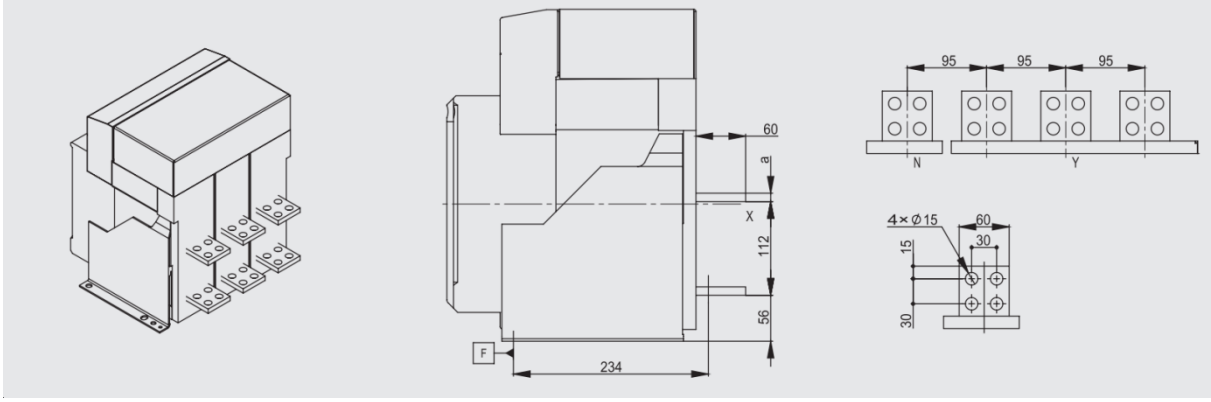


Note: X and Y axes are the symmetric axes of the front mask;

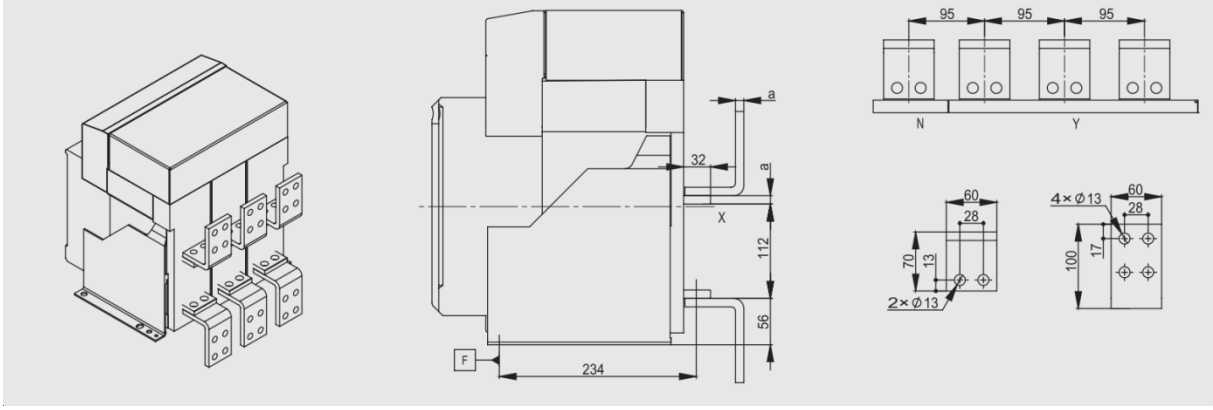
Connection bolt between bus and terminal	Torque applied with a flat washer (N.m)
M12	60
Rated current	Size of busbar a (mm)
400A, 630A, 800A	10
1000A, 1250A, 1600A	15
2000A	20

Note: “a” size of the NDW2GF-2000 product is 20mm;

Horizontal Extended Wiring Detail



L-type wiring Detail



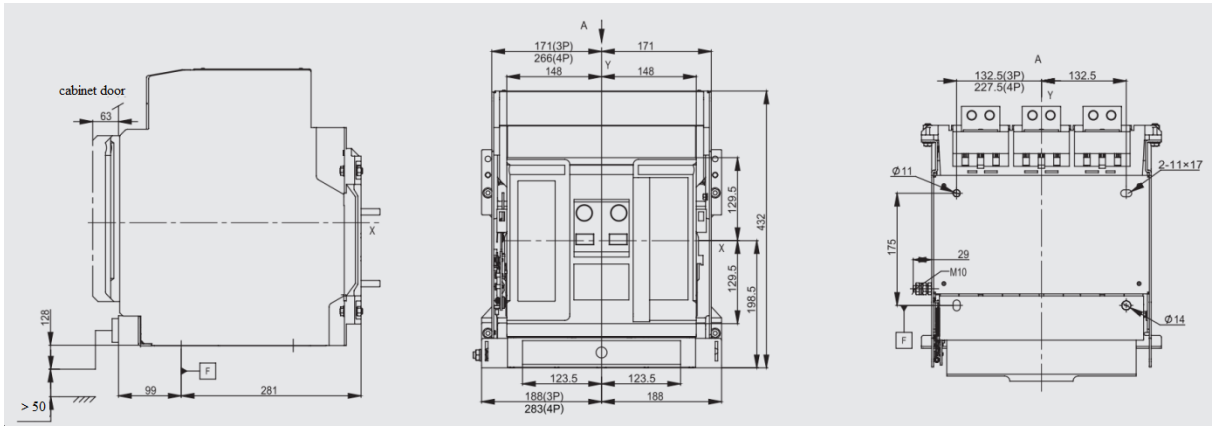
Note:

X and Y axes are the symmetric axes of the front mask;

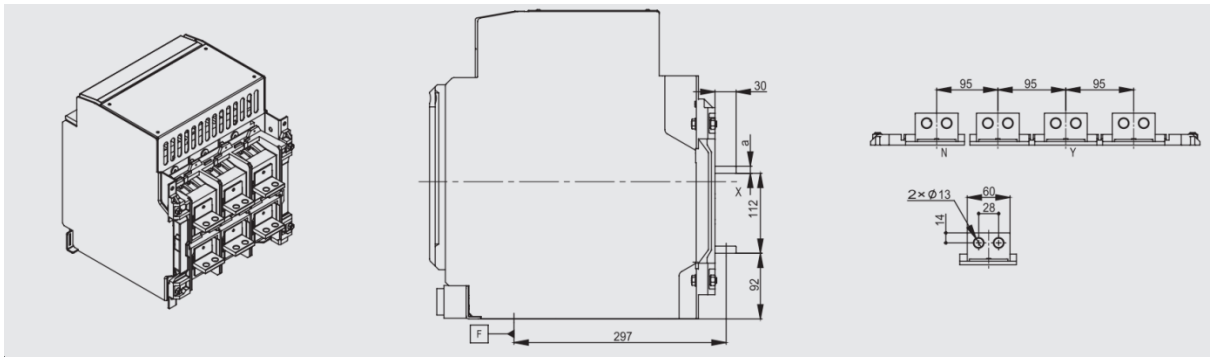
Rated current	Size of busbar a (mm)
400A, 630A, 800A	10
1000A, 1250A, 1600A	15
2000A	20

Note: “a” size of the NDW2GF-2000 product is 20mm.

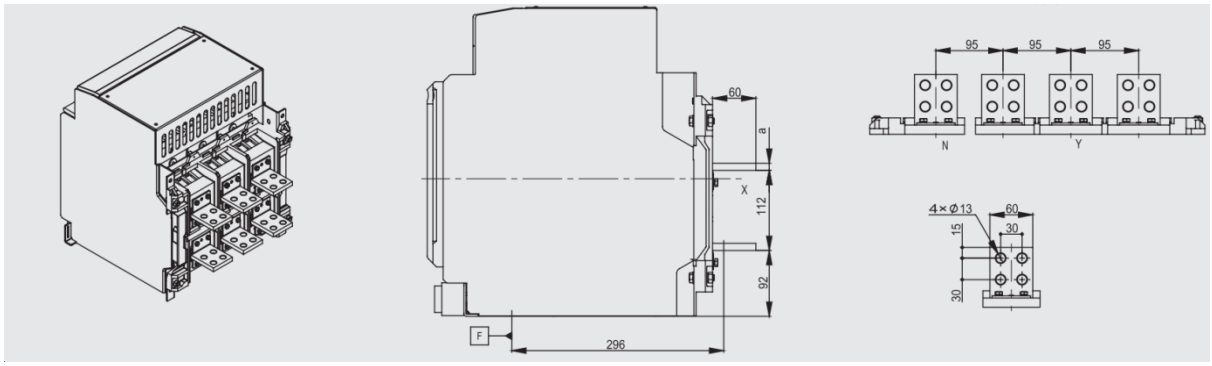
NDW2G-2000/NDW2GF-2000 drawout wiring Dimensions Fixed Details



Horizontal Wiring Detail



Horizontal Extended Wiring Detail



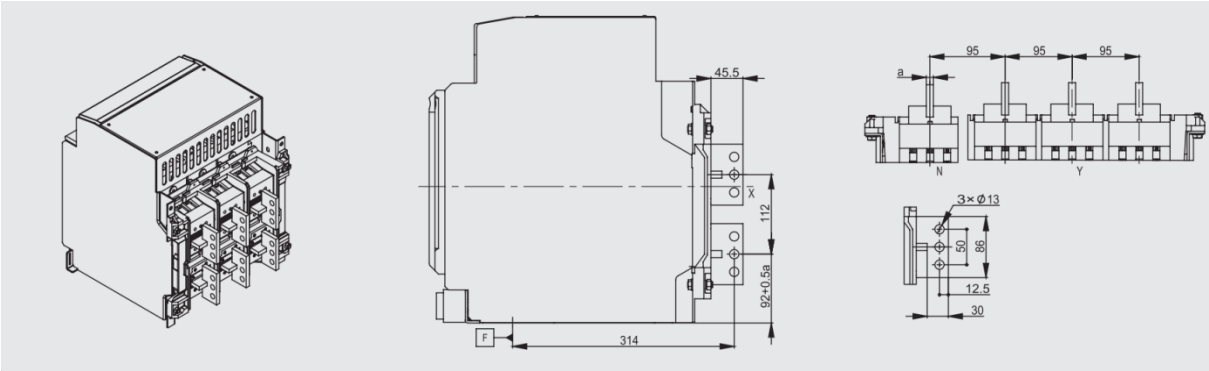
Note: X and Y axes are the symmetric axes of the front mask;

Connection bolt between bus and terminal	Torque applied with a flat washer (N.m)
M12	60

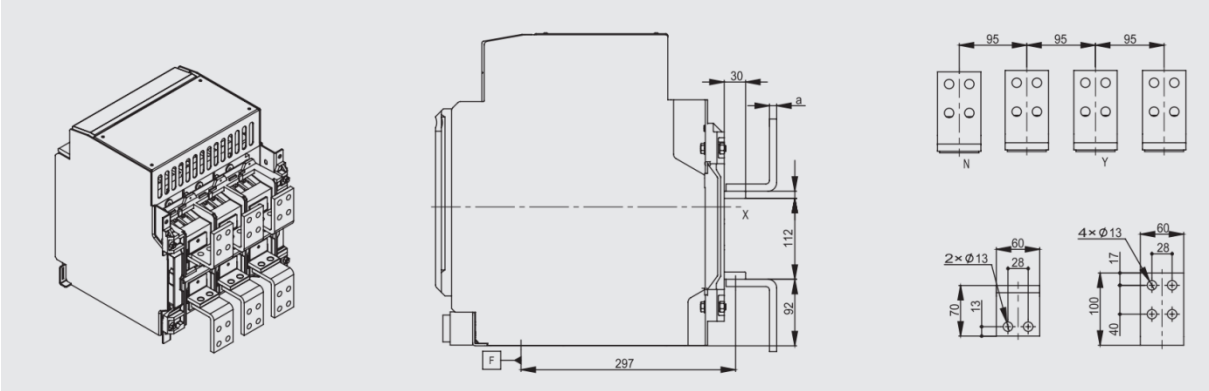
Rated current	Size of busbar a (mm)
400A, 630A, 800A	10
1000A, 1250A, 1600A	15
2000A	20

Note: “a” size of the NDW2GF-2000 product is 20mm.

Vertical Wiring Detail



L-type wiring Detail



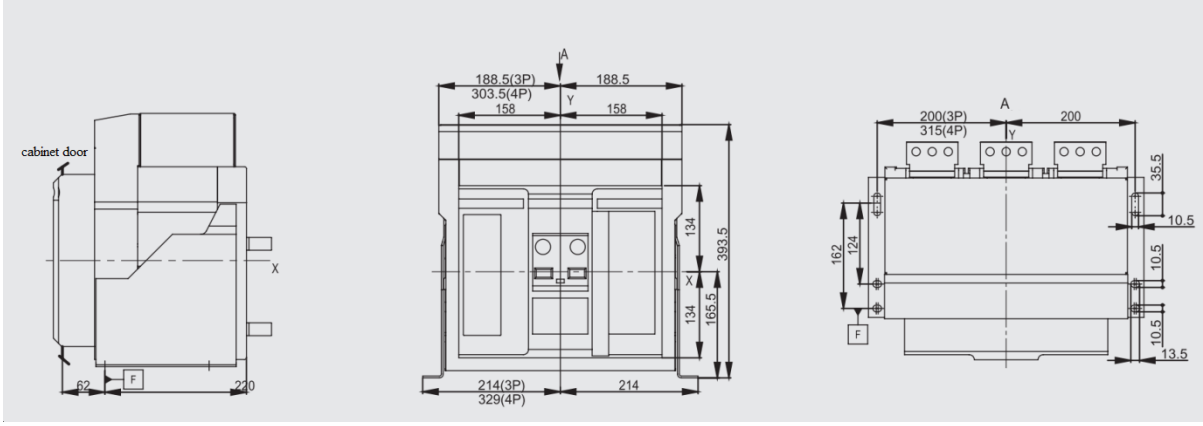
Note: X and Y axes are the symmetric axes of the front mask;

Rated current	Size of busbar a (mm)
400A, 630A, 800A	10
1000A, 1250A, 1600A	15
2000A	20

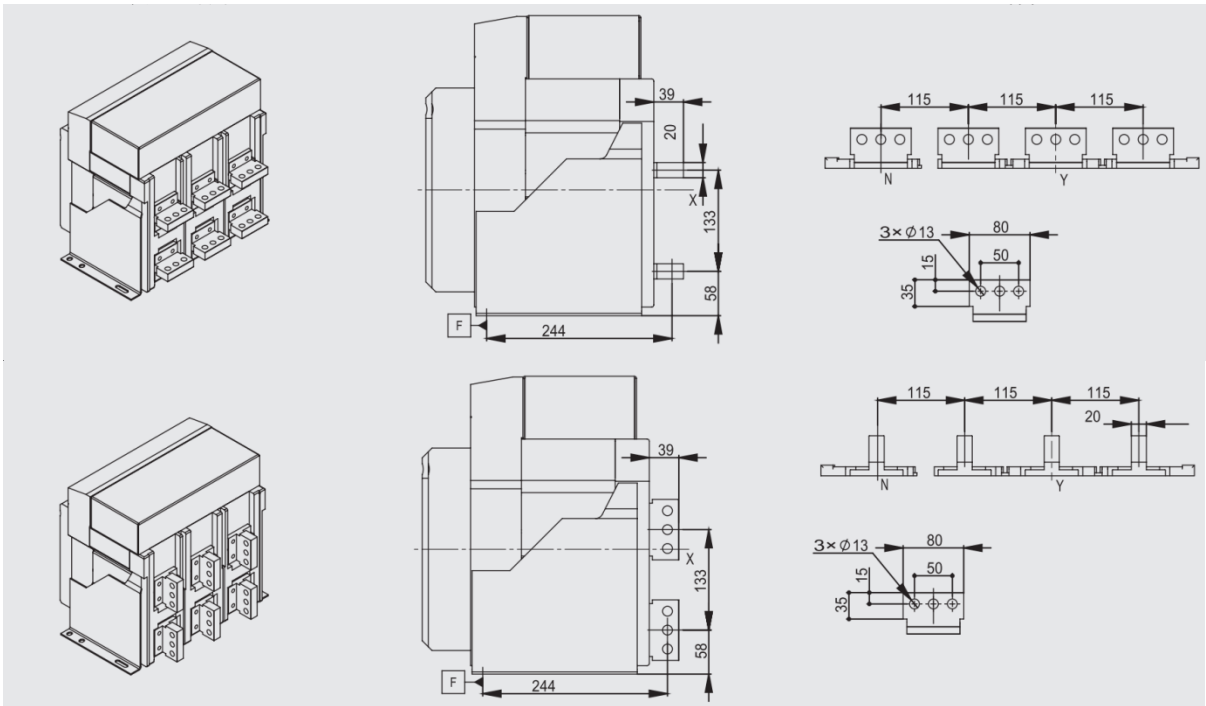
Note: “a” size of the NDW2GF-2000 product is 20mm.

5.2 NDW2G-4000/NDW2GF-4000

NDW2G-4000/NDW2GF-4000 fixed type (unit: mm) Dimensions Fixed Details



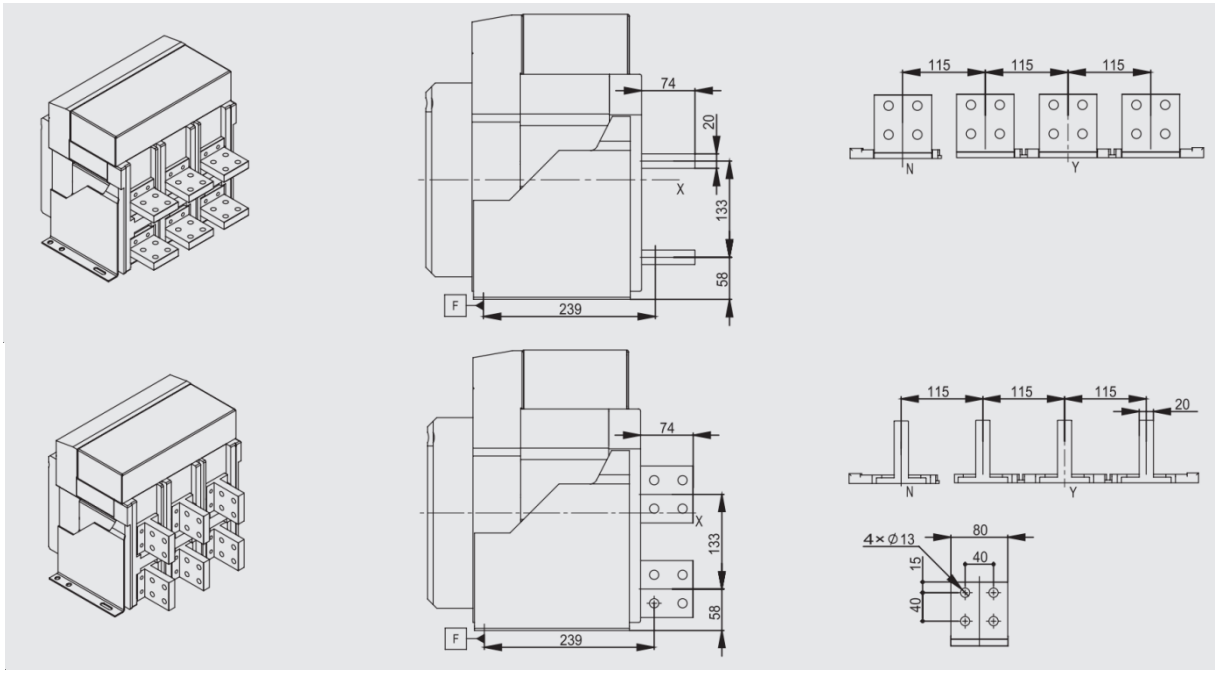
800A-2500A Horizontal Wiring, Vertical Wiring Fixed Details



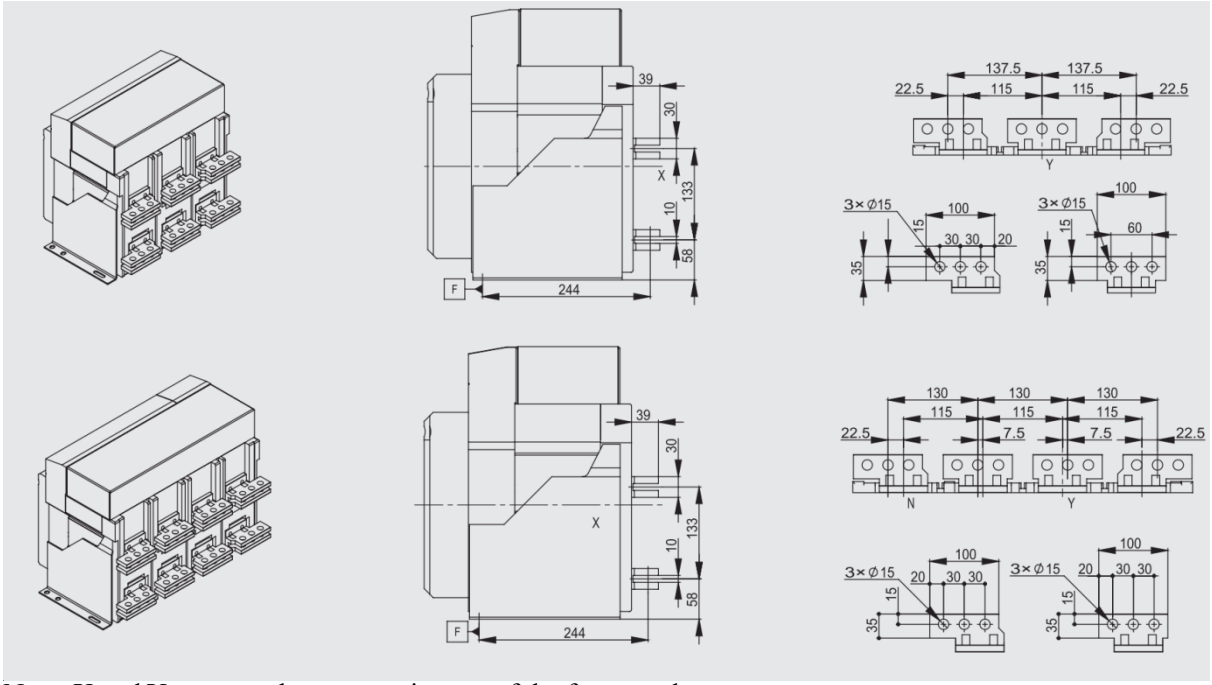
Note: X and Y axes are the symmetric axes of the front mask;

Connection bolt between bus and terminal	Torque applied with a flat washer (N.m)
M12 (800-2500A)	60
M14 (3200-4000A)	97

800A-2500A Horizontal Extended Wiring, Vertical Extended Wiring Fixed Details

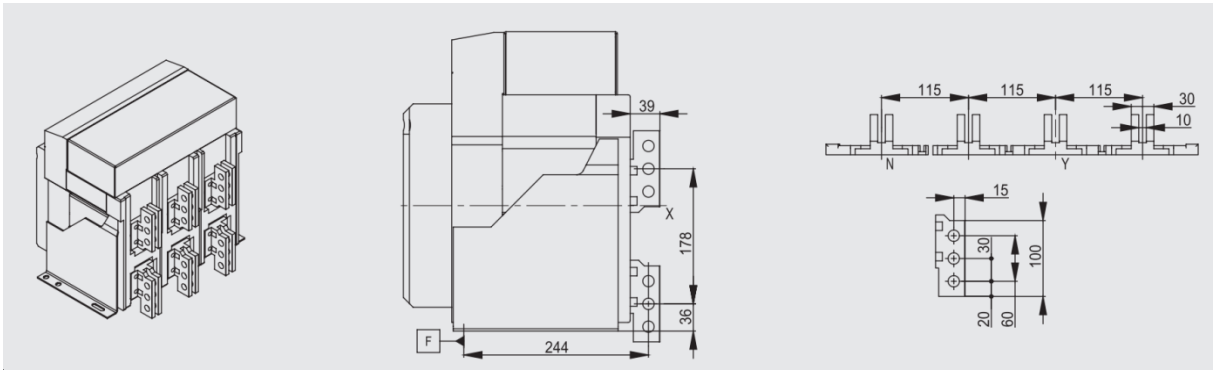


3200A-4000A Horizontal Wiring Detail

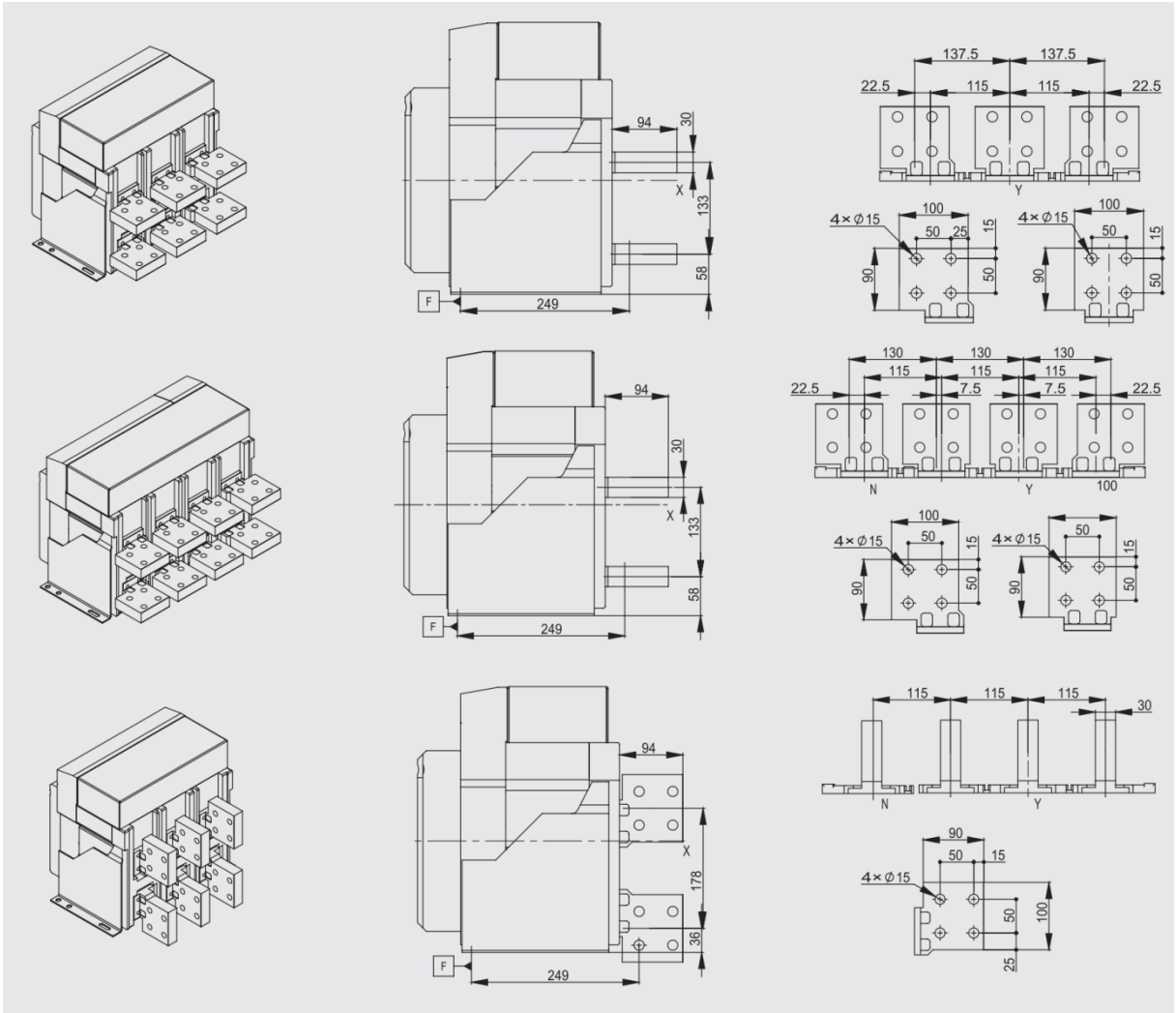


Note: X and Y axes are the symmetric axes of the front mask.

3200A-4000A Vertical Wiring Detail

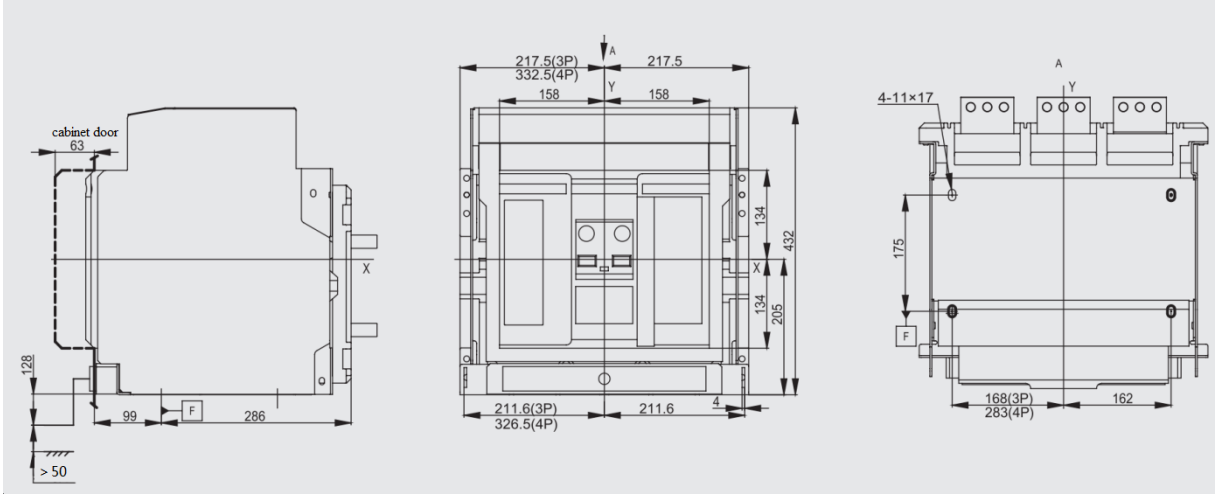


3200A-4000A Horizontal Extended Wiring, Vertical Extended Wiring Fixed Details

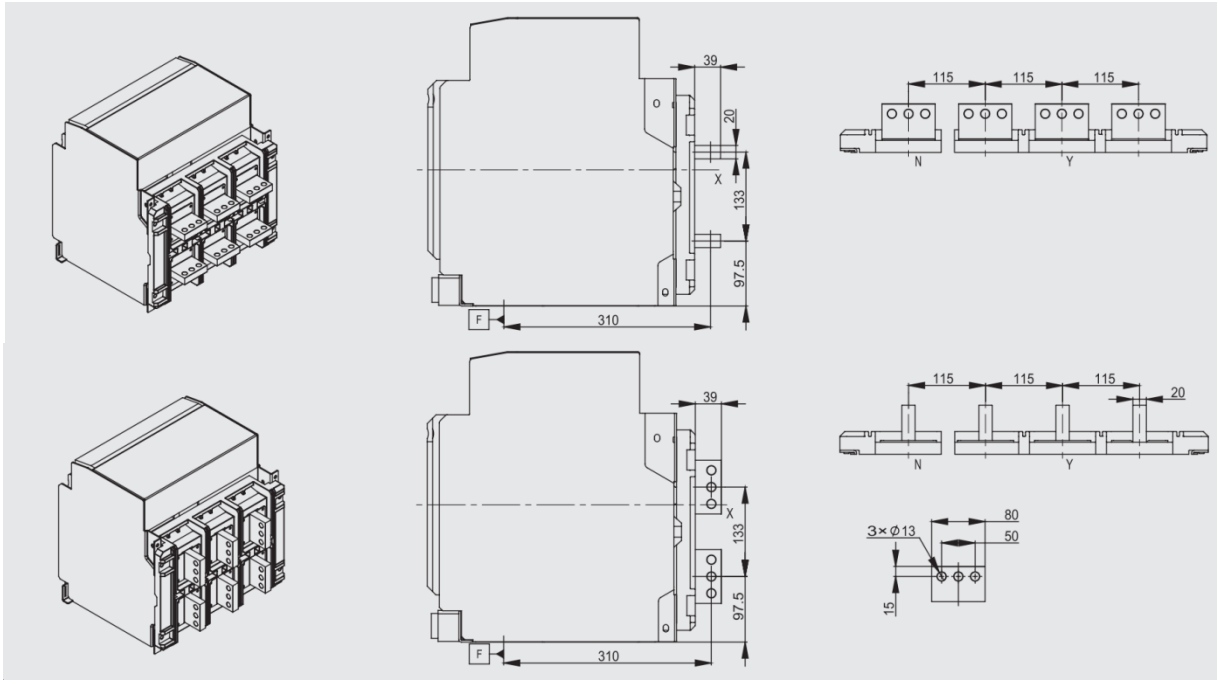


Note: X and Y axes are the symmetric axes of the front mask.

NDW2G-4000/NDW2GF-4000 drawout wiring Dimensions Fixed Details



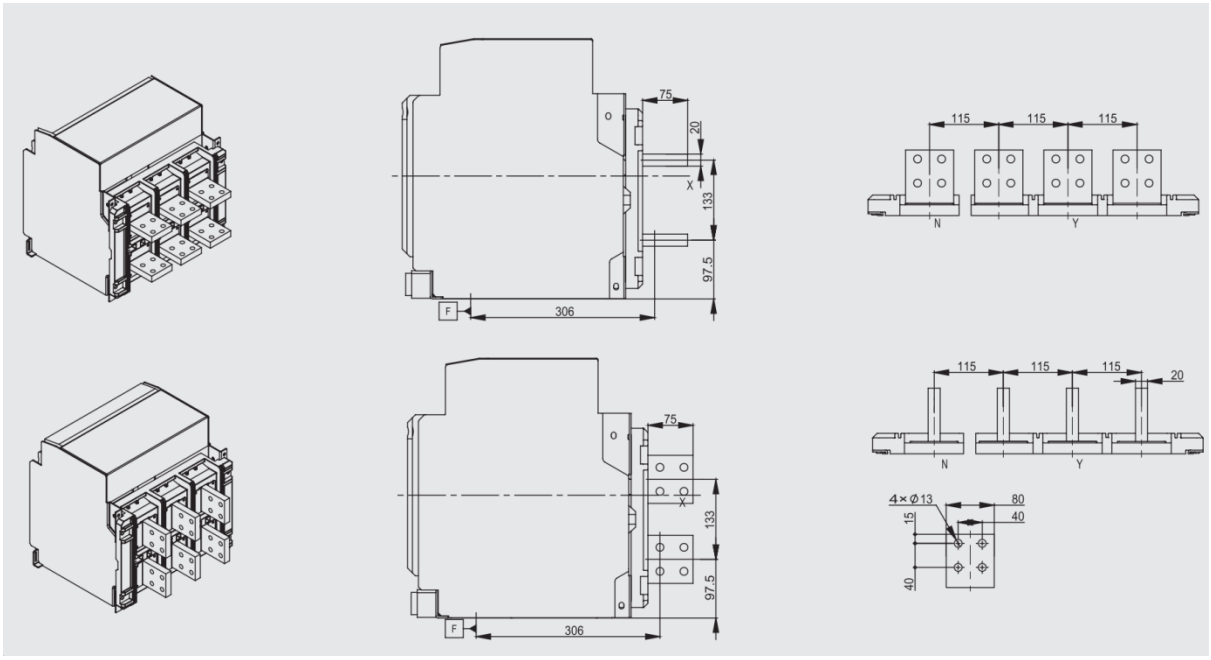
800A-2500A Horizontal Extended Wiring, Vertical Extended Wiring Fixed Details



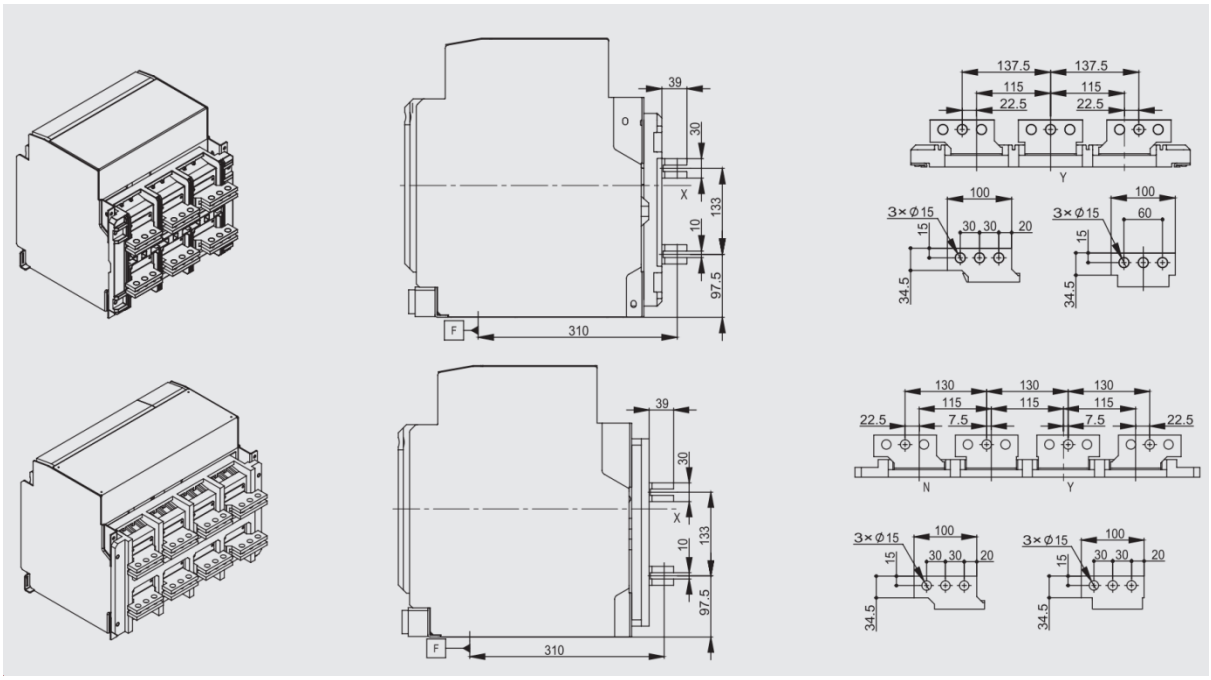
Note: X and Y axes are the symmetric axes of the front mask.

Connection bolt between bus and terminal	Torque applied with a flat washer (N.m)
M12 (800-2500A)	60
M14 (3200-4000A)	97

800A-2500A Horizontal Extended Wiring, Vertical Extended Wiring Fixed Details

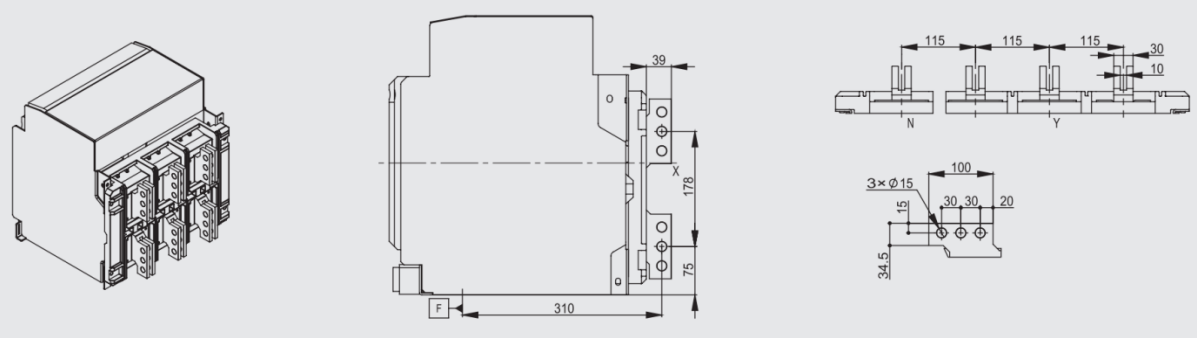


3200A-4000A Horizontal Wiring Detail

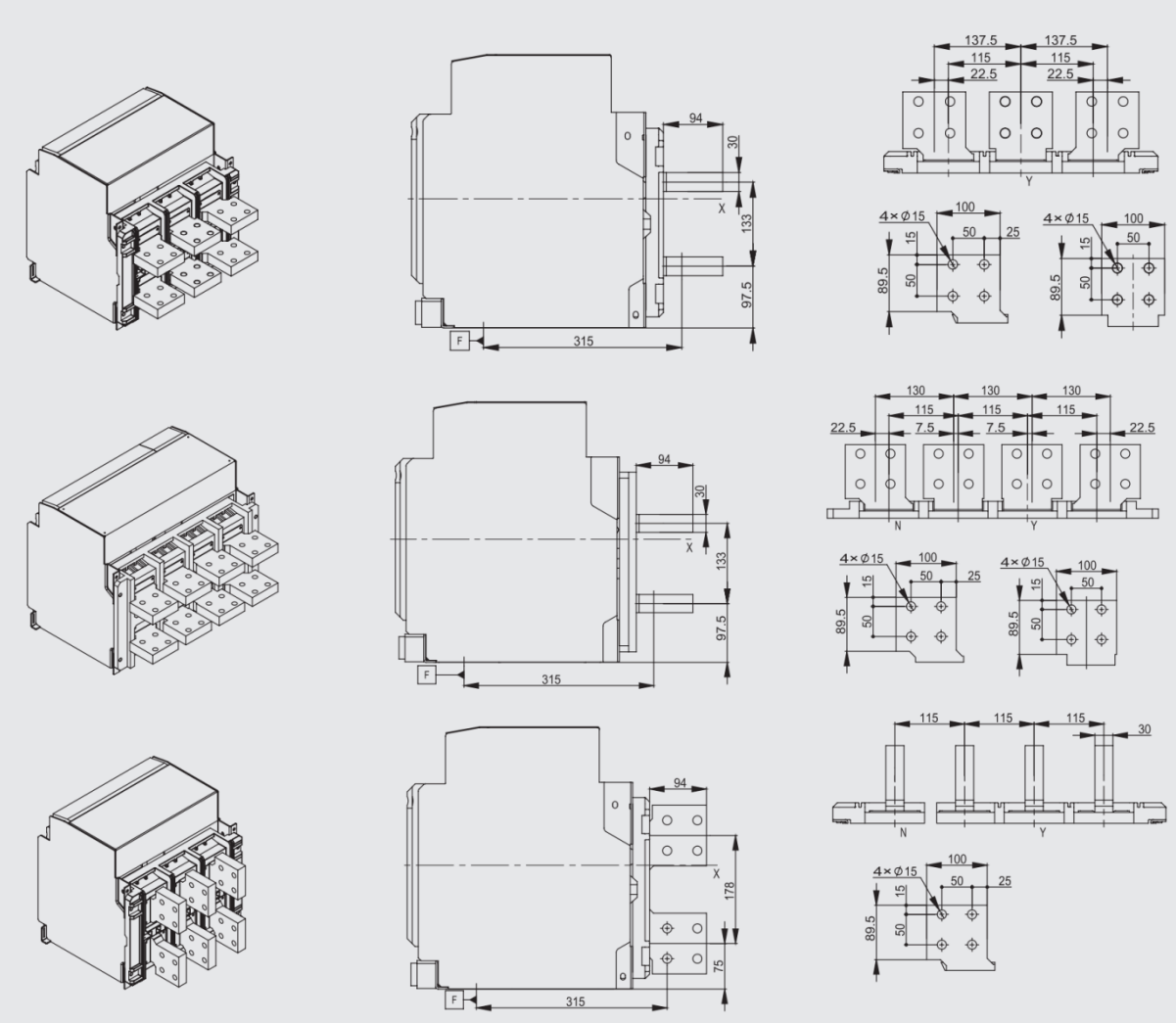


Note: X and Y axes are the symmetric axes of the front mask.

3200A-4000A Vertical Wiring Detail



3200A-4000A Horizontal Extended Wiring, Vertical Extended Wiring Fixed Details



Note: X and Y axes are the symmetric axes of the front mask.

In the DC system, consider the following aspects for selecting the switching device:

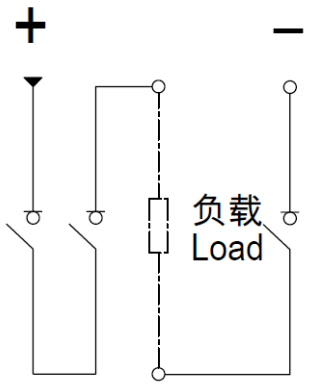
- Rated working voltage, considering the number of poles in series to be broken
- Rated current, considering the load power
- Grounding system mode

Three pole string disconnecting switch ------B type wiring

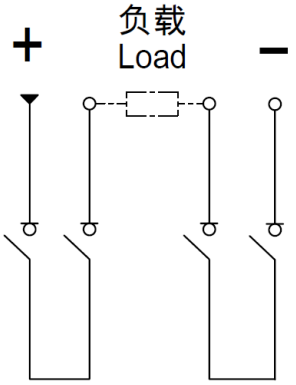
Four pole string disconnecting switch ------C type wiring

Recommended wiring mode of NDW2GZ DC disconnecting switch

Rated voltage	Power supply/load wiring mode	
	System not grounded	Center grounding system
DC750V	C	B
DC1000V/DC1500V	C	C



Type B Wiring Method



Type C Wiring Method

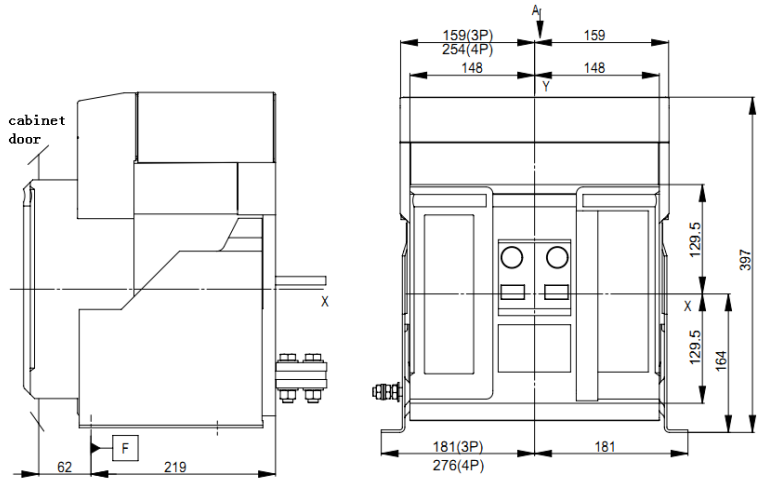
Note: In case of connection in parallel or series with the bus directly, the continuous load of the disconnecting switch will be only 80% of the maximum operating current due to heating reasons.

In case of implementing the parallel or series connection in a place about 1m from the bus, the disconnecting switch can operate at full load.

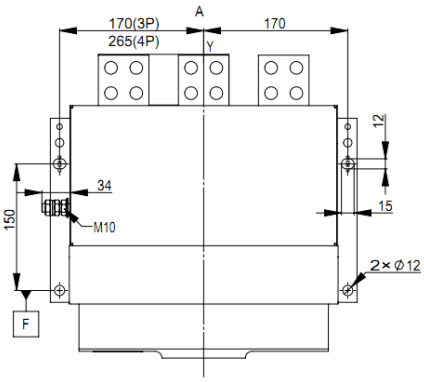
5.3 NDW2GZ-2000/NDW2GZF-2000

NDW2GZ-2000/NDW2GZF-2000 fixed wiring

Dimensions

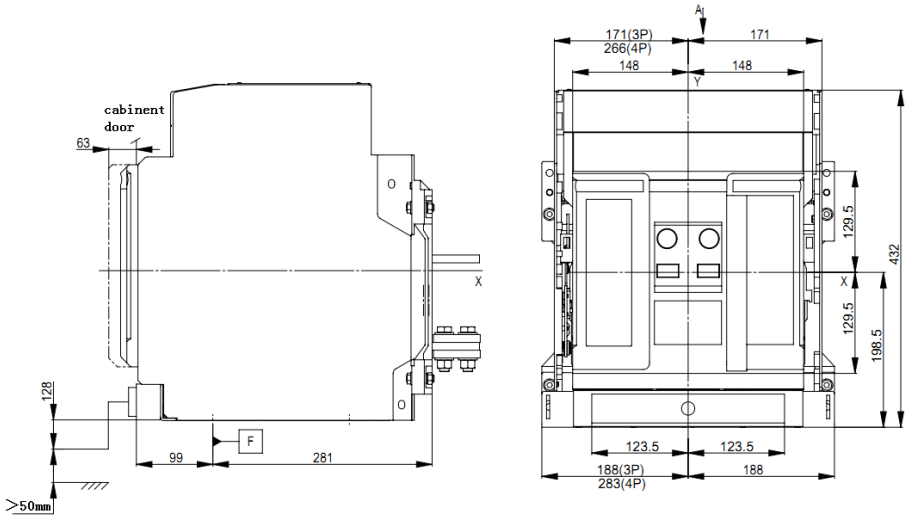


Fixed Details

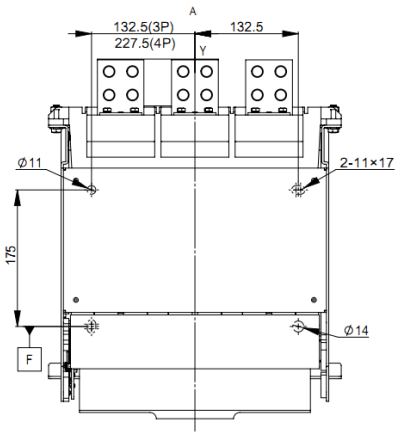


NDW2GZ-2000/NDW2GZF-2000 drawout wiring

Dimensions



Fixed Details



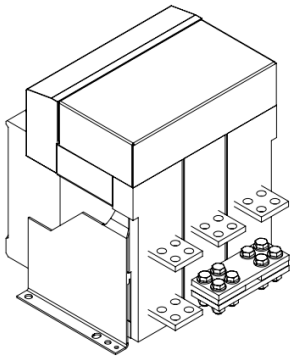
Note: For the 3-pole disconnecting switch, X and Y are the symmetric axes of the front mask.

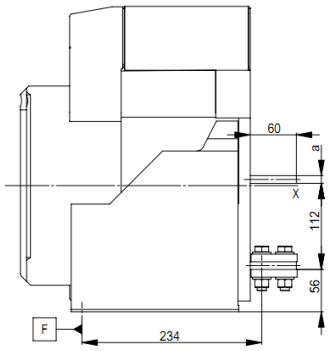
Except as specified, outline dimensions of NDW2GZ and NDW2GZF are consistent.

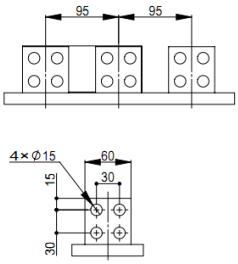
Connection bolt between bus and terminal	Torque applied with a flat washer (N.m)
M12	60

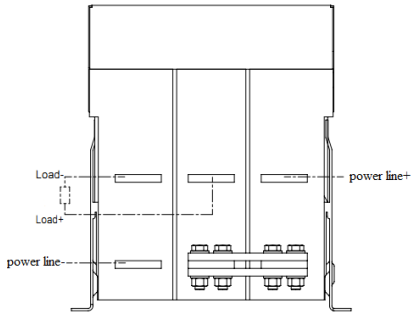
NDW2GZ-2000/NDW2GZF-2000 fixed type (DC Type B wiring mode)

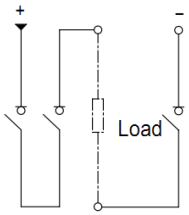
Dimensions **Details**







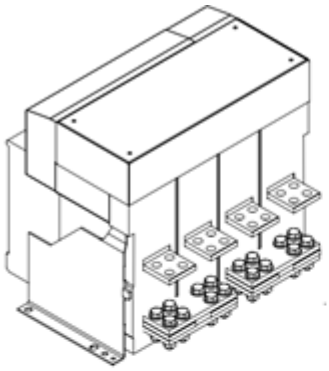


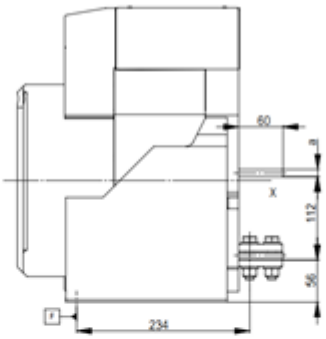


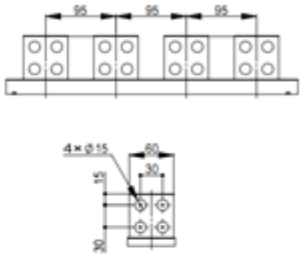
Type B Wiring Method

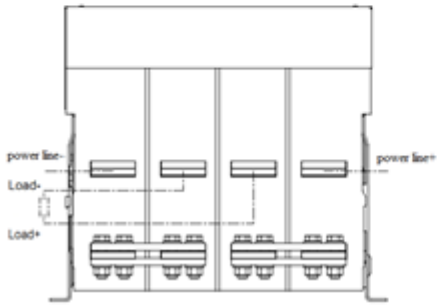
NDW2GZ-2000/NDW2GZF-2000 fixed type (DC Type C wiring mode)

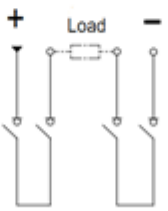
Dimensions **Details**











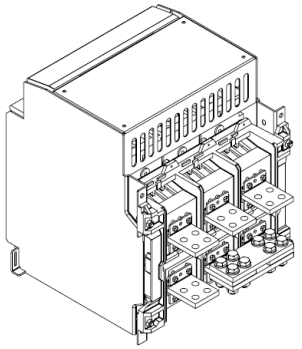
Type C Wiring Method

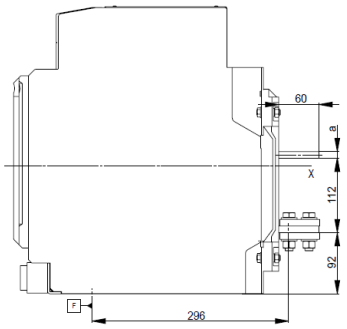
Rated current	Busbar a size (mm)
800A	10
1000A, 1250A, 1600A	15
2000A	20

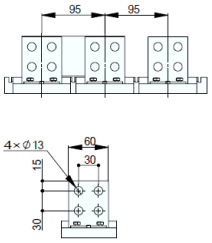
Note: For the 3-pole disconnecting switch, X and Y are the symmetric axes of the front mask.

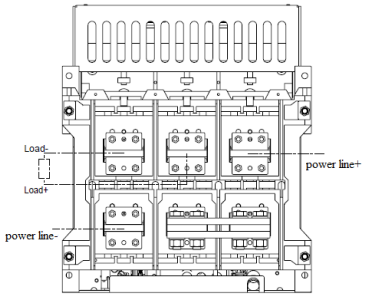
NDW2GZ-2000/NDW2GZF-2000 drawout type (DC Type B wiring mode)

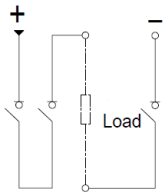
Dimensions **Details**







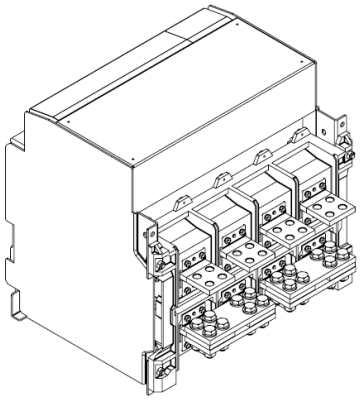


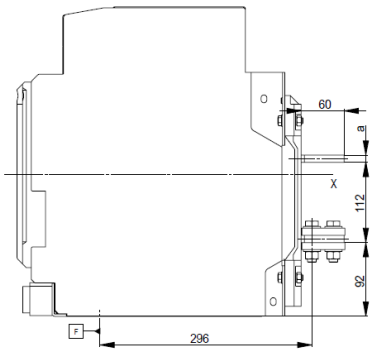


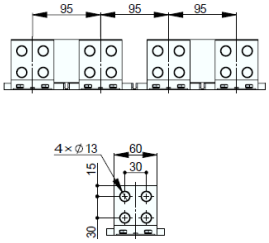
Type B Wiring Method

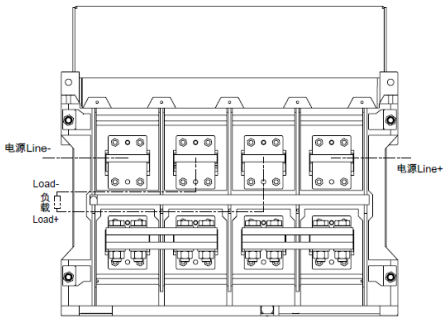
NDW2GZ-2000/NDW2GZF-2000 drawout type (DC Type C wiring mode)

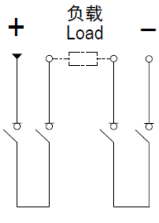
Dimensions **Details**











C型接线方式

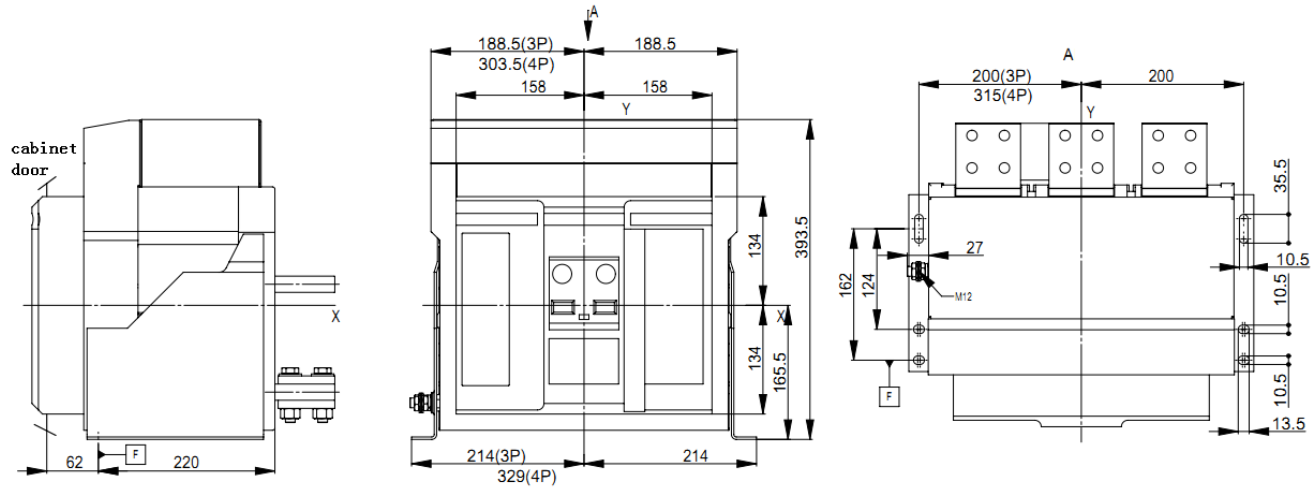
Rated current	Busbar a size (mm)
800A	10
1000A, 1250A, 1600A	15
2000A	20

Note: For the 3-pole disconnecting switch, X and Y are the symmetric axes of the front mask.

5.4 NDW2GZ-4000/NDW2GZF-4000

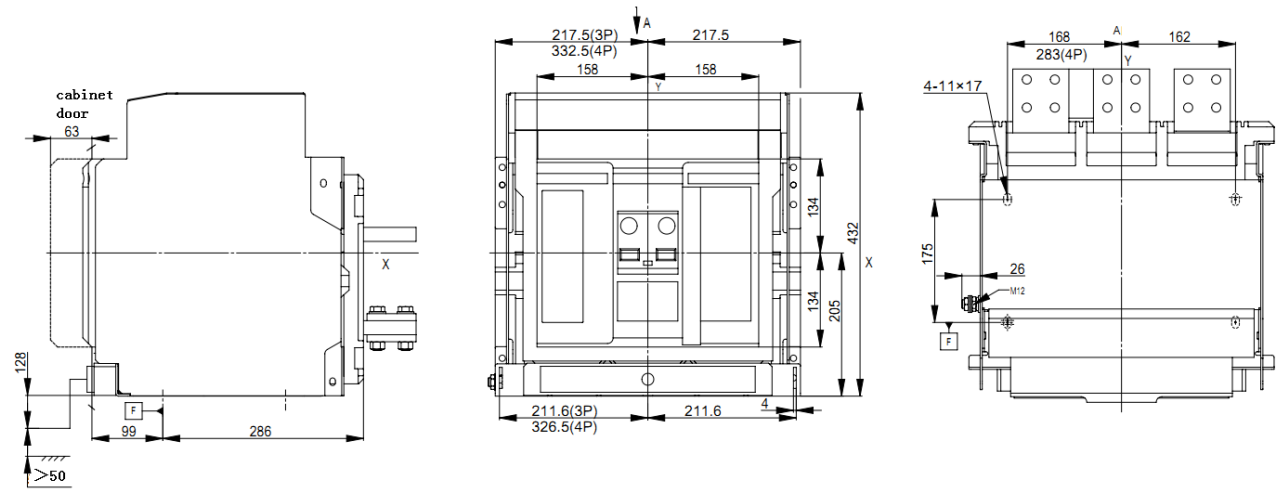
NDW2GZ-4000/NDW2GZF-4000 fixed wiring

Dimensions **Fixed Details**



NDW2GZ-4000/NDW2GZF-4000 drawout wiring

Dimensions **Fixed Details**



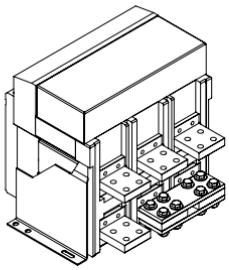
Note: For the 3-pole disconnecting switch, X and Y are the symmetric axes of the front mask.

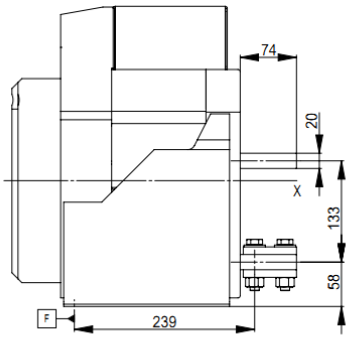
Except as specified, outline dimensions of NDW2GZ and NDW2GZF are consistent.

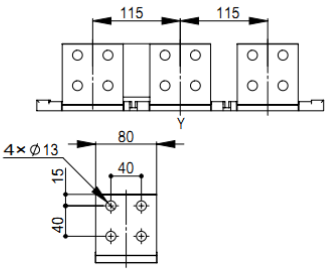
Connection bolt between bus and terminal	Torque applied with a flat washer (N.m)
M12 (800-2500A)	60
M14 (3200-4000A)	97

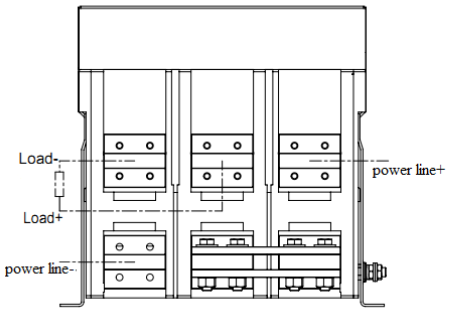
800A-2500A fixed type (DC Type B wiring mode)

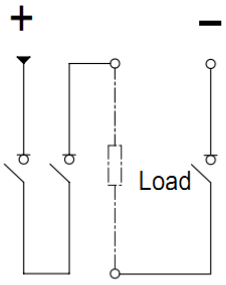
Dimensions **Details**







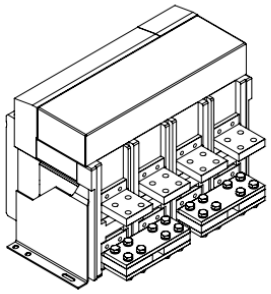


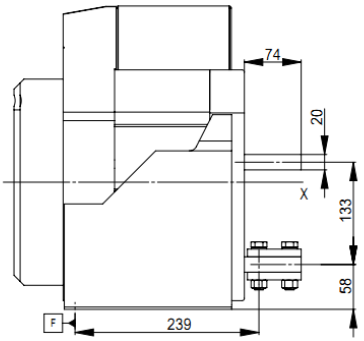


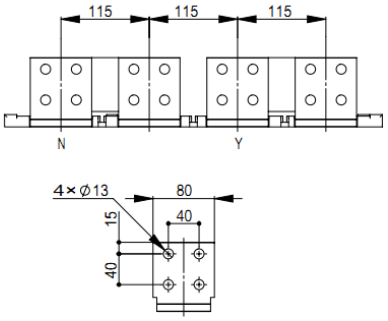
Type B Wiring Method

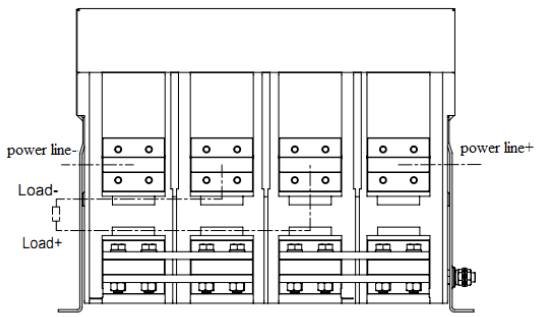
800A-2500A fixed type (DC Type C wiring mode)

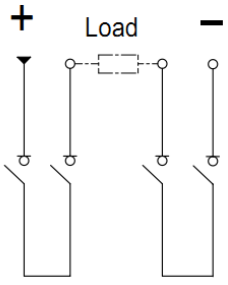
Dimensions **Details**







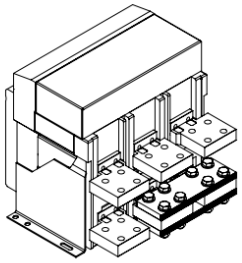


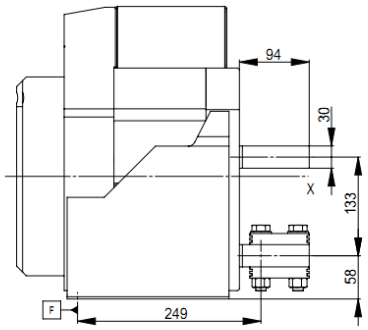


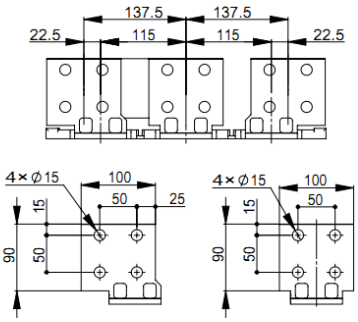
Type C Wiring Method

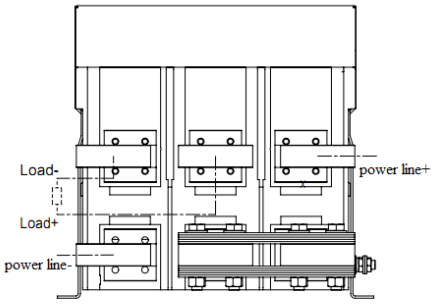
3200A-4000A fixed type (DC Type B wiring mode)

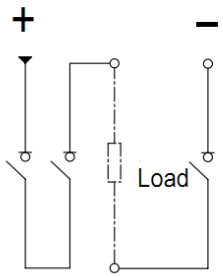
Dimensions **Details**







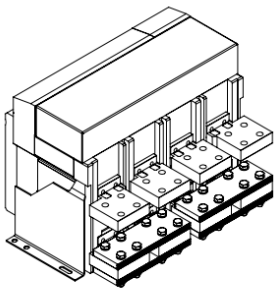


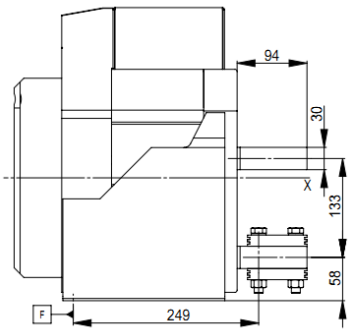


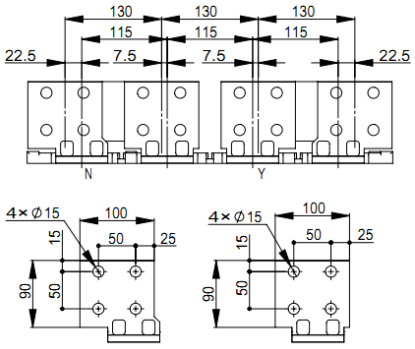
Type B Wiring Method

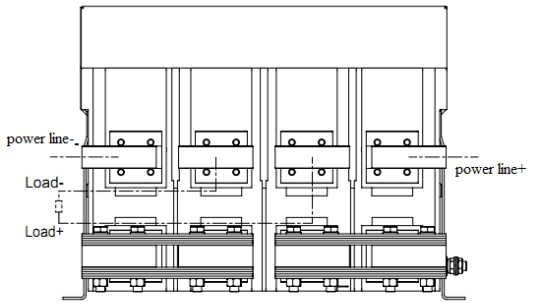
3200A-4000A fixed type (DC Type C wiring mode)

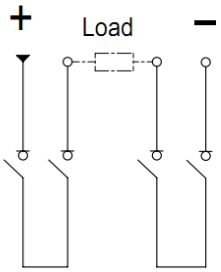
Dimensions **Details**







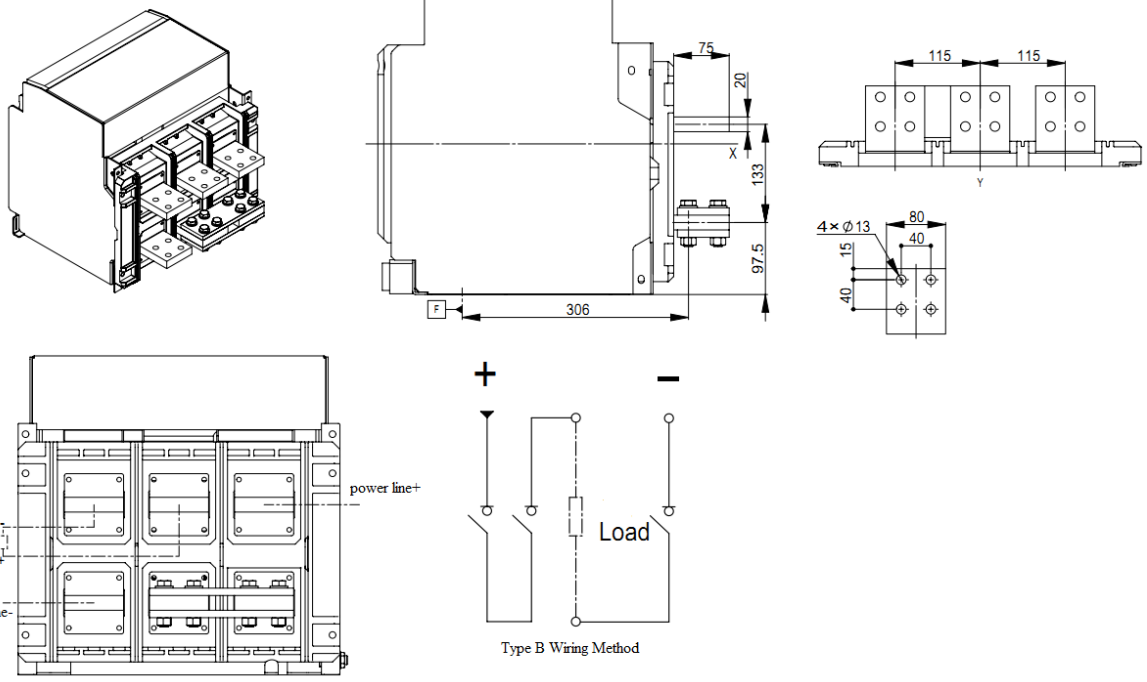




Type C Wiring Method

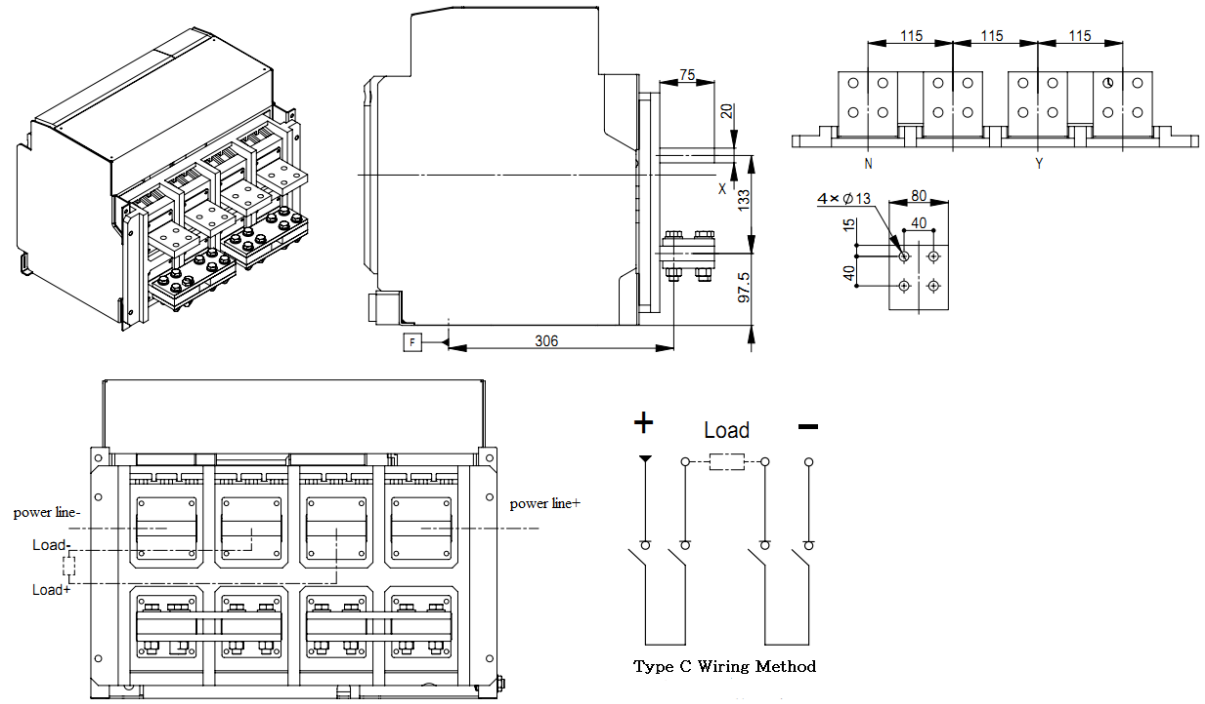
800A-2500A drawout type (DC Type B wiring mode)

Dimensions **Details**



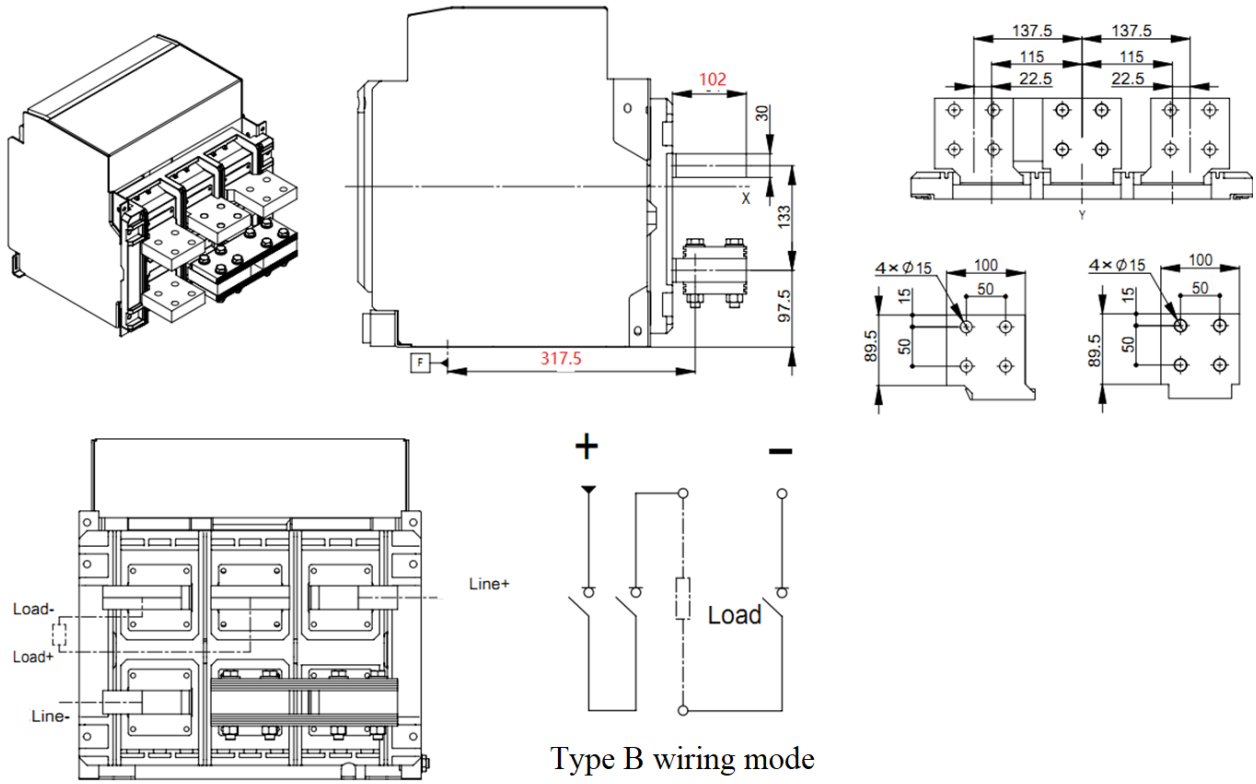
800A-2500A drawout type (DC Type C wiring mode)

Dimensions **Details**



3200A-4000A drawout type (DC Type B wiring mode)

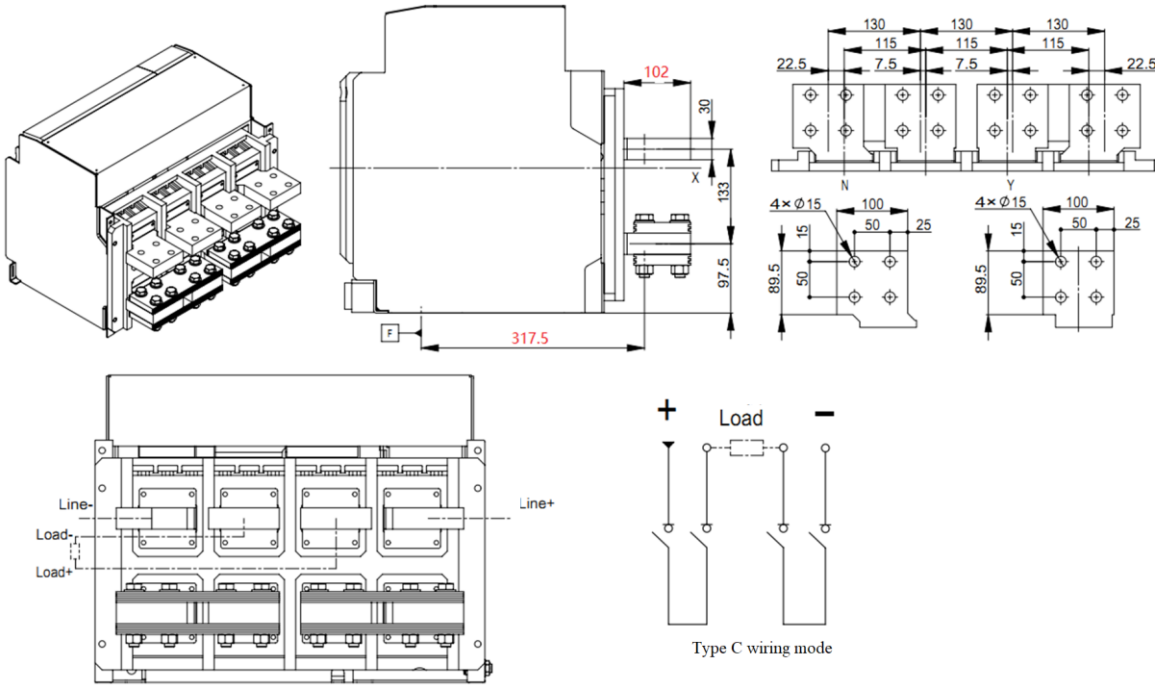
Dimensions **Details**



Type B wiring mode

3200A-4000A drawout type (DC Type C wiring mode)

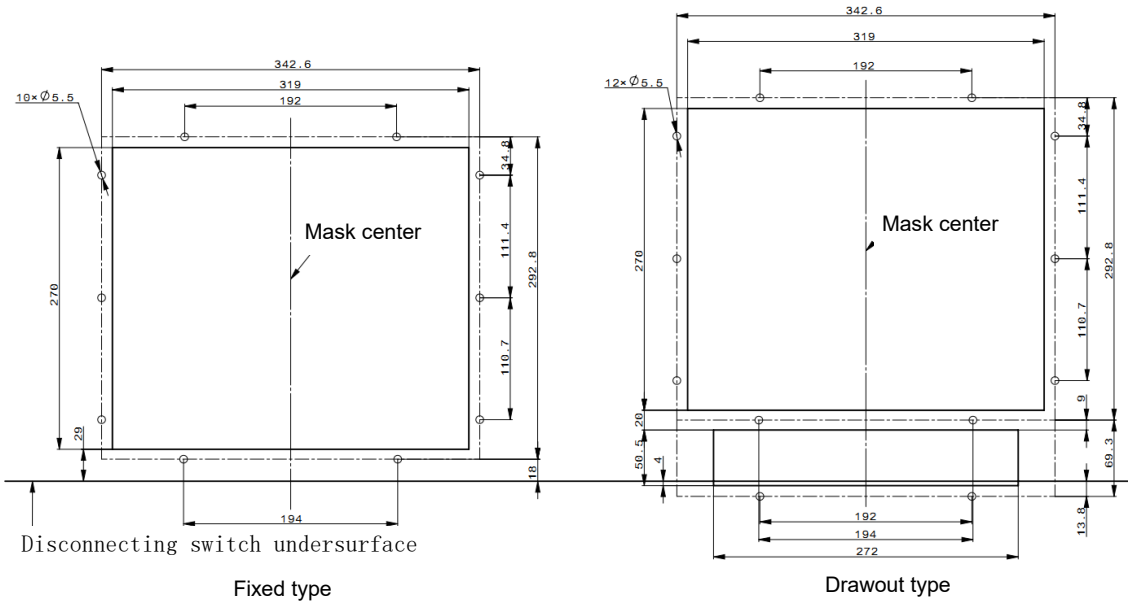
Dimensions **Detail**



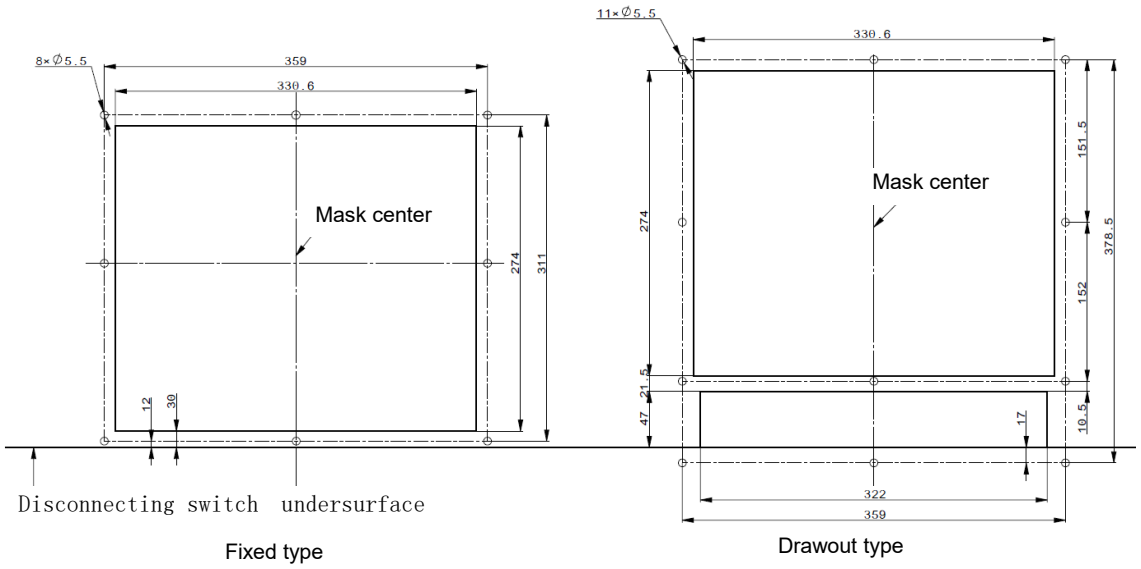
Type C wiring mode

5.5 Cabinet door open hole and installation pitch

Hole dimensions of 2000 door frame (unit: mm)



Hole dimensions of 4000 door frame (unit: mm)



5.6 Installation Notes on Disconnecting Switch

To ensure your safety and the safety of electrical equipment, before put the disconnecting switch into operation, users must:

a. Carefully read the Operation Manual before installation and use of the disconnecting switch.

b. Check whether the specification of the disconnecting switch is in line with the requirements before installation.

c. Install the disconnecting switch under the environment condition without explosion danger, conductive dust or the possibility of corroding metal and damaging the insulation.

d. Measure the insulation resistance of the disconnecting switch with a 1000V megohmmeter before installation of the disconnecting switch. When the surrounding medium temperature is +20℃±5℃, the relative humidity 50%-70% should not be less than 10 mge; otherwise it needs to be dried, and it can be used until the insulation resistance meets the requirements.

e. Prevent foreign matters from falling into the disconnecting switch when installing the disconnecting switch.

f. Ensure the disconnecting switch is flat without additional mechanical stress when installing the conductive busbar.

g. Conduct reliable grounding protection when installing the disconnecting switch. The grounding place of the disconnecting switch has an obvious grounding symbol.

h. Carry out wiring of the control circuit according to the wiring diagram when installing the disconnecting switch; check whether the working voltage of the undervoltage, shunt, closed electromagnet, motor and related parts conforms to the actual voltage, and then carry out the secondary circuit energizing. In case of drawout disconnecting switch, the disconnecting switch should be shaken into the test position, then the undervoltage release will close and then the disconnecting switch can be closed.

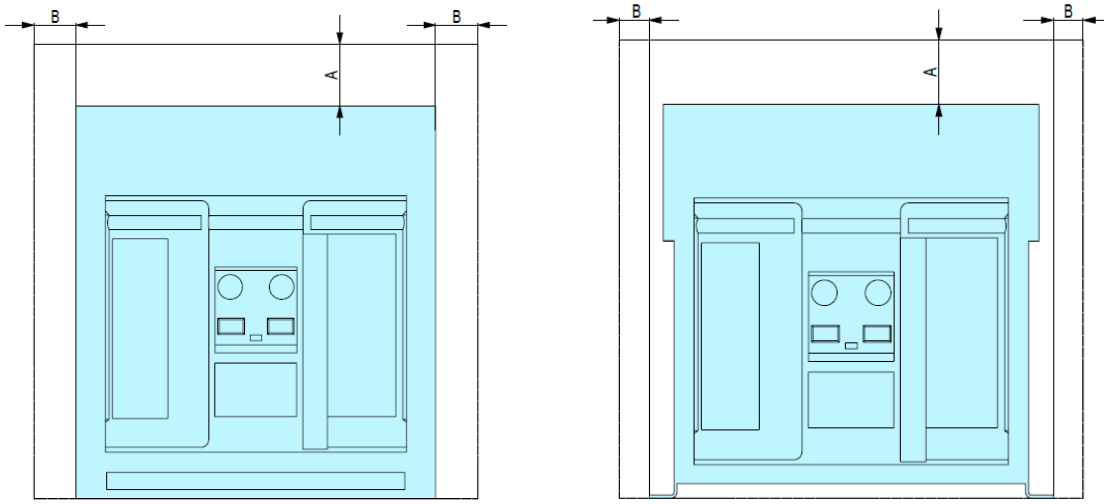
i. Pressing (or powering on) the closing button after the energy storage of the motor, the disconnecting switch will close.

j. Pressing (or powering on) the opening button, the disconnecting switch will open.

K. For manual storage of energy, pull the handle on the front panel up and down, a "click" sound can be heard after seven times, and the panel shows "storage of energy", the storage of energy ends. At this point, if there's undervoltage tripping, power on it (no need if without undervoltage tripping), then carry out closing operation.

The disconnecting switch is installed in the cabinet, the safe distance between the disconnecting switch and the cabinet

When users install the disconnecting switch into the cabinet, the safe distance between the disconnecting switch and the cabinet is as shown in Figure 37, and the installation dimensions are shown in Table 12.



Drawout disconnecting switch Fixed disconnecting switch

Figure 37

Installation type of the disconnecting switch	To the insulator		To the metallic body		To the live part	
	A	B	A	B	A	B
Drawout type	0	0	0	0	60	60
Fixed type	0	0	0	0	60	60

Table 12 Unit: mm

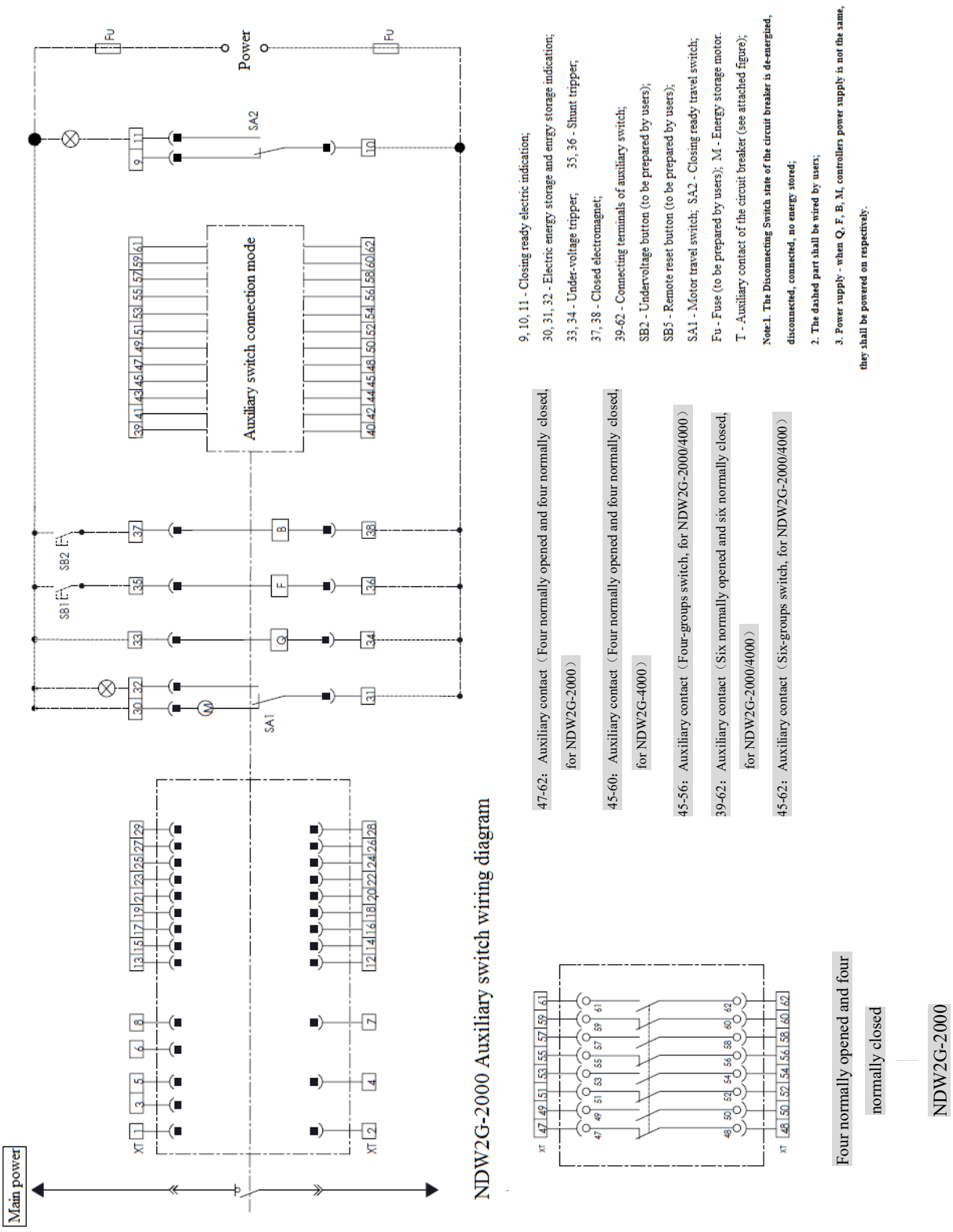
Note: 1. 150 mm space needed for removing the arc-extinguishing chamber should be considered for the safe spacing of the fixed type disconnecting switch;

2. If dustproof cover is added, height space of 70 mm for installation and rotating of the dustproof cover should be considered.

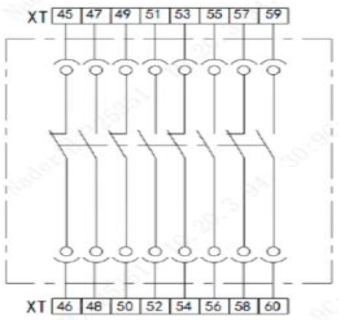
Chapter 6 Electrical Wiring Diagram

Electrical Wiring Diagram 6

6.1 2000/4000 Electrical Wiring Diagram and Terminal Number Definition

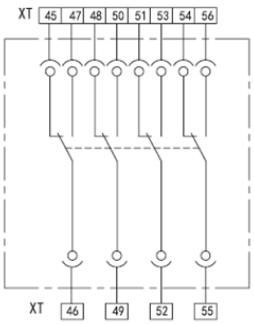


NDW2G-2000/4000 Auxiliary switch wiring diagram



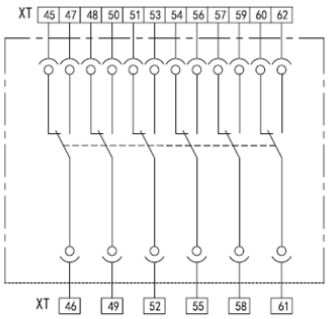
Four normally opened and four normally closed

NDW2G-4000



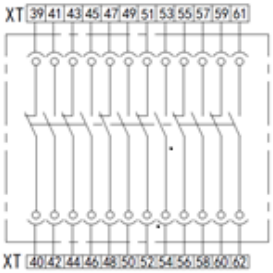
Four-groups switch

NDW2G-2000/4000



Six-groups switch

NDW2G-2000/4000



Six normally opened and six normally closed

NDW2G-2000/4000

Chapter 7 Ordering Selection Specification

Ordering Selection Specification 7

7.1 NDW2G Series of Disconnecting Switch Model Explanation and Encoding Rules

ND W 2 G □- □ □/□/□/□ □ □/□ □ □ □/□/□/□/□/□/□
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

SN	Name	Specification, type code		Description
1	Enterprise code	ND-"Nader" brand low-voltage electrical appliance		
2	Product code	W – Air Circuit Breaker		
3	Design code	2		
4	Derived code	G - Disconnecting switch		
5	Derived code	Not-marked - Conventional, F - Power generation products		"F" is applicable for Windpower and Plateau
6	Frame size level current	20-2000, 40-4000		
7	Breaking type	HU: High-voltage class , not mark: not high-voltage class		
8	Installation mode	Non-marked - fixed type, C - drawout type		
9	Rated current	04-400A, 06-630A, 08-800A, 10-1000A, 12-1250A, 16-1600A, 20-2000A, 25-2500A, 29-2900A, 32-3200A, 40-4000A,		
10	Number of poles	3-3 poles, 4-4 poles		
11	Electric energy storage mechanism	D1-AC380V/AC400V, D2-AC220V/AC230V, D3-DC220V, D4-DC110V, D5-DC24V		
12	Shunt release	F1-AC380V/AC400V, F2-AC220V/AC230V, F3-DC220V, F4-DC110V, F5-DC24V		
13	Closed electromagnet	B1-AC380V/AC400V, B2-AC220V/AC230V, B3-DC220V, B4-DC110V, B5-DC24V		
14	Internal Accessories	Undervoltage/loss of voltage release	Q1-AC380V/AC400V, Q2-AC220V/AC230V, Q3-DC220V, Q4-DC110V, Q5-DC24V	
15			S1-AC380V/AC400V, S2-AC220V/AC230V	This shall be omitted if without this accessory
		Undervoltage/loss of voltage release delay time	Conventional undervoltage: 0-Instantaneous, 1-1s delay, 3-3s delay, 5-5s delay	
			Loss of voltage: 1-1s delay, 3-3s delay, 5-5s delay	
		Auxiliary contact	Not-marked - Four normally opened and four normally	Applicable to 2000

16			closed, A55 - Five normally opened and five normally closed, A66 - Six normally opened and six normally closed	frame size
			Not-marked - Four-groups switch, A6 - Six-groups switch, A44 - Four normally opened and four normally closed	Applicable to 4000 frame size
17		BX - Closing ready signal output unit		This shall be omitted if without this accessory
		JS - Counter functional unit		
		CM1 - Drawout type (with the right side of the door interlock), CM2 - Drawout type (with the left side of the door interlock)		
		CX - Drawer seat three-position signal output		
18	External accessories	M - Doorframe		This shall be omitted if without this accessory
		G-Phase partition (standard configuration for 4000 frame size)		
		F - Dustproof cover		
		S - Button lock		
19	Wiring mode	Not marked-horizontal wire, J1- extended horizontal wire, J2-L wire, J3-vertical wire, J4-extended vertical wire		
20	Product usage type	Not-marked - Conventional		
21	Special notes	Customer’s special requirements		
22	Rated operational voltage	Not marked-AC690V or below，KV4-AC800V，KV5-AC1000V，KV6-AC1140V		

7.2 NDW2GZ Series Disconnecting Switch Model Explanation and Encoding Rules

ND W 2 GZ □ : □ □/□/□/□ □ □/□ □ □ □/□/□/□/□/□
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

SN	Name	Specification, type code		Description
1	Enterprise code	ND-"Nader" brand low-voltage electrical appliance		
2	Product code	W – Air Circuit Breaker		
3	Design code	2		
4	Derived code	G - Disconnecting switch Z - DC		
5	Derived code	Not-marked - Conventional, F - Power generation products		"F" is applicable for Windpower and Plateau
6	Frame size level current	20-2000, 40-4000		
7	Installation mode	Non-marked - fixed type, C - drawout type		
8	Rated current	08-800A, 10-1000A, 12-1250A, 16-1600A, 20-2000A, 25-2500A, 29-2900A, 32-3200A, 40-4000A,		
9	Number of poles in series	3-3P in series, 4-4P in series		
10	Electric energy storage mechanism	D1-AC380V/AC400V, D2-AC220V/AC230V, D3-DC220V, D4-DC110V D5：DC24V		
11	Shunt release	F1-AC380V/AC400V, F2-AC220V/AC230V, F3-DC220V, F4-DC110V, F5-DC24V		
12	Closed electromagnet	B1-AC380V/AC400V, B2-AC220V/AC230V, B3-DC220V, B4-DC110V, B5-DC24V		
13	Internal Accessories	Undervoltage/loss of voltage release	Q1-AC380V/AC400V, Q2-AC220V/AC230V, Q3-DC220V, Q4-DC110V, Q5-DC24V	
			S1-AC380V/AC400V, S2-AC220V/AC230V	
14		Undervoltage/loss of voltage	Conventional undervoltage: 0-Instantaneous, 1-1s delay, 3-3s delay, 5-5s delay	This shall be omitted if without

		release delay time	Loss of voltage: 1-1s delay, 3-3s delay, 5-5s delay	this accessory
15		Auxiliary contact	Not-marked - Four normally opened and four normally closed, A55 - Five normally opened and five normally closed, A66 - Six normally opened and six normally closed	Applicable to 2000 frame size
			Not-marked - Four-groups switch, A6 - Six-groups switch, A44 - Four normally opened and four normally closed	Applicable to 4000 frame size
16		BX - Closing ready signal output unit		This shall be omitted if without accessory;
		JS - Counter functional unit		
		CM1 - Drawout type (with the right side of the door interlock), CM2 - drawout type (with the left side of the door interlock).		
		CX - Drawer seat three-position signal output		
17	External accessories	M - Doorframe		Carry out the sequence arrangement according to the table, with "/" for separation.
		G-Phase partition (standard configuration for 4000 frame size)		
		F - Dustproof cover		
		S - Button lock		
18	Wiring mode	J1 - Extended horizontal wiring		Default wiring
19	Power supply/load connecting mode	B - Type B wiring (3P), C - Type C wiring (4P), Not-marked - Free wiring (applicable to 3P/4P)		Type B and C configuration transfer bus
20	Rated working voltage	Not-marked - DC750V（3P）, KV1-DC1000V（4P）, KV2-DC1200V（4P）, KV3-DC1500V（4P）		KV2 is not available for 2000 frame size
21	Special notes	Customer's special requirements		

Interlocking Piece Model Explanation and Encoding Rules

SF11 - key lock device (one lock and one key), SF21 - key lock device (two locks and one key), SF31 - key lock device (three locks and one key), SF32 - key lock device (three locks and two keys), SF53 - key lock device (five locks and three keys)	1. Select one from five key locks; 2. Select one from five mechanical interlocks;

SR11 - Mechanical interlocking device (two sets of steel cables, one for closing and one for opening) SR12 - Mechanical interlocking device (three sets of steel cables, one for closing and two for opening) SR21 - Mechanical interlocking device (three sets of steel cables, two for closing and one for opening) SY11 - Mechanical interlocking device (two sets of hard rods, one for closing and one for opening) SY12 - Mechanical interlocking device (three sets of hard rods, one for close and two for open)	

7.3 Ordering Selection Specification

(Please fill in numbers in_____, and check √ in □. Related contents can be found in the Manual)

<table>
<tr><td colspan="3">User unit</td><td colspan="2"></td><td>Number of units ordered:</td><td>Date of ordering:</td></tr>
<tr><td rowspan="9">Basic parameters</td><td rowspan="2">Frame size level</td><td>AC</td><td colspan="4">□ NDW2G-2000 □ NDW2G-4000
□ NDW2GF-2000 □ NDW2GF-4000
NOTE: NDW2GF is applicable for Windpower and Plateau</td></tr>
<tr><td>DC</td><td colspan="4">□ NDW2GZ-2000 □ NDW2GZ-4000
□ NDW2GZF-2000 □NDW2GZF-4000
NOTE: NDW2GZF is applicable for Windpower and Plateau</td></tr>
<tr><td>Product type</td><td colspan="5">□ Not-marked - Conventional</td></tr>
<tr><td>Current type</td><td colspan="5">□ AC □ DC</td></tr>
<tr><td>Installation mode</td><td colspan="5">□ Fixed type □ C Drawout type</td></tr>
<tr><td rowspan="2">Rated current (A)</td><td>AC</td><td colspan="4">□ 400 □ 630 □ 800 □ 1000 □ 1250 □ 1600 □ 2000
□ 2500 □ 2900 □ 3200 □ 4000</td></tr>
<tr><td>DC</td><td colspan="4">□ 800 □ 1000 □ 1250 □ 1600 □ 2000 □ 2500 □ 2900
□ 3200 □ 4000</td></tr>
<tr><td>Number of poles</td><td colspan="5">□ 3 (3P/3P in series) □ 4 (4P/4P in series)</td></tr>
<tr><td rowspan="2">Rated working voltage</td><td>2000 frame size</td><td colspan="4">□ Not marked - AC690V and below
□Not marked - DC750V (3P) □ KV1-DC1000V (4P)
□ KV3-DC1500V (4P)</td></tr>
<tr><td>4000 frame size</td><td colspan="4">□ Not marked - AC690V and below
□ KV4-AC800V □ KV5-AC1000V □ KV6-AC1140V
□Not marked- DC750V (3P)
□ KV1-DC1000V (4P) □ KV2-DC1200V (4P) □ KV3-DC1500V (4P)</td></tr>
</table>

	Wiring mode	AC	2000 frame size	□ Horizontal wiring (standard configuration) □ J1 Horizontal extended wiring □ J2 L-type wiring □ J3 Vertical wiring
			4000 frame size	□ Horizontal wiring (standard configuration) □ J1 Horizontal extended wiring □ J3 vertical wiring □ J4 vertical extended wiring
		DC	2000 frame size	□ J1 Horizontal extended wiring
			4000 frame size	□ J1 Horizontal extended wiring
Required accessories	Load connecting method (DC)	□ Not marked - Free wiring (applicable to 3P/4P) □ B - Type B wiring (3P) □ C - Type C wiring (4P)		
	Electric operating mechanism	□ D1(AC380V/AC400V) □ D2(AC220V/AC230V) □ D3(DC220V) □ D4(DC110V)		
	Shunt release	□ F1(AC380V/AC400V) □ F2(AC220V/AC230V) □ F3(DC220V) □ F4(DC110V) □ F5(DC24V)		
	Closed electromagnet	□ B1(AC380V/AC400V) □ B2(AC220V/AC230V) □ B3(DC220V) □ B4(DC110V) □ B5(DC24V)		
Optional accessories	Under-voltage release	□ Q1(AC380V/AC400V) □ Q2(AC220V/AC230V) □ Q3(DC220V) □ Q4(DC110V) □ Q5(DC24V)		
		□ 0-Instantaneous (0s) Delay: □ 1 (1s delay) □ 3 (3s delay) □ 5 (5s delay)		
	Loss of voltage release	□ S1(AC380V/AC400V) □ S2(AC220V/AC230V)		
		Delay: □ 1 (1s delay) □ 3 (3s delay) □ 5 (5s delay)		
	Auxiliary contact	2000 frame size	□ Four normally opened and four normally closed (standard configuration) □ A55 - Five normally opened and five normally closed □ A66 - Six normally opened and six normally closed	
		4000 frame size	□ Four-groups switching (standard configuration) □ A6-Six-groups switching □ A44-Four normally opened and four normally closed	
	Closing ready	□ BX - Closing ready signal output unit		
	Counter	□ JS - Counter		
	Drawer seat door interlock	□ CM1 - Right side of the door interlock □ CM2 - Left side of the door interlock		
	Position indication	□ CX - Drawer seat three-position signal output		
	Door frame	□ M Doorframe		

	Phase partition	□ G Phase partition (4000 standard configuration)	
	Dustproof cover	□ F Dustproof cover	
	Button lock	□ S Button lock	
	Temperature alarm	□ WD Temperature alarm protection device	
Interlocking accessories	Off-position lock	□ SF11-One lock one key □ SF21-Two locks one key □ SF31-Three locks one key □ SF32-Three locks two keys □ SF53-Five locks three keys	
	Mechanical interlocking	Cable type	□ SR11 - Two groups, one for closing and one for opening □ SR12 - Three groups, one for closing and two for opening □ SR21 - Three groups, two for closing and one for opening (SR21 is not available for 1600 frame size)
		Hard rod type	□ SY11- Two groups, one for closing and one for opening □ SY12-Three groups, one for closing and two for opening
Special requirements		Other requirements:	
Note: If you have special requirements, please indicate in the special requirements column.			