ISO 9001, ISO 14001

TRUSTED PARTNER

Automatic Transfer Switches

COMPAC ELECTRIC

Contents


Quality Management System Certificate
O-Sung Electric Machinery Co., Ltd.


CERTIFICATE OF Inno-Biz


EC Attestation of Conformity
TÜV


신제품인증서

T3, TB3 Type

ATS(100~600A)

◆ Information to Order

6□ - □ - □P - □ - □c
A B C D E

A Rated Current

1	2	4	6
100A	200A	400A	600A

B Connection

- T3 : Front
- TB3 : Back

C Number of Poles

- 2 : 2P
- 3 : 3P
- 4 : 4P

D Operation Voltage

- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

E Aux Switch

- 1 : 1 c
- 2 : 2 c

◆ Features

■ Direct transfer method
A ⇒B, B ⇒A

■ One-coil mechanism
One-coil mechanism is applied

■ Excellent Breaking Capacity
Designed forsuffciently large chamber to extinguish the arc when transferred. Arc-extinguishing area is designed for convenient inspection and maintenance.

■ Transfer indicator provided
Transfer indicator is fitted to indicate the transfer status.

■ Perfect transfer mechanism
By spring transfer mechanism, ATS can be completely and perfectly transferred. There will be no unattached position in any case.

■ Mechanically Interlock
Electrically held and mechanically interlock to prevent parallel two live source.

■ Protection against the remaining power source
Mechanical protection against the contact confliction caused by remaining power source of input and load side.

■ Last Break, 1st make Neutral contact
Last Break, 1st make Neutral contact to reduce nuisance tripping in th ground fault protection system. IEEE 242 (Clause 7.5.5)

■ Construction for Safety
For safe operation, molded constructionn is employed on breaking parts.

■ Compact & Lightweight design
Compact & lightweight design maked the minimized mounting space eand convenient installation

T3, TB3 Type

ATS(100~600A)

◆ Application and Selection

■ Applicable Standards
- IEC 60947-6-1
- UL 1008

■ Control Order
It is recommended to give more than 0.5sec for operation, though transfer time is completed

■ Interlock
Interlocking is required for control circuit so that control order should not supply to both A power source side and B power source side simultaneously.

■ Selection of TR Capacity
TR capacity should be selected more than the value calculated by the following formula.
Operation Voltage x Operation Current x 0.5 = ( )VA
e.g.) Operation Voltage AC 220V, Operation Current 4A
220 x 4 x 0.5 = 440VA,
TR capacity of more than 440VA is recommended.

■ Control Circuit
ATS is designed so that operation current should be off by internal switch after completion of operation. If operation current is off with auxiliary switch of the unit, it may cause a malfunction.

■ Selection of Control Relay
The capacity of UVR, Operating Relay and Timer contactor should be higher than ATS operating current.

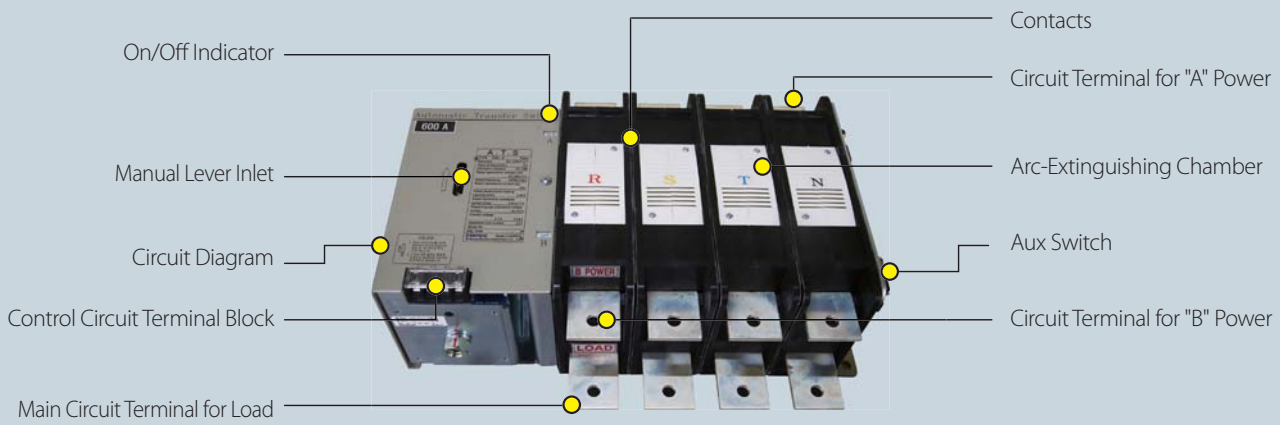
Note : If the control power source is not stable, it is recommended to use Automatic Voltage Regulator.

■ Caution on operation of manual handle
Manual operation of ATS should be done for the emergency and maintenance purpose while no load condition only.

T3 Type

ATS(100~600A)

◆ External View



◆ Specification

TYPE			61-T3 61-TB3			62-T3 62-TB3			64-T3 64-TB3			66-T3 66-TB3		
Rated Operational Voltage		Ue	AC 600 V											
Rated Current		Ie	100 A			200 A			400 A			600 A		
Neutral Phase Current			100 A			200 A			400 A			600 A		
Kind of Throw			Double Throw											
Connection			Front (T3), Back (TB3)											
Number of Poles			2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P
Weight [kg]			7	8	9	9	10	12	16	19	22	16	19	22
Rated Short-Time Withstand Current (1sec)		Icw	5 kA			10 kA			12 kA			12 kA		
Rated Short-Circuit Making Capacity		Icm	7.5 kA			17 kA			24 kA			24 kA		
Switching Capacity			AC-33B (10 Ie making / 10 Ie breaking, Ie ≤ 100A cos Ø= 0.45, Ie > 100A cos Ø= 0.35) (1 Ie making / 1 Ie breaking cos Ø= 0.8)											
Switching Frequency			60 Time / Hour											
Operating Current peak	DC 110V ~ 125V		18 A						25 A					
	AC 100V ~ 110V		18 A						25 A					
	AC 200V ~ 240V		8 A						8 A					
Operating Time	Change-over Time		≤ 130 ms						≤ 160 ms					
	Opening Time		≤ 50 ms						≤ 60 ms					
	Contact Transfer Time		≤ 80 ms						≤ 120 ms					
Number of Operating Cycles	Without Current		250,000											
	With Current		50,000											
Cautions			1. For complete operation, Besure to provide control source for more than 0.5sec.											

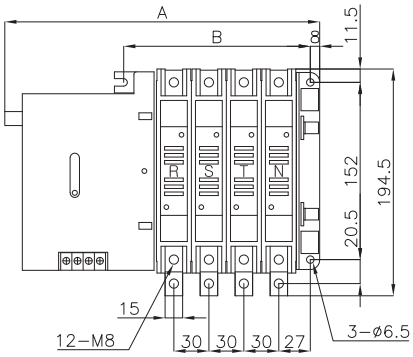
T3, TB3 Type

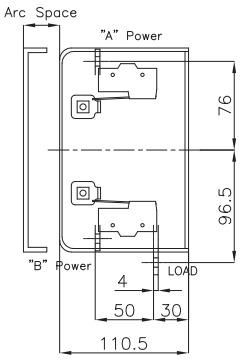
ATS(100~600A)

◆ Outline Dimension

Unit : mm

100A

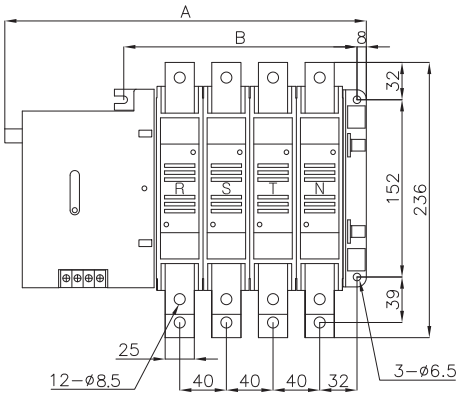


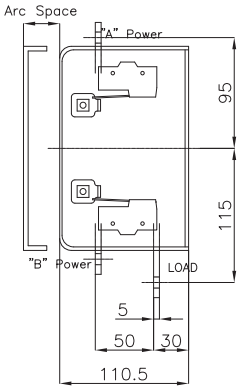


61-T3

	Dimension (mm)	
Pole	A	B
2P	204	100
3P	234	130
4P	264	160

200A

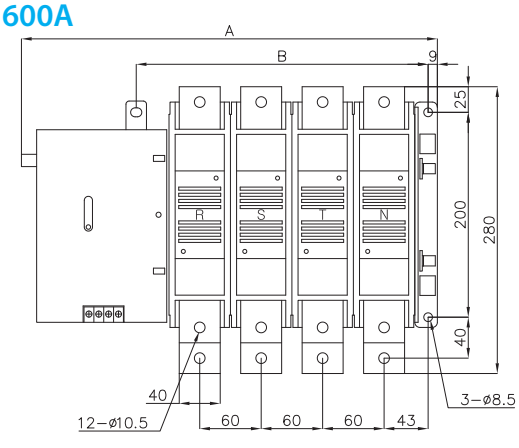


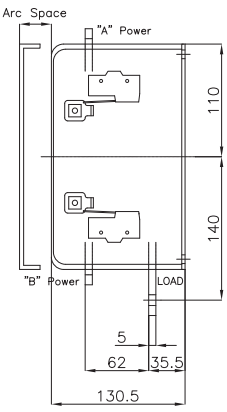


62-T3

	Dimension (mm)	
Pole	A	B
2P	224	120
3P	264	160
4P	304	200

400A, 600A





64~66-T3

* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V

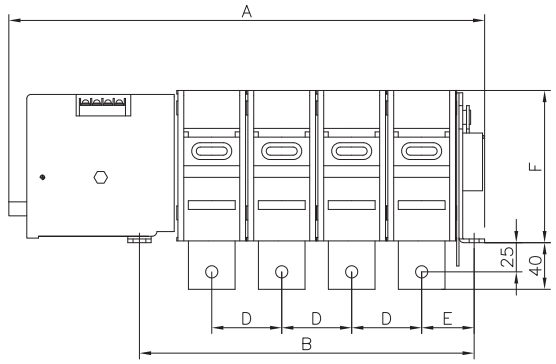
	Dimension (mm)	
Pole	A	B
2P	283	165
3P	343	225
4P	403	285

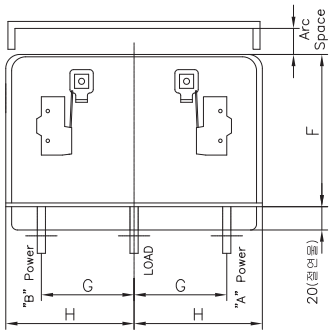
TB3 Type

ATS(100~600A)

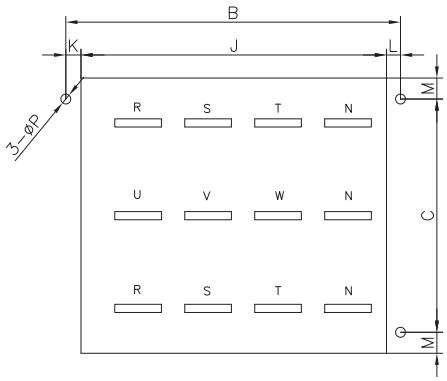
◆ Outline Dimension

61~66-TB3

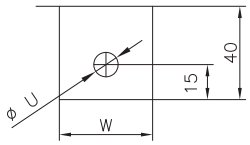




* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V



PANEL CUTTING



		61-TB3	62-TB3	64-TB3	66-TB3
W		15	25	40	
U		Ø 8.5		Ø 10.5	
T	LINE	4	5	5	
	LOAD	4	5	7	

TERMINAL THICKNESS

Unit : mm

		A	B	C	D	E	F	G	H	J	K	L	M	P
61-TB3	2P	206	102	152	30	29	110.5	62.5	87.5	82	9	11	19	Ø 6.5
	3P	236	132							112				
	4P	266	162							142				
62-TB3	2P	226	122	152	40	34	110.5	63	87.5	102	9	11	19	Ø 6.5
	3P	266	162							142				
	4P	306	202							182				
64-TB3 66-TB3	2P	285	167	200	60	45	130.5	80.5	110	142	13	12	18	Ø 8.5
	3P	345	227							202				
	4P	405	287							262				

TO, TBO Type

ATS(100~400A)

◆ Information to Order

6□ - □ - □P - □ - □c
A B C D E

A Rated Current

1	2	4
100A	200A	400A

B Connection

- TO : Front
- TBO : Back

C Number of Poles

- 4 : 4P

D Operation Voltage

- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

E Aux Switch

- 1 : 1 c
- 2 : 2 c

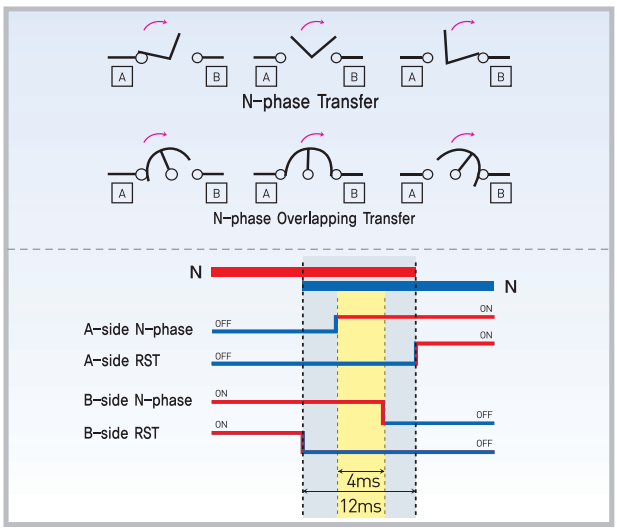
◆ Features

In addition to every function of OSS-T3, TB3 Type ATS, OSS-TO, TBO Type ATS has additional function of Overlapping Neutral Contact. (ON-ON Type ATS)

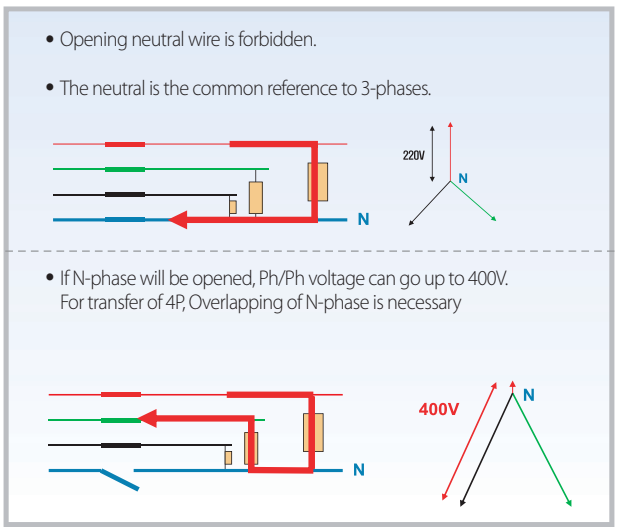
■ Function of Overlapping Neutral Contact

When general ATS will be transferred, Arc will be generated between fixed contacts and moving contacts. Thus, current flows between contacts and arc will be eliminated when current will be at zero level.
Eliminating time of arc is 10~12ms. Therefore, various device of load side can be protected when neutral contacts should be opened 10~12ms later than other 3-phases contacts. Load side devices of general ATS cannot be sufficiently protected because opening time gap between neutral contacts and other 3-phases contacts is less than 10ms. In order to solve this problem, Overlapping between neutral contacts of A-power (Normal) and B-power (Emergency) during transfer of switch functions to protect various devices of load side more safely.
In addition, Non-linear load increases the earth potential and potential difference is occurred between earth and neutral line. When general ATS will be transferred, Neutral line is separated from load and reference potential difference cannot be established. Thus, Floating is occurred and electronic devices can be malfunctioned. When ATS with overlapping neutral contact will be applied, Floating can be protected.

■ N-phase Transfer



■ Limits of 4P Transfer



TO, TBO Type

ATS(100~400A)

◆ Specification

TYPE			61-TO 61-TBO	62-TO 62-TBO	64-TO 64-TBO
Rated Operational Voltage		Ue	AC 600 V		
Rated Current		Ie	100 A	200 A	400 A
Neutral Phase Current			100 A	200 A	400 A
Kind of Throw			Double Throw		
Connection			Front (TO), Back (TBO)		
Number of Poles			4P	4P	4P
Weight [kg]			9	12	22
Rated Short-Time Withstand Current (1sec)		Icw	5 kA	10 kA	12 kA
Rated Short-Circuit Making Capacity		Icm	7.5 kA	17 kA	24 kA
Switching Capacity			AC-33B (10 Ie making / 10 Ie breaking, Ie ≤ 100A cos Ø= 0.45, Ie > 100A cos Ø= 0.35) (1 Ie making / 1 Ie breaking cos Ø= 0.8)		
Switching Frequency			60 Time / Hour		
Operating Current peak	DC 110V ~ 125V		18 A	25 A	
	AC 100V ~ 110V		18 A	25 A	
	AC 200V ~ 240V		8 A	8 A	
Operating Time	Change-over Time		≤ 130 ms	≤ 160 ms	
	Opening Time		≤ 50 ms	≤ 60 ms	
	Contact Transfer Time		≤ 80 ms	≤ 120 ms	
Number of Operating Cycles	Without Current		250,000		
	With Current		50,000		
Cautions			1. For complete operation, Besure to provide control source for more than 0.5sec.		

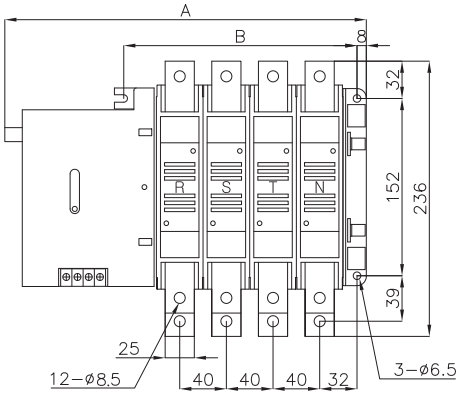
TO, TBO Type

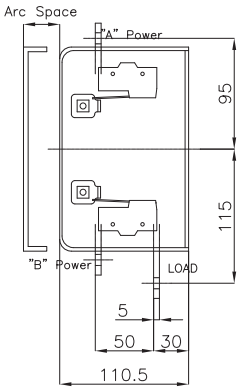
ATS(100~400A)

◆ Outline Dimension

Unit : mm

100A

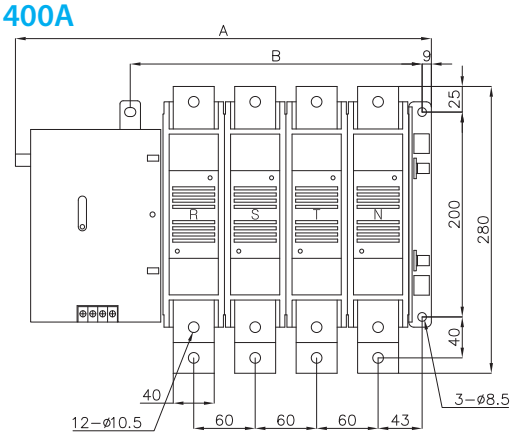


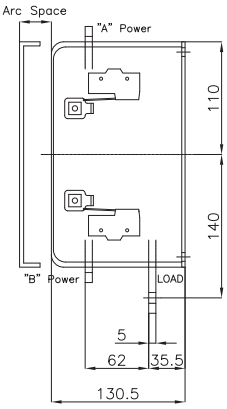


61-TO

	Dimension (mm)	
Pole	A	B
4P	304	200

200A, 400A





62~64-TO

* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V

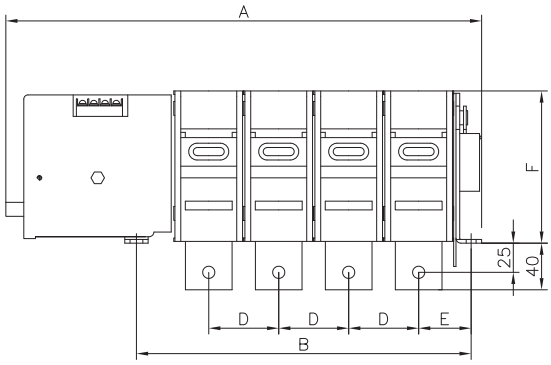
	Dimension (mm)	
Pole	A	B
4P	403	285

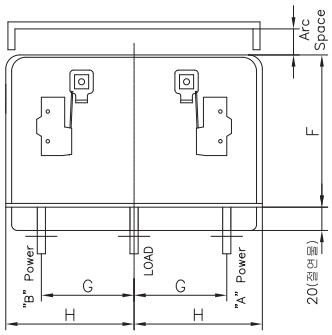
TBO Type

ATS(100~400A)

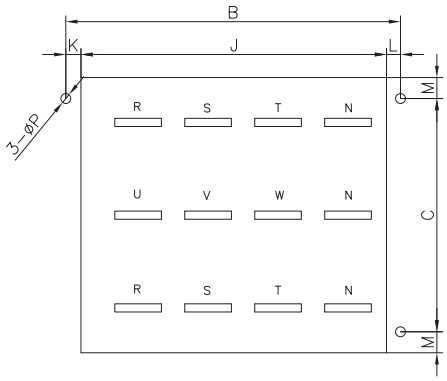
◆ Outline Dimension

61~64-TBO

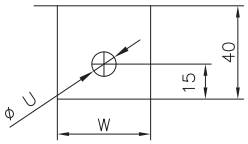




∗ Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V



PANEL CUTTING



		61-TBO	62-TBO	64-TBO
W		15	25	40
U		Ø 8.5		Ø 10.5
T	LINE	4	5	5
	LOAD	4	5	7

TERMINAL THICKNESS

Unit : mm

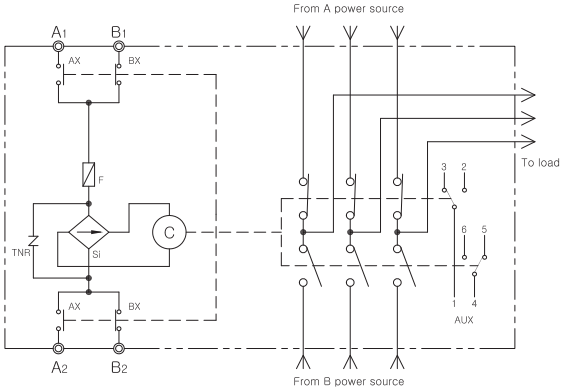
		A	B	C	D	E	F	G	H	J	K	L	M	P
61-TBO	4P	306	202	152	40	34	110.5	63	87.5	182	9	11	19	Ø 6.5
64-TBO 66-TBO	4P	405	287	200	60	45	130.5	80.5	110	262	13	12	18	Ø 8.5

T3, TB3 / TO, TBO Type

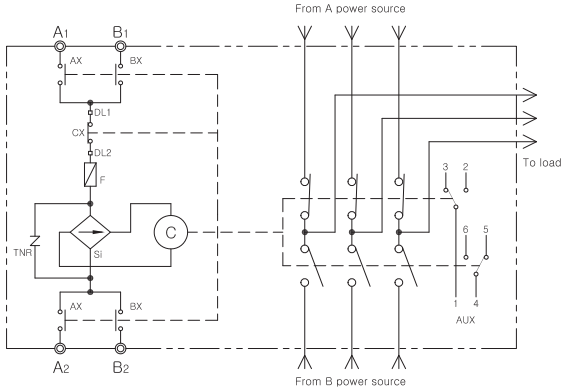
ATS

Circuit Diagram

AC 100~240V



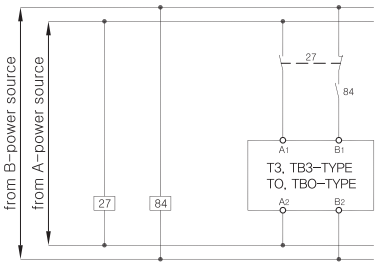
DC 110~125V



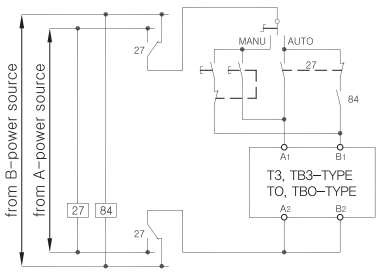
A1, A2	A-Power Closing Terminal	AX, BX, CX	Closing Switch	Si	Silicon Rectifier
B1, B2	B-Power Closing Terminal	B1, B2	Aux Switch	F	Fuse
C	Closing coil	TNR	Varistor for Surge suppression		

Typical Operating Circuit

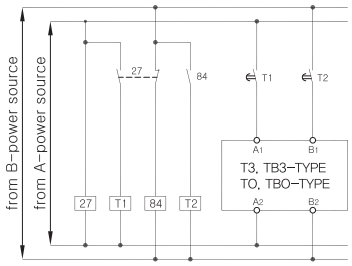
Standard
(



In Case of using a changeover switch

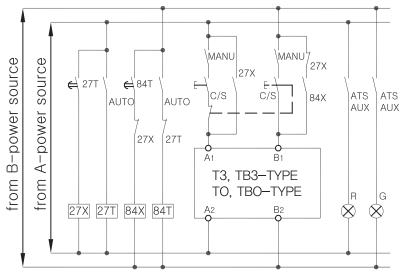


In Case of using a timer

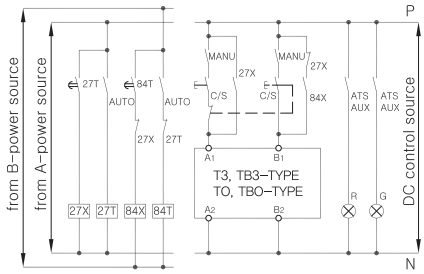


Wiring Diagram

AC Operating and Control



DC Operating and Control



27X	Source-A Operating Relay	84X	Source-B Operating Relay
27T	27X Operating Delay Relay	84T	84X Operating Delay Relay
AUTO, MANU	Automatic, Manual	C/S	Control Switch

TN, TBN Type

ATS(60~600A)

◆ Information to Order

6□ - □ - □P - □ - □c
A B C D E

A Rated Current

06	1	2	4	6
60A	100A	200A	400A	600A

C Number of Poles
- 2 : 2P
- 3 : 3P
- 4 : 4P

B Connection
- TN : Front
- TBN : Back

D Operation Voltage
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

E Aux Switch
- 1 : 1 c
- 2 : 2 c

◆ Features

■ **Off position stop method**
In case with the uninterrupted power system, it is recommended to stop at the OFF position set by tripping mechanism for the stable power. Instantaneous transfer without stop can be also performed by operating signal.
A ⇒ Off ⇒ B, B ⇒ Off ⇒ A, and A ⇒ Off ⇒ A, B ⇒ Off ⇒ B
And also, instantaneous transfer can be performed by operating signal.
A ⇒ B, B ⇒ A

■ **One-Coil Application**
One-coil is employed for the transfer to normal power source and emergency power source.

■ **Compact & Lightweight Design**
Compact & Lightweight Design makes the minimized mounting space and convenient installation.

■ **Excellent Breaking Capacity**
Designed for suffciently large chamber to extinguish the arc when transferred. Arc-extinguishing area is designed for convenient inspection and maintenance.

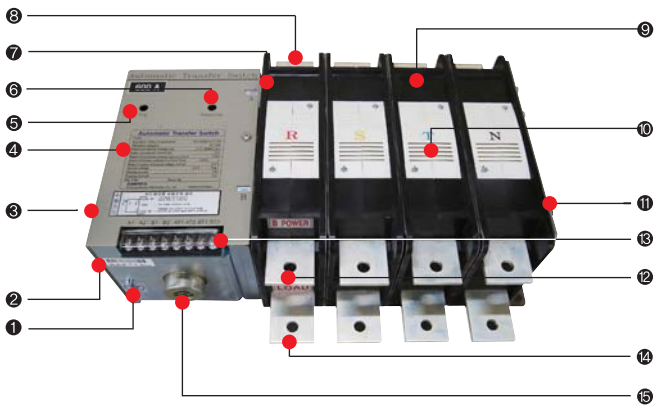
■ **Protection against the remaining power source**
Time delay to transfer is available so that the remaining power can not be induced to the main power to protect the load.

■ **Last Break, 1st make Neutral contact**
Last Break, 1st make Neutral contact to reduce nuisance tripping in th ground fault protection system. IEEE 242 (Clause 7.5.5)

■ **Construction for Safety**
For safe operation, molded construction is employed on breaking parts. And also, latching indicator is prepared to indicate the operating condition.

◆ External View

❶ Earthing Terminal
❷ Manual Operating Shaft (Anti-Clockwise)
❸ Circuit Diagram
❹ Name Plate
❺ Trip Button
❻ Selective Button for "B" Power-Closing
❼ On/Off Indicator
❽ Circuit Terminal for "A" Power
❾ Contacts
❿ Arc-Extinguishing Chamber
⓫ Aux Switch
⓬ Circuit Terminal for "B" Power
⓭ Control Circuit Terminal Block
⓮ Main Circuit Terminal for Load
⓯ Amateur for Closing Coil



TN, TBN Type

ATS(60~600A)

◆ Application and Selection

■ Applicable Standards
- IEC 60947-6-1 - JEM 1038 - UL 1008

■ Control Order
It is recommended to give more than 0.5sec for operation, though transfer time is completed

■ Interlock
Interlocking is required for control circuit so that control order should not supply to both A power source side and B power source side simultaneously.

■ Control Circuit
ATS is designed so that operation current should be off by internal switch after completion of operation. If operation current is off with auxiliary switch of the unit, it may cause a malfunction.

◆ Specification

TYPE			606-TN, TBN 61-TN, TBN			62-TN, TBN			64-TN, TBN 66-TN, TBN		
Rated Operational Voltage		Ue	AC 600 V								
Rated Current		Ie	60 A, 100 A			200 A			400 A, 600 A		
Neutral Phase Current			60 A, 100 A			200 A			400 A, 600 A		
Kind of Throw			Double Throw								
Connection			Front (TN), Back (TBN)								
Number of Poles			2P	3P	4P	2P	3P	4P	2P	3P	4P
Weight [kg]			7	8	9	9	10	12	16	19	22
Rated Short-Time Withstand Current (1sec)		Icw	5 kA			10 kA			12 kA		
Rated Short-Circuit Making Capacity		Icm	7.5 kA			17 kA			24 kA		
Switching Capacity			AC-33B (10 Ie making / 10 Ie breaking, Ie ≤ 100A cos Ø= 0.45, Ie > 100A cos Ø= 0.35) (1 Ie making / 1 Ie breaking cos Ø= 0.8)								
Switching Frequency			60 Time / Hour								
Operating Current peak	DC 110V ~ 125V		7 A			7 A			8 A		
	AC 100V ~ 110V		7 A			7 A			8 A		
	AC 200V ~ 240V		6 A			6 A			6 A		
	Trip Coil Current		DC 110V = 3A, AC110V = 3A, AC 220V = 3A								
Operating Time	"A"Power	Making	≤ 55 ms			≤ 55 ms			≤ 60 ms		
		Breaking	≤ 20 ms			≤ 20 ms			≤ 25 ms		
	"B"Power	Making	≤ 80 ms			≤ 80 ms			≤ 90 ms		
		Breaking	≤ 20 ms			≤ 20 ms			≤ 25 ms		
Number of Operating Cycles	Without Current		10,000								
	With Current		5,000								
Cautions			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be provided to A side and B side simultaneously, Coil may be damaged. 3. Control Relay should be selected considering sufficient contact capacity to withstand against more than control current.								

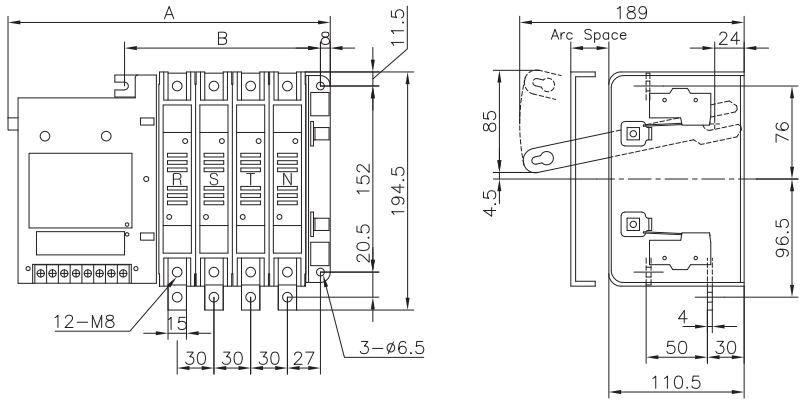
TN Type

ATS(60~600A)

◆ Outline Dimension

Unit : mm

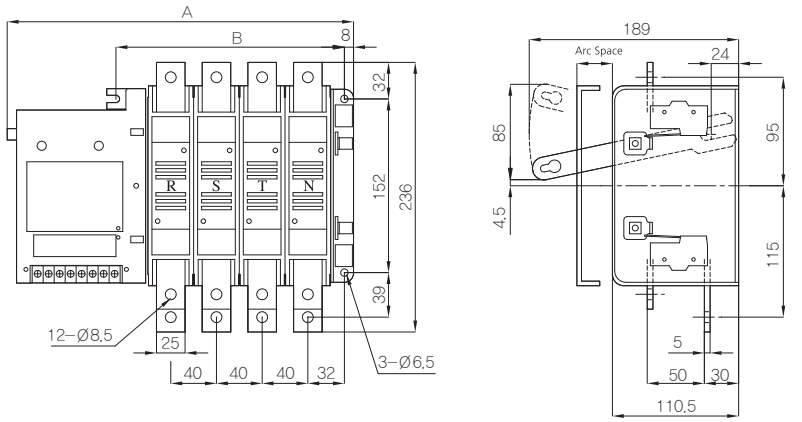
60A, 100A



606~61-TN

	Dimension (mm)	
Pole	A	B
2 P	204	100
3 P	234	130
4 P	264	160

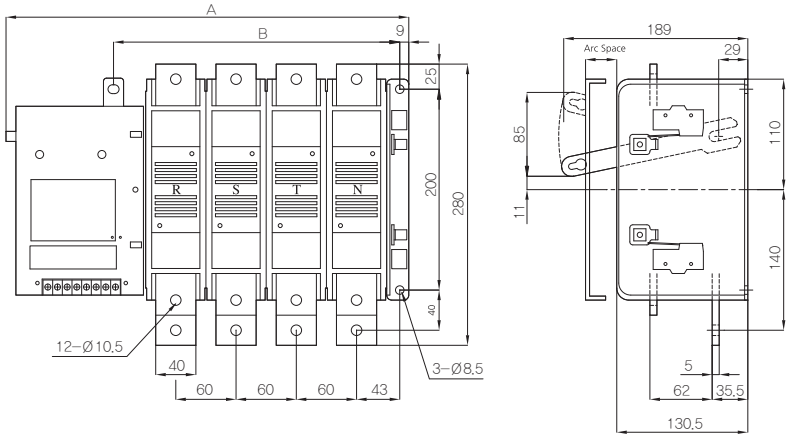
200A



62-TN

	Dimension (mm)	
Pole	A	B
2P	224	120
3P	264	160
4P	304	200

400A, 600A



64~66-TN

* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V

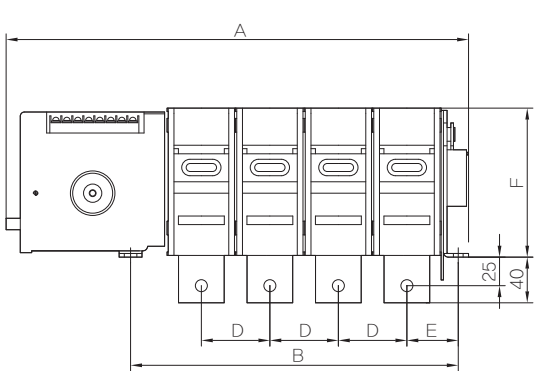
	Dimension (mm)	
Pole	A	B
2P	283	165
3P	343	225
4P	403	285

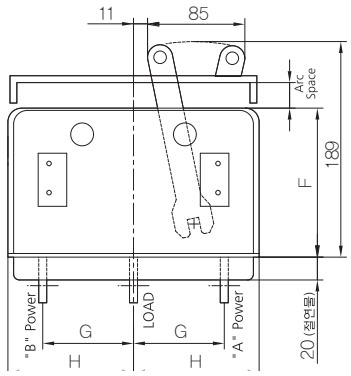
TBN Type

ATS(60~600A)

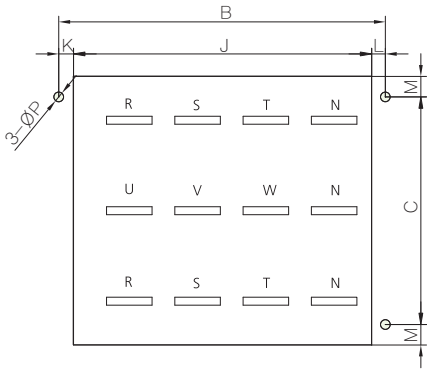
◆ Outline Dimension

606~66-TBN

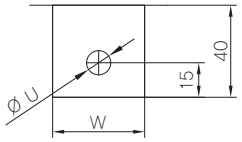




* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V



PANEL CUTTING



		606-TBN 61-TBN	62-TBN	64-TBN	66-TBN
W		15	25	40	
U		Ø 8.5		Ø 10.5	
T	LINE	4	5	5	
	LOAD	4	5	7	

TERMINAL THICKNESS

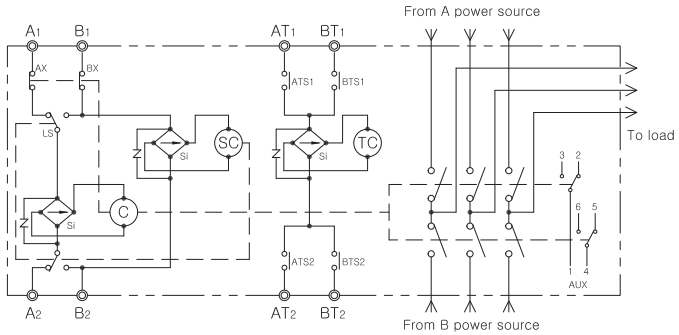
Unit : mm

		A	B	C	D	E	F	G	H	J	K	L	M	P
606-TBN 61-TBN	2P	206	102	152	30	29	110.5	62.5	87.5	82	9	11	19	Ø 6.5
	3P	236	132							112				
	4P	266	162							142				
62-TBN	2P	226	122	152	40	34	110.5	63	87.5	102	9	11	19	Ø 6.5
	3P	266	162							142				
	4P	306	202							182				
64-TBN 66-TBN	2P	285	167	200	60	45	130.5	80.5	110	142	13	12	18	Ø 8.5
	3P	345	227							202				
	4P	405	287							262				

TN, TBN Type

ATS(60~600A)

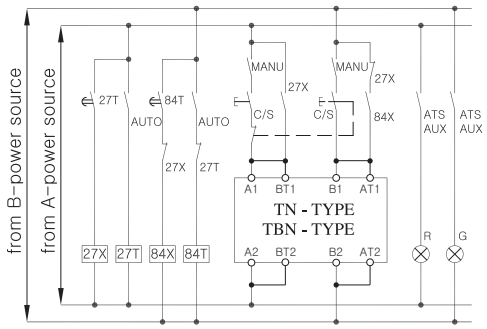
Circuit Diagram



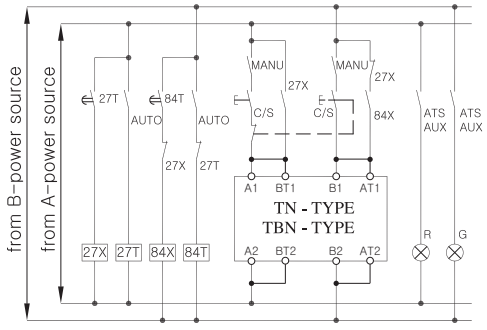
A1, A2	A-Power Closing Terminal	C	Closing Coil
B1, B2	B-Power Closing Terminal	SC	Selective Coil
AT1, AT2	A-Power Tripping Terminal	TC	Tripping Coil
BT1, BT2	B-Power Tripping Terminal	AX, BX	Control Switch
AUX	AUX Switch	ATS1, ATS2 BTS1, BTS2	Trip Control Switch
Si	Silicon Rectifier	LS	Selective Switch

Wiring Diagram

AC Operating and Control



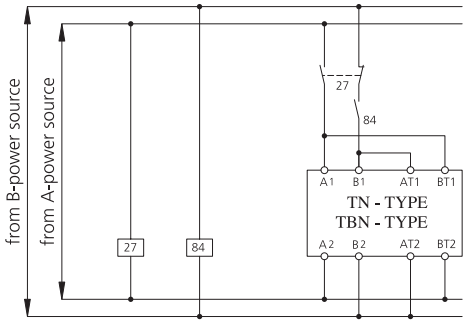
DC Operating and Control



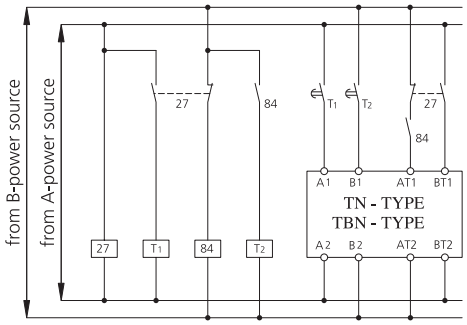
27X	Source-A Operating Relay	84X	Source-B Operating Relay
27T	27X Operating Delay Relay	84T	84T Operating Delay Relay
AUTO, MANU	Automatic, Manual	C/S	Control Switch

Typical Operating Circuit

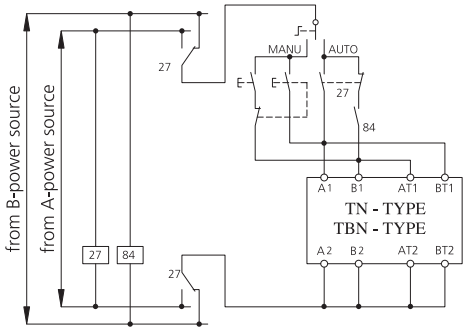
Standard



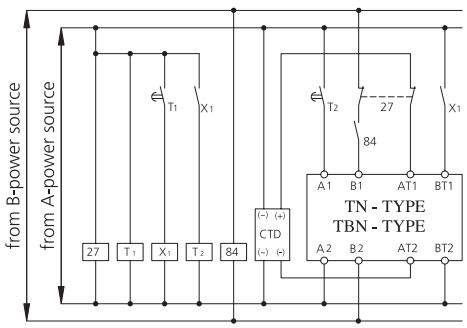
In Case of using a timer



In Case of using a changeover switch



In Case of using a condensor tripping device



PC Type

ATS(800~6300A)

◆ Information to Order

6□ - PC - □P - □ - □
A B C D

A Rated Current

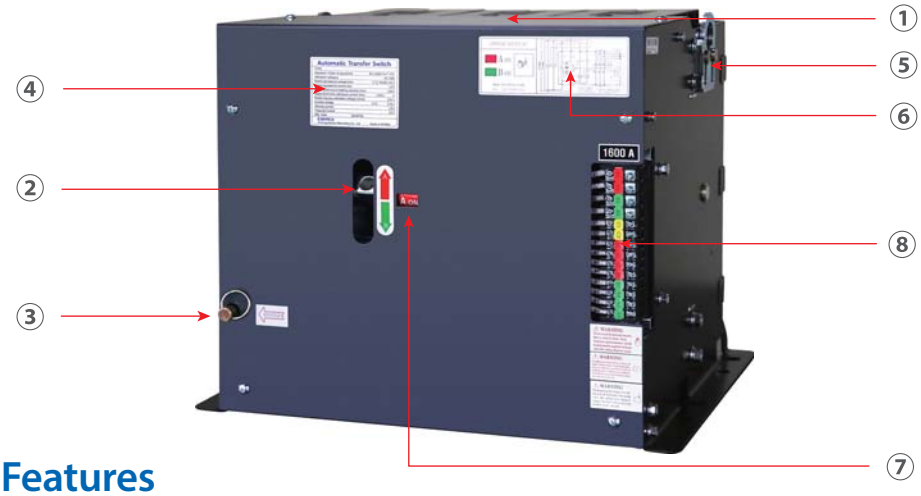
08	10	12	16	20	25	32	40	50	63
800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	6300A

B Number of Poles
- 3 : 3P
- 4 : 4P

C Operating Voltage
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

D Mounting System
- F : Fixed
- D : Draw out

◆ External View



①	Arc-Extinguishing Chamber
②	Manual Lever Inlet
③	Manual Lever
④	Name Plate
⑤	Lifting Hook
⑥	Circuit Diagram
⑦	ON-OFF Indicator
⑧	Terminal Block

◆ Features

- **Direct transfer method**
  A⇒B, B⇒A
- **One coil mechanism**
  One coil mechanism is applied
- **Transfer indicator provided**
  Transfer indicator is fitted to indicate the transfer status.
- **Easier busbar arrangement**
  If the ATS is installed with the ACB in switchgear, Busbar can be easily arranged.
- **Fixed Type & Drawout Type available**
  Fixed Type and Drawout Type, Can satisfy a variety of customer needs.
- **Quick replacement of ATS**
  If malfunction occurs, Drawout Type of ATS can be changed within 5 minutes.
- **Perfect transfer mechanism**
  By spring transfer mechanism, ATS canbe completely and perfectly transferred. There will be NO unattached position in any case.
- **Sufficient current capacity**
  Sufficient current carrying contacts are designed to withstand against over current.
- **Minimized opening & closing impact**
  Opening and closing impact is minimized.
- **Last Break, 1st make Neutral contact**
  Last Break, 1st make Neutral contact to reduce nuisance tripping in th ground fault protection system. IEEE 242 (Clause 7.5.5)

PC Type

ATS(800~6300A)

◆ Specification

TYPE			608-PC		610-PC		612-PC		616-PC		620-PC	
Rated Operational Voltage		Ue	AC 600 V									
Rated Current		Ie	800 A		1000 A		1250 A		1600 A		2000 A	
Neutral Phase Current			800 A		1000 A		1250 A		1600 A		2000 A	
Kind of Throw			Double Throw									
Connection			Back									
Number of Poles			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (kg)	Fixed		55	60	55	60	55	65	60	70	90	115
	Drawout		80	95	80	95	90	105	95	110	110	140
Rated Short-Time Withstand Current (1sec)		Icw	25 kA				40 kA		50 kA		50 kA	
Rated Short-Circuit Making Capacity		Icm	52.5 kA				84 kA		105 kA		105 kA	
Switching Capacity			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)									
Switching Frequency			60 Time / Hour				20 Time / Hour				10 Time / Hour	
Operating Current peak	DC 110V ~ 125V		45 A				50 A				65 A	
	AC 100V ~ 110V		45 A				50 A				65 A	
	AC 200V ~ 240V		30 A				40 A				50 A	
Operating Time	Change-over Time		≤ 80 ms								≤ 100 ms	
	Opening Time		≤ 40 ms								≤ 60 ms	
Number of Operating Cycles	Without Current		10,000								5,000	
	With Current		5,000								3,000	
Cautions			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.									

TYPE			625-PC		632-PC		640-PC		650-PC		663-PC	
Rated Operational Voltage		Ue	AC 600 V									
Rated Current		Ie	2500 A		3200 A		4000 A		5000 A		6300 A	
Neutral Phase Current			2500 A		3200 A		4000 A		5000 A		6300 A	
Kind of Throw			Double Throw									
Connection			Back									
Number of Poles			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (kg)	Fixed		95	125	100	130	180	210	195	230	200	250
	Drawout		110	140	125	155	220	275	230	285	245	305
Rated Short-Time Withstand Current (1sec)		Icw	50 kA				65 kA					
Rated Short-Circuit Making Capacity		Icm peak	105 kA				143 kA					
Switching Capacity			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)									
Switching Frequency			10 Time / Hour									
Operating Current peak	DC 110V ~ 125V		65 A				80 A					
	AC 100V ~ 110V		65 A				80 A					
	AC 200V ~ 240V		50 A				60 A					
Operating Time	Change-over Time		≤ 100 ms									
	Opening Time		≤ 60 ms									
Number of Operating Cycles	Without Current		5,000								3,000	
	With Current		3,000								1,500	
Cautions			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.									

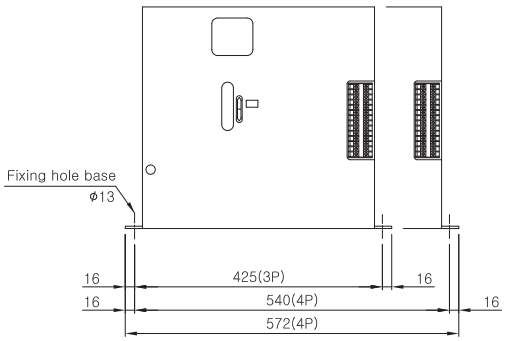
PC Type

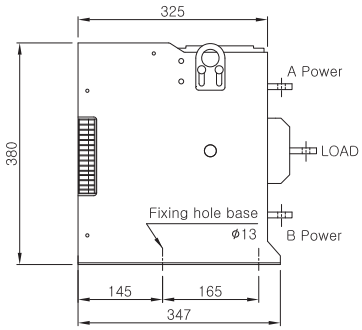
ATS(800~6300A)

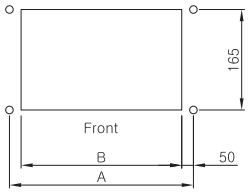
◆ Outline Dimension

800~1600A Fixed

Unit : mm



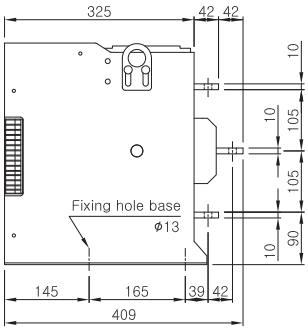


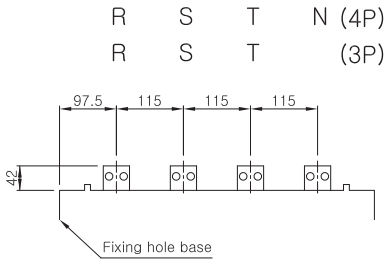


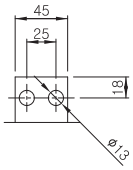
Poles	A	B
3P	425	325
4P	540	440

Panel Cutting
(Fixing Hole)

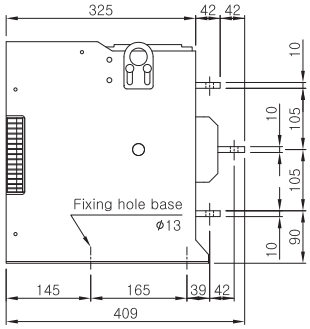
608~610-PC

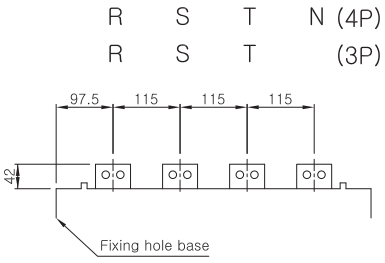


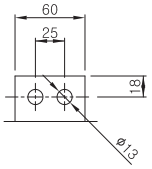




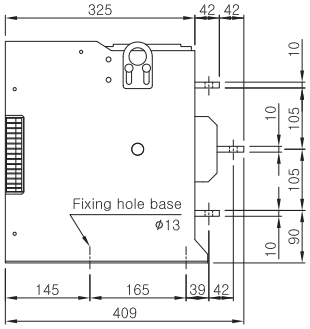
612-PC

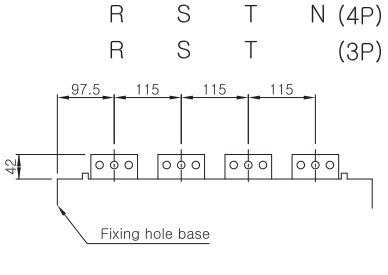


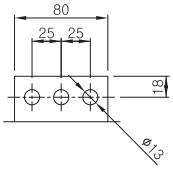




616-PC







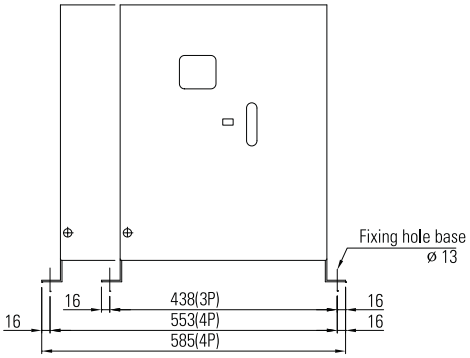
PC Type

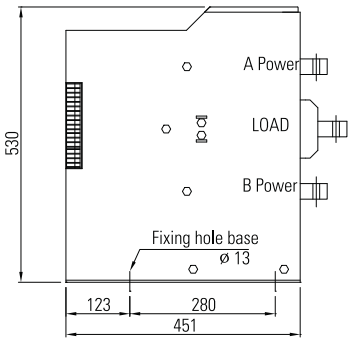
ATS(800~6300A)

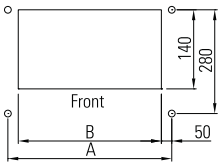
◆ Outline Dimension

2000~3200A Fixed

Unit : mm



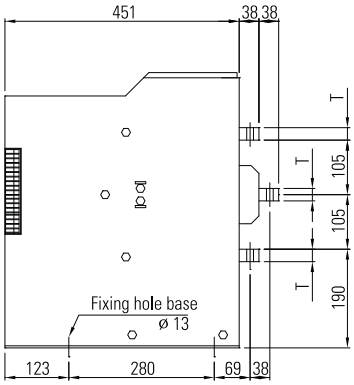




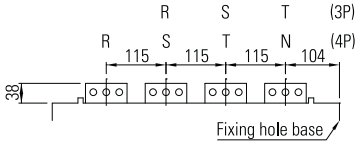
Poles	A	B
3P	438	338
4P	553	453

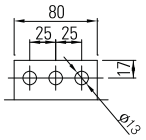
Panel Cutting
(Fixing Hole)

620~625-PC

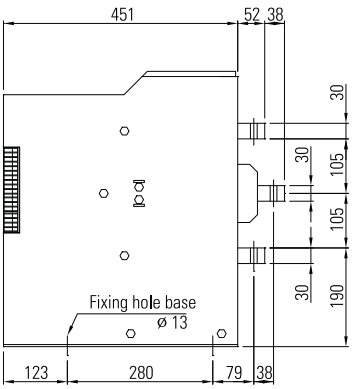


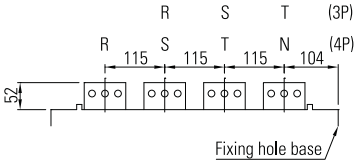
Current	T
2000A	15
2500A	24

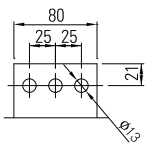




632-PC







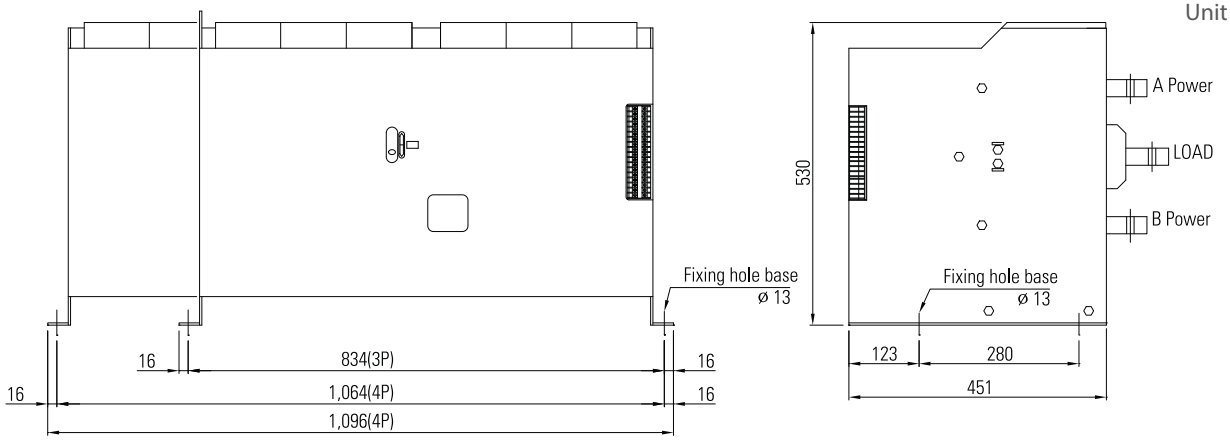
PC Type

ATS(800~6300A)

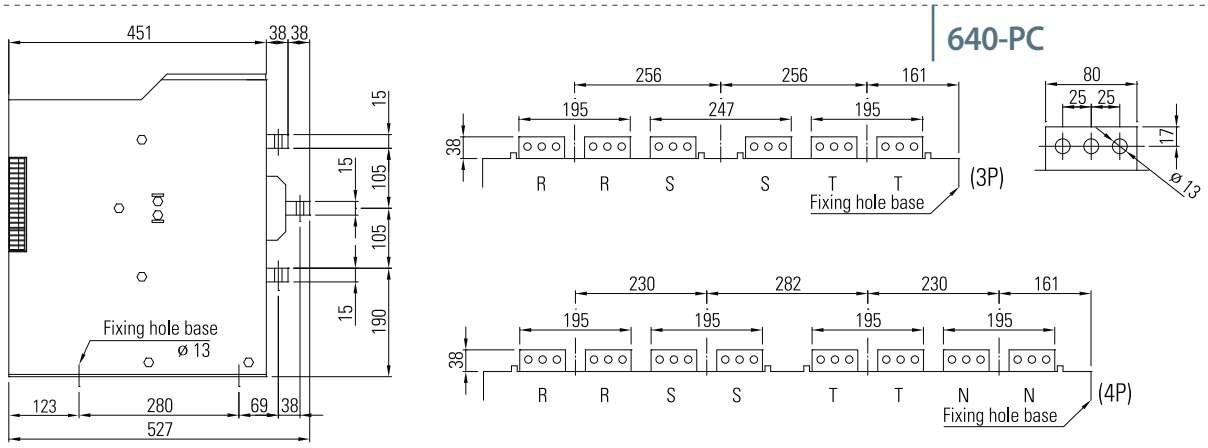
◆ Outline Dimension

4000~6300A Fixed

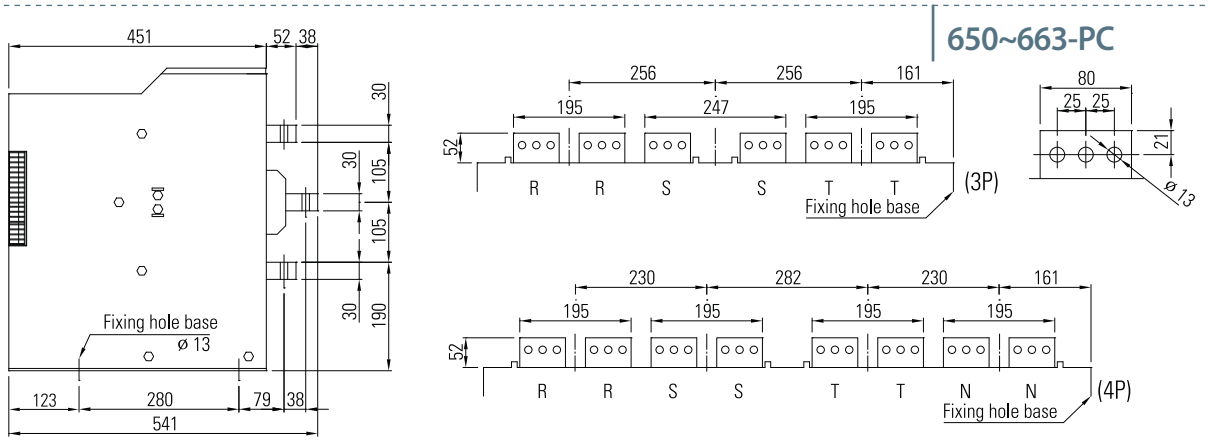
Unit : mm



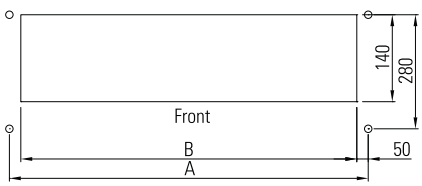
640-PC



650~663-PC



Panel cutting (Fixing hole)



Poles	A	B
3P	834	734
4P	1064	964

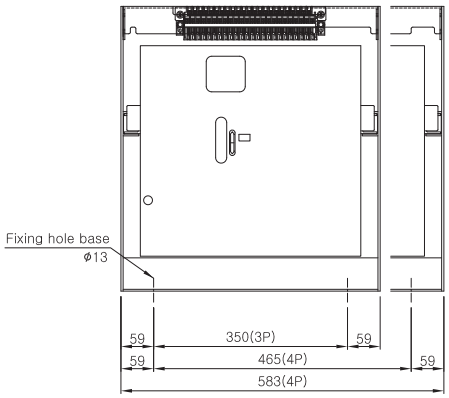
PC Type

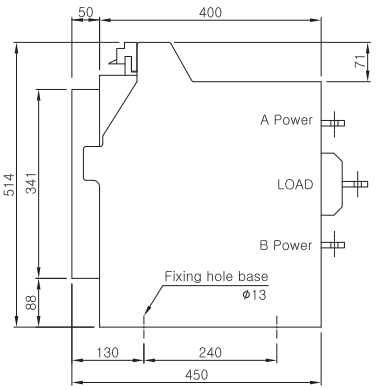
ATS(800~6300A)

◆ Outline Dimension

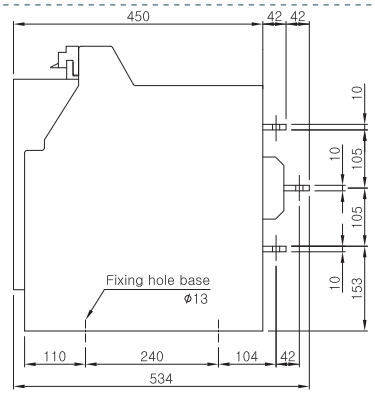
800~1600A Draw Out

Unit : mm

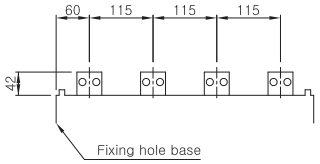


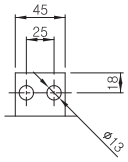


608~610-PC

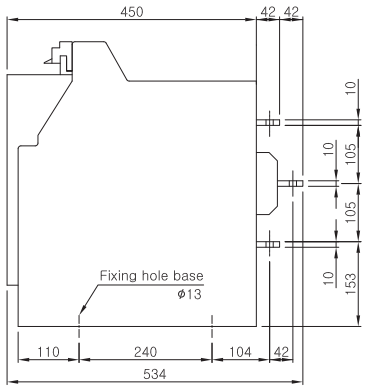


R S T N (4P)
R S T (3P)

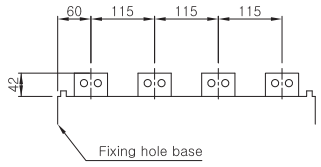


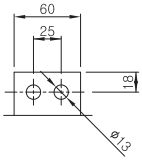


612-PC

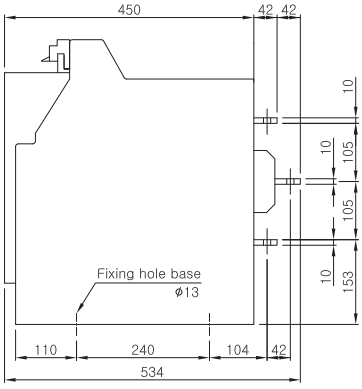


R S T N (4P)
R S T (3P)

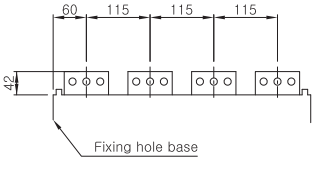


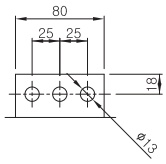


616-PC



R S T N (4P)
R S T (3P)





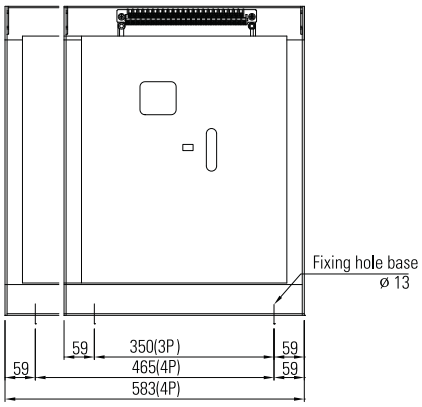
PC Type

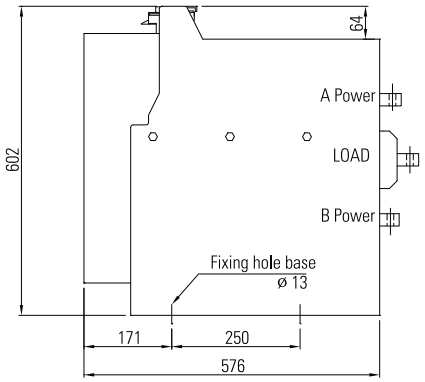
ATS(800~6300A)

◆ Outline Dimension

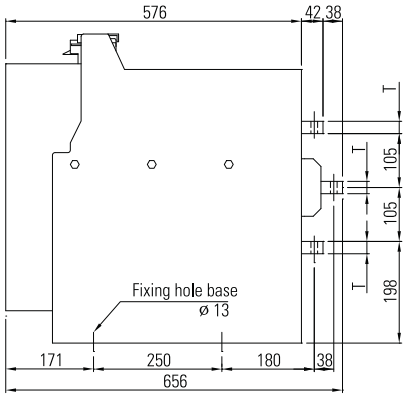
2000~3200A Draw Out

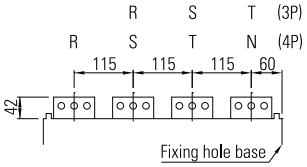
Unit : mm

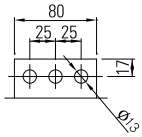




620~625-PC

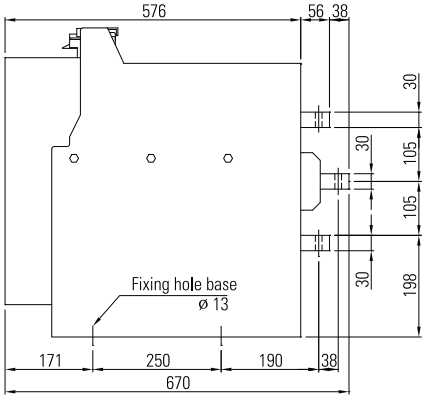


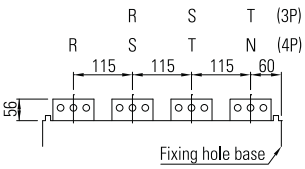


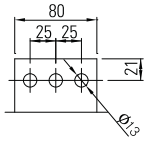


Current	T
2000A	15
2500A	24

632-PC







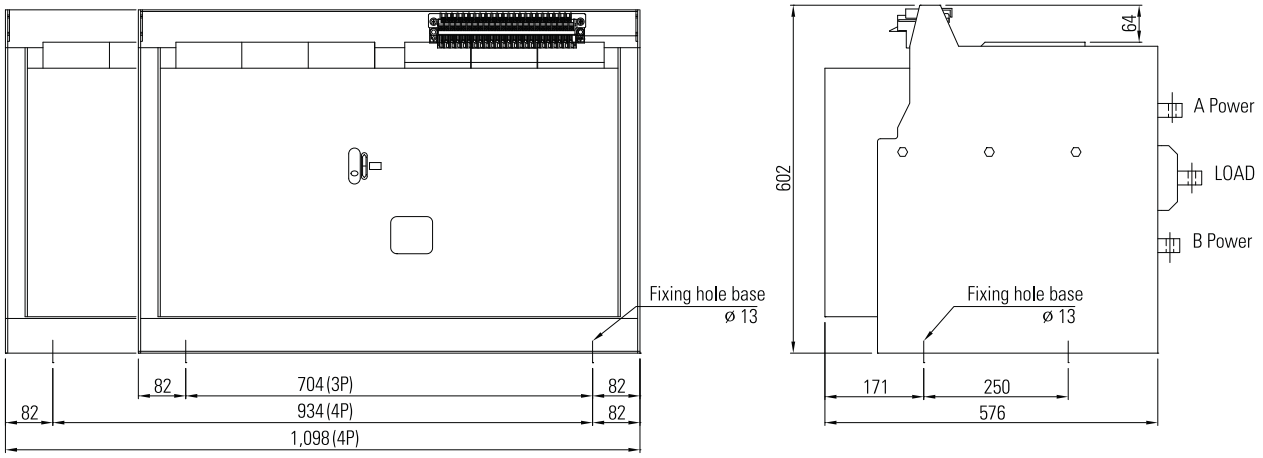
PC Type

ATS(800~6300A)

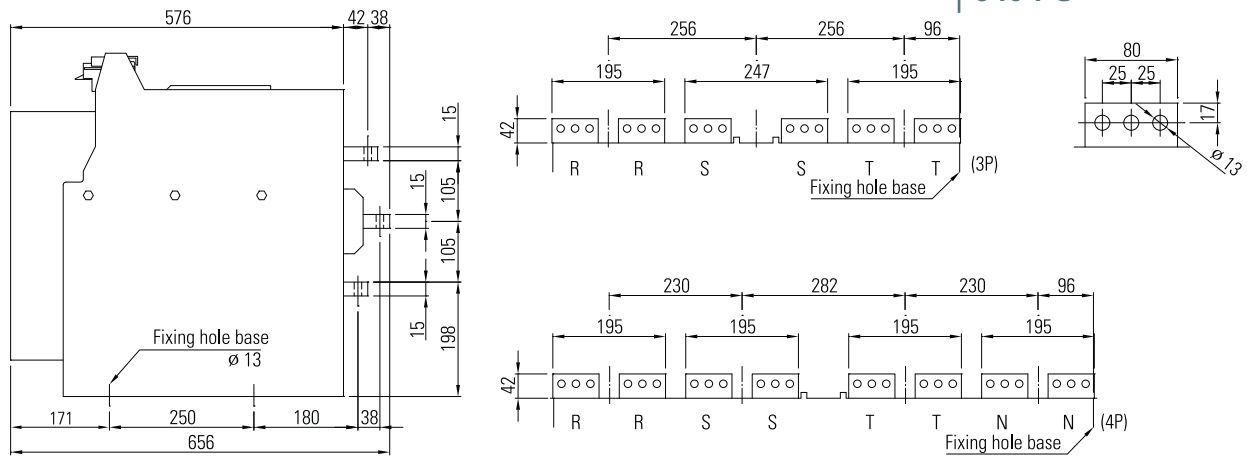
◆ Outline Dimension

4000~6300A Draw Out

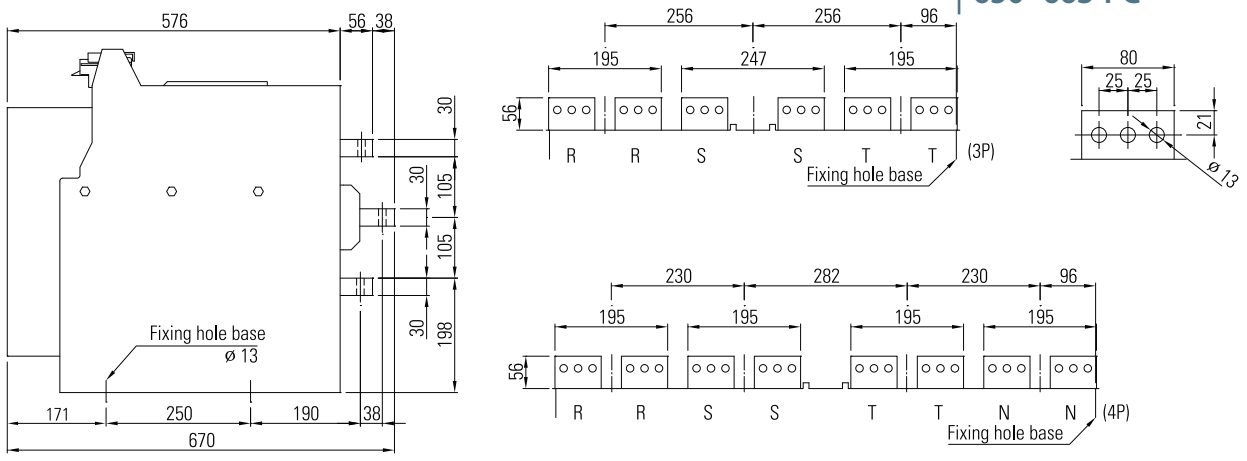
Unit : mm



640-PC



650~663-PC



PSO Type

ATS(600~6300A)

◆ Information to Order

6□ - PSO - □P - □ - □
A B C D

A Rated Current

06	08	10	12	16	20	25	32	40	50	63
600A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	6300A

B Number of Poles
- 4 : 4P

C Operating Voltage
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

D Mounting System
- F : Fixed
- D : Draw out

◆ Features

In addition to every function of OSS-PC Type ATS, OSS-PSO Type ATS has additional function of Overlapping Neutral Contact. (ON-ON Type ATS)

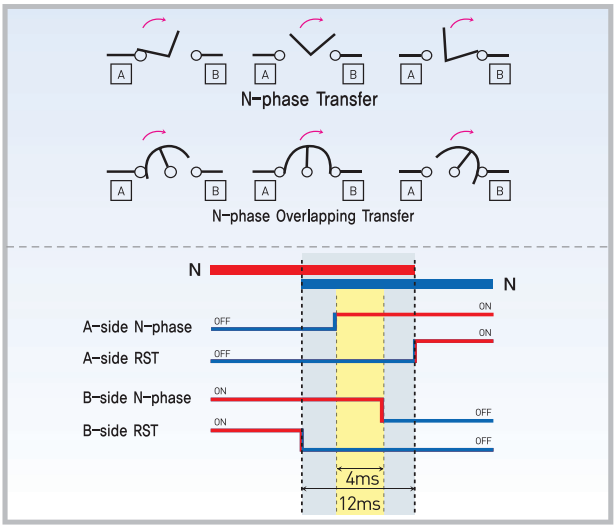
■ Function of Overlapping Neutral Contact

When general ATS will be transferred, Arc will be generated between fixed contacts and moving contacts. Thus, current flows between contacts and arc will be eliminated when current will be at zero level. Eliminating time of arc is 10~12ms. Therefore, various device of load side can be protected when neutral contacts should be opened 10~12ms later than other 3-phases contacts. Load side devices of general ATS cannot be sufficiently protected because opening time gap between neutral contacts and other 3-phases contacts is less than 10ms. In order to solve this problem, Overlapping between neutral contacts of A-power (Normal) and B-power (Emergency) during transfer of switch functions to protect various devices of load side more safely.
In addition, Non-linear load increases the earth potential and potential difference is occurred between earth and neutral line. When general ATS will be transferred, Neutral line is separated from load and reference potential difference cannot be established. Thus, Floating is occurred and electronic devices can be malfunctioned. When ATS with overlapping neutral contact will be applied, Floating can be protected.

■ Location Needed for Overlapping Neutral Contact

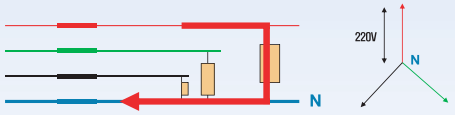
- Broadcasting System and Telecommunication System
- Military Communication System and Radar Facilities
- Bank and Computer Center
- Large Harmonic Load : Elevator & Escalator, etc.)
- Arc Furnace
- Petrochemical Plant

■ N-phase Transfer

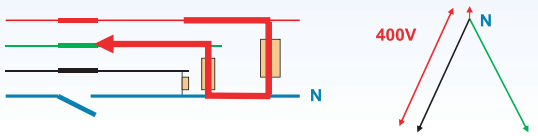


■ Limits of 4P Transfer

- Opening neutral wire is forbidden.
- The neutral is the common reference to 3-phases.



- If N-phase will be opened, Ph/Ph voltage can go up to 400V. For transfer of 4P, Overlapping of N-phase is necessary



PSO Type

ATS(600~6300A)

◆ Specification

TYPE			606-PSO	608-PSO	610-PSO	612-PSO	616-PSO
Rated Operational Voltage		Ue	AC 600 V				
Rated Current		Ie	630 A	800 A	1000 A	1250 A	1600 A
Neutral Phase Current			630 A	800 A	1000 A	1250 A	1600 A
Kind of Throw			Double Throw				
Connection			Back				
Number of Poles							
Weight (kg)	Fixed		70	75		80	85
	Drawout		100	105		115	120
Rated Short-Time Withstand Current (1sec)		Icw	25 kA			40 kA	50 kA
Rated Short-Circuit Making Capacity		Icm	52.5 kA			84 kA	105 kA
Switching Capacity			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)				
Switching Frequency			60 Time / Hour			20 Time / Hour	
Operating Current peak	DC 110V ~ 125V		45 A			50 A	
	AC 100V ~ 110V		45 A			50 A	
	AC 200V ~ 240V		30 A			40 A	
Operating Time	Change-over Time		≤ 100 ms				
	Opening Time		≤ 60 ms				
Number of Operating Cycles	Without Current		10,000				
	With Current		5,000				
Cautions			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.				

TYPE			620-PSO	625-PSO	632-PSO	640-PSO	650-PSO	663-PSO
Rated Operational Voltage		Ue	AC 600 V					
Rated Current		Ie	2000 A	2500 A	3200 A	4000 A	5000 A	6300 A
Neutral Phase Current			2000 A	2500 A	3200 A	4000 A	5000 A	6300 A
Kind of Throw				Double Throw				
Connection				Back				
Number of Poles			4P					
Weight (kg)	Fixed		115	125	125	210	230	250
	Drawout		140	140	155	275	285	305
Rated Short-Time Withstand Current (1sec)		Icw	50 kA	50 kA		65 kA		
Rated Short-Circuit Making Capacity		Icm	105 kA	105 kA		143 kA		
Switching Capacity			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)					
Switching Frequency			10 Time / Hour					
Operating Current peak	DC 110V ~ 125V		65 A				80 A	
	AC 100V ~ 110V		65 A				80 A	
	AC 200V ~ 240V		50 A				65 A	
Operating Time	Change-over Time		≤ 100 ms					
	Opening Time		≤ 60 ms					
Number of Operating Cycles	Without Current		5,000			3,000		
	With Current		3,000			1,500		
Cautions			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.					

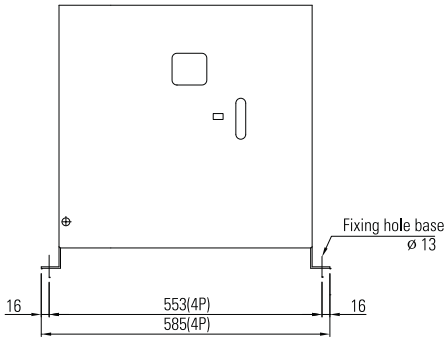
PSO Type

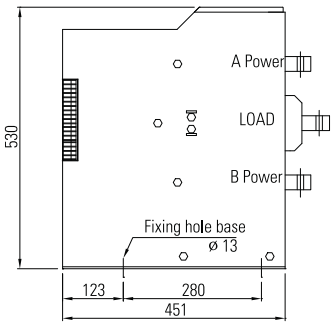
ATS(600~6300A)

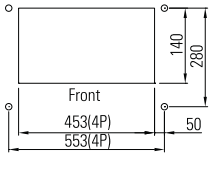
◆ Outline Dimension

600~3200A Fixed

Unit : mm

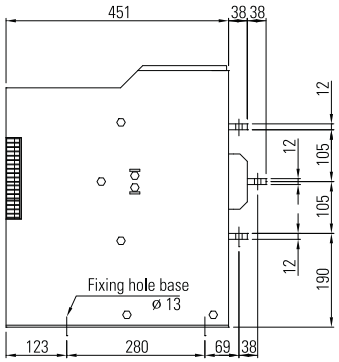


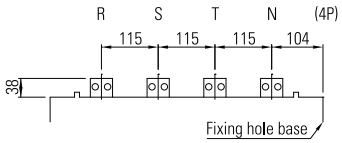




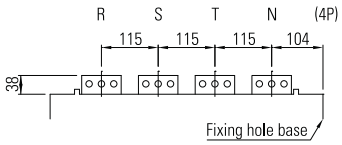
Panel Cutting
(Fixing Hole)

606~616-PSO

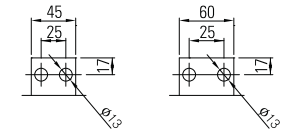




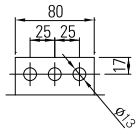
606~612-PSO



616-PSO

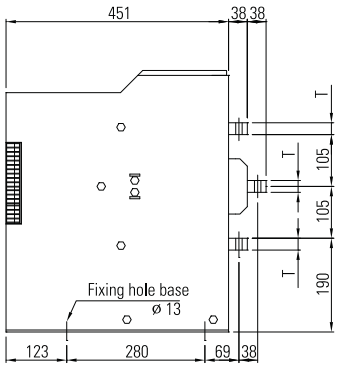


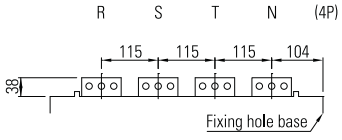
OSS-606~610-PSO OSS-612-PSO



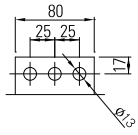
OSS-616-PSO

620~625-PSO

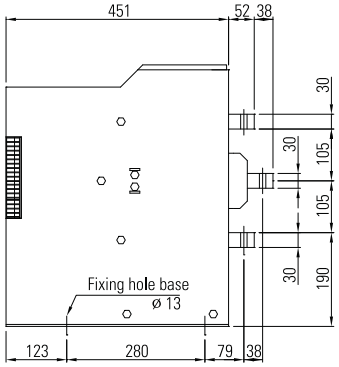


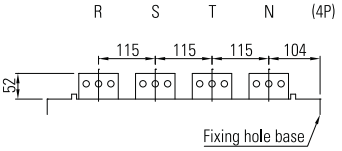


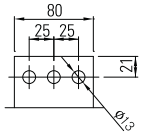
Current	T
2000A	15
2500A	24



632-PSO







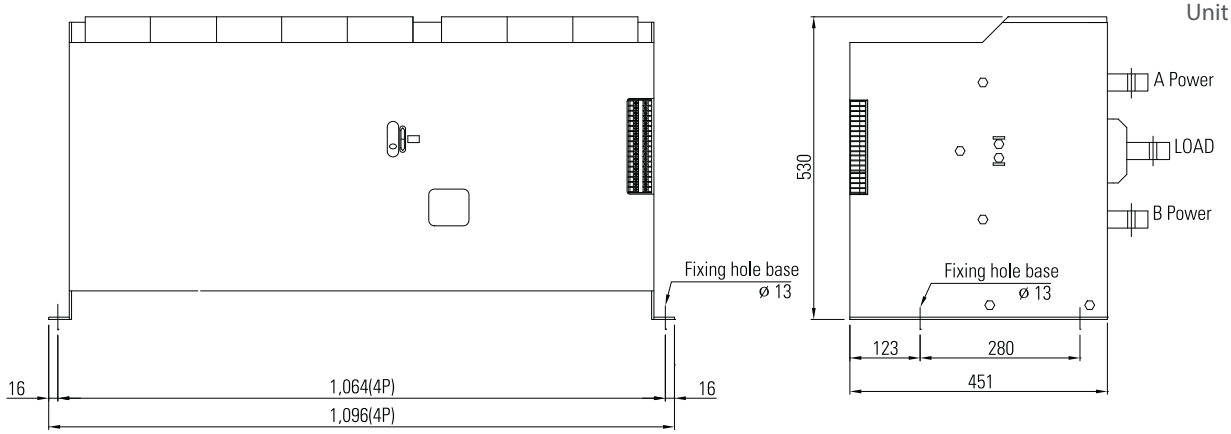
PSO Type

ATS(600~6300A)

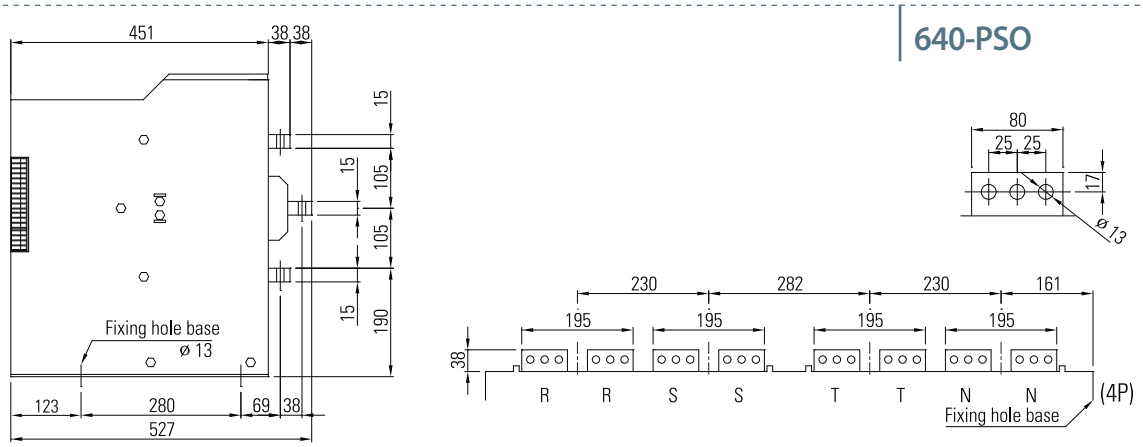
◆ Outline Dimension

4000~6300A Fixed

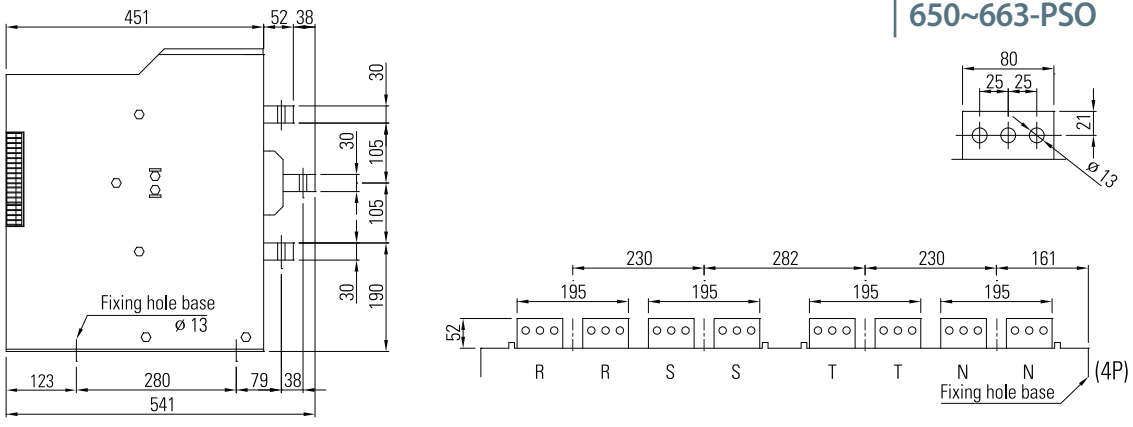
Unit : mm



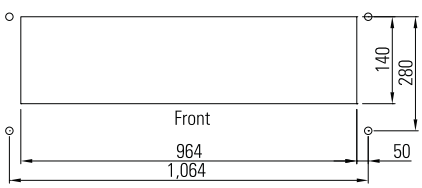
640-PSO



650~663-PSO



Panel cutting (Fixing hole)



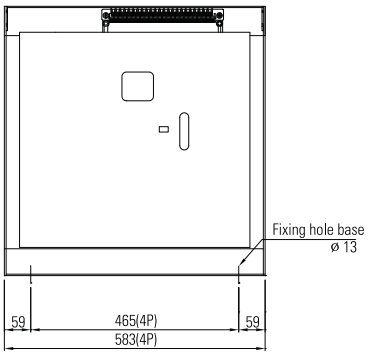
PSO Type

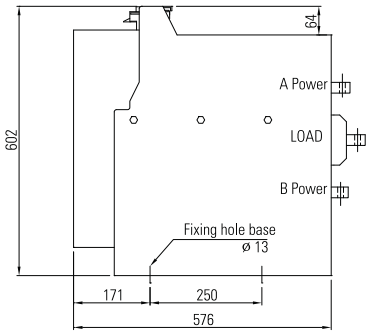
ATS(600~6300A)

◆ Outline Dimension

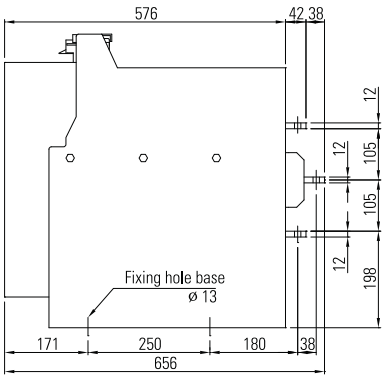
600~3200A Draw Out

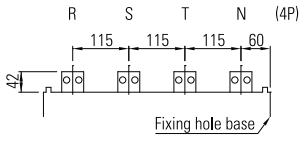
Unit : mm



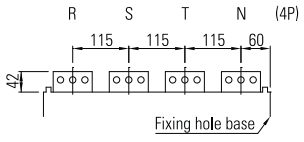


606~616-PSO

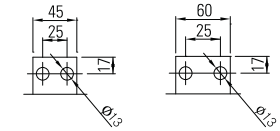




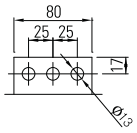
606~612-PSO



616-PSO

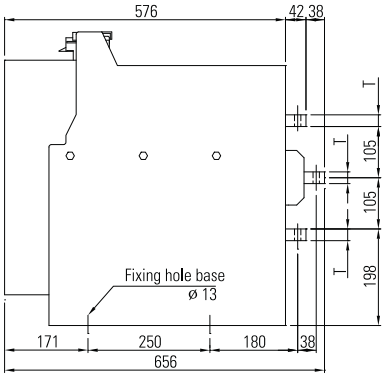


OSS-606~610-PSO OSS-612-PSO

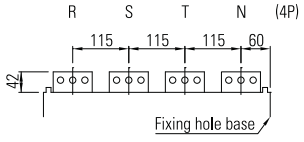


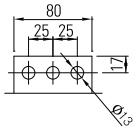
OSS-616-PSO

620~625-PSO

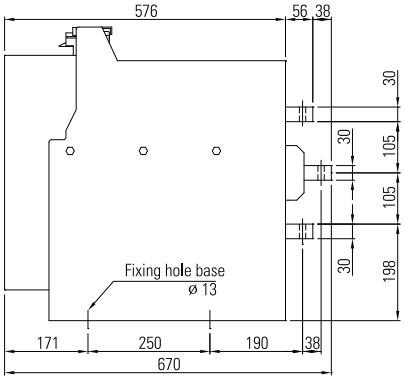


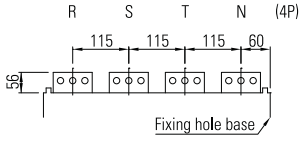
Current	T
2000A	15
2500A	24

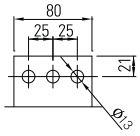




632-PSO







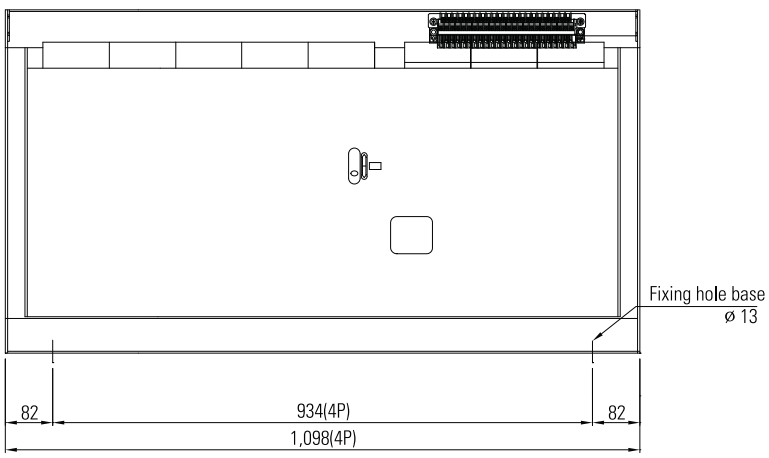
PSO Type

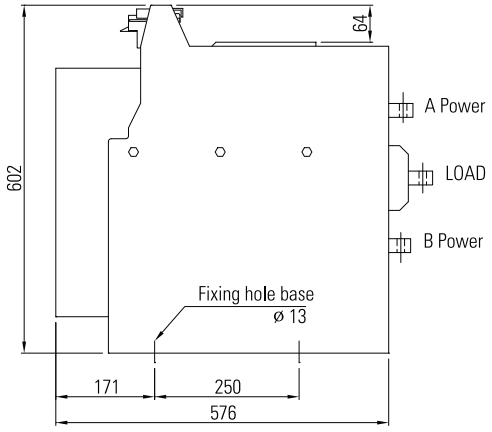
ATS(600~6300A)

◆ Outline Dimension

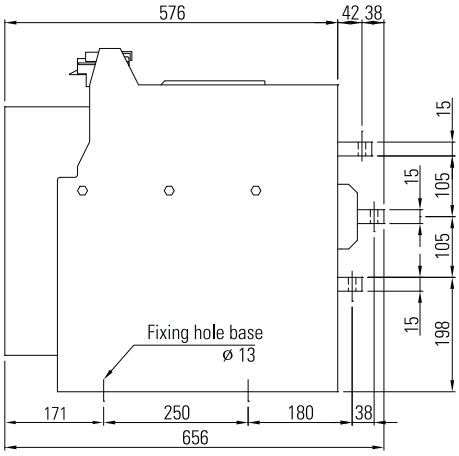
4000~6300A Draw Out

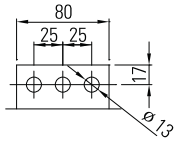
Unit : mm

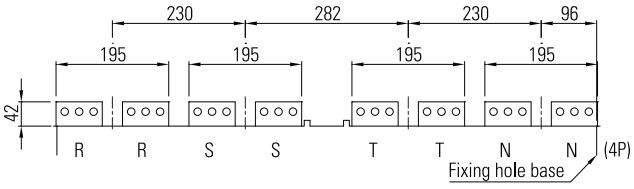




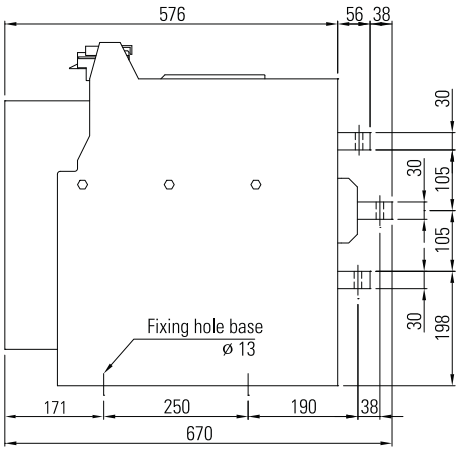
640-PSO

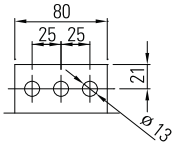


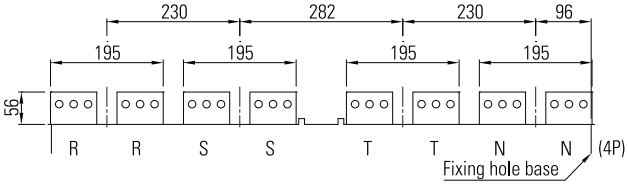




650~663-PSO





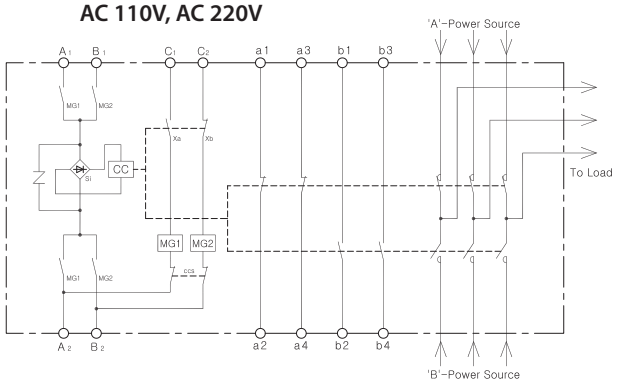


PC, PSO Type

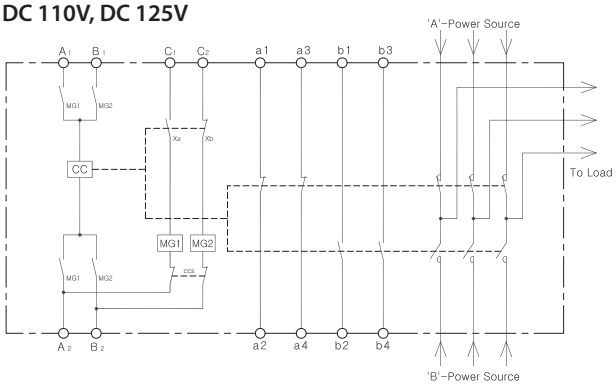
ATS

Circuit Diagram

AC 110V, AC 220V



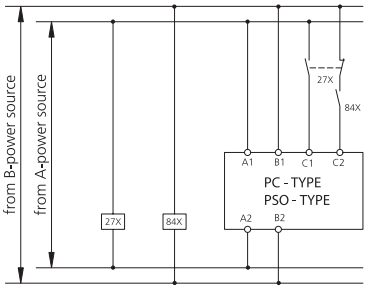
DC 110V, DC 125V



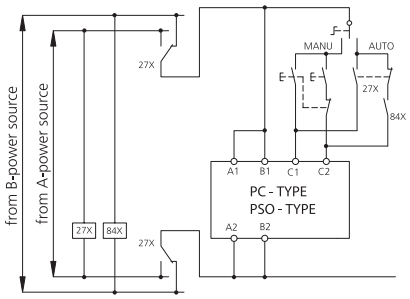
A1, A2	A-Power Closing Terminal	Xa, Xb	Control Switch
B1, B2	B-Power Closing Terminal	MG1, MG2	Magnetic coil
CC	Closing coil	a1, a2, a3, a4	A-Power Aux Switch
C	Closing coil state switch	b1, b2, b3, b4	B-Power Aux Switch

Typical Operating Circuit

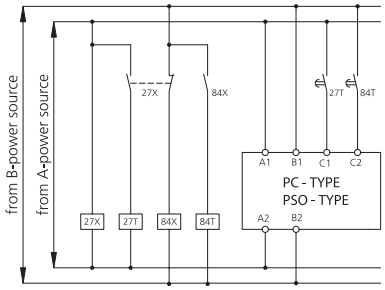
Standard



In Case of using a changeover switch

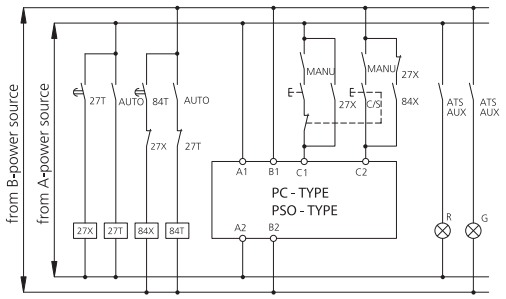


In Case of using a timer

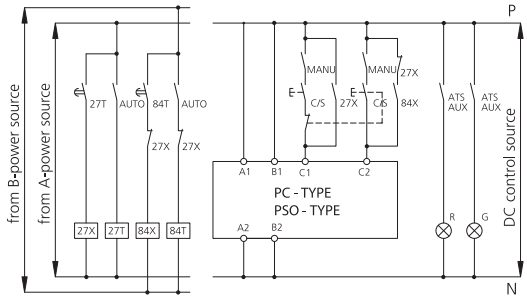


Wiring Diagram

AC Operating and Control



DC Operating and Control



27X	Source-A Operating Relay	84X	Source-B Operating Relay
27T	27X Operating Delay Relay	84T	84X Operating Delay Relay
AUTO, MANU	Automatic, Manual	C/S	Control Switch

Caution) More than 2.5㎟ power cable used for 1600A ATS or less.
More than 4.0㎟ power cable used for 2000A ATS or over.
More than 6.0㎟ power cable used for 4000A ATS or over.

PCN Type

ATS(800~6300A)

◆ Information to Order

6□ - □ - □P - □ - □
A B C D E

A Rated Current

08	10	12	16	20	25	32	40	50	63
800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	6300A

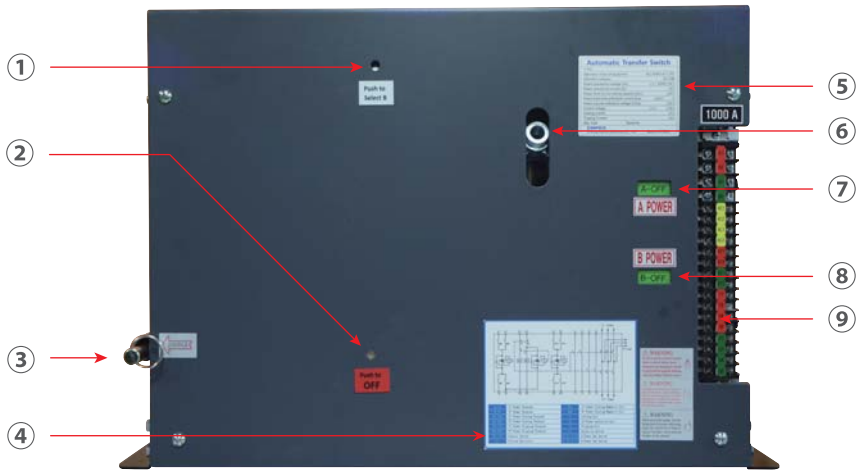
B Type
- PCN : PCN-Type

C Number of Poles
- 3 : 3P
- 4 : 4P

D Operating Voltage
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

E Mounting System
- F : Fixed
- D : Draw out

◆ External View



①	Selective Button for "B"–Power Closing
②	Trip Button
③	Manual Lever
④	Circuit Diagram
⑤	Name Plate
⑥	Manual Lever Inlet
⑦	"A"–Power ON/OFF Indicator
⑧	"B"–Power ON/OFF Indicator
⑨	Terminal Block

◆ Features

- Neutral position is functioned to cut off both power sources
  In case UPS is applied, It is available to transfer to neutral position by tripping mechanism after checking circuit stability and safety instaneous transfer as follows. A ⇒ Off ⇒ B, B ⇒ Off ⇒ A and A ⇒ Off ⇒ A, B⇒ Off ⇒ B instaneous transfer can be avaiable also by operating signal.
- Sufficient contact capacity against accidental current.
  (20 times of operating current)
- On-load break and make type.
- Easy busbar arrangement.
- Prevent the simultaneous closing by complete mechanical and electrical tripping mechanism
- Current carrying capacity of of N-phase is 100% same as other phases.
- N-phase is closed earlier and opened later.

PCN Type

ATS(800~6300A)

◆ Specification

TYPE			608-PCN		610-PCN		612-PCN		616-PCN		620-PCN	
Rated Operational Voltage		Ue	AC 600 V									
Rated Insulation Voltage		Ui	AC 800 V									
Rated Impulse Withstand Voltage		Uimp	AC 8000 V									
Rated Current		Ie	800 A		1000 A		1250 A		1600 A		2000 A	
Neutral Phase Current			800 A		1000 A		1250 A		1600 A		2000 A	
Kind of Throw			Double Throw									
Connection			Back									
Number of Poles			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (kg)	Fixed		60	70	60	70	65	75	75	85	105	125
	Drawout		130	145	130	145	140	155	150	165	165	195
Rated Short-Time Withstand Current (1sec)		Icw	25 kA		25 kA		40 kA		50 kA		50 kA	
Rated Short-Circuit Making Capacity	peak	Icm	52.5 kA		52.5 kA		84 kA		105 kA		105 kA	
Switching Capacity			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)									
Switching Frequency			60 Time / Hour				20 Time / Hour				10 Time / Hour	
Operating Current peak	DC 110V ~ 125V		25 A				40 A				65 A	
	AC 100V ~ 110V		25 A				40 A				65 A	
	AC 200V ~ 240V		15 A				30 A				50 A	
Operating Time	"A" Power	Making	≤ 80 ms								≤ 100 ms	
		Breaking	≤ 40 ms								≤ 60 ms	
	"B" Ppwer	Making	≤ 80 ms								≤ 100 ms	
		Breaking	≤ 40 ms								≤ 60 ms	
Number of Operating Cycles	Without Current		10,000								5,000	
	With Current		5,000								3,000	
Cautions			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.									

TYPE			625-PCN		632-PCN		640-PCN		650-PCN		663-PCN	
Rated Operational Voltage		Ue	AC 600 V									
Rated Insulation Voltage		Ui	AC 800 V									
Rated Impulse Withstand Voltage		Uimp	AC 8000 V									
Rated Current		Ie	2500 A		3200 A		4000 A		5000 A		6300 A	
Neutral Phase Current			2500 A		3200 A		4000 A		5000 A		6300 A	
Kind of Throw			Double Throw									
Connection			Back									
Number of Poles			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (kg)	Fixed		105	125	110	130	180	220	200	250	200	250
	Drawout		165	195	180	210	220	275	245	400	300	400
Rated Short-Time Withstand Current (1sec)		Icw	50 kA		50 kA		65 kA		65 kA		65 kA	
Rated Short-Circuit Making Capacity	peak	Icm	105 kA		105 kA		143 kA		143 kA		143 kA	
Switching Capacity			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)									
Switching Frequency			10 Time / Hour									
Operating Current peak	DC 110V ~ 125V		65 A				80 A					
	AC 100V ~ 110V		65 A				80 A					
	AC 200V ~ 240V		50 A				65 A					
Operating Time	"A" Power	Making	≤ 100 ms									
		Breaking	≤ 60 ms									
	"B" Ppwer	Making	≤ 100 ms									
		Breaking	≤ 60 ms									
Number of Operating Cycles	Without Current		5,000				3,000					
	With Current		3,000				1,500					
Cautions			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.									

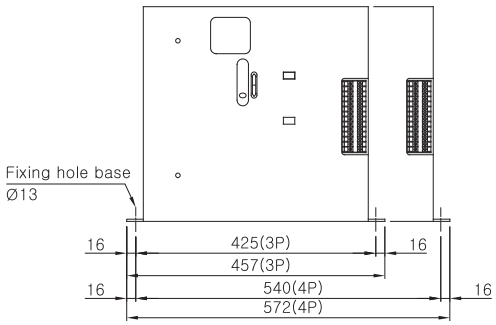
PCN Type

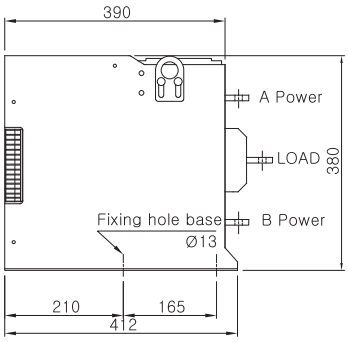
ATS(800~6300A)

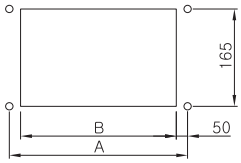
◆ Outline Dimension

800~1600A Fixed

Unit : mm



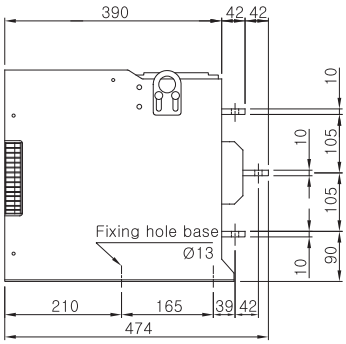




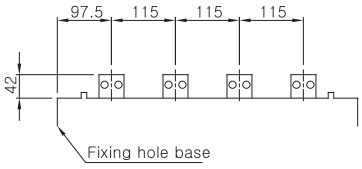
Poles	A	B
3P	425	325
4P	540	440

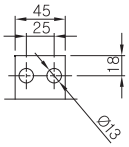
Panel Cutting
(Fixing Hole)

608~610-PCN

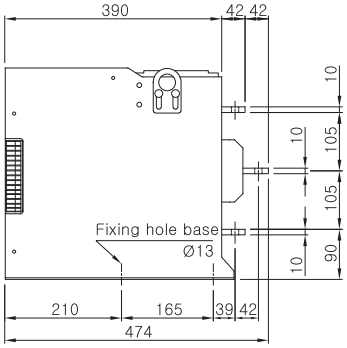


R S T N (4P)
R S T (3P)

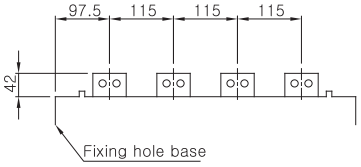


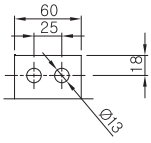


612-PCN

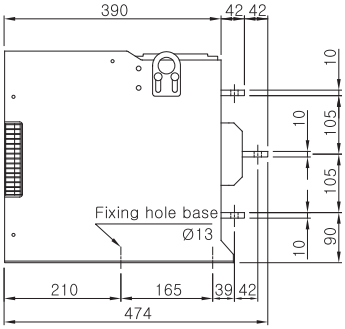


R S T N (4P)
R S T (3P)

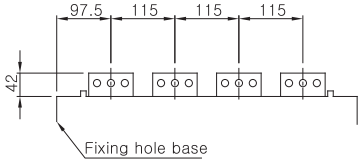


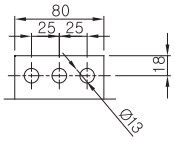


616-PCN



R S T N (4P)
R S T (3P)





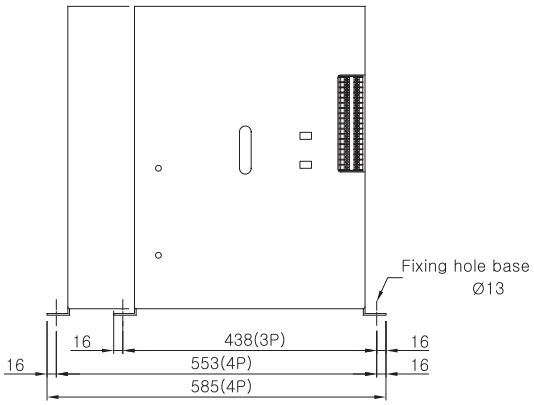
PCN Type

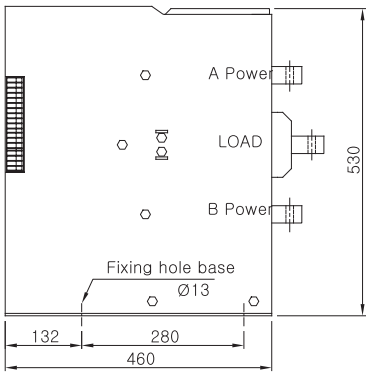
ATS(800~6300A)

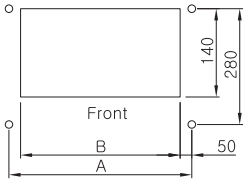
◆ Outline Dimension

2000~3200A Fixed

Unit : mm



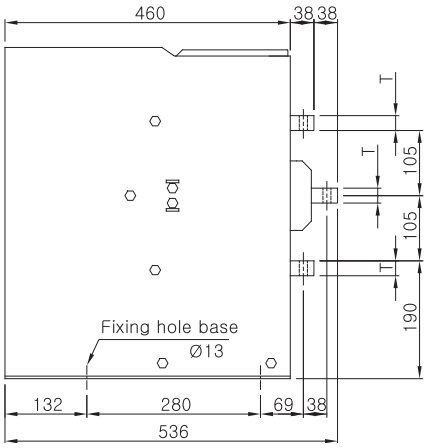


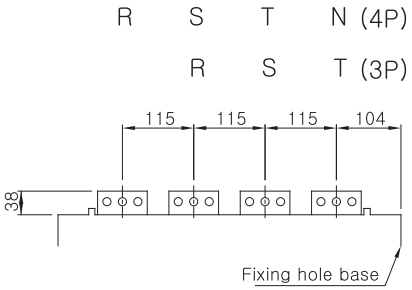


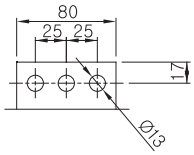
Poles	A	B
3P	438	338
4P	553	453

Panel Cutting
(Fixing Hole)

620~625-PCN

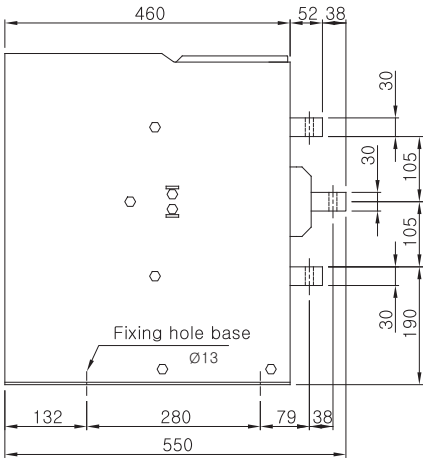


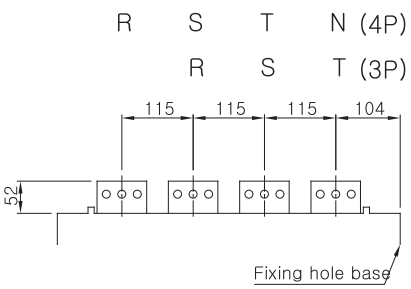


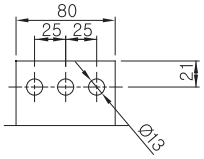


Current	T
2000A	15
2500A	24

632-PCN







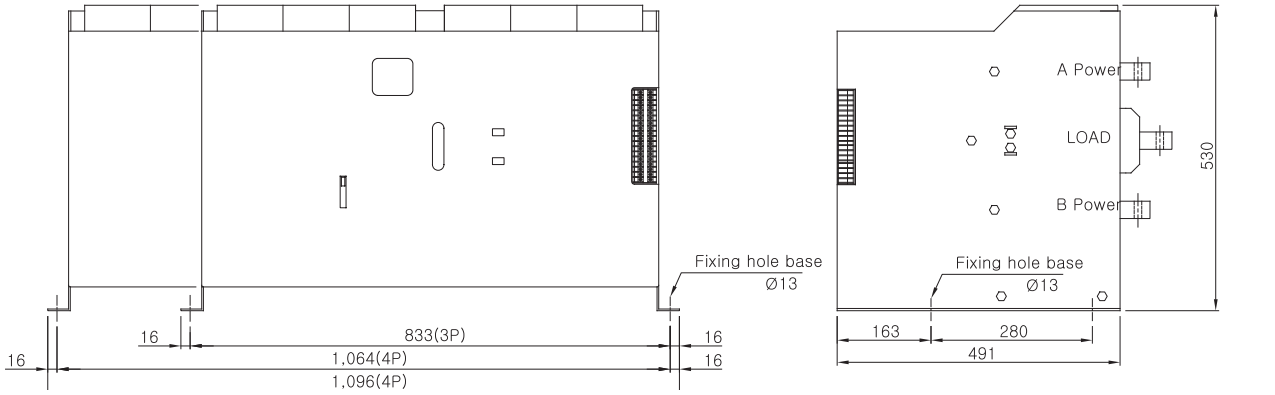
PCN Type

ATS(800~6300A)

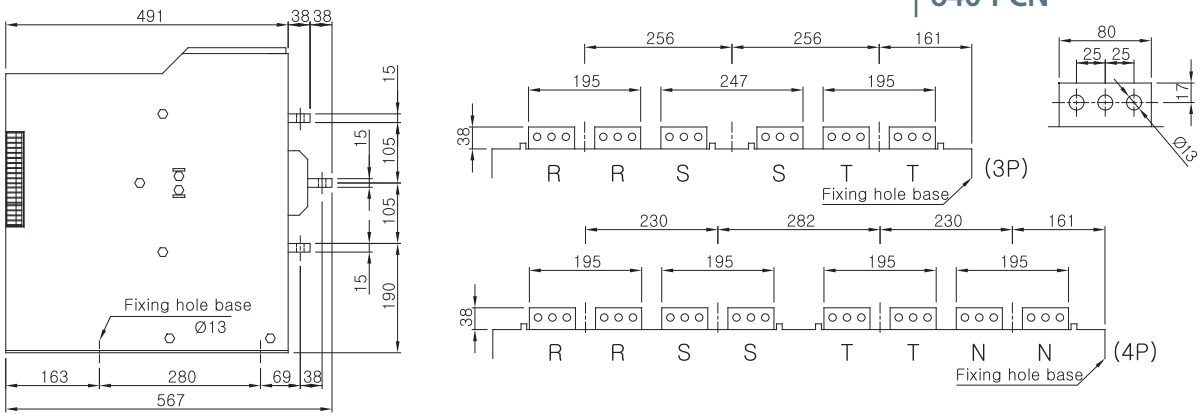
◆ Outline Dimension

4000~6300A Fixed

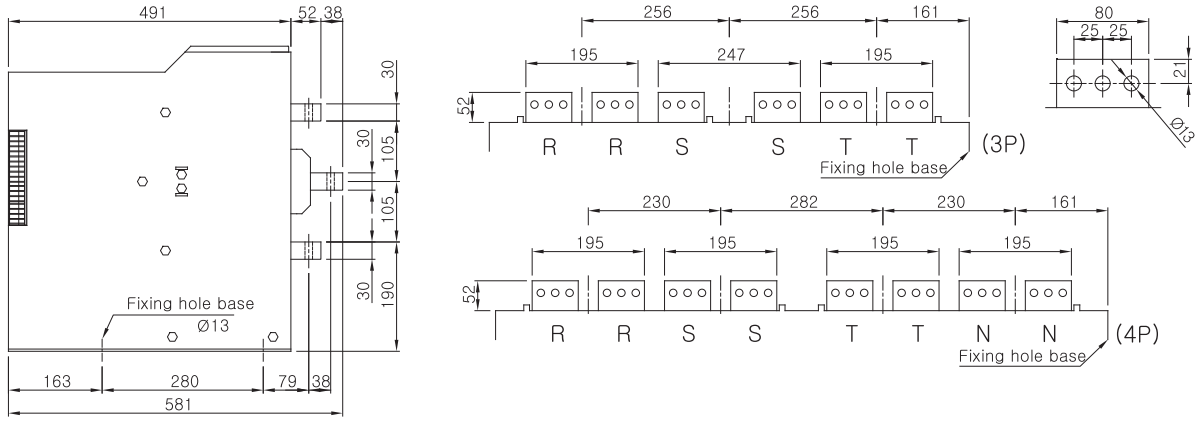
Unit : mm



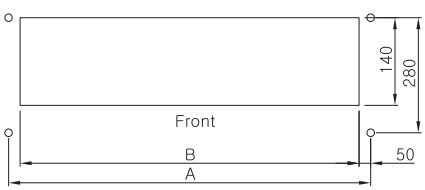
640-PCN



650~663-PCN



Panel cutting (Fixing hole)



Poles	A	B
3P	834	734
4P	1064	964

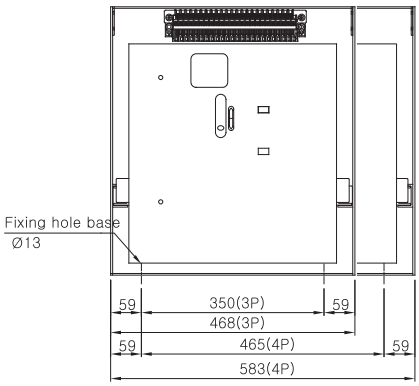
PCN Type

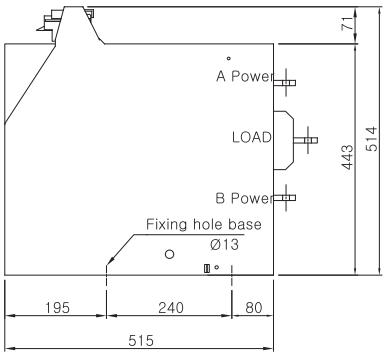
ATS(800~6300A)

◆ Outline Dimension

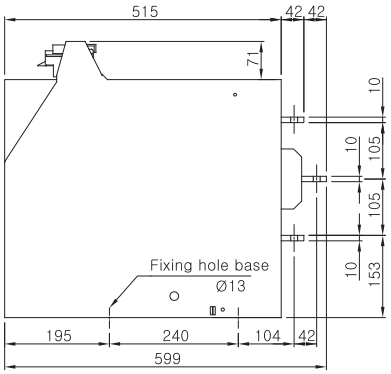
800~1600A Draw Out

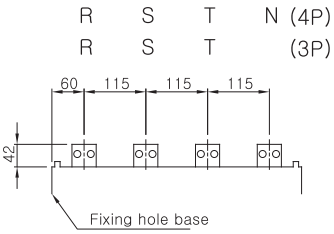
Unit : mm

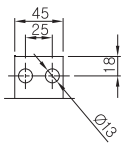




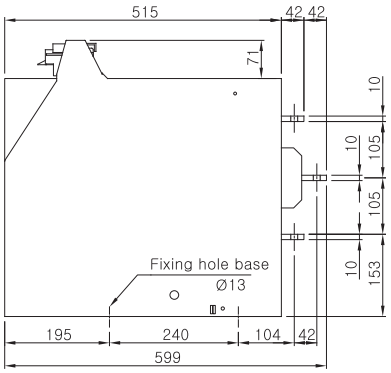
608~610-PCN

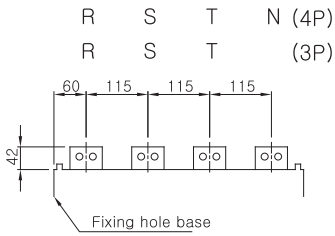


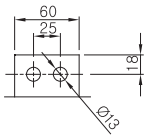




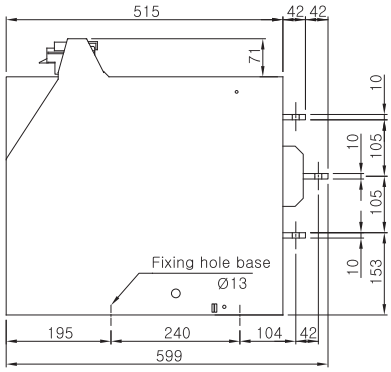
612-PCN

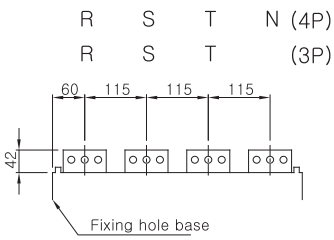


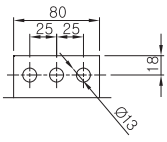




616-PCN







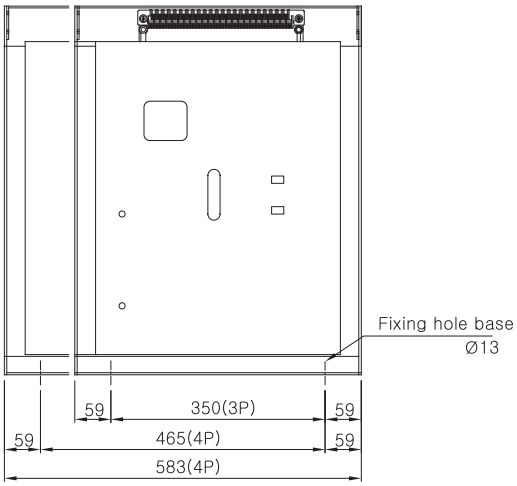
PCN Type

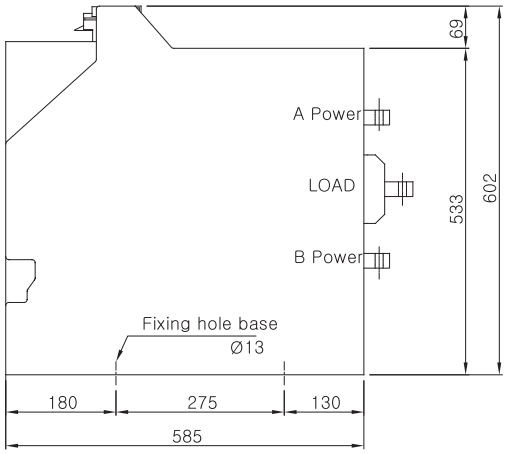
ATS(800~6300A)

◆ Outline Dimension

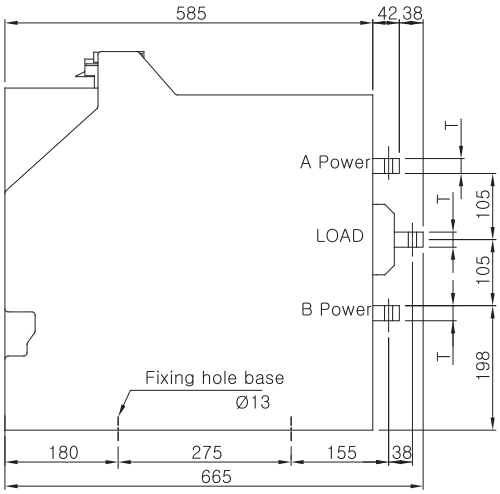
2000~3200A Draw Out

Unit : mm

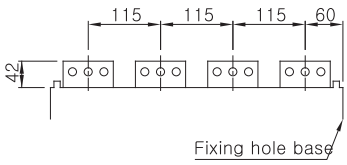


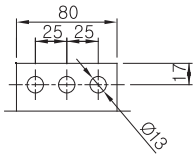


620~625-PCN



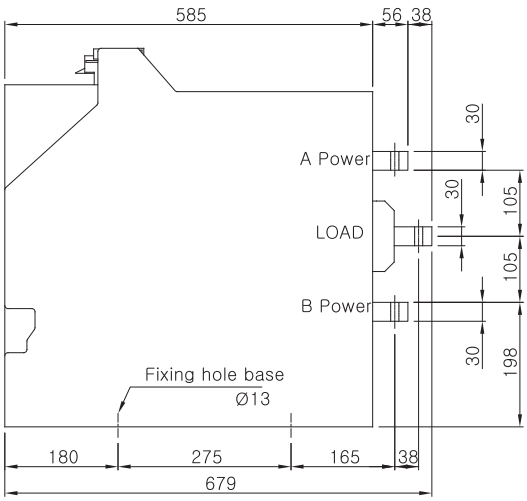
R S T N (4P)
R S T (3P)



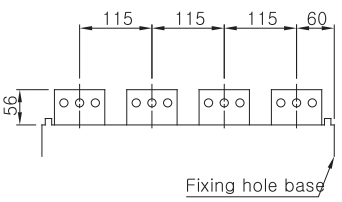


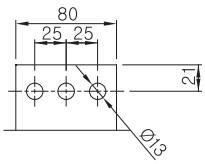
Current	T
2000A	15
2500A	24

632-PCN



R S T N (4P)
R S T (3P)





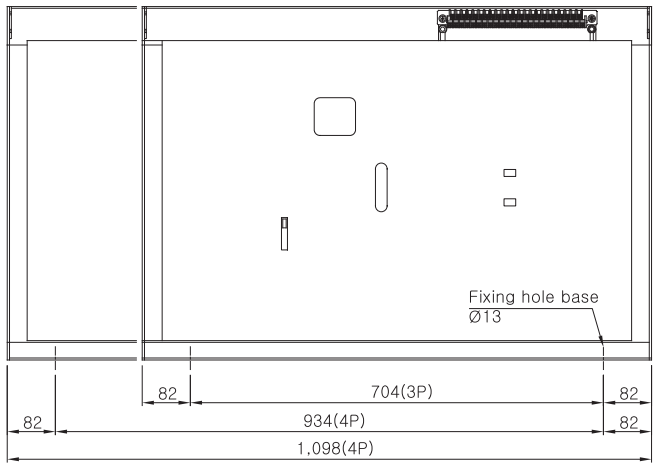
PCN Type

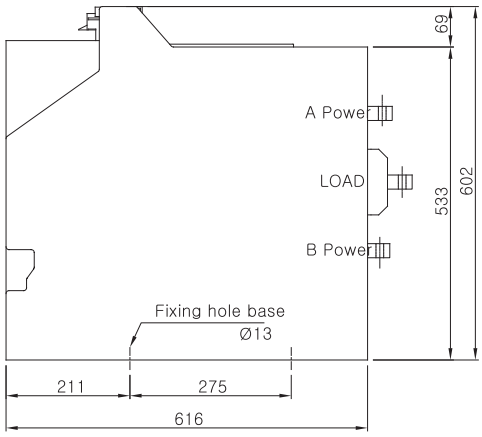
ATS(800~6300A)

◆ Outline Dimension

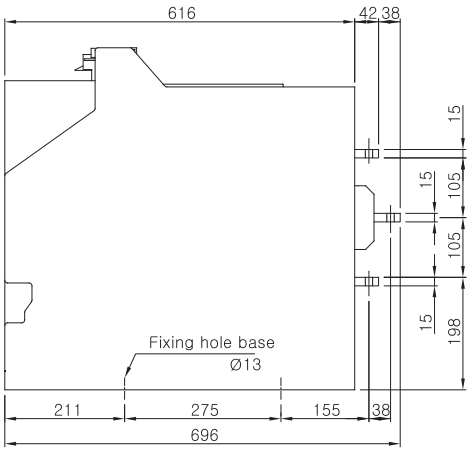
4000~6300A Draw Out

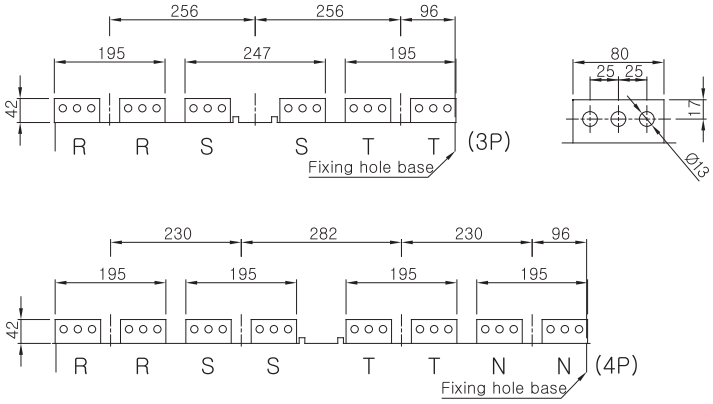
Unit : mm



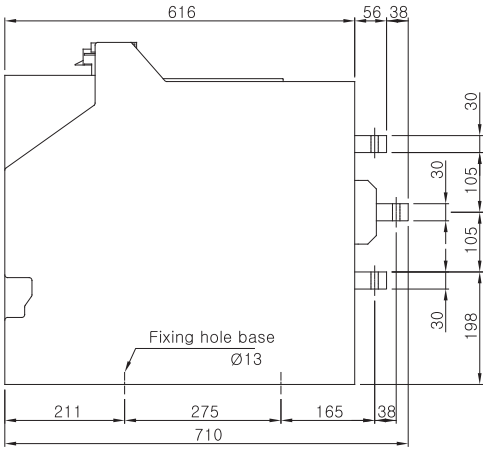


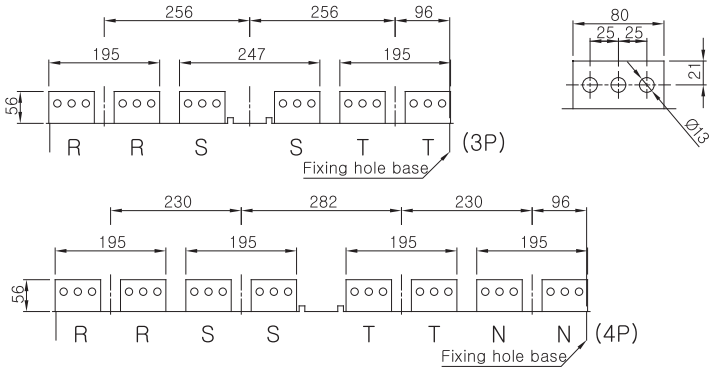
640-PCN





650~663-PCN



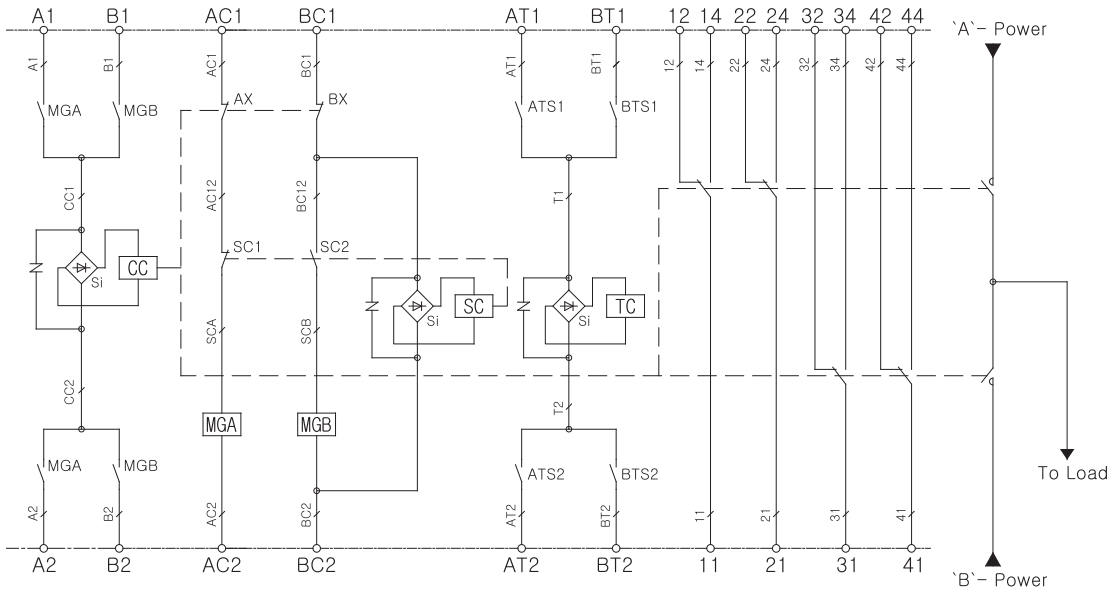


PCN Type

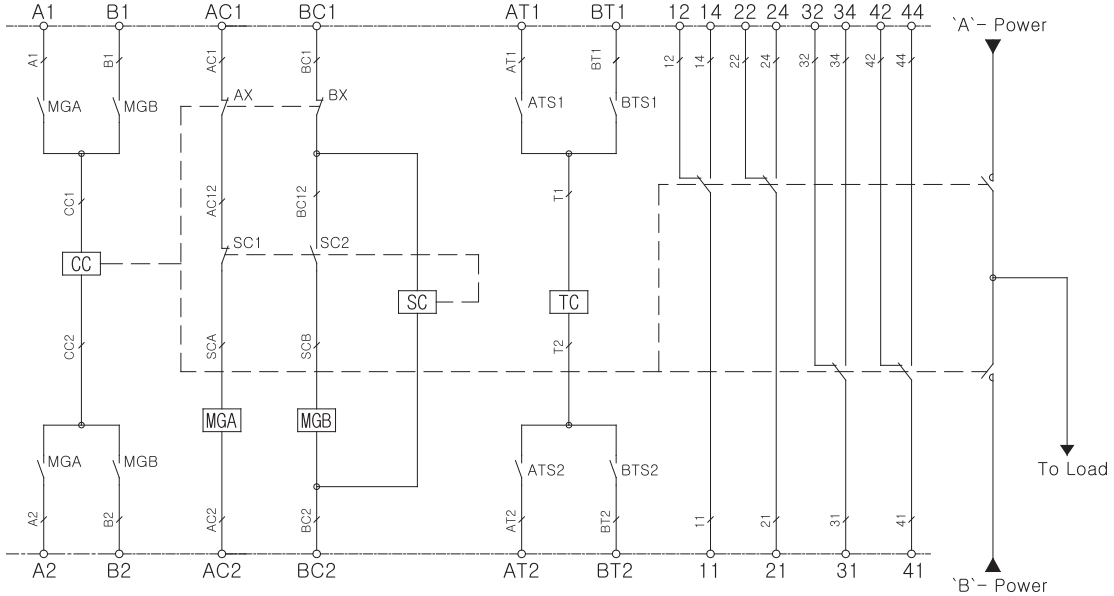
ATS(800~6300A)

Circuit Diagram 800A~1600A Fixed

AC 110V, AC 220V



DC 110V, DC 125V



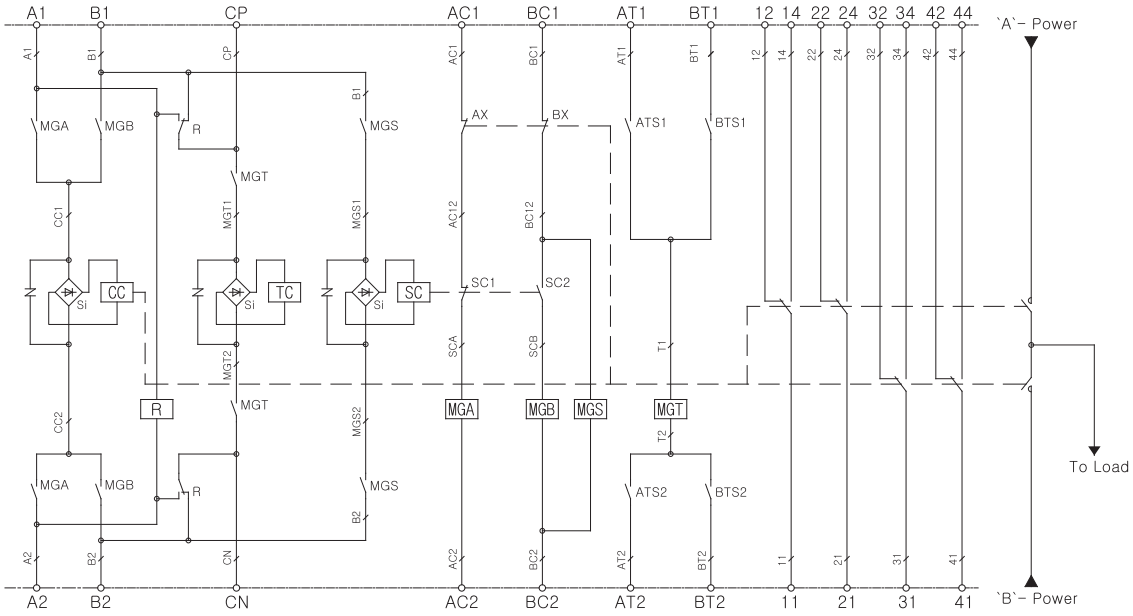
A1, A2	A-Power Terminal	MGA	A-Power Closing Magnetic Coil
B1, B2	B-Power Terminal	MGB	B-Power Closing Magnetic Coil
AC1, AC2	A-Power Closing Terminal	AX, BX	Controller Switch
BC1, BC2	B-Power Closing Terminal	11 ~ 24	A-Power AUX Switch
AT1, AT2	A-Power Tripping Terminal	31 ~ 44	B-Power AUX Switch
BT1, BT2	B-Power Tripping Terminal	ATS1, ATS2	A-Power Tripping Control Switch
CC	Closing Coil	BTS1, BTS2	B-Power Tripping Control Switch
SC	B-Power Selective Coil	SC1, SC2	Selective Switch
TC	Tripping Coil	Si	Silicon Rectifier

PCN Type

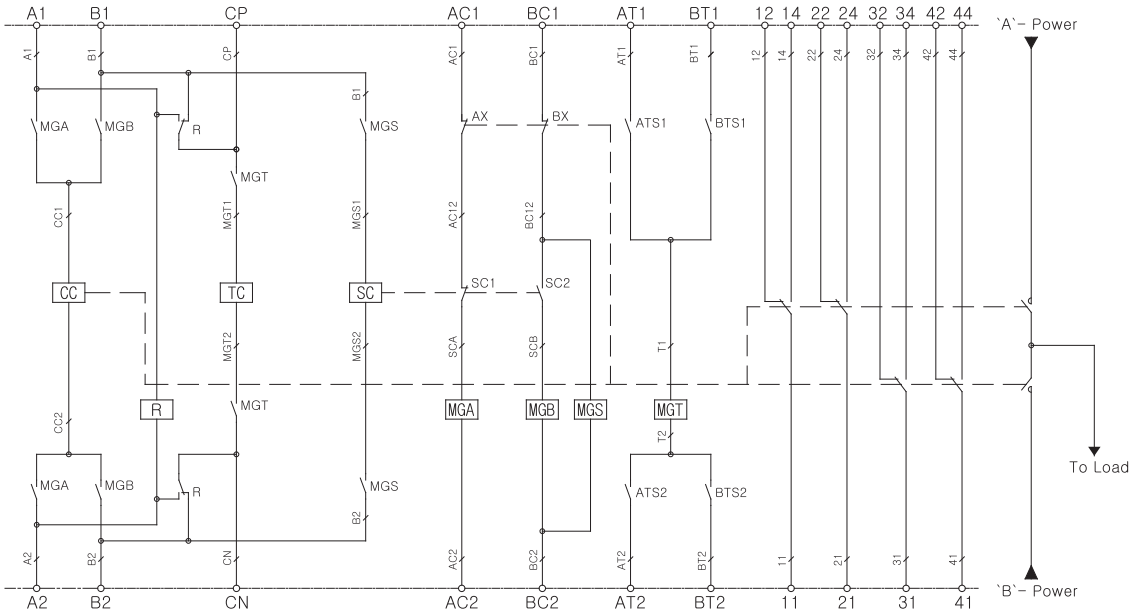
ATS(800~6300A)

Circuit Diagram 2000A~6300A Fixed

AC 110V, AC 220V



DC 110V, DC 125V



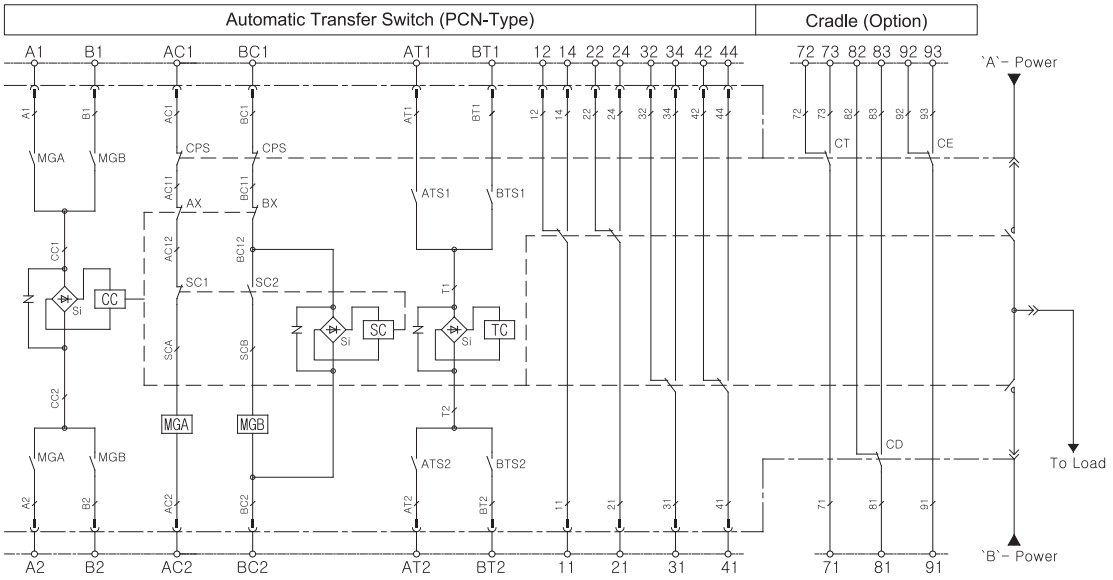
A1, A2	A-Power Terminal	MGB	B-Power Closing Magnetic Coil
B1, B2	B-Power Terminal	MGS	Selective Magnetic Coil
AC1, AC2	A-Power Closing Terminal	MGT	Tripping Magnetic Coil
BC1, BC2	B-Power Closing Terminal	AX, BX	Controller Switch
AT1, AT2	A-Power Tripping Terminal	11 ~ 24	A-Power AUX Switch
BT1, BT2	B-Power Tripping Terminal	31 ~ 44	B-Power AUX Switch
CC	Closing Coil	ATS1, ATS2	A-Power Tripping Control Switch
SC	B-Power Selective Coil	BTS1, BTS2	B-Power Tripping Control Switch
TC	Tripping Coil	SC1, SC2	Selective Switch
MGA	A-Power Closing Magnetic Coil	Si	Silicon Rectifier

PCN Type

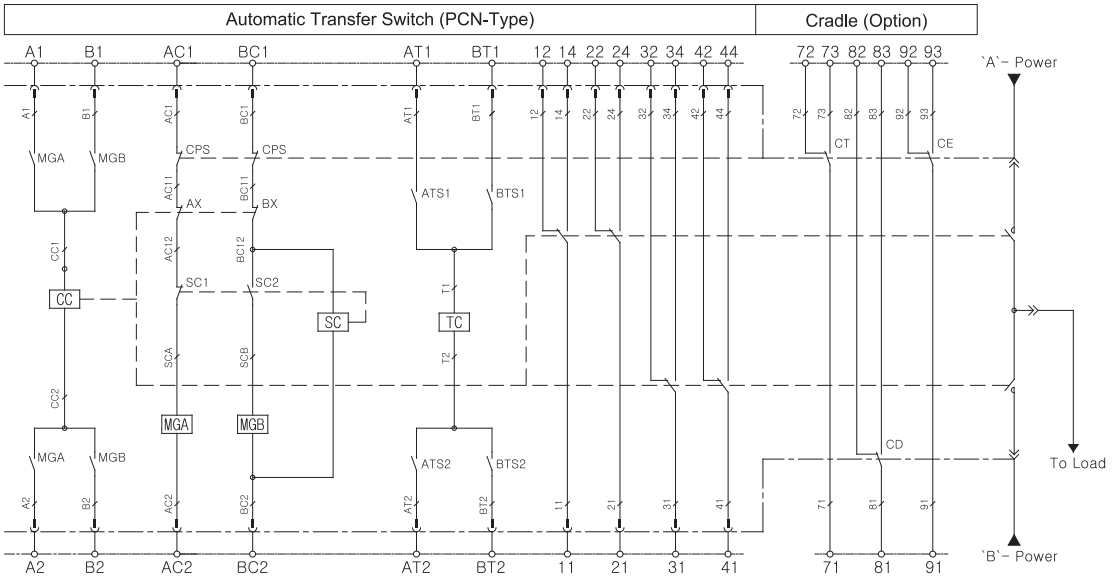
ATS(800~6300A)

Circuit Diagram 800A~1600A Draw Out

AC 110V, AC 220V



DC 110V, DC 125V



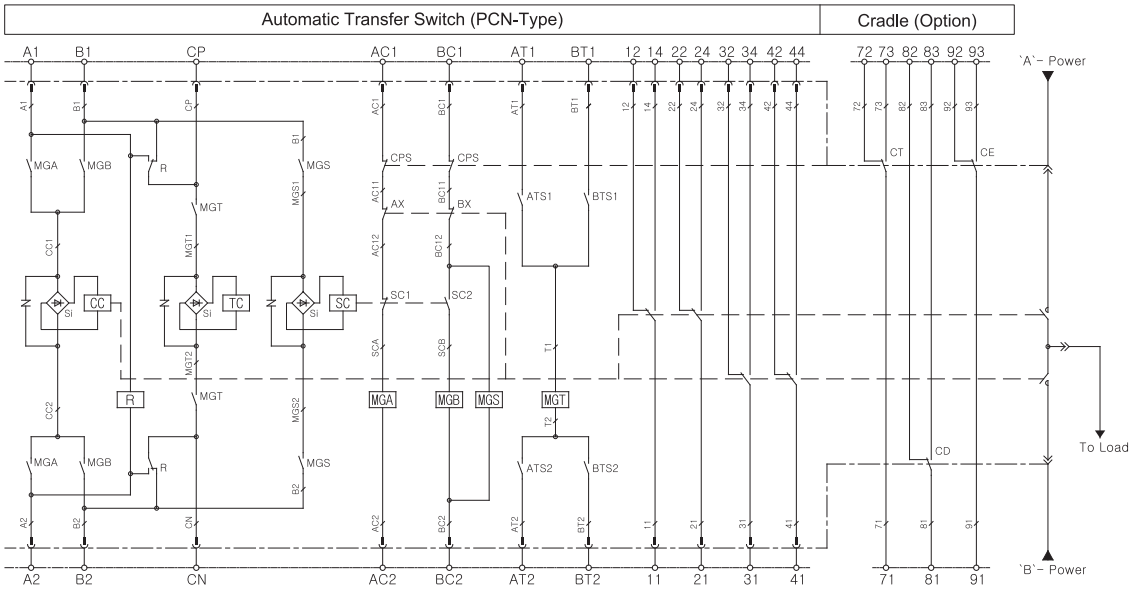
A1, A2	A-Power Terminal	AX, BX	Controller Switch
B1, B2	B-Power Terminal	11 ~ 24	A-Power AUX Switch
AC1, AC2	A-Power Closing Terminal	31 ~ 44	B-Power AUX Switch
BC1, BC2	B-Power Closing Terminal	ATS1, ATS2	A-Power Tripping Control Switch
AT1, AT2	A-Power Tripping Terminal	BTS1, BTS2	B-Power Tripping Control Switch
BT1, BT2	B-Power Tripping Terminal	SC1, SC2	Selective Switch
CC	Closing Coil	Si	Silicon Rectifier
SC	B-Power Selective Coil	CPS	Closing Preventing Switch
TC	Tripping Coil	CD	Contacts of Disconnected Position
MGA	A-Power Closing Magnetic Coil	CT	Contacts of Test Position
MGB	B-Power Closing Magnetic Coil	CE	Contacts of Connected Position

PCN Type

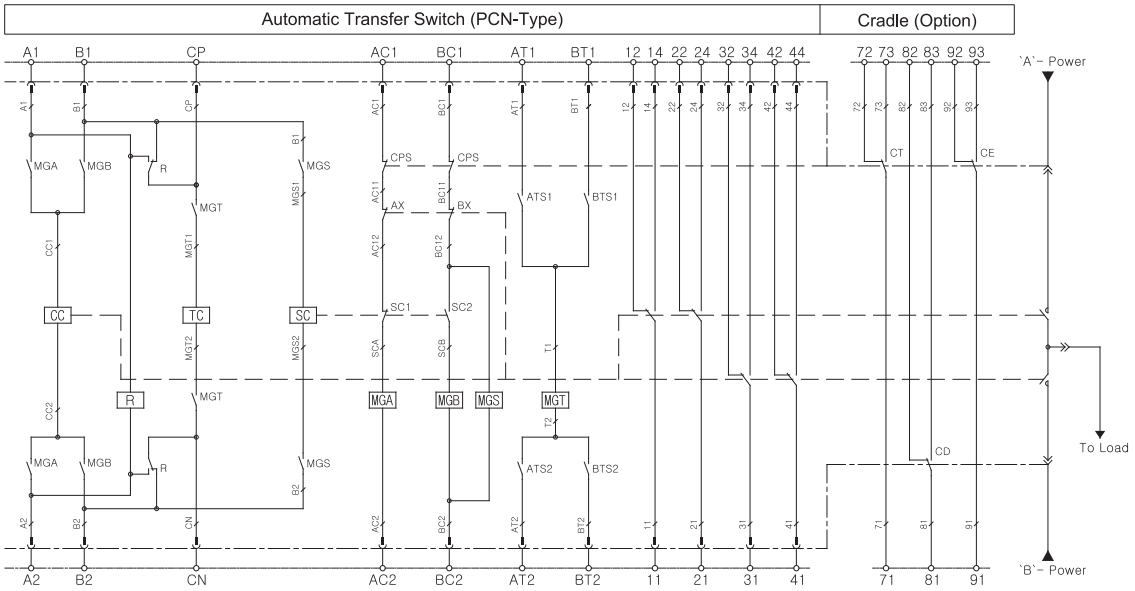
ATS(800~6300A)

Circuit Diagram 2000A~6300A Draw Out

AC 110V, AC 220V



DC 110V, DC 125V



A1, A2	A-Power Terminal	MGT	Tripping Magnetic Coil
B1, B2	B-Power Terminal	AX, BX	Controller Switch
AC1, AC2	A-Power Closing Terminal	11 ~ 24	A-Power AUX Switch
BC1, BC2	B-Power Closing Terminal	31 ~ 44	B-Power AUX Switch
AT1, AT2	A-Power Tripping Terminal	ATS1, ATS2	A-Power Tripping Control Switch
BT1, BT2	B-Power Tripping Terminal	BTS1, BTS2	B-Power Tripping Control Switch
CC	Closing Coil	SC1, SC2	Selective Switch
SC	B-Power Selective Coil	Si	Silicon Rectifier
TC	Tripping Coil	CPS	Closing Preventing Switch
MGA	A-Power Closing Magnetic Coil	CD	Contacts of Disconnected Position
MGB	B-Power Closing Magnetic Coil	CT	Contacts of Test Position
MGS	Selective Magnetic Coil	CE	Contacts of Connected Position

Technical Details

Standard Operating Conditions

Ambient Temperature: -5° C~+40° C(but, the average temperature for 24 hours shall be lower than +35° C)
Altitude: Below 2000m
Environmental conditions
Relative humidity shall be less than 85% at max. temp. +40°C, less than 90% at 20°C
It shall not be allowed to use or store within the area of petrochemicals, ammonia, and corrosive gas.
Storage Temp.: -20°C~+60°C(but, the average temperature for 24 hours shall be lower than +35°C)

▶ Applicable current by the temperature

Under the environment with over than 40° C, please note the rating current as follow

Unit : Ampere

Ambient temperature \ Rated current	630A	800A	1000A	1250A	1600A	2000A	2500A	3150A	4000A	5000A
40°C	630	800	1,000	1,250	1,600	2,000	2,500	3,150	4,000	5,000
45°C	630	800	1,000	1,250	1,600	2,000	2,500	3,150	4,000	5,000
50°C	630	800	1,000	1,250	1,600	2,000	2,500	3,150	4,000	5,000
55°C	630	800	1,000	1,250	1,550	2,000	2,450	3,000	3,900	4,850
60°C	630	800	1,000	1,200	1,500	2,000	2,350	2,900	3,750	4,700
60°C ~ 100°C	315	400	500	630	700	1,000	1,200	1,300	2,000	2,500

Note) IEC 60947-1 Standard is applied to the data for 40°C.

▶ Bolt tightening torque (for nut)

Class : 8.8

	M4	M5	M6	M8	M10	M12	M16	M20
Torque (N.m)	2.5~3.2	5.0~6.3	8.7~10.9	21.1~26.4	41,6~52	71.6~89.5	117.6~222	358.4~448

▶ Selection of TR Capacity

TR capacity should be selected more than the value calculated by the following formula.
Operation Voltage x Operation Current x 0.5 = ( )VA
e.g.) Operation Voltage AC 220V, Operation Current 4A 220 x 4 x 0.5 = 440VA, TR capacity of more than 440 VA is recommended.

▶ Selection of Control Relay

The capacity of UVR, Operating Relay and Timer contactor should be higher than ATS operating current.

Note : If the control power source is not stable, it is recommended to use Automatic Voltage Regulator.

Safety Manual

▶ Safety Notice

This safety manual describes major informations for safe operation. Before handling this machinery, please be acquainted thoroughly with this manual, product handling, safety information and all other precautions before installation or maintenance.

Danger
Emergency situation, which may cause death or serious disaster if there is mistake.

Caution
A potentially problematic situation, which may cause slight personal injury and/or damage.

These safety notices are devided as "Danger" and "Caution" according to the hazard level.

Caution

- Do not enter the area under the Automatic Transfer Switches (ATS) when it is lifted or suspended using a lifter or chain block. The ATS may suddenly drop.
  The ATS is heavy. Entering such an area may cause serious injury.

Caution

- Installation should be performed by qualified persons.
- Prior to commencing any installation, open the upstream circuit breaker to isolate all power/voltage sources.
  Otherwise, electric shock may occur.
- Tighten terminal screws securely according to the specified torque.
  Otherwise, a fire may occur.
- Fix the Drawout type ATS firmly on a flat level using mounting screws.
  Otherwise, drawout operation may cause the ATS to fall.
- Avoid blocking of ATS's arc gas vents to ensure the adequate arc space.
  Blocking of the arc gas vents could result in failure of ATS.
- Do not place the ATS in such area of high temperature, high humidity, dusty air, corrosive gas, strong vibration and shock or other unsual conditions.
  Installation in such areas could cause a fire or malfunction.
- Be careful to prevent foreign material of debris, concrete powder, iron powder, etc and rainwater from entering into the ATS.
  These materials inside the ATS could cause a fire or malfunction.
- For 4 pole ATS, connect the neutral wire of 3-phase, 4-wire cable to N-phase (on the right side).

Operation Precautions

Danger

- Do not touch the live terminal parts.
  Otherwise, electric shock may occur.
- Do not leave the ATS in the drawout position.
  The ATS is heavy. Dropping the ATS could cause serious injury.

Caution

- The cable size of control power should be selected considering operation current.
  Otherwise, a fire could occur.
- ATS should be operated by manual handle only under no-load condition. Operation by manual handle is strictly prohibited except emergency case.
  Otherwise, damage to the ATS may occur.

Maintenance and Inspection Precautions

Caution

- Maintenance, inspection or components replacement should be performed by qualified persons.
- Prior to commencing any work, open the upstream circuit breaker to isolate all power/voltage sources.
  Otherwise, electric shock may occur.
- Prior to commencing internal inspection for ATS, Be sure that main circuit and control source of ATS should be off.
  Otherwise, fingers or tools could be pinched in the internal mechanism, causing injury
- Retighten the terminal screws periodically according to the specified torque.
  Otherwise, a fire may occur.
- Retighten the arcing contact mounting screws periodically according to the specified torque.
  Otherwise, a fire or malfunction may occur.
- Be sure to reinstall the arc chute if removed.
  Failure to do so or incorrect installation may result in a fire or cause of burns.
- Do not touch the live parts or structural parts close to live parts immediately after stop of power supply to ATS.
  Otherwise, remaining heat may cause burns.
- Do not approach near the arc gas vent of arc chute while ATS is under transfer.
  Otherwise, burns may result from high temperature of arc gas.