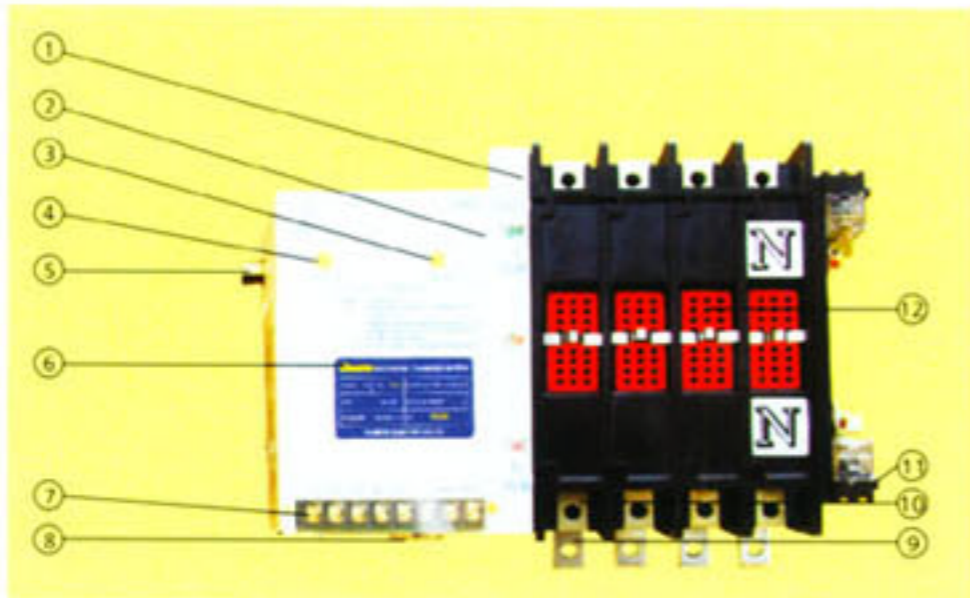
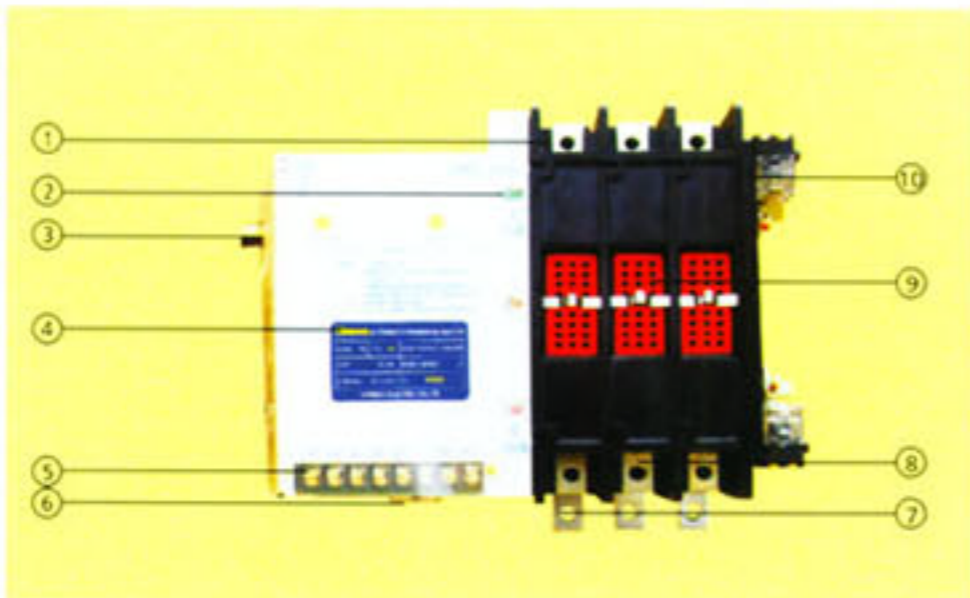


W-N3 Three section type Automatic Transfer switch (20-5000) A



1. Power "A" Side Main Circuit Terminal
2. On/Off Indicator
3. Selective Button for "B" Power-Closing
4. Trip Button
5. Manual Operation Square Shaft (Anti-Clockwise)
6. Name Plate
7. Control Circuit Terminal Block
8. Amateur for Closing Coil
9. Load side Main Circuit Terminal
10. Circuit Terminal for "B" Power
11. Aux Switch
12. Arc-Extinguishing Chamber

W-2 Two Section Type Automatic Transfer Switch (20-500) A



1. Power "A" Side Main Circuit Terminal
2. On/Off Indicator
3. Manual Operation Square Shaft (Anti-Clockwise)
4. Name Plate
5. Control Circuit Terminal Block
6. Amateur for Closing Coil
7. Load Side Main Circuit Terminal
8. Power "B" Side Main Circuit Terminal
9. Arc-Extinguishing Chamber
10. Aux Switch

Features of ATS Switch:

Reliable mechanical interlock: unique eccentric selection structure, ensuring only one group for power supply, without any possibility for two groups of power connected in to load at the same time.

Excellent arc extinguishing performance: every kind of abnormal arc will be extinguished reliably, short arc continuous time, little contacts wear.

Multi-piece type main arc contact: to raise contacting area and contacting pressure of the contact surface without generation of over heating and melting weld, to prolong the use life of the contact.

Swift in switching speed: swift change-over between normal power supply and spare power supply , ATS with controller can also be set for its delay time by the user.

Simple structure and smaller in size: reliable in operation, low in break-down rate and convenient in installation, use and maintenance, by use of handle to turn slowly in operation at maintenance, it is easy to check the break-downs and have trouble shooting. Model WATS is of Grade PC, the size is smaller than Grade BC, but current specifications are much more than Grade BC.

Neutral point (OFF) position: Model W-N3 Three section type switch can via power on state transfer and stay stortly in neutral point (OFF) position which is not connected with any power (generally the staying time is from several seconds to several minutes). And Model W-2 tow section type can not stay at this neutral point (OFF) position.

Multi-function controller: with LCD liquid crystal display or digital display dynamically monitoring and displaying power voltage, current, and controlling the transfer switch to complete the transfers between normal, spare power, meutral point (OFF) position according to needs under less-voltage , over-voltage, lack of phase, voltage lost etc break-down states.

W SERIES (MODEL -2/-N3 PC GRADE) AUTOMATIC TRANSFER SWITCHING EQUIPMENT

❖ 1. Product model and definition

Product model and definition are as in the following:

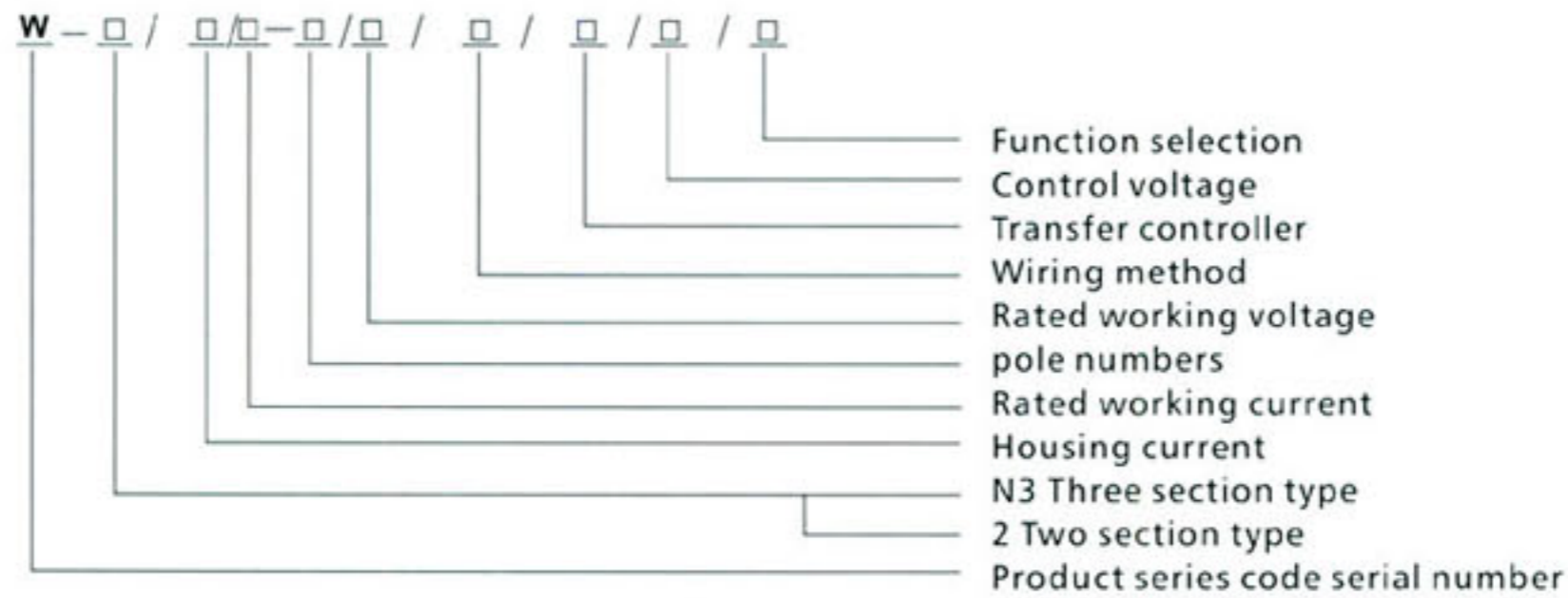


Table 1

Product series code serial number	Rated working current (IE) A	Pole numbers	Rated working voltage V	Wiring Method	Transfer controller	Control voltage	Function selection
W-N3 W-2	20 40 63 80 100...	2、3、4	4	F、B	NB、NG	2	I、II、 No code
Housing grade current Inm A	63	20 40 63	4: 380V / 400V AC	F: Wiring at panel front B: Wiring at panel bank	NB: Power network -power network NG: Power network -generator sets	2: AC 220V / 230V	No code: standard type, need to fix controller or be connected to external control circuit, with less voltage, over voltage, phase lost protection, remote zero setting (communication interface) I : With built-in controller, integrated fully automatic type. II : W-2 is fully automatic instantaneous transfer type.
	125	80 100 125					
	250	160 200 225					
	250	250					
	500	350 400 500					
	800	630 800					
	1250	1000 1250					
	1600	1600					
	2500	2000 2500					
4000	3150 4000						
5000	5000						

Note: 1) W-2 is two section type automatic transfer switch when the switch receives signal, it will not stop at middle off position and transfers at once from a power supply to be changed to connected to another power supply. The current specifications are only from 20A-500A.

W-N3 is three section type automatic transfer switch, on receiving transfer signal, the switch can at once (or after a pre-set delay time) transfer from a power supply to another power supply, and also can transfer from a power supply to the middle off position which is not connected to any power supply. The current specifications are from 20A-5000A.

2) The electrical grading of W series switch is :Grade PC.

3) Rated working voltage AC 660V/690V and DC 125V and control voltage AC380V/400V, 100V,270V and DC 125V etc other voltage specification switch electrical appliances are special orders, please note when place orders.

4) communications interface function is used for special order, please note when place orders.

5) 500A and under switches are generally panel front wiring method,630A and above switches are generally panel back wiring method, besides are special orders.

W SERIES (MODEL -2/-N3 PC GRADE) AUTOMATIC TRANSFER SWITCHING EQUIPMENT

❖ 1. Product model and definition

Product model and definition are as in the following:

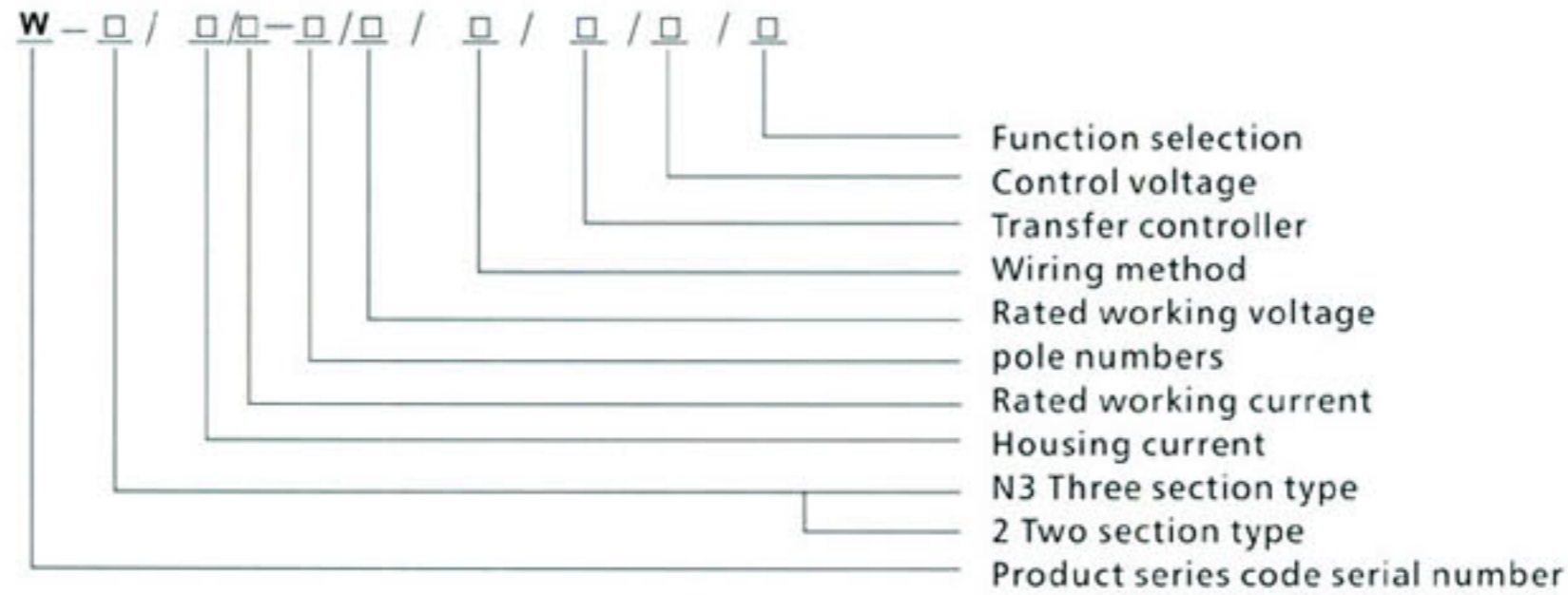


Table 1

Product series code serial number	Rated working current (IE) A	Pole numbers	Rated working voltage V	Wiring Method	Transfer controller	Control voltage	Function selection
W-N3 W-2	20 40 63 80 100...	2, 3, 4	4	F, B	NB, NG	2	I, II, No code
Housing grade current Inm A	63	20 40 63	4: 380V / 400V AC	F: Wiring at panel front B: Wiring at panel bank	NB: Power network -power network NG: Power network -generator sets	2: AC 220V / 230V	No code: standard type, need to fix controller or be connected to external control circuit, with less voltage, over voltage, phase lost protection, remote zero setting (communication interface) I : With built-in controller, integrated fully automatic type. II : W-2 is fully automatic instantaneous transfer type.
	125	80 100 125					
	250	160 200 225					
	250	250					
	500	350 400 500					
	800	630 800					
	1250	1000 1250					
	1600	1600					
	2500	2000 2500					
4000	3150 4000						
5000	5000						

Note: 1) W-2 is two section type automatic transfer switch when the switch receives signal, it will not stop at middle off position and transfers at once from a power supply to be changed to connected to another power supply. The current specifications are only from 20A-500A.

W-N3 is three section type automatic transfer switch, on receiving transfer signal, the switch can at once (or after a pre-set delay time) transfer from a power supply to another power supply, and also can transfer from a power supply to the middle off position which is not connected to any power supply. The current specifications are from 20A-5000A.

2) The electrical grading of W series switch is :Grade PC.

3) Rated working voltage AC 660V/690V and DC 125V and control voltage AC380V/400V, 100V,270V and DC 125V etc other voltage specification switch electrical appliances are special orders, please note when place orders.

4) communications interface function is used for special order, please note when place orders.

5) 500A and under switches are generally panel front wiring method,630A and above switches are generally panel back wiring method, besides are special orders.

❖ 2. W-N3 Three section transfer switch parameters

Table 2

Model		W-N3																
Insulation voltage		AC690V																
Rated voltage		AC380V/400V (AC660V/690V DC 125V/250V)																
Rated current(Ie)		20A~63A			80A~125A			160A~250A			350A~500A			630A~800A				
Kind of throw Double throw		Double throw																
Wiring method		Panel front												Panel back(panel front is product for special order)				
Number of poles		2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P		
Weight (kg)		5.5	6	6.2	6	6.3	7	6	6.5	7.3	11	13.6	16.2	25	33	42		
Operating current (A)	DC110V/125V	6	6	8	6	6	8	6	8	10	10	10	14	12	12	12		
	AC100V/110V	6	6	8	6	6	8	6	8	10	10	10	14	12	12	12		
	AC200V/220V/230V	3	3	4	3	3	4	5	5	5	5	5	6	6	6	6		
Trip coil current (A)	DC110V/125V	2A						3A			4A							
	AC100V/110V	2A						3A			4A							
	AC200V/220V/230V	1A						1.4A			2A							
Performance	Short-time withstand current	10kA						15kA			20kA			25kA				
	Rated Conditional Short-circuit current	25kA						37.5kA			50kA			55kA				
	Switching capacity	AC-33B(10 Ie making/10 Ie breaking)cos φ = 0.35 DC-33B 1.1 Ie making/1.1 Ie breaking L/R = 1ms																
	Transfer time	Power A side	Making	55ms						55ms			60ms			100ms		
			Breaking	20ms						20ms			25ms			30ms		
		Power B side	Making	80ms						80ms			90ms			135ms		
			Breaking	20ms						20ms			25ms			30ms		
Life	Electrical: 2000 Operations, Mechanical: 6000 Operations																	
Switching frequency	120 Operations/hour																	
Auxiliary switch		Both power A, B side are 2 normally open, 2 normally closed; Switching capacity AC: 100V/110V 5A AC200V/220V 2.5A DC: 110V 0.5A																
accessories		Manual handle																

Note:1) The weight in the table is for reference only.

W SERIES (MODEL -2/-N3 PC GRADE) AUTOMATIC TRANSFER SWITCHING EQUIPMENT

Continued from Table 2

W-N3																		
AC690V																		
AC380V/400V (AC660V/690V DC 125V/250V)																		
1000A ~ 1250A				1600A			2000 ~ 2500A			3150A			4000A			5000A		
Double throw																		
Panel back (panel front is non-standard product for special order)																		
2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P	3P	4P	3P	4P
30	39	49	31	40	51	36	51.2	59	95	115	135	110	135	148	207		265	
12	12	16	12	12	16	14	16	18	16	20	24	20	24	28	32	36	36	38
12	12	16	12	12	16	14	16	18	16	20	24	20	24	28	32	36	36	38
6	6	8	6	6	8	7	8	9	8	10	12	10	12	16	16	18	18	20
4A									6A									
4A									6A									
2A									2A									
32kA						40kA			50kA			50kA			50kA			
65kA						72kA			80	90	100kA		120kA		120kA			
AC-33B(10 Ie making/10 Ie breaking)cos φ = 0.35 DC-33B 1.1 Ie making/1.1 Ie breaking L/R = 1ms									AC-33B 20KA			AC-33B 30KA			AC-33B 35KA			
115ms						115ms			180ms			140ms		200ms		210ms		
25ms						25ms			25ms			30ms		30ms		35ms		
145ms						150ms			220ms			190ms		220ms		230ms		
25ms						25ms			25ms			30ms		30ms		35ms		
Electrical: 1000 Operations, Mechanical: 5000 Operations																		
60 Operations/hour									30 Operations/hour									
Both power A, B side are 2 normally open, 2 normally closed; Switching capacity AC: 100V/110V 5A AC200V/220V 2.5A DC: 110V0. 5A																		
Manual handle																		

- 2) Products of 4000A and 5000A4P, the capacity of pole N are respectively 2000A and 2500A.
- 3) Short time with stand current and operating current, trip current are for reference only.

3. W-2 Two section type transfer switch parameters

Table 3

Model		W-2											
Insulation voltage		AC690V											
Rated voltage		AC380V/400V (AC660V/690V DC 125V/250V)											
Rated current(Ie)		20A 40A 63A			80A 100A 125A			160A 200A 225A 250A			350A 400A 500A		
Kind of throw		Double throw											
Wiring method		Panel front											
Number of poles		2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P
Weight (kg)		4.5	5	5.5	5	5.5	6	6	8	10	11	14	18
Operating current (A)	DC110V/125V	6	6	8	6	6	8	6	8	10	10	10	14
	AC100V/110V	6	6	8	6	6	8	6	8	10	10	10	14
	AC200V/220V/230V	3	3	4	3	3	4	3	4	5	5	5	7
Performance	Short-time withstand current	10kA					15kA			20kA			
	Rated Conditional Short-circuit current	25kA					37.5kA			50kA			
	Switching capacity	AC-33B(10 Ie making/10 Ie breaking)cos φ =0.35 DC-33B 1.1 Ie making/1.1 Ie breaking L/R= 1ms											
	Transfer time	Power A side	Making	55ms									60ms
			Breaking	20ms									25ms
	Transfer time	Power B side	Making	55ms									60ms
			Breaking	20ms									25ms
Life	Electrical: 2000 Operations, Mechanical: 6000 Operations												
Switching frequency	120 Operations/hour												
Auxiliary switch		Both power A、 B are 2 normally open and 2 normally closed; Switching capacity AC: 100V/110V 5A AC200V/220V 2.5A DC: 110V 0.5A											
accessories		Manual handle											

- Note:** In two section type (W-2):
- ① The dimensions of 80A,100A,125A three current grade are the same as the same specifications of Three section type (W-N3).
 - ② The dimensions of 160A,200A,225A,250A four current grade are the same as the same specifications of Three section type (W-N3).
 - ③ The dimensions of 350A,400A,500A three current grade are the same as the same specifications of Three section type (W-N3).

4. Normal working conditions and installation conditions

1) Ambient air temperature:

The upper limit is not over +40℃;the lower limit is not less than-5℃, the average value of 24h is not over 35℃.

(According to the requirements of the customers, the upper limit can be extended to not over +55℃; the lower limit can be extended to not less than -25℃.)

2) Above sea level:

The installation site should not be over 2000m above sea level.

3) Atmosphere conditions:

The relative humidity of the atmosphere of installation site at 40℃ max temperature should not over 50%;at lower temperatures, higher humidity is allowable, the average lowest temperature of wettest month is not over +25℃,the average relative humidity of the month should not over 90%,the dew condensated on the surface of the product must be taken with measures.

W SERIES (MODEL -2/-N3 PC GRADE) AUTOMATIC TRANSFER SWITCHING EQUIPMENT

4) Pollution grade:

Pollution grade is in conformity to Grade 3 specified by GB/T14048.1.

5) Installation category:

Installation category of switch electrical appliance is in conformity to category III specified by GB/T14048.1.

Installation category of transfer controller is in conformity to category II specified by GB/T14048.1.

6) Installation conditions:

Both switch electrical appliance and transfer controller can be installed in special control cabinet or power distribution cabinet vertically or horizontally.

7) Protection grade:

The switch electrical appliance housing protection grade is in accordance with IP Grade 20 of GB4208.

The transfer controller housing protection grade is in accordance with IP Grade 30 of GB4208.

8) Use category:

Table 4 Use Category

Main circuit	AC-33B Not frequent operation	Electric motor load or containing electric motor, resistor load and below 30% mixed load of incandescent light load ($I/I_e=6, U/U_e=1.05, \cos\phi=0.5$)
Auxiliary circuit and transfer control circuit	AC-15 DC-13	To control above 75VA AC electric magnetic iron load To control DC electric magnetic iron load

9) Control circuit:

The rated control circuit voltage is AC220V/230V/50HZ, the control circuit voltage (U_c) should be in conformity with the working voltage U_s of the transfer controller, its working range is $85\% U_c \leq U_s \leq 110\% U_c$.

When following situation appears, the transfer controller will send out transfer command:

- a) Breaking of any phase or voltage lost;
- b) Less voltage: any voltage to be set between 180V~230V;
- c) Over voltage: any voltage to be set between 220V~250V.

If the customer has not special requirements and notes on order, then at ex-works, the rated normal working voltage is ~220V, the transfer voltage is set as: less voltage: ~180V, over voltage: ~250V.

10) Auxiliary circuit:

Both of power A and B contacts used in auxiliary circuit are two normally open and two normally closed. The values of auxiliary contacts see Table 5.

Table 5

Weighted heating current Lth A	Rated insulation voltage U_i V	With rated working current	
		AC220V/110V	DC220V/110V
10	400	2.5/5	0.2/0.5

Non-normal making and breaking capacity of auxiliary contacts see Table 6

Table 6

Use category	Making			Breaking			Operating frequency and number		
	I/I_e	U/U_e	$\cos\phi$ or $T_{0.95}$	I/I_e	U/U_e	$\cos\phi$ or $T_{0.95}$	Cycle number	Operating frequency	Power on time
AC-15	10	1.1	0.3	10	1.1	0.3	10	2	≥ 0.05
DC-13	1.1	1.1	6Pe	1.1	1.1	6Pe			

Note: Upper limit of $T_{0.95} \approx 6Pe \leq 300ms$. When $T_{0.95}$ is over 0.05s, DC-13 power on should be at least $T_{0.95}$.

7

Coordination of auxiliary contacts and short circuit protection device

Auxiliary contacts in serial connection with fuse (RL6-25/6 recommended), at 1.1 times rated working voltage, in power factor between 0.5~0.7 induction test circuit, should bear to pass the examination of pre-estimated short circuit current 1000A with in the time of fuse melting break-down.

5. Contour dimensions and installation dimensions

1) W-N3 20~63A
W-2 20~63A

Panel board safety distance
S1 Dimension: 30mm(400V), 60mm(690V)

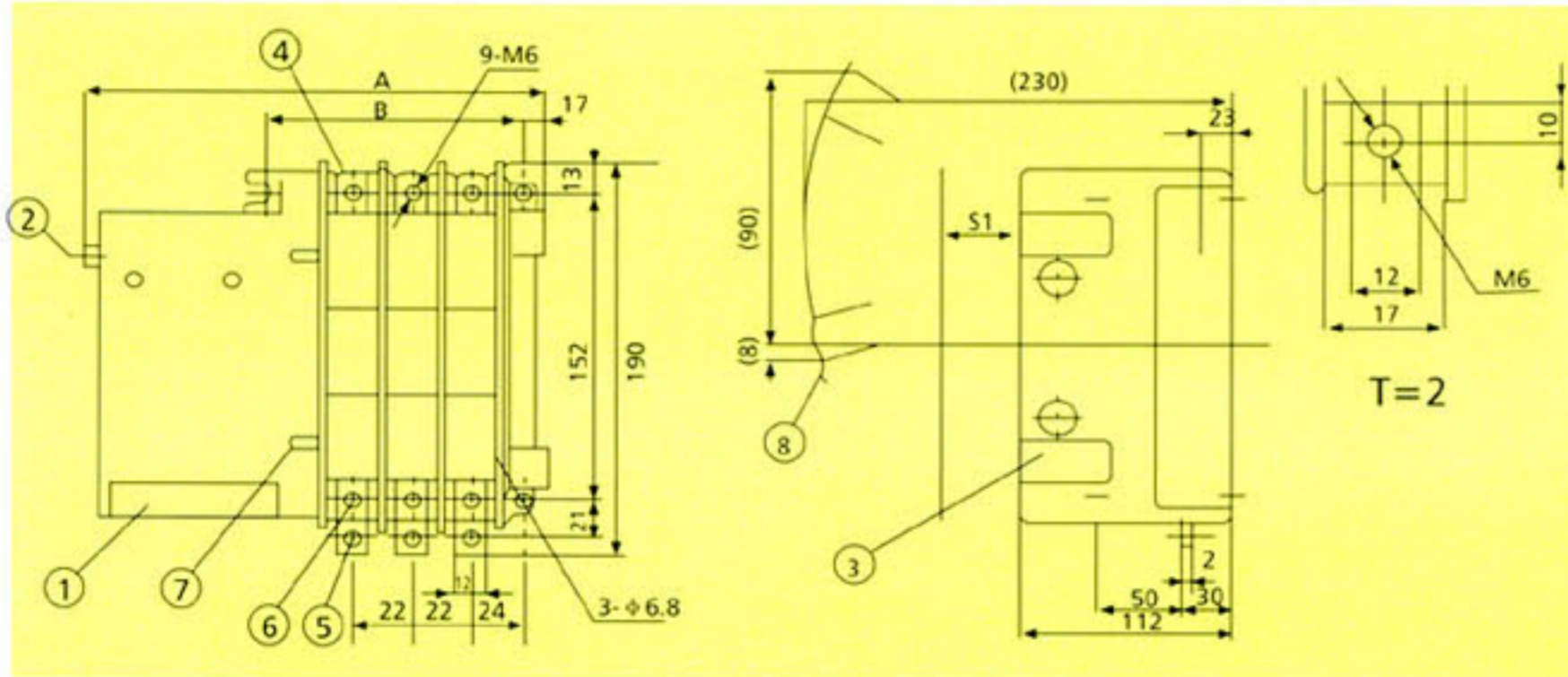


Table 7 W-2

	A	B
2P	182	88
3P	204	110
4P	226	132

Table 8 W-N3

	A	B
2P	202	88
3P	224	110
4P	246	132

2) W-N3 80~125A
W-2 80~125A

Panel board safety distance
S1 Dimension: 30mm(400V), 60mm(690V)

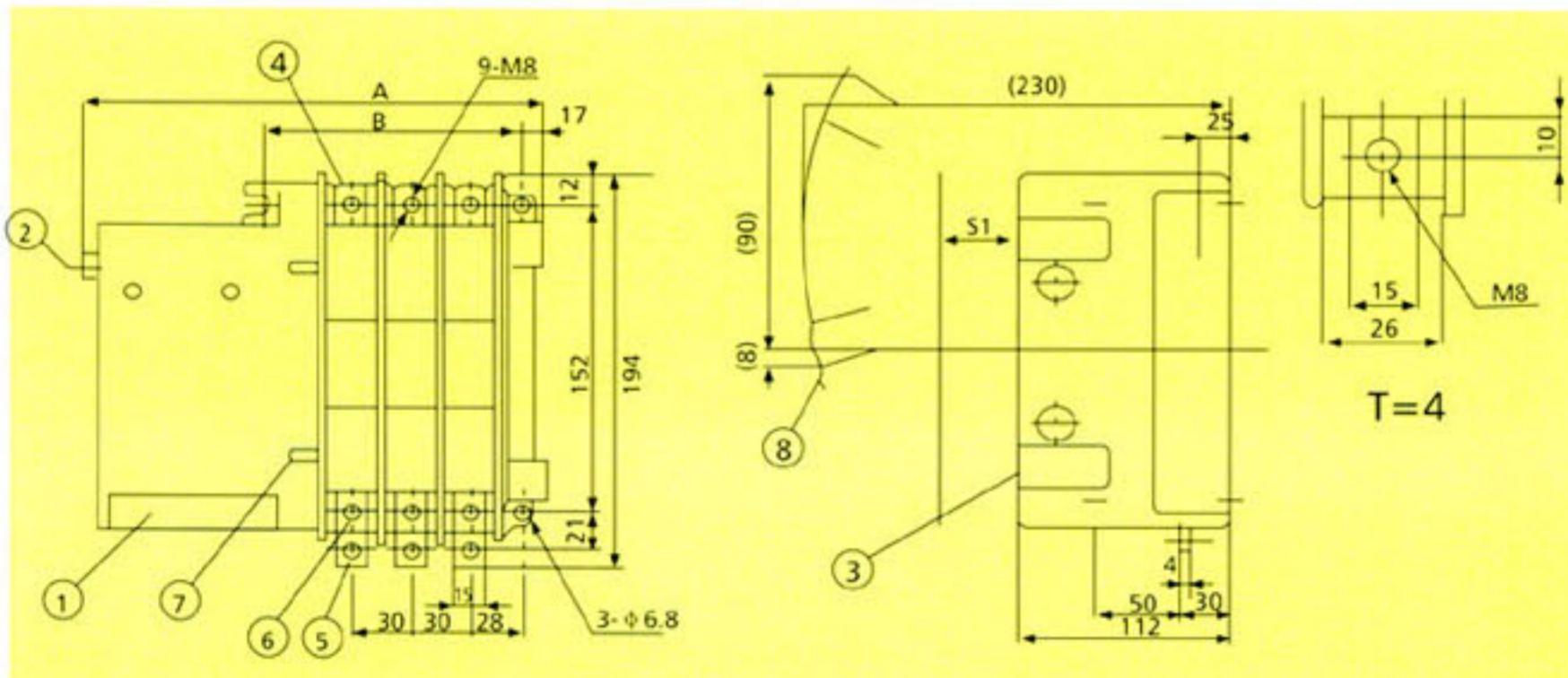


Table 9

	A	B
2P	218	103
3P	248	133
4P	278	163

Note: Each installation dimensions and contour dimensions may vary, before construction please check with the actual article, the company will not make any notice additionally.

- ① Transfer operating circuit terminal
- ② Manual (Handle) operating square shaft
- ③ Auxiliary switch
- ④ A (normal use) power side main circuit terminal
- ⑤ Load side main circuit terminal
- ⑥ Power B (spare) side main circuit terminal
- ⑦ ON/OFF indication board
- ⑧ Manual handle and turning work range

6) W-N3 2000A~W-N3 3150A (3P)

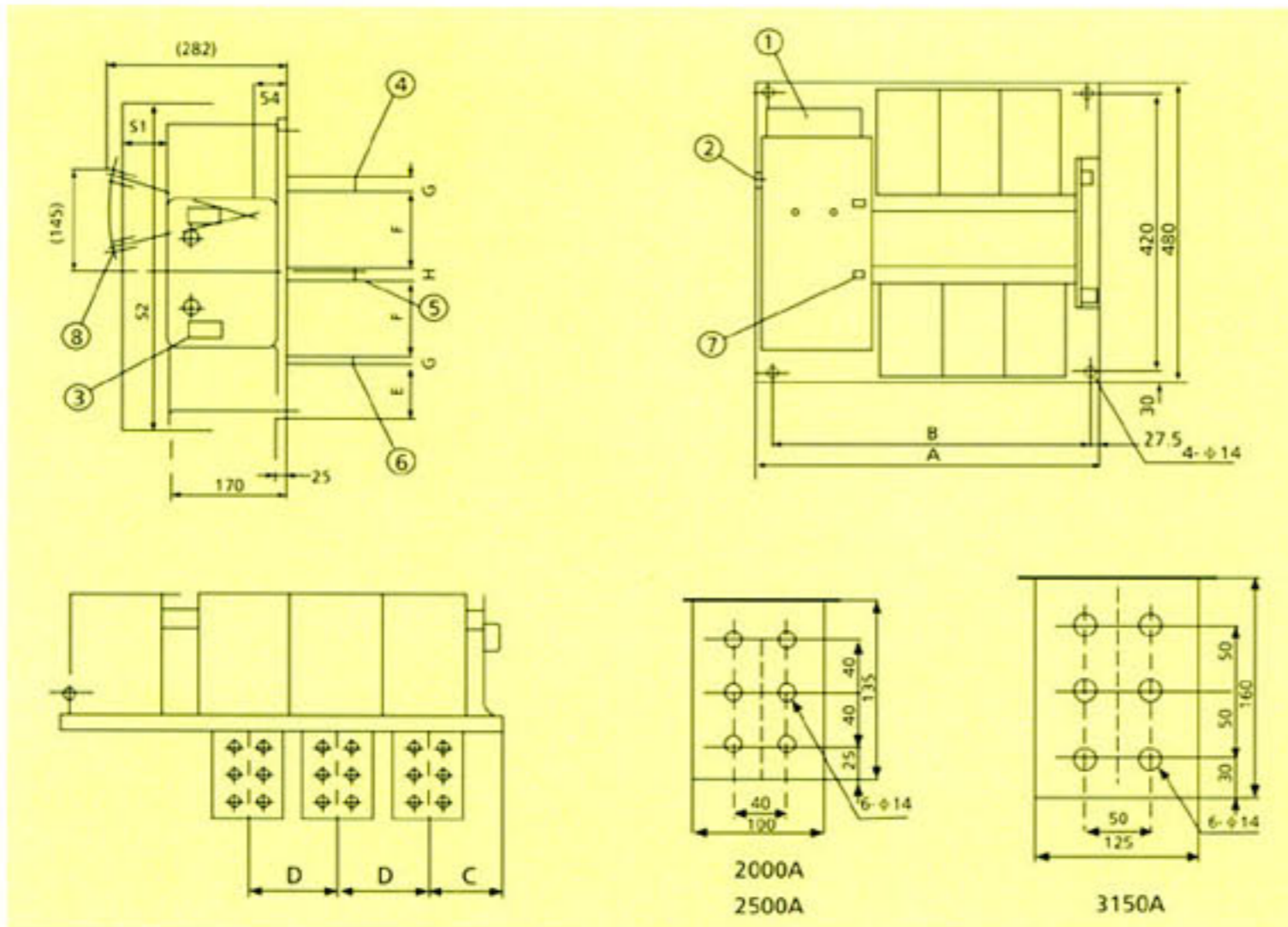


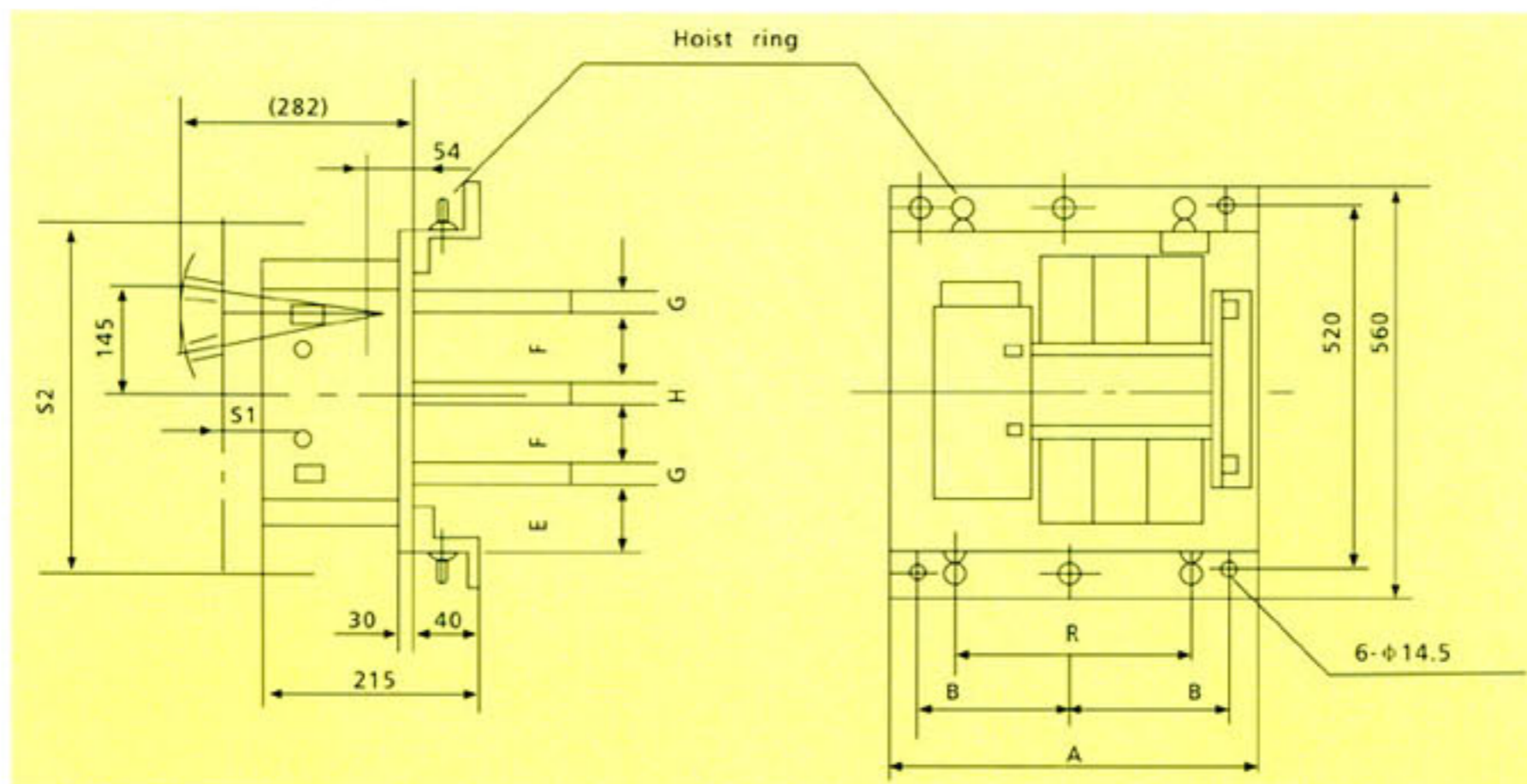
Table 13

Type	2000A	2500A	3150A(3P)
A	2P	540	640
	3P	650	915
	4P	845	
B	2P	500	600
	3P	595	860
	4P	790	
C	130	130	135
D	135	145	240
E	75	75	75
F	117.5	117.5	117.5
G	15	20	20
H	15	20	20

Panel board safety distance

S1 Dimension: 50mm(400V), 100mm(690V)
S2 Dimension: 560mm(400V), 600mm(690V)

7) W-N3 3150A (4P)~5000A



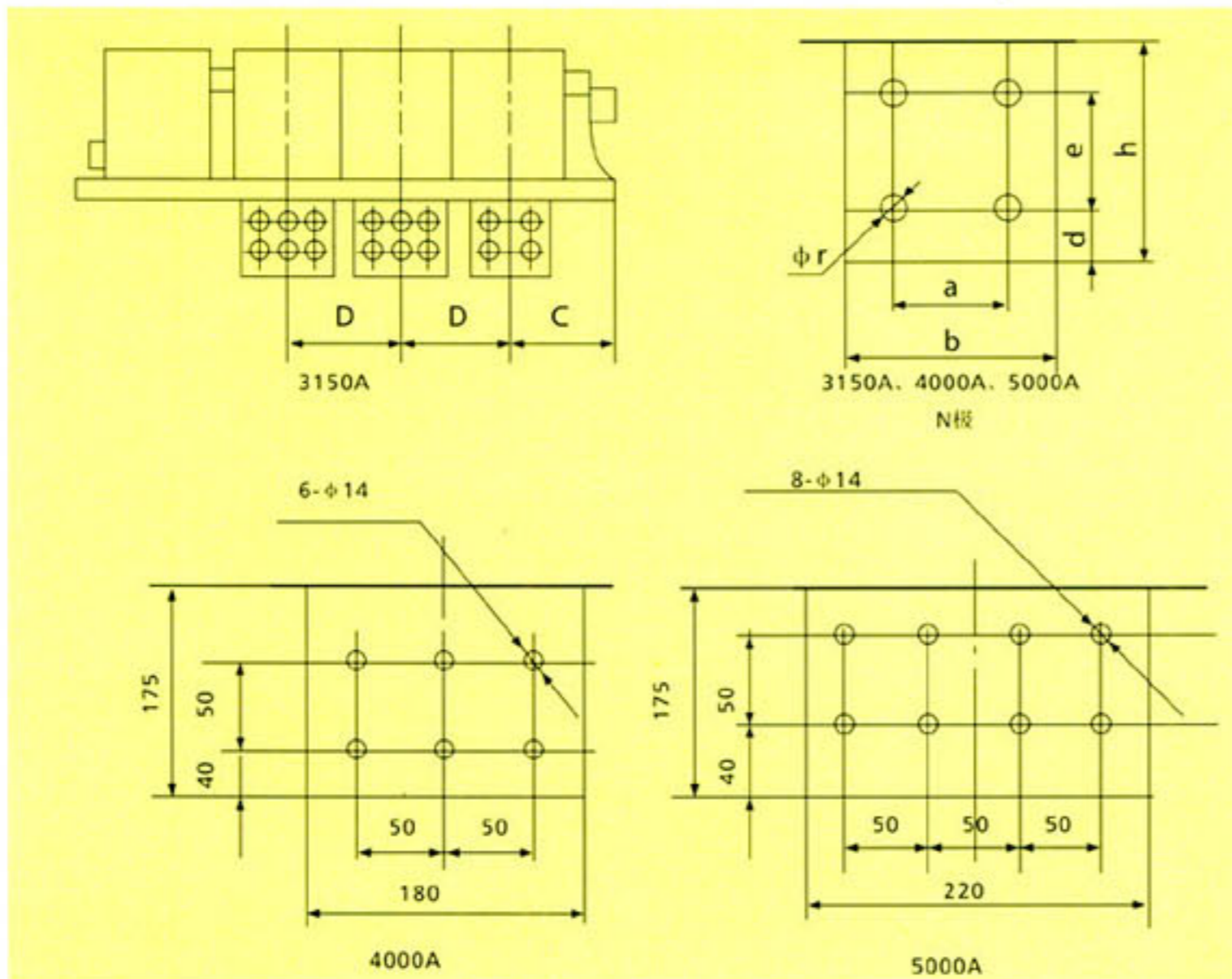
Panel board safety distance

S1 Dimension: 50mm(400V), 100mm(690V)
S2 Dimension: 560mm(400V), 600mm(690V)

Note: There are four hoist rings on each of 3150A (4P), 4000A and 5000A automatic transfer switch, before hoisting, check must be done to whether the hoist rings are fastened on the installation rails of the switch and check that the rope load capacity should not less than 500kg. Before formal hoist, trial hoist must be done to determine the weight center position of the switch to avoid side turning down and sliding down etc serious accidents.

W SERIES (MODEL -2/-N3 PC GRADE) AUTOMATIC TRANSFER SWITCHING EQUIPMENT

Table 14



Type	3150A	4000A	5000A
A	3P	915	1080
	4P	1020	1160
B	3P	430 x 2	500 x 2
	4P	470 x 2	520 x 2
C	135	135	230
D	240	240	270
E	75	75	88
F	117.5	117.5	110
G	20	20	25
H	20	20	25
R	800	800	900
a	40	40	40
b	100	100	100
d	30	30	30
e	50	50	50
h	160	175	175
r	14	14	14

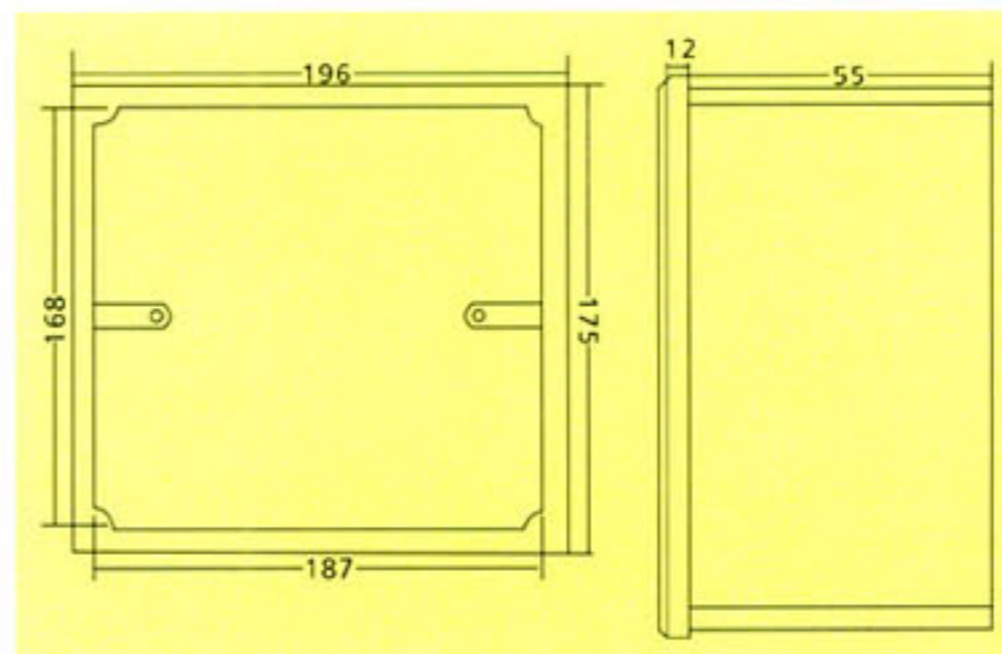
6. Controller installation dimensions and cautions for ATS installation:

1) Schematic diagram of ATS controller:



Key part
From left to right
SET DOWN UP AUTO/MAN STOP BON AON

ATS controller installation diagram



Hole making dimension 187 x 168

2) Correct installation method for W series switches: From the front the name plate of the main body can be seen actually, and adopt installation in the direction parallel with the vertical plane of the power distribution panel.

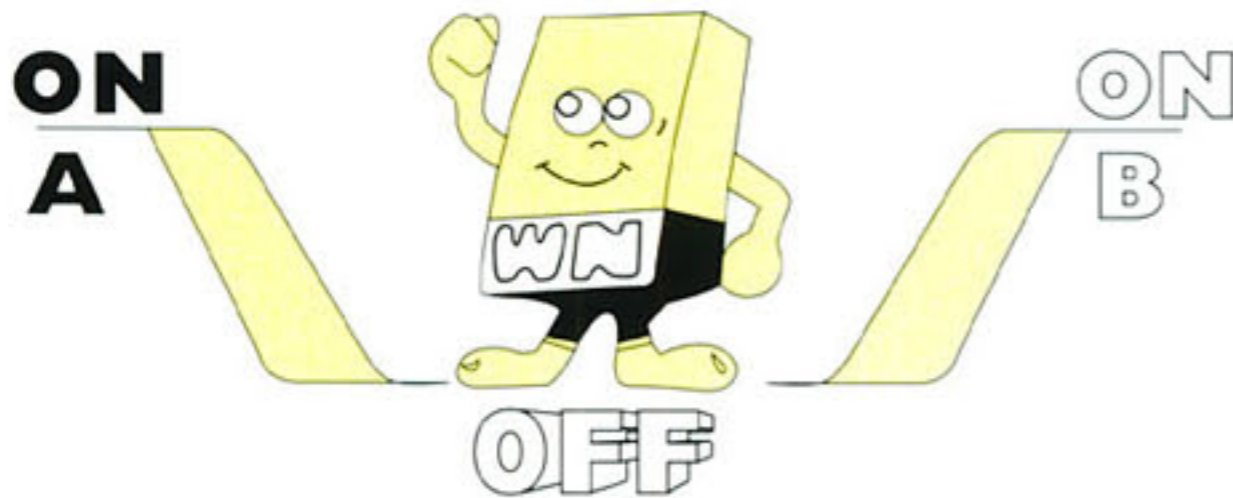
3) Please avoid to apply conductor bending pressure directly on the terminal.

4) The external arc distinguishing distance of the arc distinguishing chamber, please refer to indications in S1,S2 of contour dimension diagram.

5) Please must connect grounding wire to the terminal with ⚡ sign.

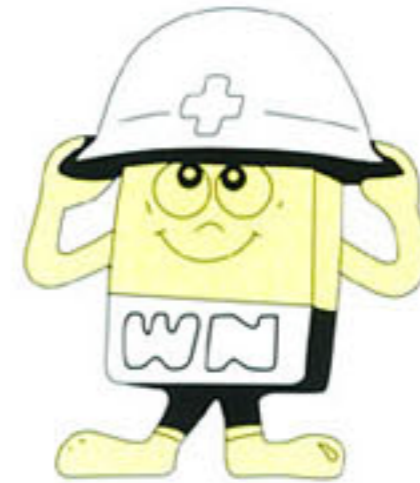
Double throw with two separate contacts

Is equipped with a tripping mechanism and has neutral(OFF) position, therefore such operation sequences as A→OFF→A and B→OFF→B are possible as well as A→OFF→B and B→OFF→A



High safety

Offer safely operation employing dustproof moded resin enclosures

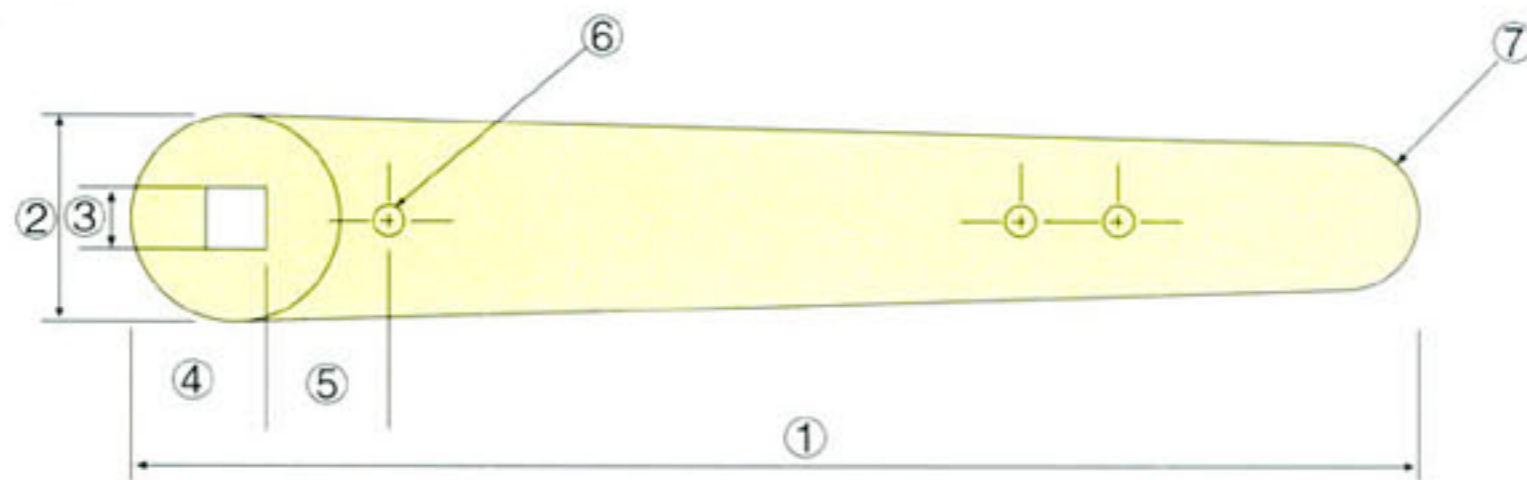


Current-breaking characteristics

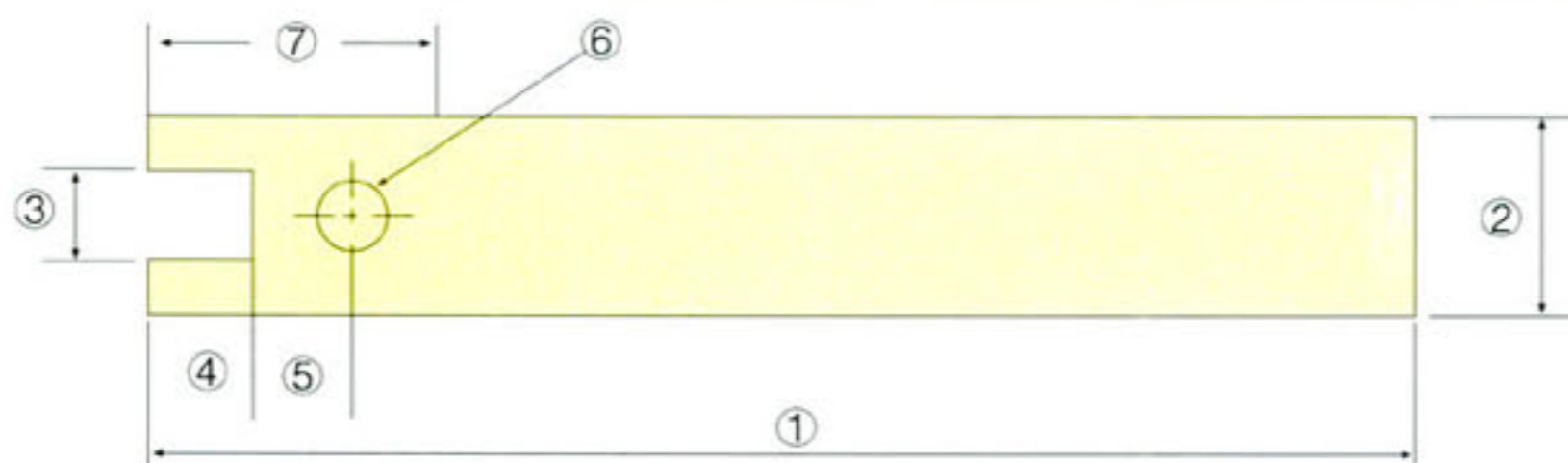
Offer constant breaking characteristic by spring force respective of operating voltage

Manual Handle

see page



	①	②	③	④	⑤	⑥	⑦	t
63A~400A	210	34	10	22	20	φ5(3)	φ24	6(7)



	①	②	③	④	⑤	⑥	⑦	t
600A~1600A	250	38(40)	16.1	20	15	φ8	41	6(8)
2000A 3000A	320	50(52)	19.1	25	15	φ8	50	9(11)
4000A 5000A	420	50(52)	19.1	25	15	φ8	50	9(11)

W SERIES (MODEL -2/-N3 PC GRADE) AUTOMATIC TRANSFER SWITCHING EQUIPMENT

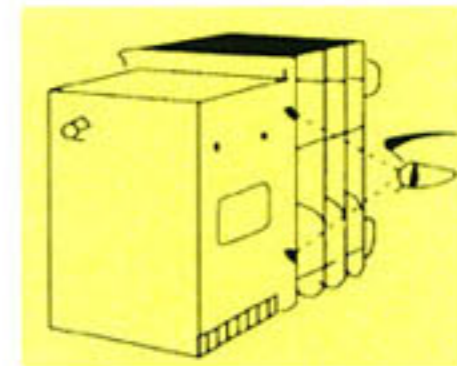
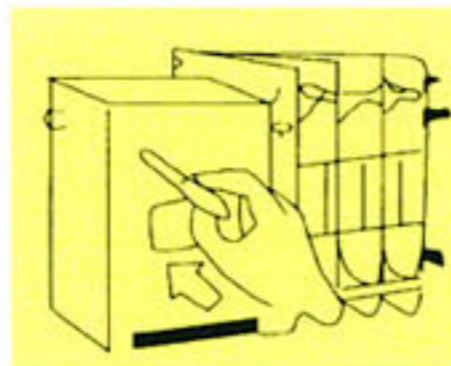
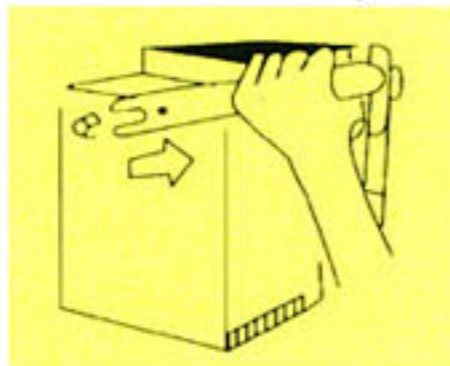
7. Manual operating method and cautions:

The W-series switches of the company assure the performance of making & breaking in electrical operations, but in manual operations, due to the differences in making and, breaking force and speed of operators, so it can not be assured. In manual operating to make making & breaking, there may appear contacting point loss, contact point melting welding etc situations. Please only do the manual operation in the following situations, and do please to avoid manual operations in other situations.

- ① At time when completely without power.
- ② At time when there is no load to have examinations for operating mechanism and contacting part.
- ③ At time when there is break-down with electrical operating with no way to act.

Note: When to have manual operation, operating power must be in "OFF" state, after completion of manual operation, handle must be taken down from the switch.

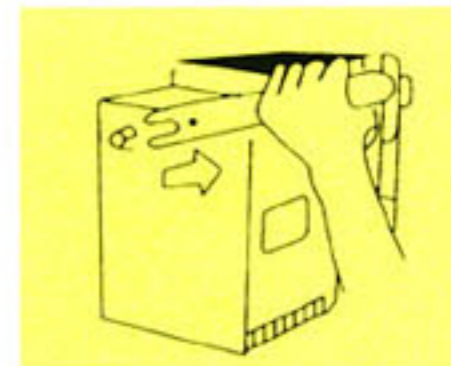
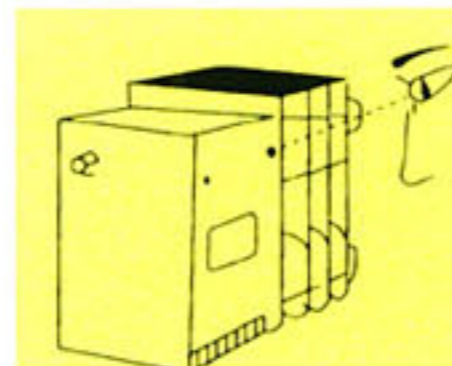
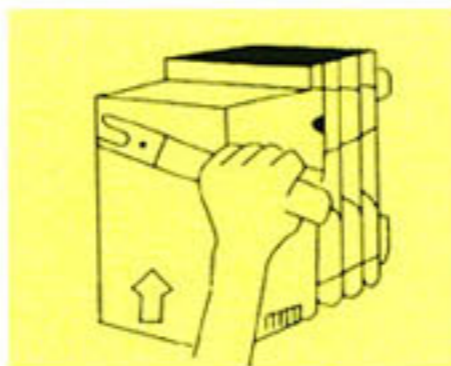
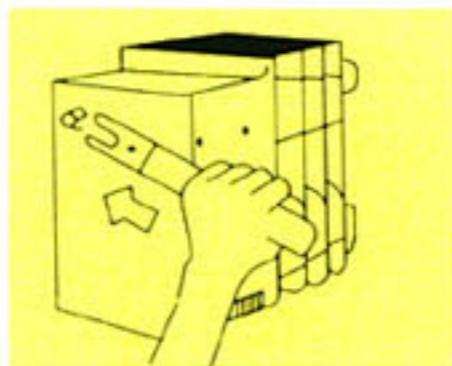
- 1) Manual trip method (only apply to model W-N3, model W-2 can transfer only without trip).



In the state of taking down operating handle, insert a screw driver into TRIP hole on the left and press in, the trip will be made. Please confirm whether the switch is tripped by ON/OFF indicator.

- 2) Power A side making method:

Note: For W-N3, it should be carried out after completion of operation 1), and Model W-2 without need to have operation 1).



On manual operating, insert the wrench front opening into left operating square shaft

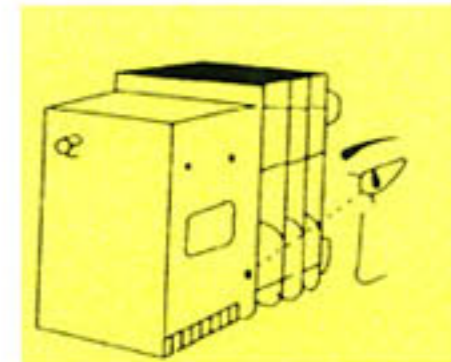
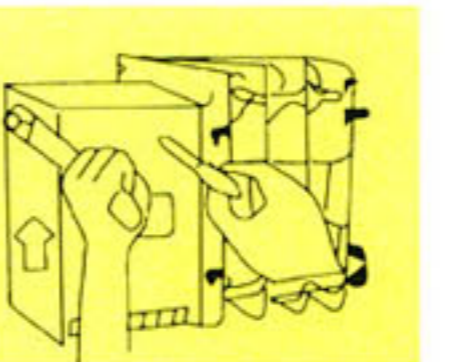
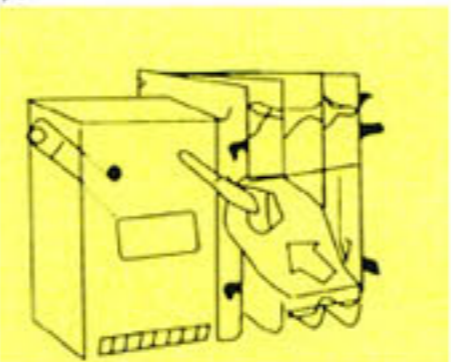
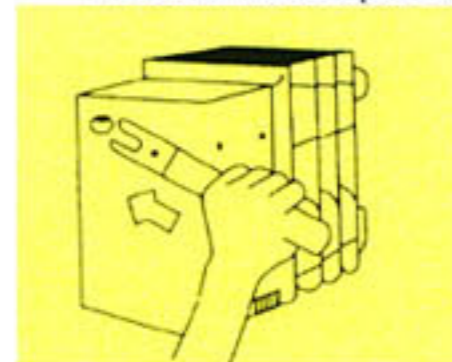
W-N3: Pull the wrench up to make making. W-2: Pull the wrench down to hear "Ka" "Ka" two sounds, then done.

Visually inspect ON/OFF indicator to confirm making

After operation, please take down wrench

- 3) Power B side making method:

Note: For W-N3, it should be carried out after completion of operation 1), and for Model W-2 without need to have operation 1).



On manual operating, insert the wrench front opening into left operating square shaft.

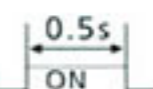
W-N3: Insert screw driver into right SELECT hole and press in W-2: Only need to pull down wrench again and hear "Ka" "Ka" two Sounds, then done.

W-N3: Hold the screw driver in the press position, and in the same time pull wrench up To put into side B switch

Visually inspect ON/OFF indicator to confirm making, after operation, please take down operating handle.

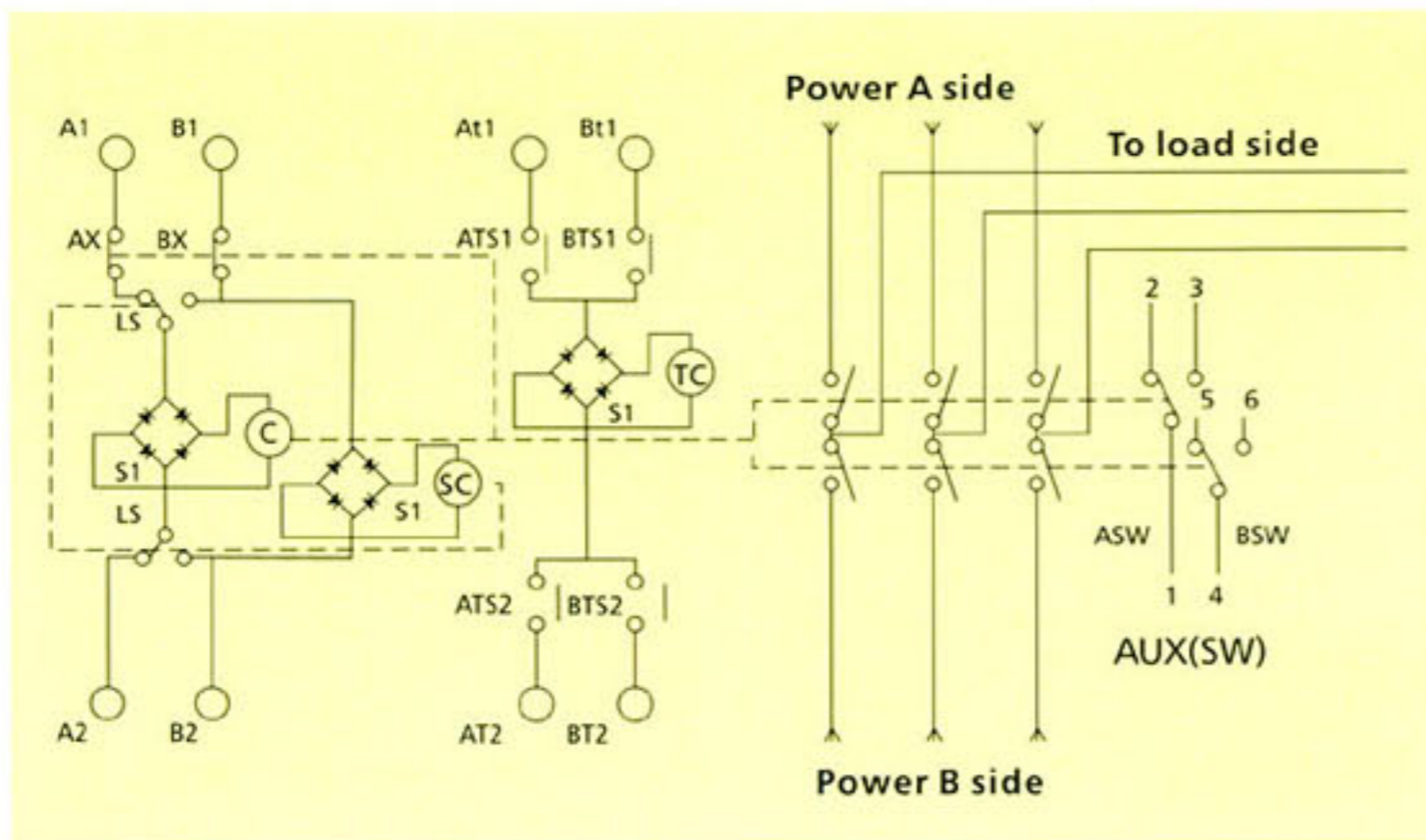
4) Cautions

- ① Time to apply transfer control command should not less than 0.5 second
- ② For W-N3 type do not give closing and tripping commands to the same side simultaneously.
- ③ Do not fail to interlock side A and side B of the operating circuits.



8. Switch internal wiring diagram

1) Model W-N3 internal wiring diagram Both powers off state



C = Making coil

SC = Selection coil

TC = Trip coil

SL = Rectifier

LS = Selection switch

ATS1, ATS2 = Power A breaking terminal

BTS1, BTS2 = Power B breaking terminal

AX, BX = Control switch

AUX = Auxiliary switch

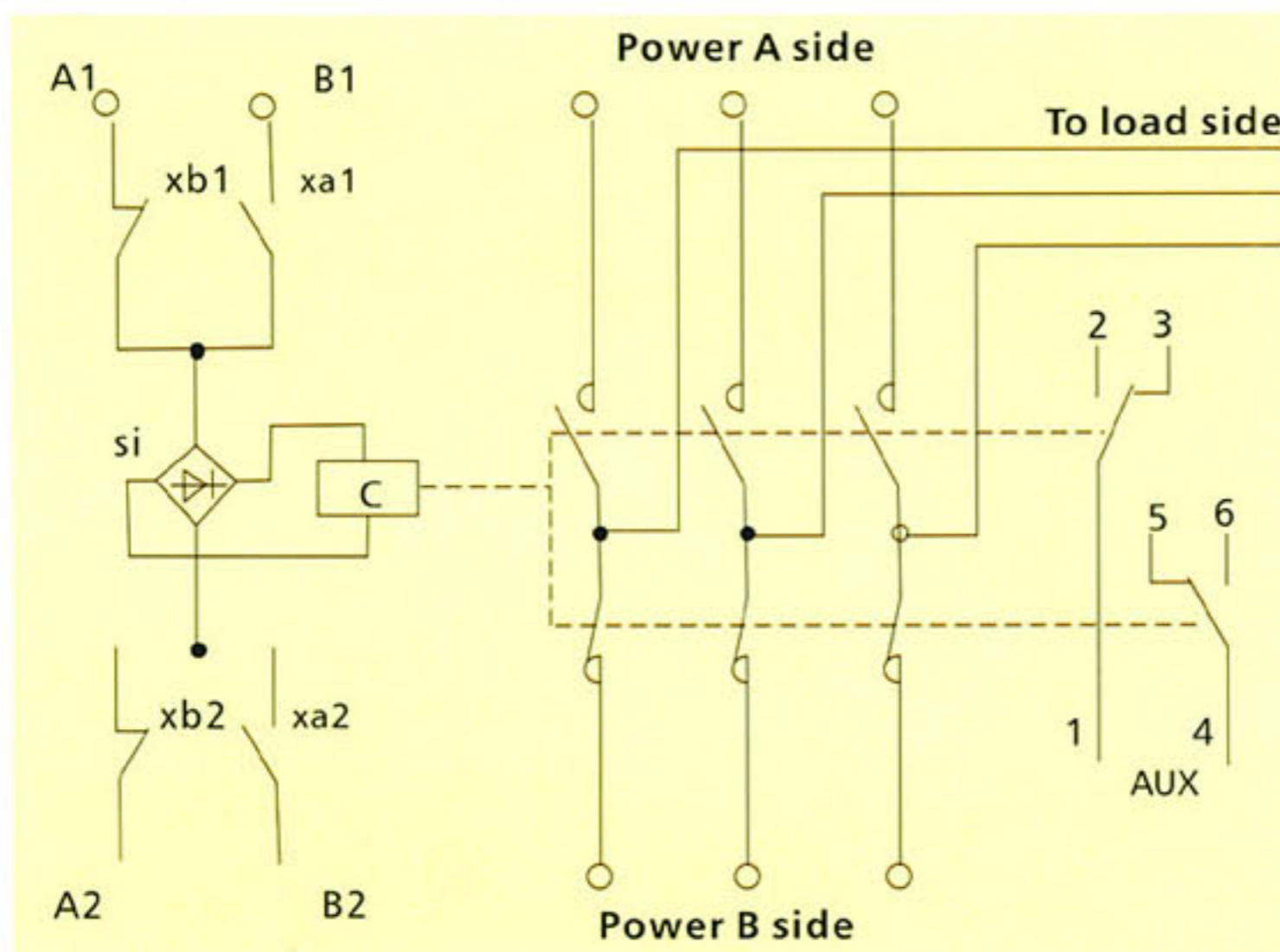
A1-A2 = Power A side making terminal

B1-B2 = Power B side making terminal

AT1-AT2 = Power A side trip terminal

BT1-BT2 = Power B side trip terminal

2) Model W-2 (Two section type internal wiring diagram)



Xb1, Xb2: Internal

Xa1, Xa2: control switch

C: Making coil

S1: Rectifier

AUX: Auxiliary switch

A1-A2: Power A side making terminal

B1-B2: Power B side making terminal