

## Switch Disconnecter, Fuse-switch Disconnecter, Changeover Switch

### Switch Disconnecter



**HH15-QA**  
Switch Disconnecter

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**HH15-QP**  
Switch Disconnecter

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**NH40**  
Switch Disconnecter

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### Fuse-switch Disconnecter



**HH15/QSA**  
Fuse-switch  
Disconnecter

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**NHR17**  
Fuse-switch  
Disconnecter

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**NHR40**  
Fuse-switch  
Disconnecter

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**NHRT40**  
Vertical  
Fuse-switch  
Disconnecter

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### Changeover Switch



**NZ7**  
Automatic  
Transfer Switching  
Equipment

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**HH15/QAS/  
QPS/QSS**  
Changeover Switch

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**NH40S**  
Changeover Switch

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**NH40SZ**  
Automatic  
Changeover Switch

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### Switch Disconnecter

Thermal current	16	32	40	63	80	100	125	160	200	250
HH15/QA							HH15-125/QA	HH15-160/QA	HH15-200/QA	
HH15/QP										HH15-250/QP
NH40	NH40-16	NH40-32	NH40-40	NH40-63	NH40-80	NH40-100	NH40-125	NH40-160	NH40-200	NH40-250

HH15-/QA



HH15-/QP

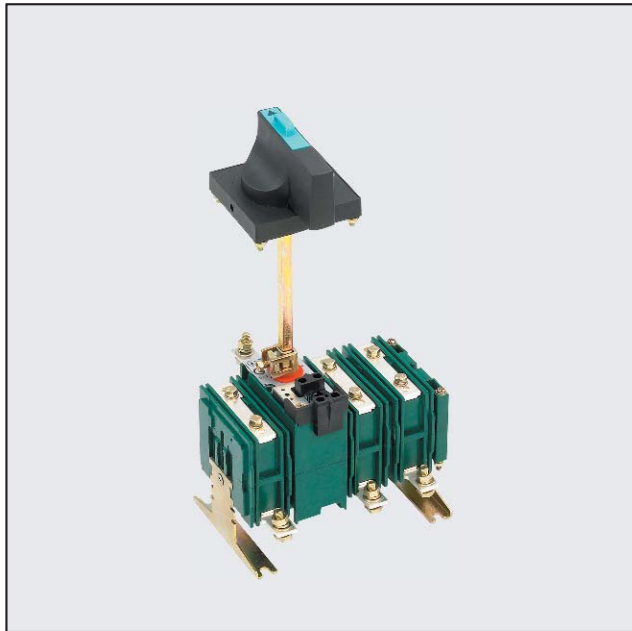


NH40



315	400	630	1000	1250	1600	2000	2500	3150
	HH15-400/ QA	HH15-630/ QA	HH15-1000/ QA	HH15-1250/ QA	HH15-1600/ QA			
		HH15-630/ QP	HH15-1000/ QP	HH15-1250/ QP	HH15-1600/ QP		HH15-2500/ QP	HH15-3150/ QP
NH40-315	NH40-400	NH40-630	NH40-1000	NH40-1250	NH40-1600	NH40-2000	NH40-2500	NH40-3150





HH15-QA Switch Disconnector

1. General

1.1 Application

Mainly used in the distributing and motor circuit which has high short-circuit current, and acted as main switch or master switch infrequently operated by hand, it is particularly suitable in the relative high class with drawable low voltage complete equipment. They provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

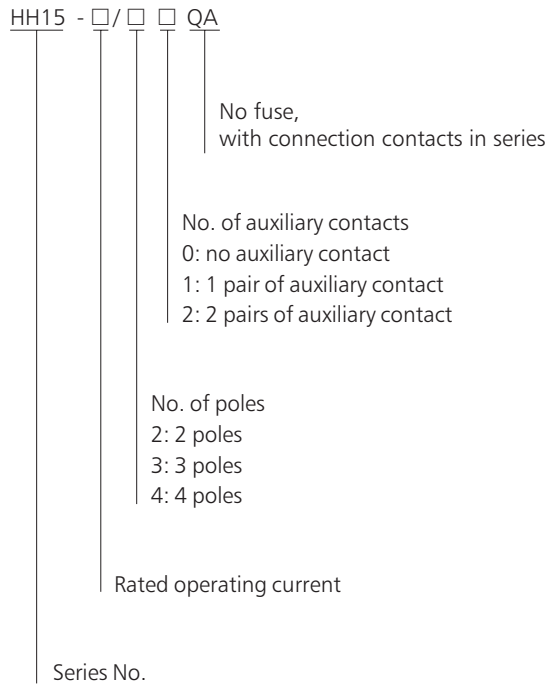
1.2 Standard: IEC/EN 60947-3.

1.3 General characteristic

Full-enclosed structure  
Unique rolling insert type contact system.

2. Switch disconnector, with connection contact in series

2.1 Ordering information



Note: This switch may only be operated outside the cabinet.

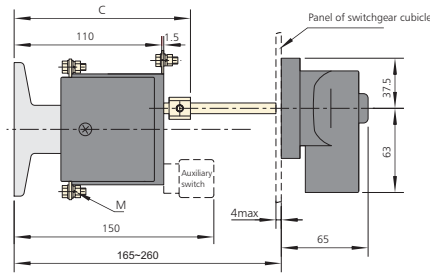
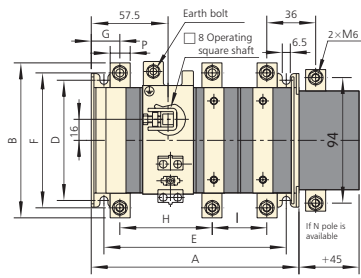
2.2 Property

Specification	125	160	200	400	630	1000	1250	1600
No. of poles	3, 4, 3+N						3, 4	
Rated insulating voltage(V)	Ue=400V, Ui=690V. Ue=690V, Ui=1000V.						800	
Rated operating voltage Ue(V)	AC400						AC415	
	AC690						AC690	
Conventional thermal current(A)	125	160	200	400	630	1000	1250	1600
Rated operating current(A)	400V:AC-22B;415V:AC22B							
	125	160	200	400	630	1000	1250	1600
	690V: AC-21B							
	125	160	160	315	425	630	800	1000
Rated Short-circuit making capacity (Peak)(kA)	20	20	20	50	50	50	65	85
Rated Short-time withstand current(kA)	8	8	8	12.8	22.5	32	50	50
Mechanical life	15000	15000	15000	12000	12000	3000	1000	1000
Electric Life	1000	1000	1000	300	300	150	100	100
Operating torque (N • m)	7.5	7.5	7.5	16	16	30	30	30
Conventional thermal current of auxiliary contact Ith 400, AC-15(A)	5	5					-	

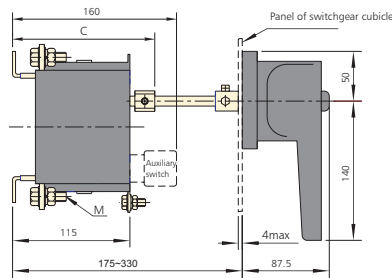
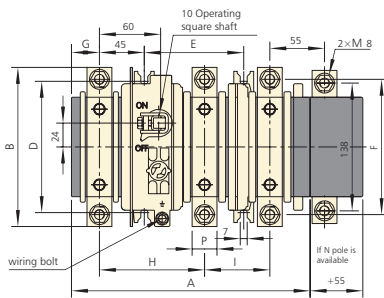
# Switch Disconnecter HH15-QA

## 2.3 Dimension (mm)

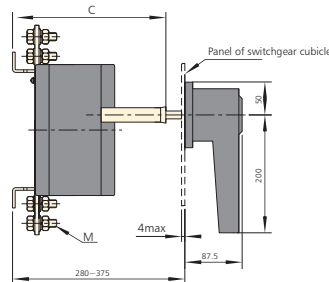
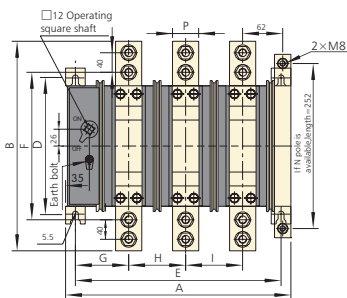
HH15-125/QA, 160/QA, 200/QA



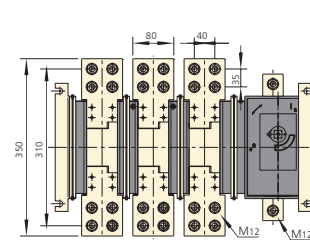
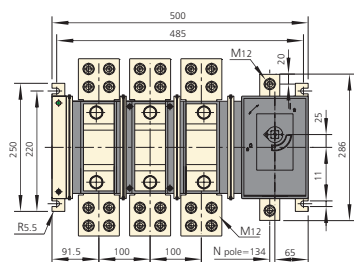
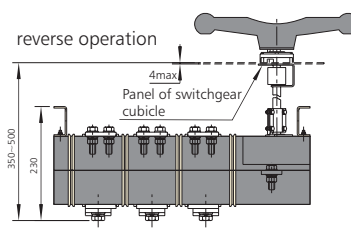
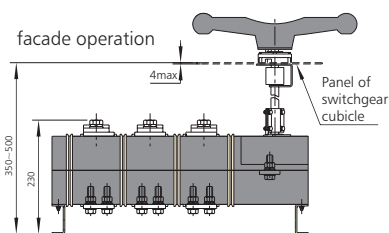
HH15-400/QA, 630/QA



HH15-1000/QA

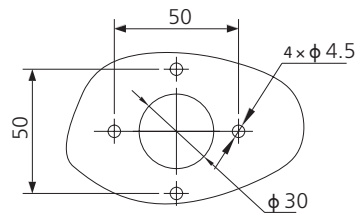
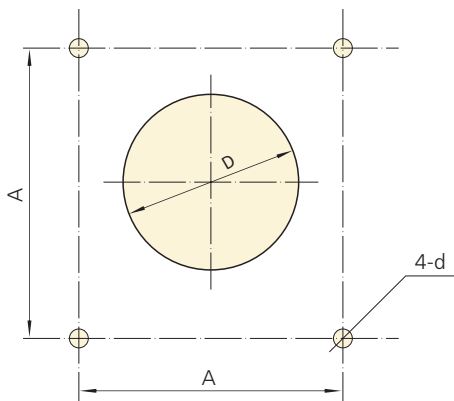


HH15-1250, 1600/QA



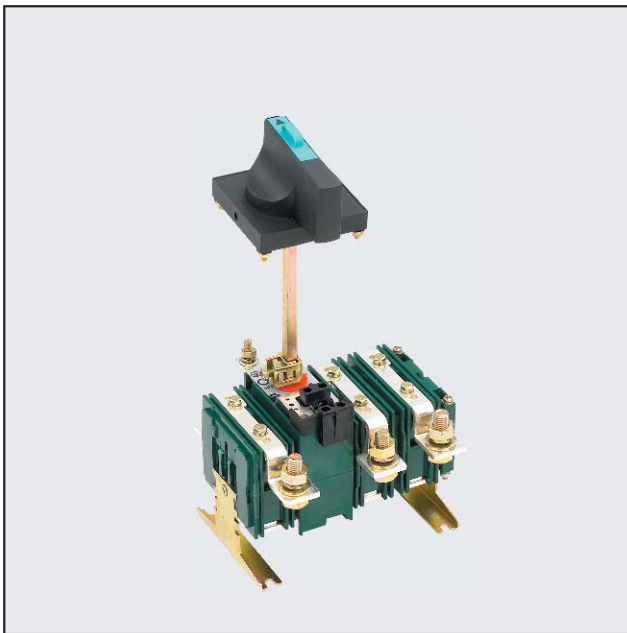
Specification	A	B	C	D	E	F	G	H	I	M	P
HH15-125/QA	155	116	133	90	135	101	21.5	69	41	6	15
HH15-160/QA	155	127	133	90	135	107	22.5	65	45	10	25
HH15-200/QA	155	127	133	90	135	107	22.5	65	45	10	25
HH15-400/QA	240	160	142	130	100	135	27	106	65	10	25
HH15-630/QA	240	200	142	130	100	135	27	106	65	12	40
HH15-1000/QA	345	350	188	208	315	230	82	87	87	12	50

2.4 Boring dimension (mm)



HH15-1250, 1600/QA  
Openingsizeofthehandlemountingpanel

Specification	A	D	d
HH15-125~200/QA HH15-250/QP	65±0.2	$\phi 42^{+4}_0$	$\phi 4.5^{+0.5}_0$
HH15-400~1000/QA	88±0.2	$\phi 63^{+2}_0$	$\phi 5.5^{+0.5}_0$



## HH15-QP Switch Disconnector



### 3. Switch disconnector, with connection contact in parallel

#### 3.1 Ordering information

HH15 - □ / □ □ QP

No fuse,  
with connection contacts in parallel

No. of auxiliary contacts  
0: no auxiliary contact  
1: 1 pair of auxiliary contact  
2: 2 pairs of auxiliary contact

No. of poles  
2: 2 poles  
3: 3 poles  
4: 4 poles

Rated operating current

Series No.

**Note: This switch may only be operated outside the cabinet.**

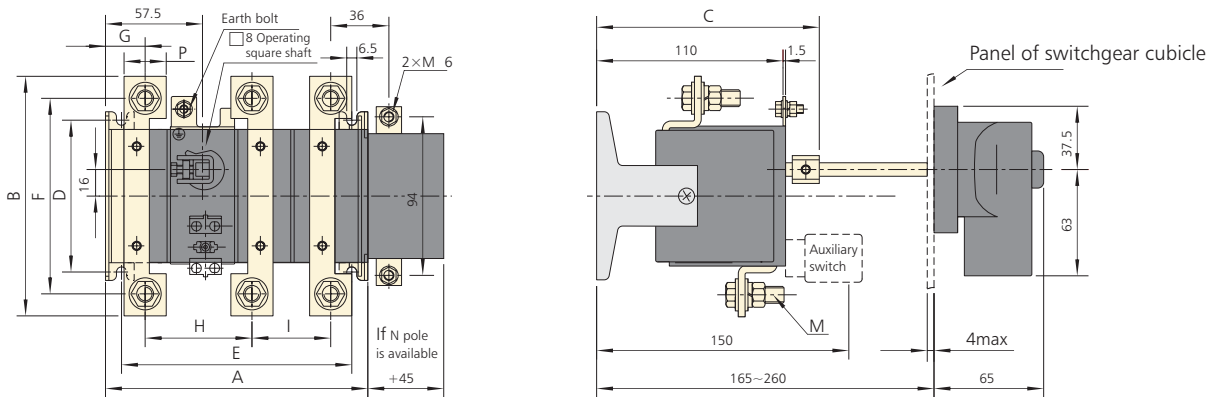
#### 3.2 Property

Specification	250	400	630	1000	1250	1600	2500	3150	
No. of poles	3, 4, 3+N				3, 3+N				
Rated insulating voltage(V)	U <sub>e</sub> =400V,U <sub>i</sub> =690V.U <sub>e</sub> =690V,U <sub>i</sub> =1000V.								
Rated operating voltage U <sub>e</sub> (V)	AC400								
	AC690								
Conventional thermal current(A)	250	400	630	1000	1250	1600	2500	3150	
Rated operating current(A)	400V:AC-22B	250	400	630	1000	1250	1600	2500	3150
	690V:AC-21B	250	400	630	1000	1250	1470	2500	2500
	690V:AC-22B	250	400	500	630	800	800	-	-
Rated Short-circuit making capacity (Peak)(kA)	39	50	60	60	85	85	130	130	
Rated Short-time withstand current(kA)	8	12.8	25	32	50	50	80	80	
Mechanical life	15000	12000	12000	12000	1000	1000	500	300	
Electric Life	1000	1000	300	150	100	100	100	100	
Operating torque (N · m)	16	30	30	40	45	60	75	90	
Conventional thermal current of auxiliary contact I <sub>th</sub> 400, AC-15(A)	5								

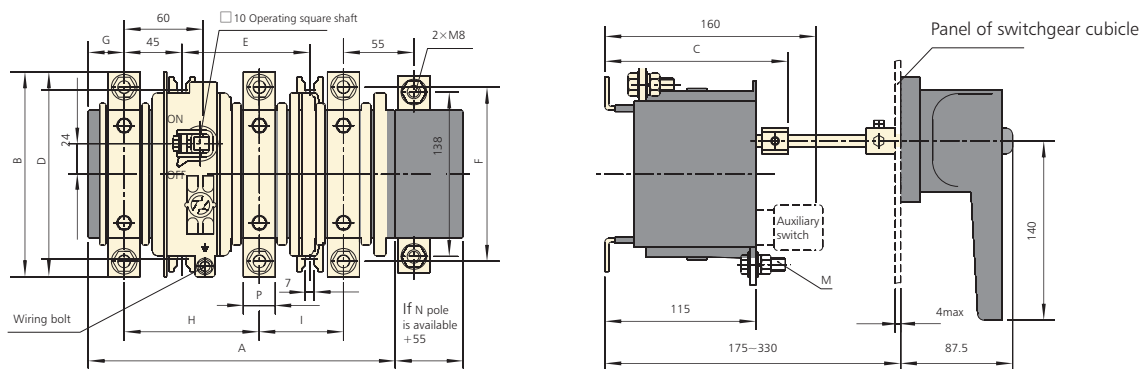


3.3 Dimension (mm)

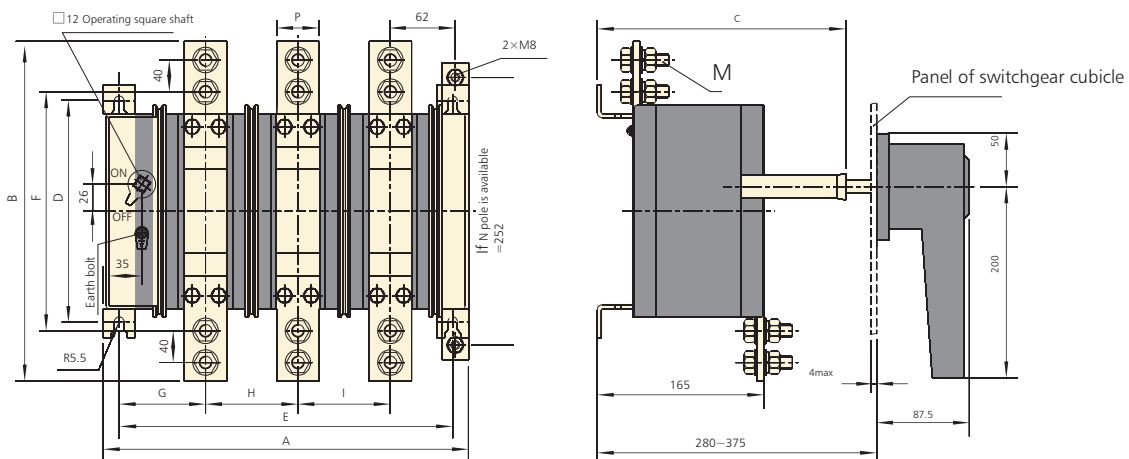
HH15-250/QP



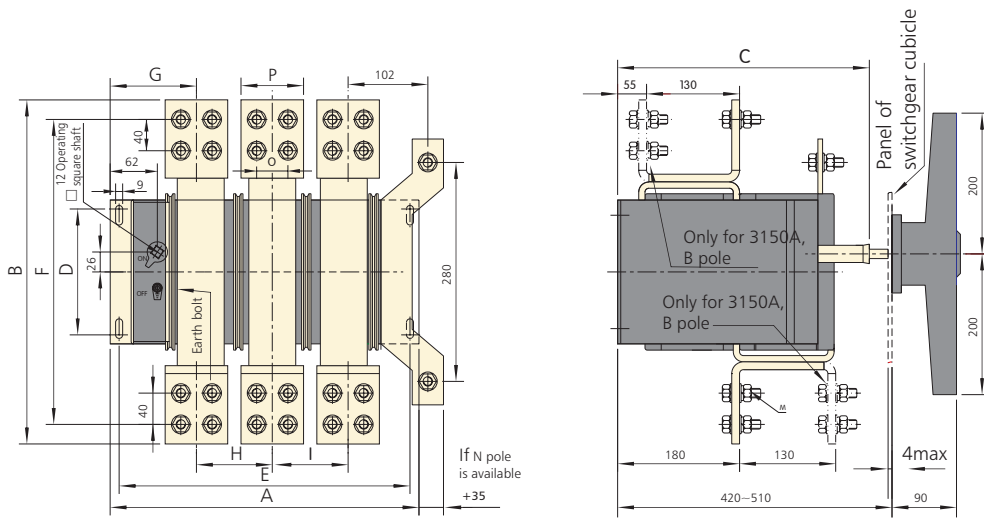
HH15P-400~1000/QP



HH15P-1250/QP, 1600/QP

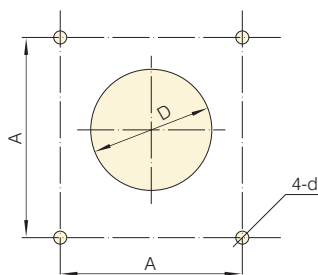






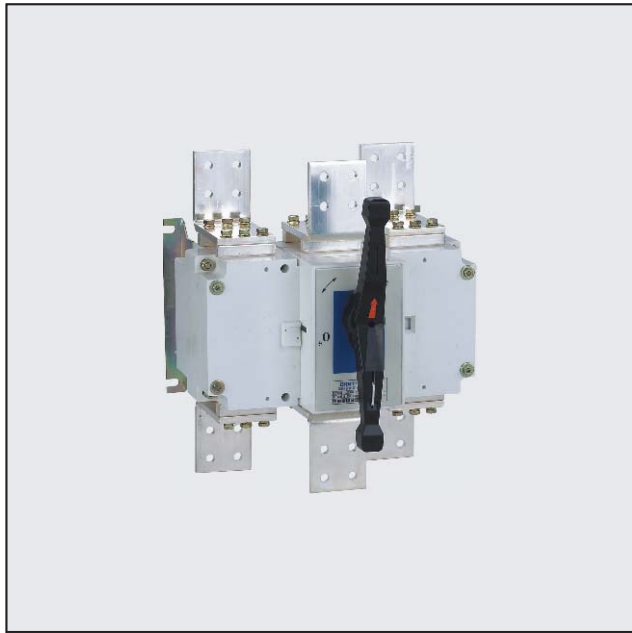
Specification	A	B	C	D	E	F	G	H	I	M	O	P
HH15-250/QP	155	143	133	90	135	118	22.5	65	45	10	-	25
HH15-400/QP	240	170	142	130	100	140	27	106	65	10	-	25
HH15-630/QP	240	170	142	130	100	140	27	106	65	10	-	25
HH15-1000/QP	240	218	142	130	100	178	27	106	80	12	-	40
HH15-1250/QP	345	350	188	208	315	230	82	87	87	12	-	40
HH15-1600/QP	345	350	188	208	315	230	82	87	87	12	-	50
HH15-2500/QP	395	440	342	152	372	390	115	97	97	12	40	80
HH15-3150/QP	395	470	342	152	372	420	115	97	97	12	50	100

3.4 Boring dimension (mm)



Specification	A	D	d
HH15-250/QP	65±0.2	$\phi 42^{+4}_0$	$\phi 4.5^{+0.5}_0$
HH15-630~1000/QP HH15P-1250~3150/QP	88±0.2	$\phi 63^{+2}_0$	$\phi 5.5^{+0.5}_0$





## NH40 Switch Disconnector

### 1. General

#### 1.1 Application

NH40 series Switch-disconnector is applicable for AC 50Hz, rated voltage AC 690V and below, DC440V and below, rated current up to 3150A. It can be applied for manually infrequent making & breaking and disconnecting of the circuit. Products with Ith under 1000A can be used as load break switch. They provide safety isolation for any Low voltage circuit.

1.2 Standard: IEC/EN60947-3.



## 2. Switch-disconnector

### 2. Ordering information

NH40 - □ / □ □ □ □

With "F": terminal protection type (only for 125~250A)  
Without "F": without terminal protection

With "W": the handle is operated outside the cabinet  
Without "W": the handle is operated inside the cabinet

With "C": front lateral operation  
Without "C": front central operation

3 represents three poles: 31 represents three poles with auxiliary, one open and one closed  
32 represents three poles with auxiliary, two open and two closed  
4 represents four poles: 41 represents four poles with auxiliary, one open and one closed  
42 represents four poles with auxiliary, two open and two closed

Thermal current Ith (A)

Series No.

### 2.2 Property



Thermal current Ith (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	
Associated fuse rating (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	
Rated insulation voltage(V) Ui	800													
Rated current (A)	400V AC21B	16	32	40	63	80	100	125	160	200	250	315	400	630
	400V AC22B	-	-	-	-	-	-	125	125	200	250	315	400	630
	400V AC23A	-	-	-	-	-	-	125	160	200	250	315	400	630
	690V AC21B	16	32	40	63	80	80	125	160	200	200	315	400	500
	690V AC22B	-	-	-	-	-	-	100	100	160	160	200	250	315
690V AC23A	-	-	-	-	-	-	50	63	70	80	125	160	200	
Operation force (N)	30~50						40~60			65~100				

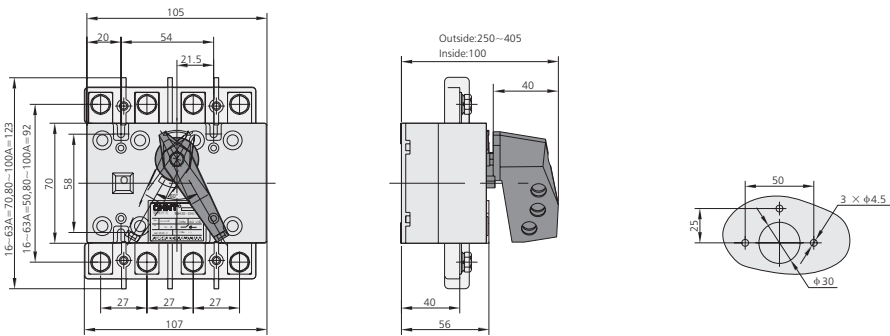


Thermal current I <sub>th</sub> (A)	1000	1250	1600	2000	2500	3150	
Associated fuse rating (A)	1000	1250	2×800	2×1000	2×1250		
Rated insulation voltage(V) U <sub>i</sub>	800						
Rated current (A)	400V AC21B	1000	1250	1600	2000	2500	3150
	400V AC22B	1000	1250	1600	2000	2500	3150
	690V AC21B	800	800	1000	1600	1600	2000
	690V AC22B	800	800	800	1000	1000	1250
Operation force (N)	200~300						

2.3 Handle in the middle position

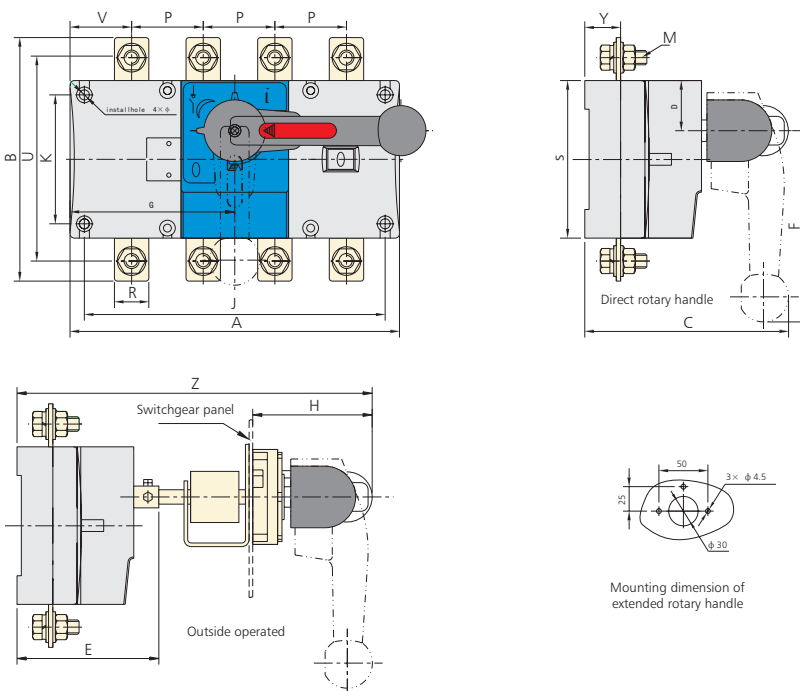
2.3.1 Overall and mounting dimensions(63A~100A)

NH40-16A~100A



Mounting dimension of externally mounted handle

2.3.2 Overall and mounting dimensions(125A~630A)



Mounting dimension of extended rotary handle

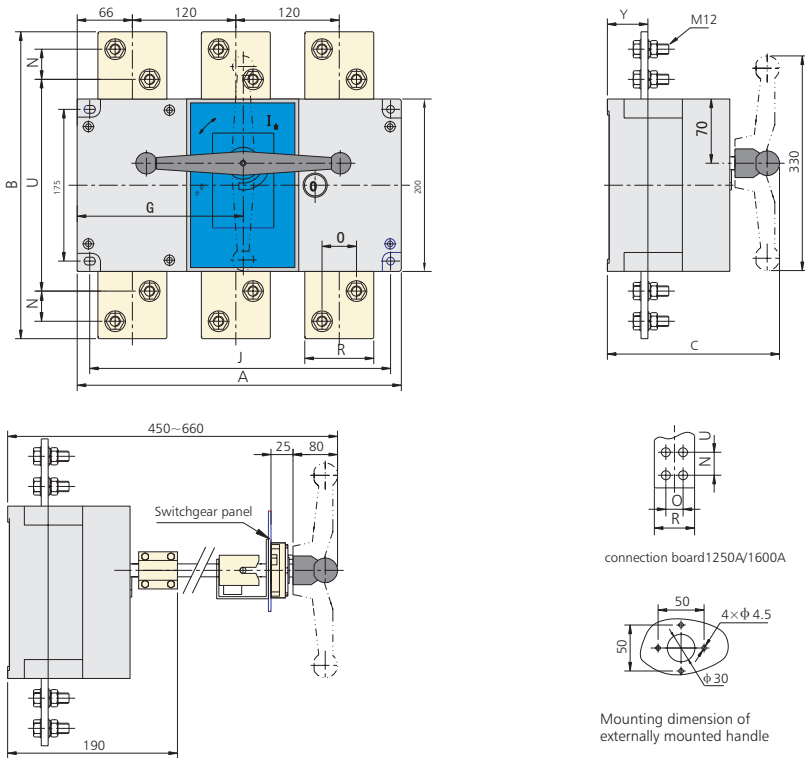


Mounting dimension of NH40 switch disconnecter

Specification	NH40-□ NH40-□□/W Overall and mounting dimensions (mm)																		
Current	A	B	C	D	E	F	Φ	J	H	K	G	P	R	S	U	M	V	Y	Z
125A/3	140	135	130	27	93	135	5.5	120	85	65	54	36	18	85	115	8	32	24	355~460
160A/3	140	135	130	27	93	135	5.5	120	85	65	54	36	20	85	115	8	33	24	355~460
125A/4	170	135	130	27	93	135	5.5	150	85	65	79	36	18	85	115	8	31	24	355~460
160A/4	170	135	130	27	93	135	5.5	150	85	65	79	36	20	85	115	8	32	24	355~460
200A/3	180	170	145	35	103	135	6.5	160	85	90	60	50	25	110	142	10	44	25	365~470
250A/3	180	170	145	35	103	135	6.5	160	85	90	60	50	25	110	142	10	44	25	365~470
200A/4	230	170	145	35	103	135	6.5	210	85	90	110	50	25	110	142	10	38	25	365~470
250A/4	230	170	145	35	103	135	6.5	210	85	90	110	50	25	110	142	10	38	25	365~470
315A/3	230	240	195	50	135	160	7	210	105	140	84	65	32	160	205	12	53	37	440~555
400A/3	230	240	195	50	135	160	7	210	105	140	84	65	35	160	205	12	50	37	440~555
630A/3	230	260	195	50	135	160	7	210	105	140	84	65	40	160	220	12	53	37	440~555
315A/4	290	240	195	50	135	160	7	270	105	140	144	65	32	160	205	12	48	37	440~555
400A/4	290	240	195	50	135	160	7	270	105	140	144	65	35	160	205	12	45	37	440~555
630A/4	290	260	195	50	135	160	7	270	105	140	144	65	40	160	220	12	48	37	440~555

2.3.3 Overall and mounting dimensions(1000A-1600A)

1000A~1600A with direct rotary handle

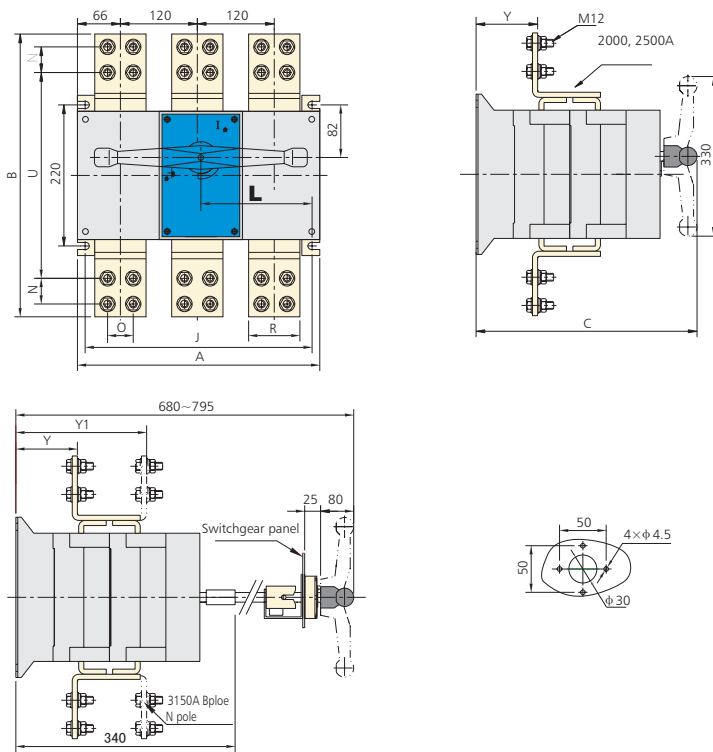


Mounting dimension of NH40 switch disconnector

Specification	NH40-□□ NH40-□□/W Overall and mounting dimensions (mm)									
Current	A	B	C	G	J	N	R	O	U	Y
1000A/3	378	316	240	192.5	353	20	60	35	240	48
1250A/3	378	356	240	192.5	353	35	70	40	246	48
1600A/3	378	356	240	192.5	353	35	80	40	246	48
1000A/4	498	316	240	252.5	473	20	60	35	240	48
1250A/4	498	356	240	252.5	473	35	70	40	246	48
1600A/4	498	356	240	252.5	473	35	80	40	246	48

2.3.4 Overall and mounting dimensions(2000A-3150A)

Operation outside the switchgear Remark:  
C is the longest one among outside operation dimensions.



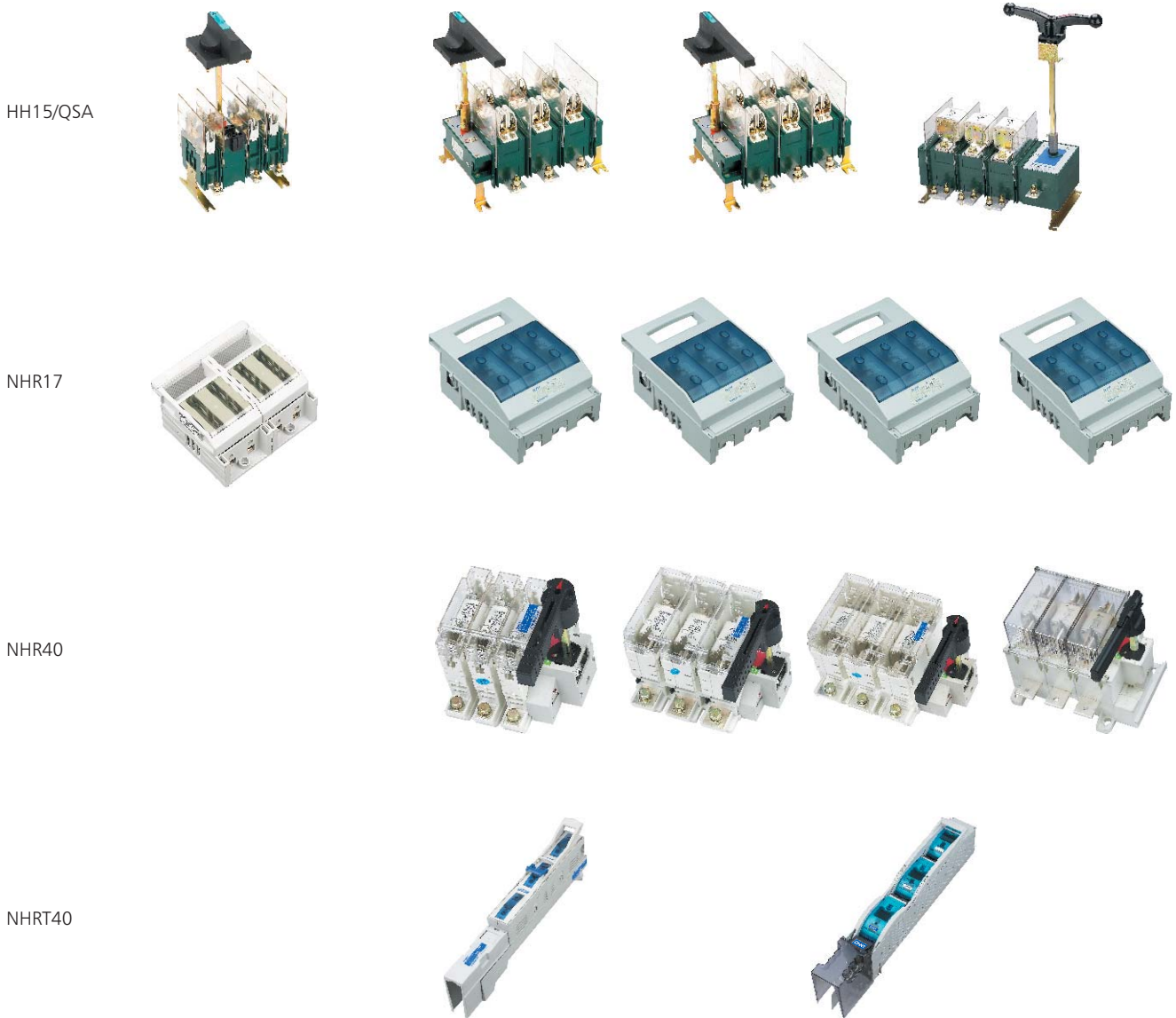
Mounting dimension of NH40 inside operation and NH40 switch disconnector

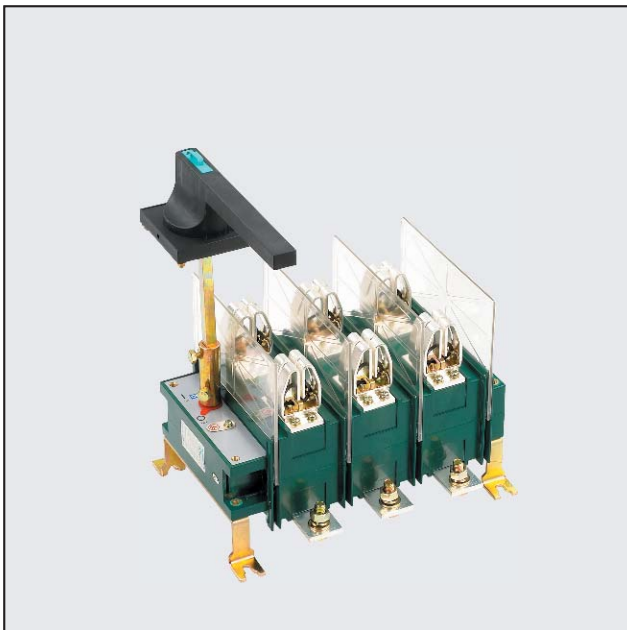
Specification	NH40-□□ NH40-□□/W Overall and mounting dimensions (mm)									
Current	A	B	C	J	L	N	O	R	Y	Y1
2000A/3	378	450	374	353	173.5	40	40	80	80	-
2500A/3	378	450	374	353	173.5	40	40	80	80	-
3150A/3	378	510	374	353	173.5	50	50	120	80	230
2000A/4	498	450	374	473	235	40	40	80	80	-
2500A/4	498	450	374	473	235	40	40	80	80	-
3150A/4	498	510	374	473	235	50	50	120	80	230



**Fuse-Switch Disconnecter**

Thermal current	63	125	160	250	400	630	800	1000	1250
HH15/QSA	HH15-63/ QSA	HH15-125/ QSA	HH15-160/ QSA	HH15-250/ QSA	HH15-400/ QSA	HH15-630/ QSA	HH15-800/ QSA	HH15-1000/ QSA	HH15-12500/ QSA
NHR17			NHR17-160	NHR17-250	NHR17-400	NHR17-630			
NHR40			NHR40-160	NHR40-250	NHR40-400	NHR40-630			
NHRT40			NHRT40-160	NHRT40-250	NHRT40-400	NHRT40-630			





## HH15/QSA Fuse-switch Disconnecter

### 1. General

#### 1.1 Application

Mainly used in the distributing and motor circuit which has high short-circuit current, and acted as main switch or master switch infrequently operated by hand, it is particularly suitable in the relative high class with drawable low voltage complete equipment. They provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

#### 1.2 Standard: IEC/EN 60947-3.

#### 1.3 General characteristic

Full-enclosed structure  
Unique rolling insert type contact system.



## 2. Switch disconnecter (with fuse)

### 2.1 Ordering information

HH15 - □ / □ □ □ □

QSA: Switch-disconnector fuse  
(to be matched with fuse)

No. of auxiliary contacts

0: no auxiliary contact

1: 1 pair of auxiliary contact

2: 2 pairs of auxiliary contact

No. of poles

2: 2 poles

3: 3 poles

4: 4 poles

Rated operating current

Series No.

Note: User should order RT(NT) series additional to assemble a switch-disconnector fuse

**Note: This switch should be used with RT36 (NT,RT16) or RT20 series fuses provided by the user. This switch may only be operated outside the cabinet.**

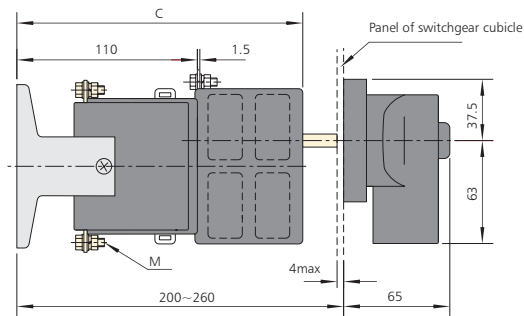
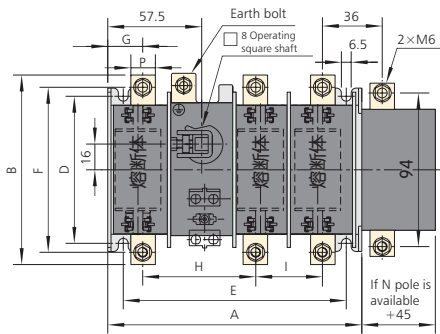
### 2.2 Property

Specification	HH15-63	HH15-125	HH15-160	HH15-250	HH15-400	HH15-630	HH15-800	HH15-1000	HH15-1250		
No. of poles	3, 4, 3+N						3, 4				
Rated insulating voltage Ui(V)	Ue=400V,Ui=690V.Ue=690V,Ui=1000V.						800V				
Rated operating voltage Ue(V)	AC400						AC415				
	AC690						AC690				
Conventional thermal current(A)	63	125	160	250	400	630	800	1000	1250		
Rated operating current(A)	400V:AC-23B/415V:AC-22B		63	125	160	250	400	630	800	1000	1250
	690V:AC-23B/690V:AC22B		63	100	160	250	315	425	500	500	500
Rated Limiting Short-circuit current 400V/H(kA)	100	100	100	100	100	100	100	100	100		
Rated Limiting Short-circuit current when 690V(kA)	50	50	50	50	50	50	50	50	50		
Mechanical life	15000	15000	12000	12000	12000	3000	500	500	500		
Electric Life	1000	1000	300	300	300	200	100	100	100		
Rated current of fuse 400V/690V(A)	63/63	125/100	160/160	250/250	400/315	630/425	800/500	1000/630	1250/800		

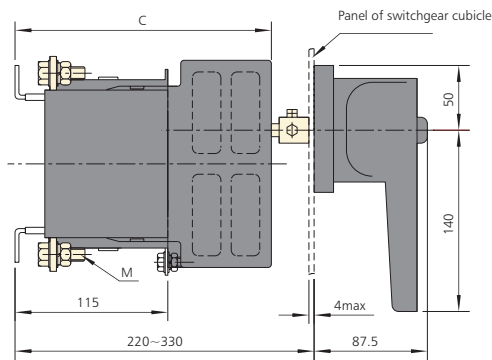
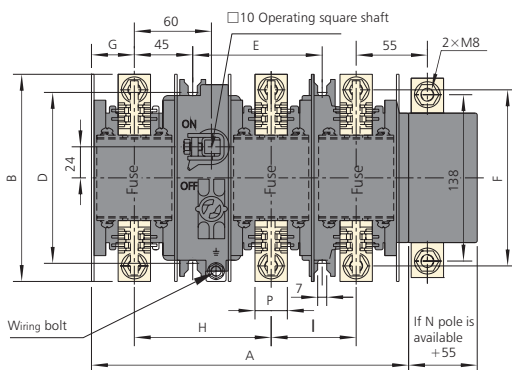
Specification		HH15-63	HH15-125	HH15-160	HH15-250	HH15-400	HH15-630	HH15-800, 1000, 1250
Model of fuse	400V/415V	RT16-00	RT16-00	RT16-00	RT16-1	RT16-2	RT16-3	HDLRS3
		RT20	RT20	RT20	RT20	RT20	RT20	
		NT00	NT00	NT00	NT1	NT2	NT3	
	690V	RT16-00	RT16-00	RT16-00	RT16-1	RT16-2	RT16-3	HDLRS3
Operating torque (N • m)		7.5	7.5	16	16	16	30	40
Conventional thermal current of auxiliary contact Ith 400, AC-15(A)		5	5	5	5	5	5	5

2.3 Dimension (mm)

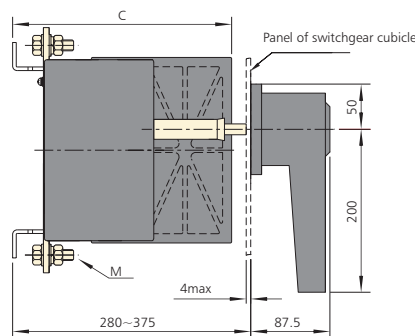
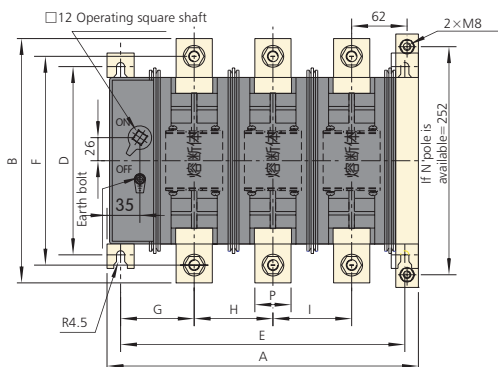
HH15-63, 125/QSA



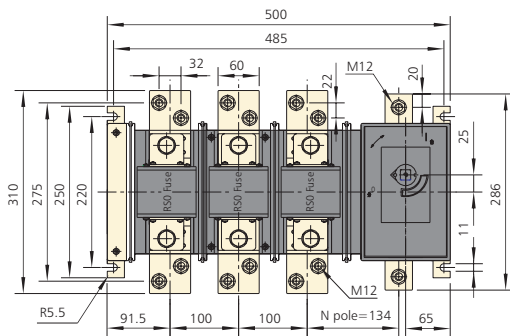
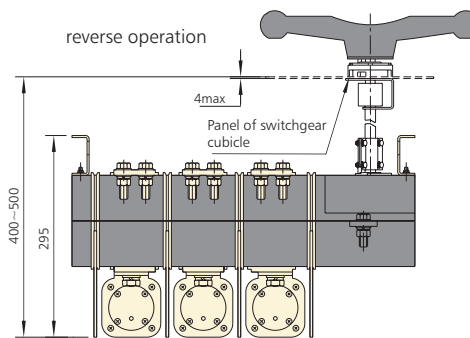
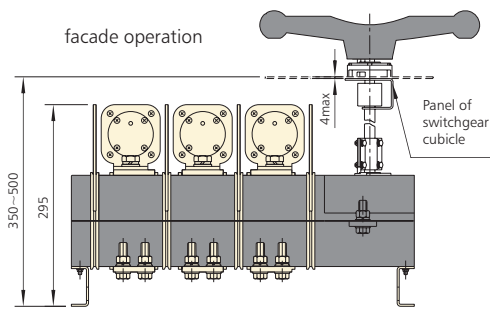
HH15-160, 250, 400/QSA



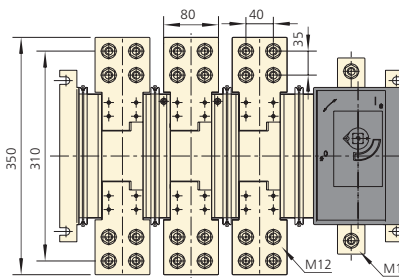
HH15-630/QSA







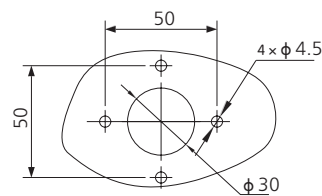
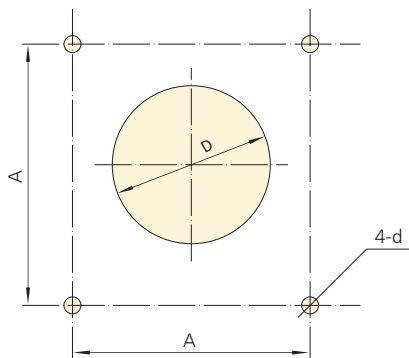
800~1000A



1250A

Specification	A	B	C	D	E	F	G	L1	L2
HH15-63	155±1.25	100±1.10	175±1.25	90±0.75	135±1.25	88±1.10	M5	165~225	165~385
HH15-125	155±1.25	116±1.10	175±1.25	90±0.75	135±1.25	101±1.10	M6	165~225	160~385
HH15-160	240±1.45	146±1.25	178±2.0	130±1.25	100±1.1	126±1.25	M8	220~270	220~390
HH15-250	240±1.45	160±1.25	198±2.3	130±1.25	100±1.1	135±2.0	M10	220~270	220~390
HH15-400	240±1.45	160±1.25	198±2.3	130±1.25	100±1.1	135±2.0	M10	220~270	220~390
HH15-630	345±1.8	270±2.6	242±2.6	208±1.6	315±1.6	230±2.3	M12	250~265	250~529

2.4 Boring dimension



HH15-800~1250/QSA

Opening size of the handle mounting panel

Specification	A	D	d
HH15-63, 125/QSA	65±0.2	$\phi 42^{+4}_0$	$\phi 4.5^{+0.5}_0$
HH15-160~630/QSA	88±0.2	$\phi 63^{+2}_0$	$\phi 5.5^{+0.5}_0$





**NHR17 Fuse-Switch Disconnecter**

**1. General**

- 1.1 NHR17 series fuse-switch disconnecter is a new product developed by our company. Rated insulation voltage up to 800V. rated operational voltage up to 690V. rated operational current up to 630A, rated frequency 50Hz, in the distribution circuit and motor circuit which has high short-circuit current as the power switch, isolating switch, emergency switch as well as circuit protection, but normally it is not used to make and break a single motor directly.
- 1.2 Standard: IEC/EN 60947-3.

**2. Type designation**

NHR17 - □ / □ □

1: With micro-gap switch  
0: Without micro-gap switch

No. of poles

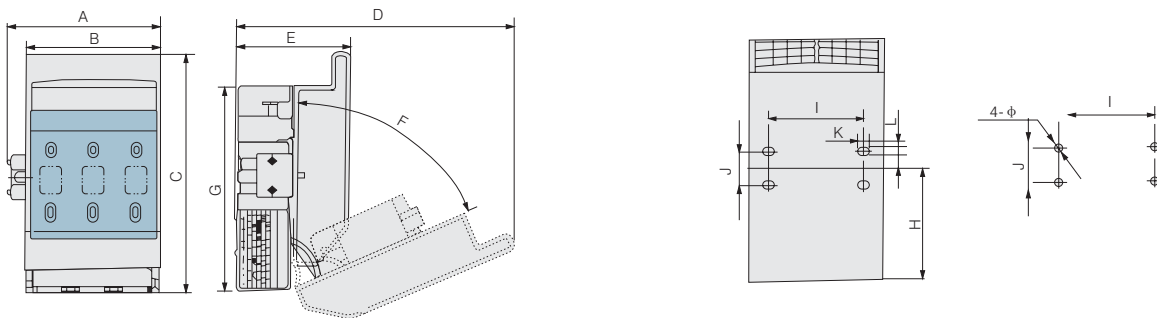
Conventional thermal current

Series No.

### 3. Primary parameters

Conventional thermal current(A)		63(32)	160	250	400	630
Rated insulation voltage V		800				
Rated current A	690V AC21	32、63	160	250	400	630
	400V AC22	32、63	160	250	400	630
	400V AC23	-	160	250	400	630
	690V AC21	-	160	250	400	630
	690V AC22	-	100	200	315	425
	690V AC23	-	100	160	315	315
	Operating force N		≤120	≤250	≤350	≤350
Associated fuse	Model	RT19-125	NT00、RT16-00	NT1、RT16-1	NT2、RT16-2	NT3、RT16-3
	Rated current of matched fuse in 400V (breaking capacity)	20, 25, 32, 35,40, 50, 63 (≥20kA)	20, 25, 32, 35, 40, 50, 63, 80, 100, 125,160 (≥100kA)	80, 100, 125, 160,200, 224, 250 (≥100kA)	125,160, 200, 224, 250, 300, 315, 355,400 (≥100kA)	315, 355, 400, 425, 500, 630 (≥100kA)
	Rated current of matched fuse in 690V (breaking capacity)	-	20, 25, 32, 35, 40, 50, 63, 80,100 (≥50kA)	80, 100, 125, 160, 200 (≥50kA)	125, 160, 200, 224, 250, 300, 315(≥50kA)	315, 355, 400, 425 (≥50kA)

### 4. Overall and mounting dimensions (mm)



Specification	A	B	C	D	E	F	G	H	I	J	K	L	φ
63(32)/2	-	75	135	165	77	70°	120	72	-	104	-	-	6
63(32)/3	-	105	135	165	77	70°	120	72	31	104	-	-	6
63(32)/3	-	150	135	165	77	70°	120	72	75	104	-	-	6
160/3	123	106	186	215	90	66°	160	86	74	25	9.5	6.5	-
250/3	196	184	266	240	118	70°	230	125	114	50	25	9	-
400/3	260	250	330	390	145	72°	295	155	150	50	-	-	9
630/3	260	250	330	390	145	72°	295	155	150	50	-	-	9





## NHR40 Fuse-switch Disconnecter

### 1. General

- 1.1 NHR40 series switch-disconnector with fuse is applicable in the circuit of AC50Hz, rated voltage AC690V and below, DC440V and below, rated current up to 630A. NHR40 series are infrequently manually operated multipolar fuse combination switches, They break or switch off on load and provide safely isolation and protection against overcurrent for any voltage electrical circuit.
- 1.2 Standard: IEC/EN 60947-3.

### 2. Type designation

N HR 40 - □ / □ □ □

W: Extended rotary handle  
Blank: Direct rotary handle

C: Lateral operation  
Blank: Front operation

Three-pole  
Four-pole

Conventional thermal current

Series No.

**Note:** This switch should be used with RT36 (NT,RT16) or RT20 series fuses provided by the user.

### 3. Primary parameters

Conventional thermal current (A)		63	160	250	400	630
Rated current voltage (A)		20、32、63	100、125、160	200、250	315、400	630
Rated insulation voltage (V)		690V				800V
Associated current (A)	400V ac22	20、32、63	100、125、160	200、250	315、400	630
	400V AC23	20、32、63	100、125、160	200、250	315、400	630
	690V AC22	20、32、63	100、125、160	200、250	315	425
	690V AC23	20、32、63	100、125、160	200、250	315	425
Rated current (A)	230V DC22	20、32、63	100、125、160	200、250	315、400	630
	230V DC23	20、32、63	100、125、160	200、250	315、400	630
	440V DC22	20、32、63	100、125、160	200、250	315	425
	440V DC23	20、32、63	100、125、160	200、250	315	425
Operation force (N)		60~80	65~100	80~120	100~150	230
Associated fuse	Specification	00C	00	1	2	3

Remark:

- 1) With terminal shield
- 2) Two phases are connected in series according to the phase character

### 4. Structure and features

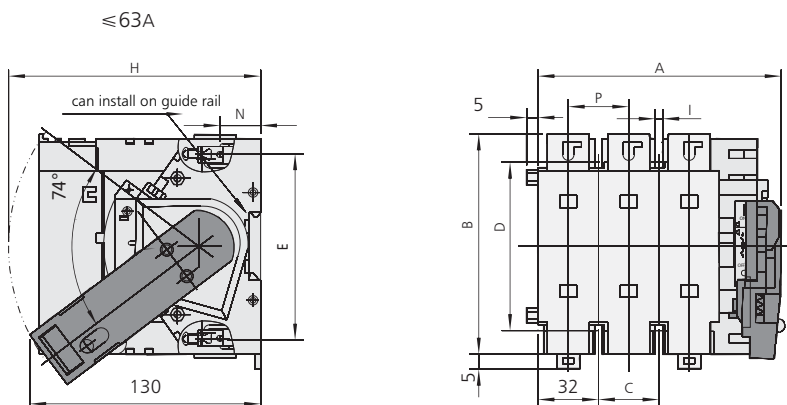
4.1 The switch adopts full-enclosed structure of reliable thermal characteristic to ensure reliable operation.

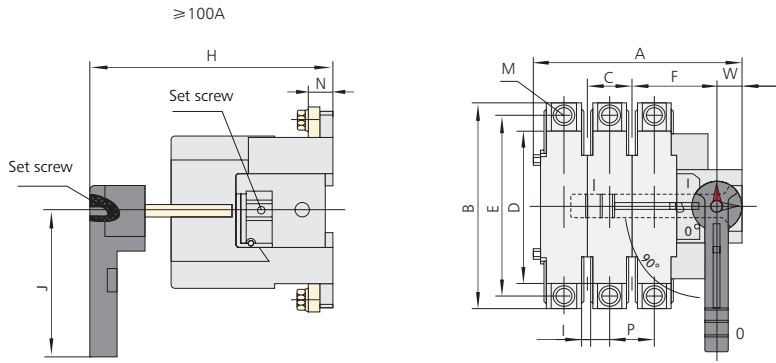
4.2 Each phase has two groups of contact system with double breaking points, these two groups of contacts are serially connected, which has improved its current breaking capability, and ensures the reliability of power supply disconnecting.

4.3 Manual rotated operation mechanism has energy storage spring, so the active contact can operate swifflly with no relation with operation speed.

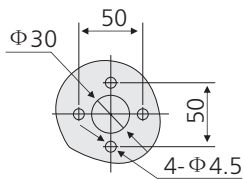
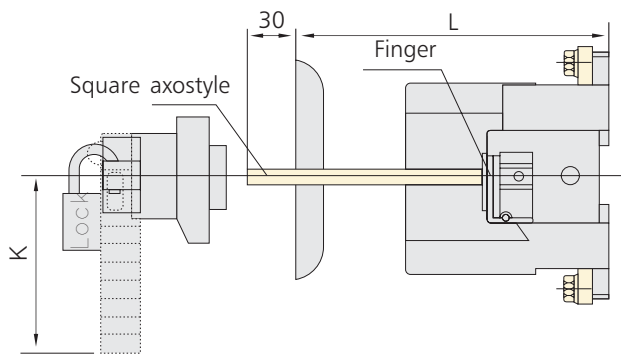
### 5. Overall and mounting dimensions (mm)

Facade operation inside the switchgear

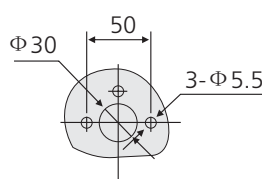




Facade operation outside the switchgear

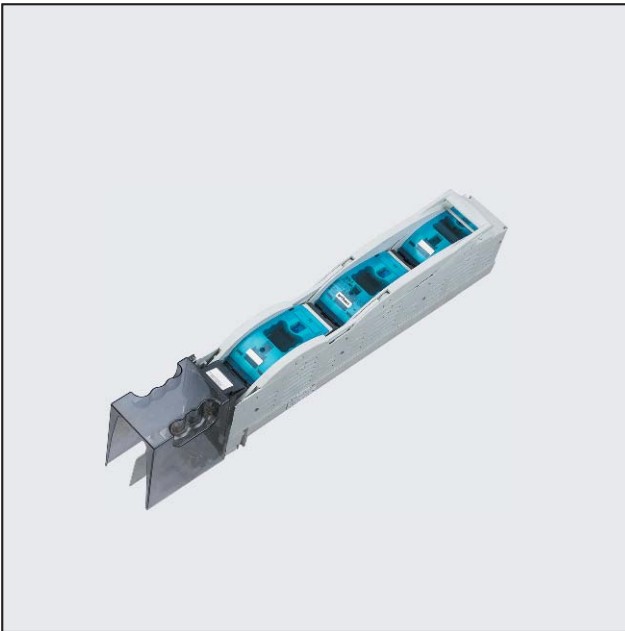


100-400A Boring dimension on the panel



630A Boring dimension on the panel

Specification	Overall and mounting dimensions														
	A	B	C	D	E	F	H	I	J	L	M	N	W	P	K
63/2	108	120	-	92	96	-	160	4.5	-	-	-	22	-	32	-
63/3	140	120	32	92	96	-	160	4.5	-	-	-	22	-	32	-
63/4	172	120	60	92	96	-	160	4.5	-	-	-	22	-	32	-
160/2	128	162	36	120	142	67.5	190	5.5	115	205~325	8	19	21	36	126
160/3	165	162	36	120	142	67.5	190	5.5	115	205~325	8	19	21	36	126
160/4	202	162	36	120	142	67.5	190	5.5	115	205~325	8	19	21	36	126
250/2	185	195	60	160	166	91.5	210	5.5	145	205~325	10	19	21	60	126
250/3	240	195	60	160	166	91.5	210	5.5	145	205~325	10	19	21	60	126
250/4	300	195	60	160	166	91.5	210	5.5	145	205~325	10	19	21	60	126
400/2	214	205	66	170	176	122	210	5.5	145	205~325	10	25	21	66	126
400/3	280	205	66	170	176	122	210	5.5	145	205~325	10	25	21	66	126
400/4	346	205	66	170	176	122	210	5.5	145	205~325	10	25	21	66	126
630/3	346	300	250	250	268	39	350	Φ9	190	330~440	12	72	37	80	190
630/4	426	300	250	250	268	39	350	Φ9	190	330~440	12	72	37	80	190



## NHRT40 Vertical Fuse-switch Disconnecter

### 1. General

#### 1.1 Application

NHRT40 series vertical fuse-switch disconnecter is applicable in the circuit of rated voltage AC690V and below, rated current AC 160A-630A, rated frequency of 50Hz.

NHRT40 series are infrequently manually operated multipolar fuse combination switches.

They break or switch off on load and provide safely isolation and protection against overcurrent for any voltage electrical circuit.

#### 1.2 Standard: IEC 60947-3.

### 2. Type designation

N HRT 40 - □ / □ □

L: Three phases breaking and making simultaneously;  
Blank: independent operation phase to phase

No. of poles

Conventional thermal current

Series No.

### 3. Structure and feature

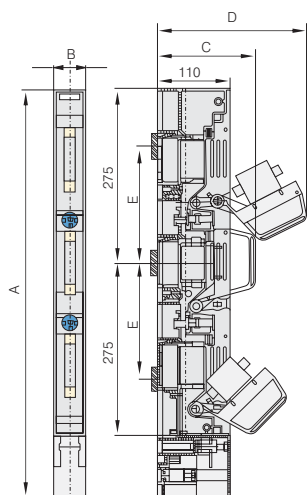
- 3.1 Structure: The switch is consisted of underpan, base, cover, handle and shield.
- 3.2 NT series fuse link is installed in the cover to act as knife of active contact.
- 3.3 The handle moves fan-shapely based on the pivot of underpan, makes the cover and fuse make and break together, it is with enough space and remarkable disconnection point which meets the requirement of disconnecter switch.
- 3.4 It is convenient to dismount the base and underpan, which is easy to mount the base to the busbar safely and reliably.
- 3.5 There is arc extinguisher on the underpan, which ensures breaking capacity of the switch.

**4. Primary parameter**

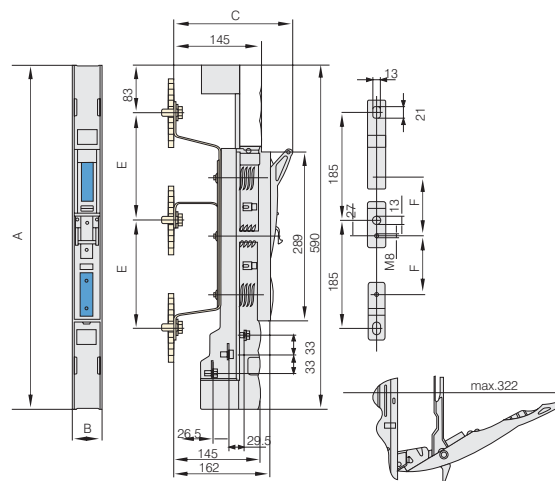
Conventional thermal current (A)		160	250	400	630
Rated insulation voltage (V)		800			
Rated current (A)	400V AC20	160	250	400	630
	400V AC21	160	250	400	630
	400V AC22	160	250	400	630
	690V AC20	160	250	400	630
	690V AC21	100	200	315	425
	690V AC22	100	160	315	315
Specification of associated fuse	Model	00	1	2	3
	400V Rated current of fuse (Breaking capacity) A	20, 25, 32, 35, 40, 50, 63, 80, 100, 125, 160 (≥100kA)	80, 100, 125, 160, 200, 224, 250 (≥100kA)	125, 160, 200, 224, 250, 315, 355, 400 (≥100kA)	315, 355, 400, 425, 500, 630 (≥100kA)
	690V Rated current of fuse (Breaking capacity) A	20, 25, 32, 35, 40, 50, 63, 80, 100 (≥50kA)	80, 100, 125, 160, 200 (≥50kA)	125, 160, 200, 224, 250, 300, 315 (≥50kA)	315, 355, 400, 425 (≥50kA)

**5. Overall and mounting dimensions (mm)**

NHRT40-160 Independent operation phase to phase

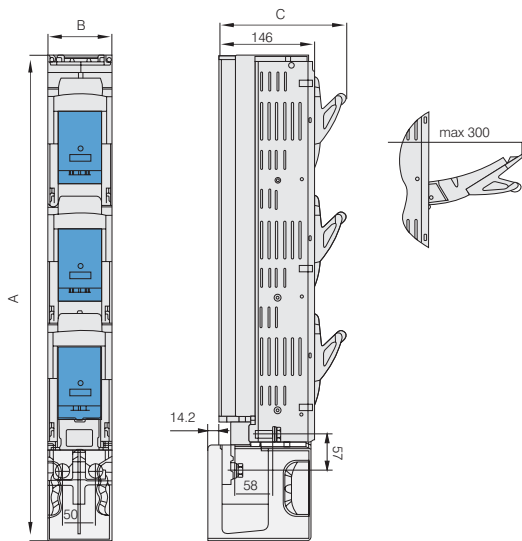


NHRT40-160 Simultaneous operation of three phases

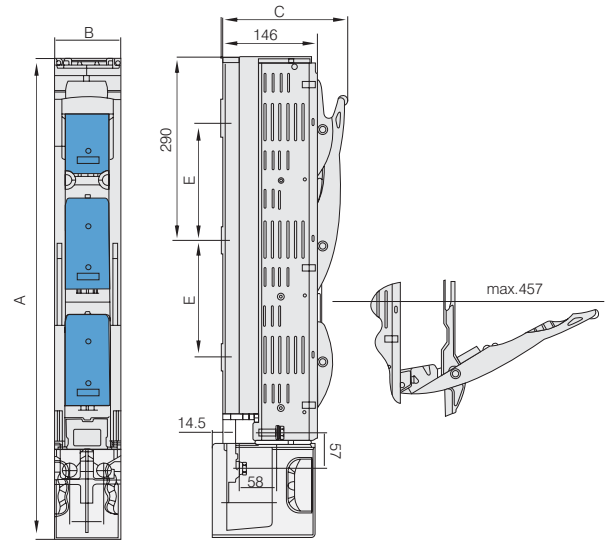




NHRT40-250, 400, 630 Independent operation phase to phase



NHRT40-250, 400, 630 Simultaneous operation of three phases



Model	A	B	C	D	E	F
NHRT40-160 Independent operation phase to phase	650	49	150	230	185	
NHRT40-160 Simultaneous operation of three phases	590	49	198	322	185	100
NHRT40-250, 400, 630 Independent operation phase to phase	764	99	195	300	185	
NHRT40-250, 400, 630 Simultaneous operation of three phases	764	99	195	457	185	



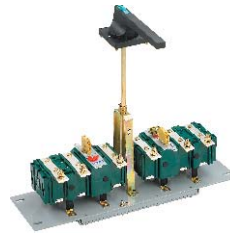
## Changeover Switch

Thermal current	16, 32, 40, 63, 80, 100	125	160	200	250	315	400
HH15/QAS		HH15-125/QAS	HH15-160/QAS				HH15-400/QAS
HH15/QPS					HH15-250/QPS		
HH15/QSS	HH15-63/QSS	HH15-125/QSS	HH15-160/QSS		HH15-250/QSS		HH15-400/QSS
NH40S		NH40-125S	NH40-160S	NH40-200S	NH40-250S	NH40-315S	NH40-400S
NH40SZ	NH40-16, 32, 40, 63, 80, 100SZ	NH40-125SZ	NH40-160SZ	NH40-200SZ	NH40-250SZ	NH40-315SZ	NH40-400SZ

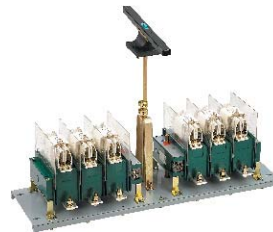
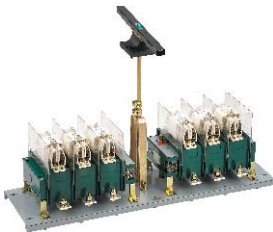
HH15/QAS



HH15/QPS



HH15/QSS



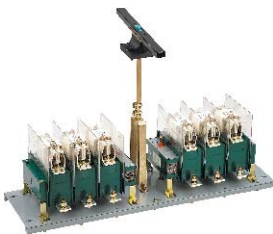
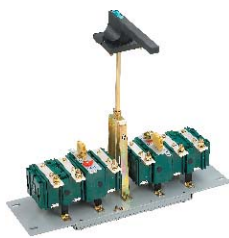
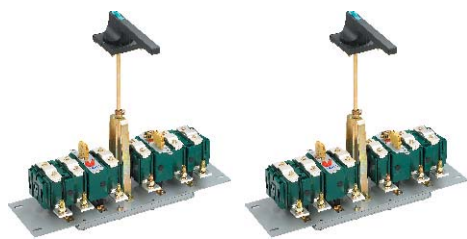
NH40S



NH40SZ



630	1000	1250	1600	2000	2500	3150
HH15-630/QAS	HH15-1000/QAS					
HH15-630/QPS	HH15-1000/QPS	HH15-1250/QPS	HH15-1600/QPS		HH15-2500/QPS	HH15-3150/QPS
HH15-630/QSS						
NH40-630S	NH40-1000S	NH40-1250S	NH40-1600S	NH40-2000S	NH40-2500S	NH40-3150S
NH40-630SZ	NH40-1000SZ	NH40-1250SZ	NH40-1600SZ			





## NZ7 Automatic Transfer Switching Equipment

### 1. General

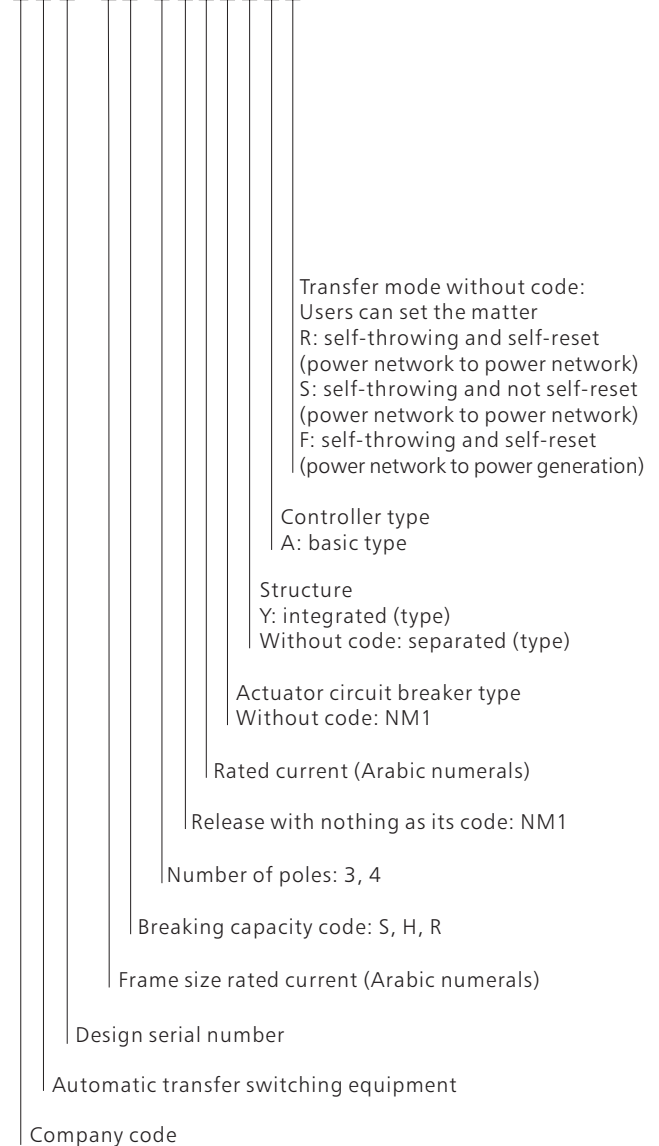
Applicable to the three-phase four-line two-circuit power supply network with an AC power frequency of 50Hz, rated operational voltage of AC400V, and rated operational current of up to 630A, the NZ7 series automatic transfer switching equipment can automatically connect one or several loads from one power source to another to ensure the normal power supply of the load circuit.

This product is applicable to the important places such as industrial, commercial, and storied buildings, and residential houses.

Certificate: KEMA  
Execution standard: IEC/EN 60947-6-1

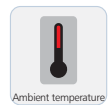
### 2. Type designation

N Z 7 - □ □ / □ □ □ □ □ □ □ □



### 3. Operation conditions

**3.1 Ambient air temperature**  
The upper limit for the ambient air temperature is +40°C, lower limit -5°C, and the mean value of the temperature is not greater than +35°C within 24 hours;



**3.2 Altitude**  
Altitude: not higher than 2,000m for the installation site.



**3.3 Atmospheric conditions:**  
When the ambient air temperature is +40°C, the relative humidity of the air shall not be higher than 50%, a higher relative humidity is allowed at a lower temperature, e.g. 90% at +20°C, and special measures shall be taken for the condensation occasionally produced due to temperature changes.



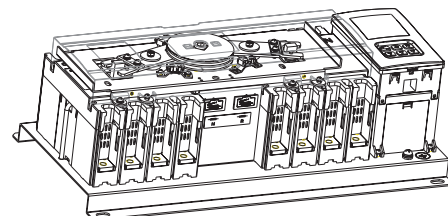
**3.4 Class of pollution:**  
Class of pollution: 3

## 4. Technical data

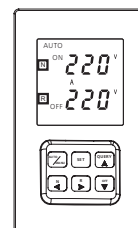
<b>Product type</b>	NZ7-63	NZ7-125	NZ7-250	NZ7-400	NZ7-630
Up to standard	IEC/EN 60947-6-1				
Actuator circuit breaker	NM1-63	NM1-125	NM1-250	NM1-400	NM1-630
<b>Parameters of electrical characteristics</b>					
Operating environment temperature	-5℃~+40℃				
Altitude	2000m				
Class of pollution	3				
Specification for current	10,16,20,25, 32,40,50,63A	16,20,25,32,40, 50,63,80,100A	100,125,160, 180,200,225A	250,315, 350,400A	400,500, 630A
Rated operational voltage (Ue)	400V 50Hz				
Nominal insulation voltage (Ui)	AC500V		AC800V		
Rated impulse withstand voltage	6kV		8kV		
Number of poles	3P 4P	3P 4P	3P 4P	3P, 4P	3P, 4P
Short circuit breaking capacity codes	S H H	S H R H	S H R H	S H R	S H R
Rated short circuit making capacity (Icm)	31.5 73.5 73.5	52.5 105 143 105	52.5 105 143 105	73.5 110 154	73.5 110 154
Rated short circuit breaking capacity (Icn)	15 35 35	25 50 65 50	25 50 65 50	35 50 70	35 50 70
Service life	6000 times	6000 times	6000 times	4000 times	3000 times
Usage category	AC-33B				
Electric equipment grade	CB Class				
Protection level	IP30 (except the main circuit terminal)				
Protection	Overload protection/short circuit protection				
<b>Controller characteristic</b>					
Controller	Type A(basic type)				
Rated control supply voltage Us	230V 50Hz				
Installation mode for the controller	Integrated/separated (as installed on the surface of the cabinet)				
Operating transfer time (no time delay)	≤3.2s	≤3.5s	≤3.6s	≤4s	≤5s
Power consumption	≤10W				
<b>Installation and connection</b>					
Installation mode	Fixed type				
Connection mode	Front connection				

## 5. Characteristics and functions

The NZ7 series automatic transfer switching equipment (hereinafter referred to as automatic transfer switch) is the CB class product of a new generation combined with the advanced digital electronic control technique. The product features compactness, energy conservation, convenient installation, reliable dual-interlock protection, etc., and is advanced and complete in terms of function.



Single motor structure, compact



Visualized management

5.1 Compactness

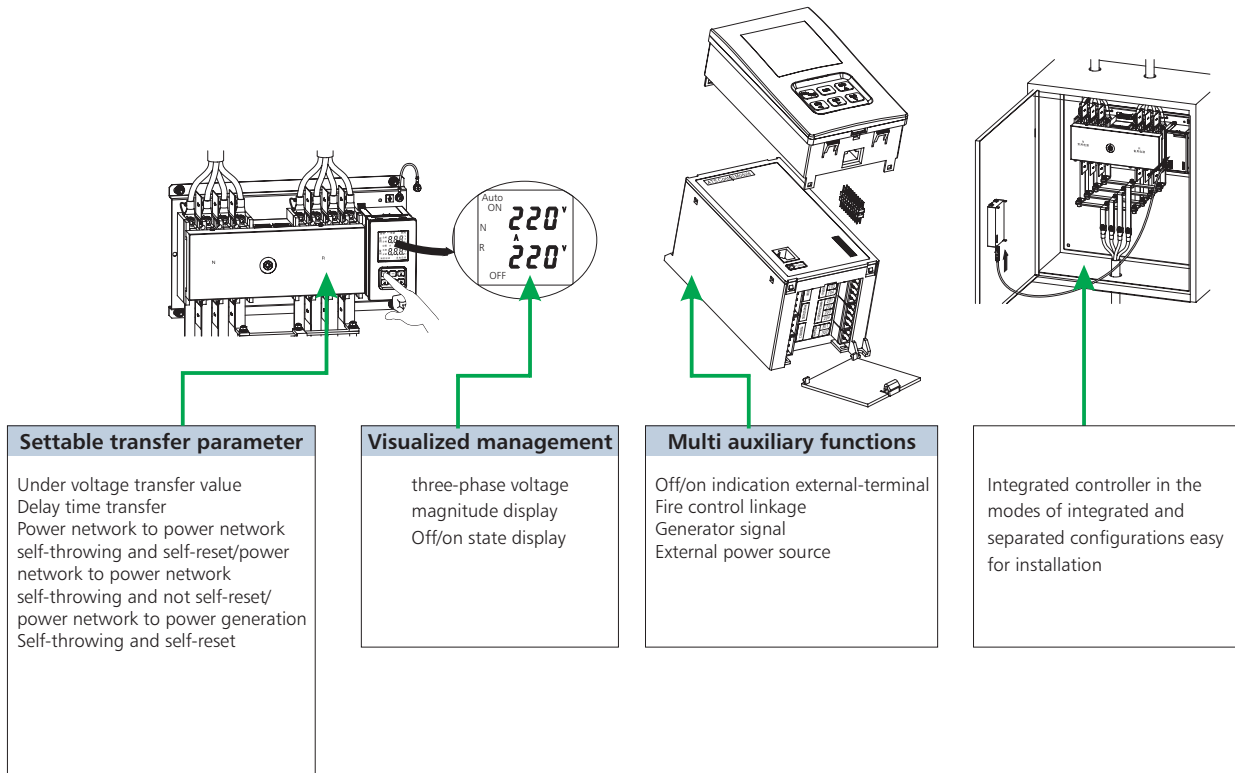
The transfer function is achieved via using the forward and backward rotation of the only one motor which allows for reducing the product's height and room for its installation.

5.2 Energy saving

The driving mechanism works in the mode of motor drive with less power consumption and noise.

Type A controller (long-term service)	Transmission mechanism (short-term service)		
	Type 63/Type 100	Type 225	Type 400/Type 630
≤10W	20W	40W	20W

5.3 Advanced and multipurpose functions



## 5.4 Dual-interlock protection

The mechanical-electrical interlock duplex protection is used to prevent two power sources from being connected simultaneously to the load, wherein the electrical interlock works in the breaker contact position mode for directly indicating the automatic transfer switch to perform the genuine electrical interlock so that the automatic transfer does not take place automatically in such cases as contact fusion welding, breaker handle damage, and circuit fault breaker tripping.

## 6. Controller

Type and function	Type A (basic type)
Modes of manual and automatic transfer	■
<b>Working position of the main contact (actuator circuit breaker)</b>	
Prime power turned on	■
Standby power turned on	■
OFF	■
<b>Automatic control</b>	
Monitoring the prime power	Failures such as loss of phase/voltage, under and over voltage for any of three phases of the power supply
Monitoring the standby power	Failures such as loss of phase/voltage, under and over voltage for any of three phases of the power supply
Self-throwing and self-reset	■
Self-throwing and not self-reset	■
Power network to power network	■
Power network to power generation	■
No-voltage transfer	■
Under voltage transfer	■
Over voltage transfer	■
Adjustable delay time	■
Transfer delay a	Continuously adjustable in the range of 0s~180s
Return c	Continuously adjustable in the range of 0s~180s
Generator control	■
Fire control linkage (inactive contact)	■
<b>Indication</b>	
Indication for on, off, and double-break	■
Prime power indication	■ (Displaying voltage magnitude)
Standby power indication	■ (Displaying voltage magnitude)
Fault tripping indication	■
External indication signal terminal	■
Parameter setting indication	■
<b>Interlock protection</b>	
Mechanical interlock	■
Electrical interlock	■ (not transfer automatically with faulty tripping)

6.1 The Type A integrated controller works in the modes of integrated or separated configurations, and is installed in the cabinet or on the panel to allow operation outside the cabinet.

Whether to transfer from one power source to another depends on the state of the operational power supply.

Generating set control

Press-key manually forced transfer operating

### 6.2 Control voltage

AC230V 50Hz

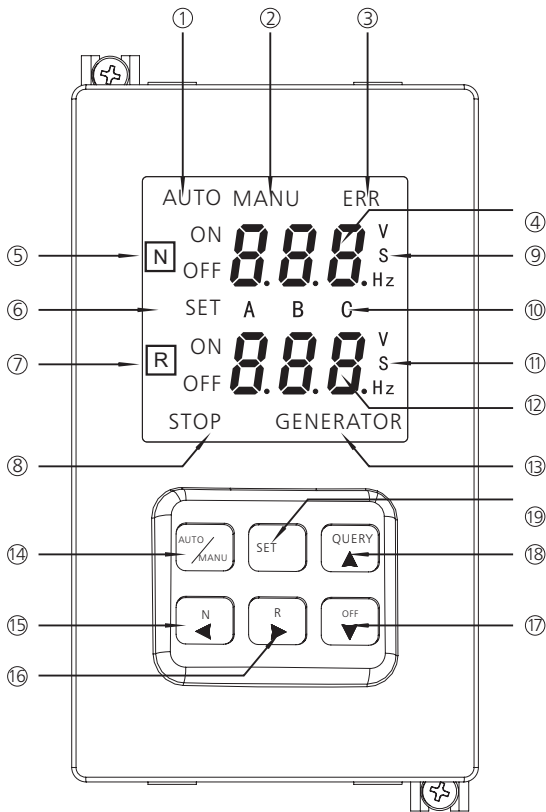
### 6.3 Operation: automatic operation, manual operation

### 6.4 Setting delay

Transfer delay: adjustable in the range of 0s - 180s, prime power failure, time before off for QN

Return delay: continuously adjustable within the range of 0s - 180s, prime power recovery, time before off for QR

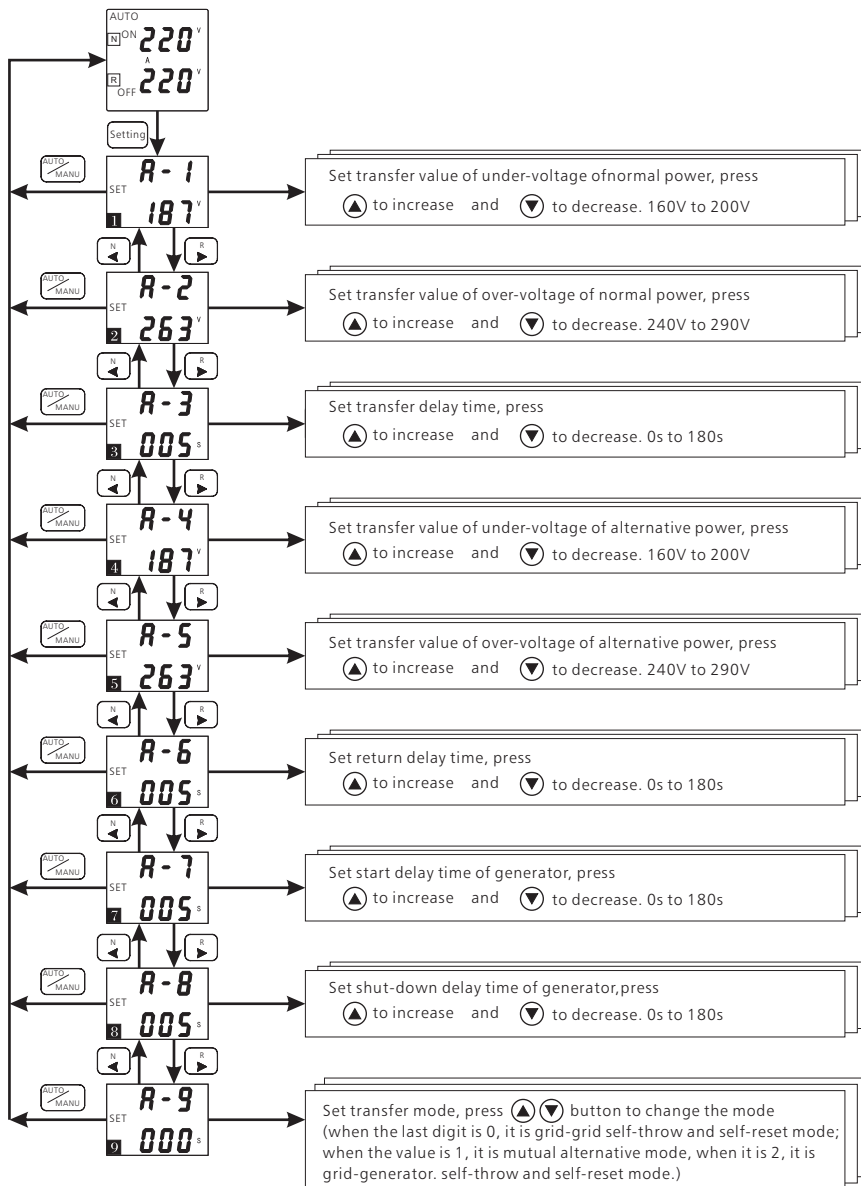
6.5 Interface for display and operation  
LED digital display



1. Indication of automatic working mode;
2. Indication of manual working mode;
3. Failure indication  
When the breaker is disengaged due to the failure or short-circuit of the switch, this lamp will be on;
4. Display area of normal power voltage parameters  
It displays normal power voltage parameters and changeover delay time under the working condition, and setting items under the setting condition;
5. Indication of the on or off of breaker on the normal power side
6. Indication of setting condition
7. Indication of the on or off of breaker on the alternative power side
8. Indication of the start of stop function;
9. Units of voltage, time, and frequency of the normal power;
10. Phases A, B, and C;
11. Units of voltage, time, and frequency of the alternative power;
12. Display area of alternative power voltage parameters;  
It displays alternative power voltage parameters and transfer delay time under the working condition, and setting items under the setting condition;
13. Indication of the start signal of generator
14. Selection button of automatic/manual transfer  
When it is regularly used, it can be used for selecting the automatic or manual mode; it saves and exits the functions when it is under the setting condition.
15. Button for compulsorily turn off the normal power  
Under the manual control mode, if this button is pressed, it can compulsorily switch to the normal power; if it is setting condition, this button is the "scroll up" button of setting programs;
16. Button for compulsorily turn off the alternative power  
Under the manual control mode, if this button is pressed, it can compulsorily switch to the alternative power; if it is setting condition, this button is the "scroll up" button of setting programs;
17. Off button  
Under the manual control mode, if either line of both power lines are normal and this button is pressed, it will switch to the disengagement position; this button is the minus button for setting parameters when it is under setting condition;
18. Failure inquiry button  
When the switch fails and malfunction lamp on the failure screen is on, the detail malfunction code can be inquired if it is pressed; this button is the plus button if it is under the setting condition;
19. Setting button  
When this button is pressed, it may enter into the parameter setting menu of the controller.



6.6 Operation description on parameter setting



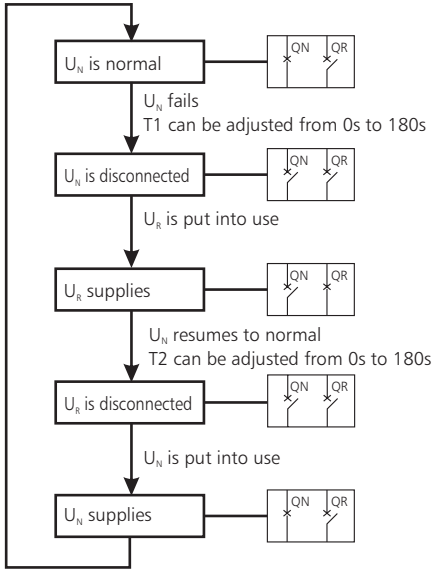
Note for keys

Button Description:

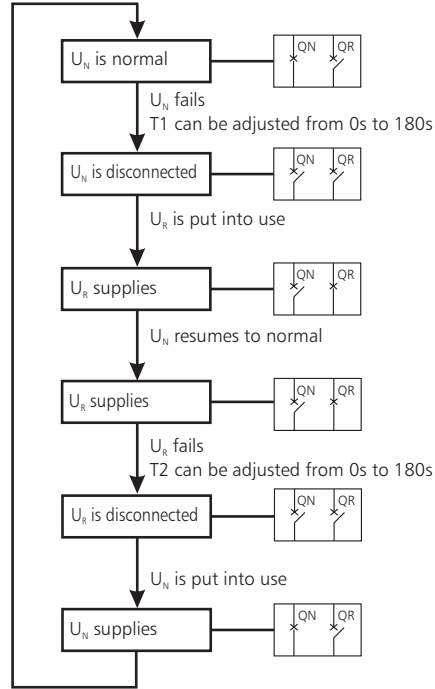
Press the Setting Button when the controller is working, LED will display the parameter setting menu interface displayed in Figure ; press " " and "▶" buttons in the setting menu to scroll up the setting options; if the automatic/ manual button is pressed, it will exit the setting menu; press "▼" or "▲" to change parameters.

Working processes of typy A controller

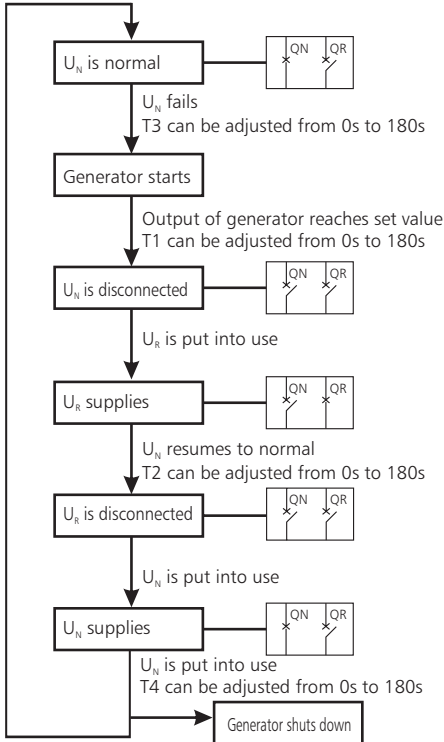
Grid – Grid  
self-throw and self-reset operation



Grid – Grid  
mutual alternative operation



Grid-Power Generation  
self-throw and self-reset operation

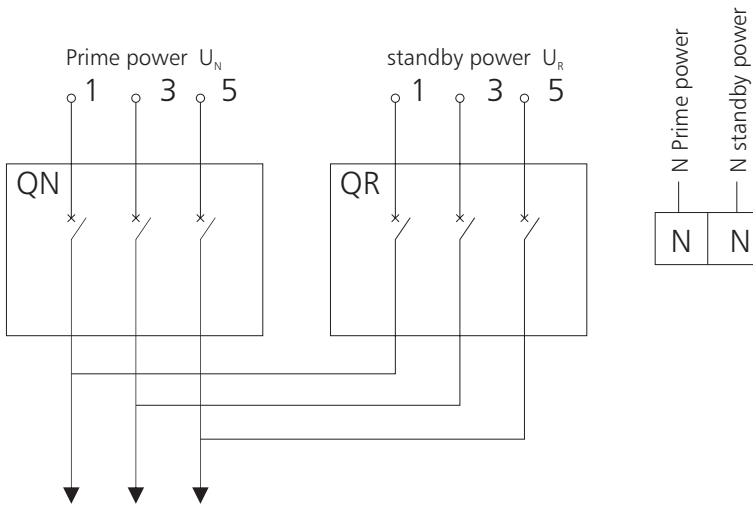


- T1: Transfer delay can be adjusted from 0s to 180s  
Failure of UN , time before disconnecting QN
- T2: Return delay time can be adjusted from 0s to 180s  
Normal of UN , time before disconnecting QR
- T3: Delay time in starting generator can be adjusted from 0s to 180s

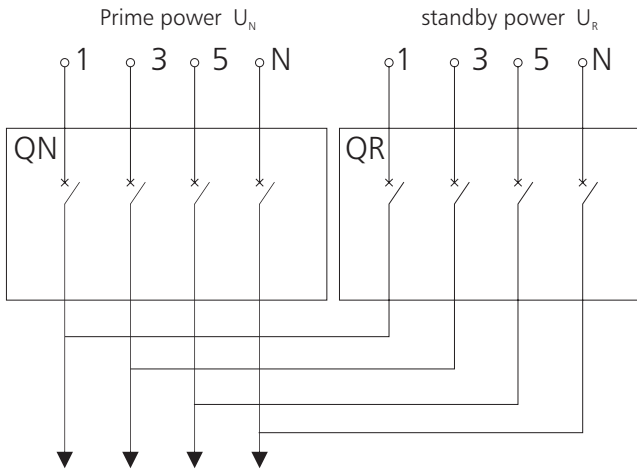
- T4: Delay time in shutting-down generator can be adjusted from 0s to 180s
- QN: Operating breaker on the frequently used side
- QR: Operating breaker on the stand-by side
- UN : Normal power supply
- UR : Alternative power supply

## 7. N27 external connection diagram

### 7.1 product connection diagram

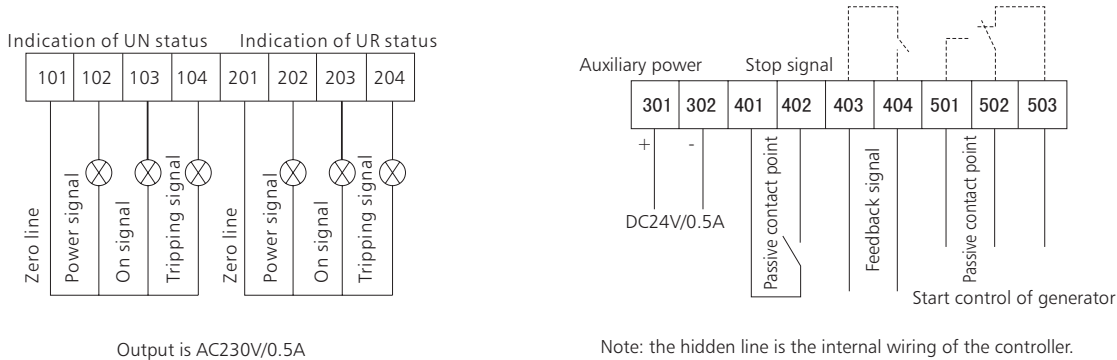


### 7.2 4P product connection diagram

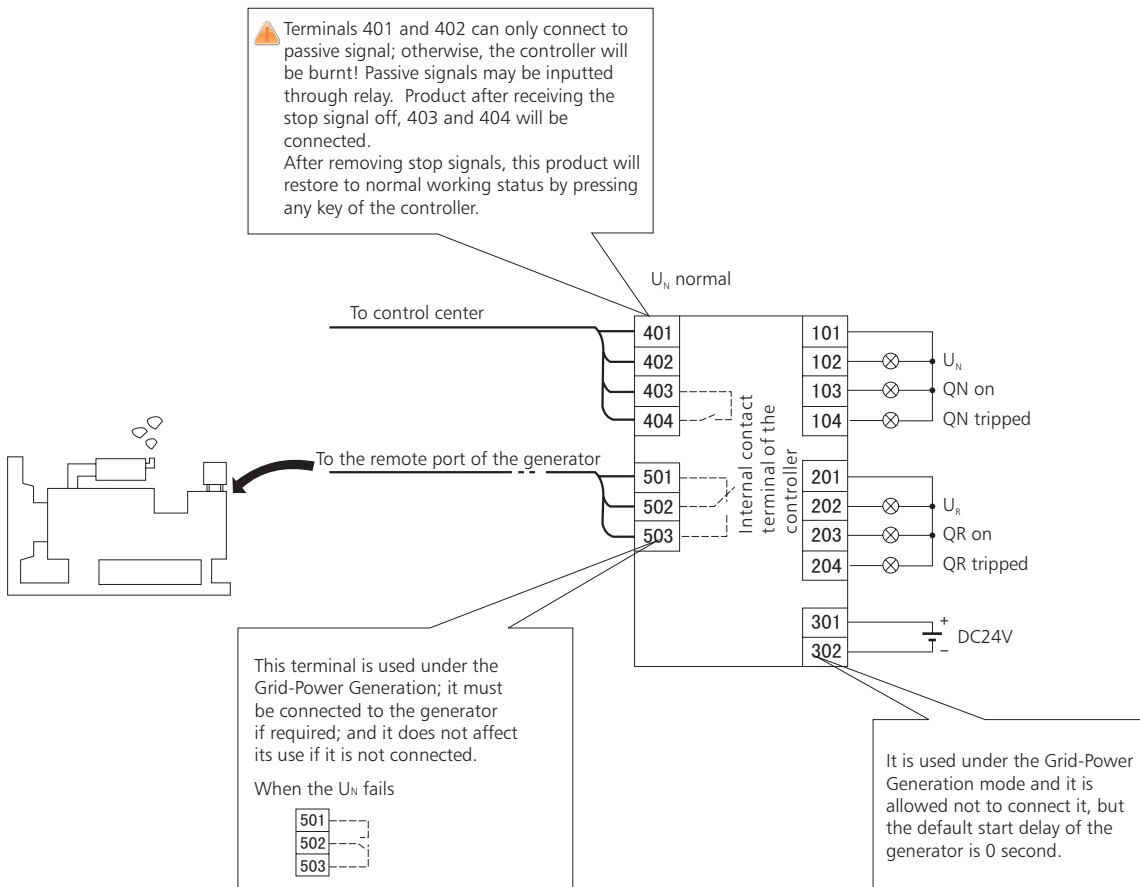


Note :  
 QN actuator circuit breaker on the prime (normal) side  
 QR actuator circuit breaker on the standby (reserve) side

7.3 Wiring diagram of external terminals of the controller

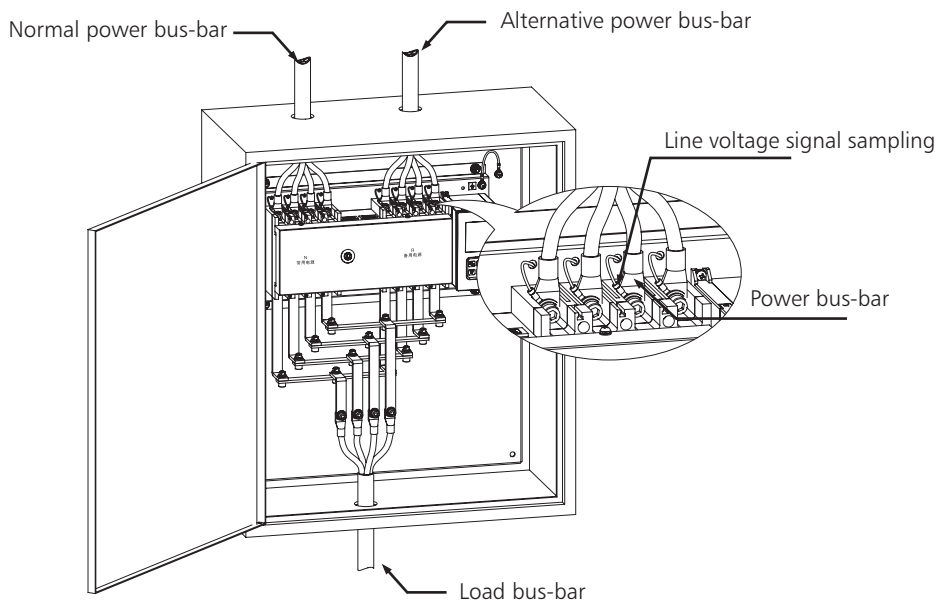


7.4 Application



## 8. Line incoming pattern

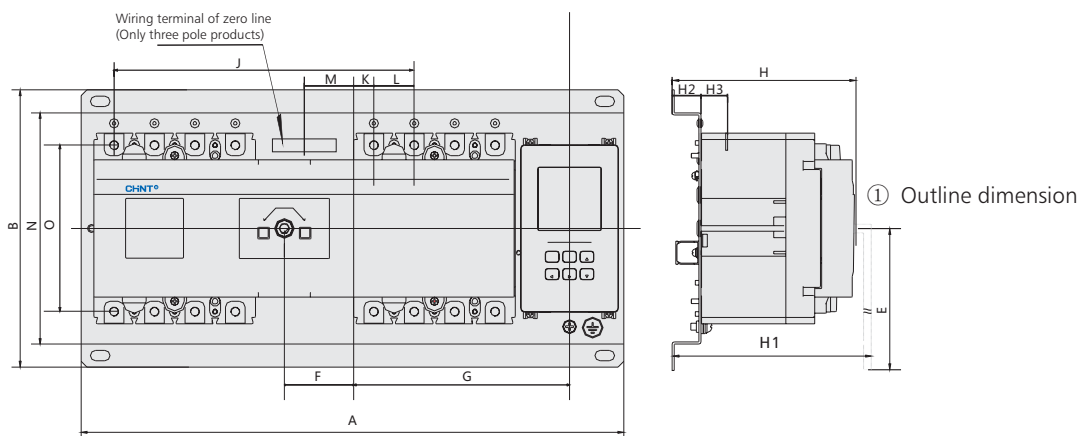
### 8.1 Connecting bus-bar type



### 8.2 Installation mode: vertical installation or horizontal installation

## 9. Overall and mounting dimensions (mm)

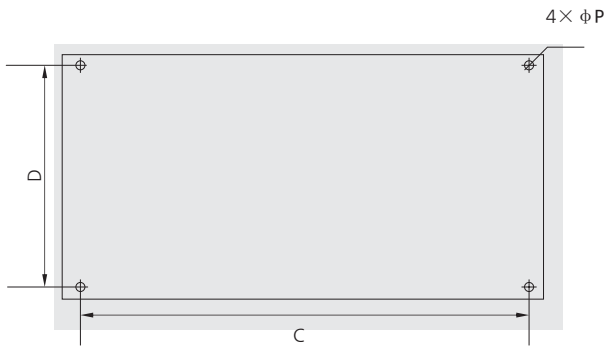
### 9.1 Outline dimension & Installation dimension



Dimension Modle	A		B	E	F		G		J	K		L	M	N	O	H	H1	H2	H3
	3P	4P			3P	4P	3P	4P		3P	4P								
NZ7-63	355	380	240	200	40	52.5	132.5	145	178	24	11.5	25	40	200	117	150	170	25	18/28
NZ7-125	390	420	240	200	43	58	148	163	194	24	9	30	43	200	136	150	180	25	24
NZ7-250	435	470	240	200	41.5	59	170.5	188	225	36	18.5	35	41.5	200	144	160	190	25	24
NZ7-400	565	615	330	225	43.5	68.5	232.5	257.5	304	61.5	36.5	48	43.5	265	224	200	227	24	40
NZ7-630	680	740	330	225	45.5	74.5	291	320	385	89	60	58	45.5	270	234	200	232	24	42



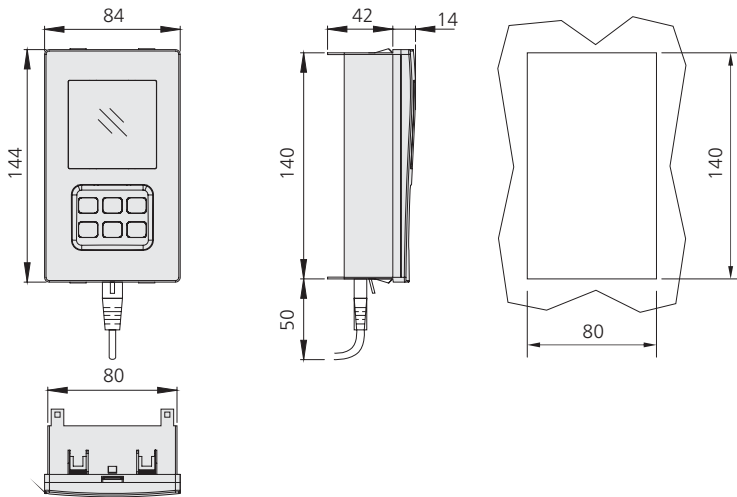
9.2 Installation dimension



Dimension Modle	C		D	P
	3P	4P		
NZ7-63	322	347	220	φ 8
NZ7-100	357	387	220	φ 8
NZ7-225	402	437	220	φ 8
NZ7-400	505	555	300	φ 10
NZ7-630	622	680	300	φ 10

9.3 Controller Module

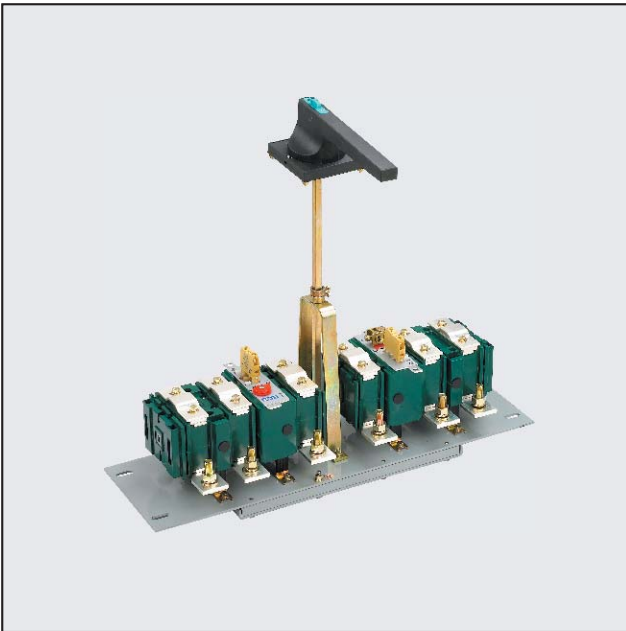
Installation dimension of the controller when it is installed by split type



10. Ordering information

The user shall indicate such items as the type, current specification, number of poles.

Example: If you order an auto transfer switch equipment, shell current 100A, rated current 100A, breaking capacity of Type H, 4 poles, Type A controller, you can write it as NZ7-100H/4100YA.



## HH15/QAS/QPS/QSS Changeover Switch

### 1. General

#### 1.1 Application

Mainly used in the distributing and motor circuit which has high short-circuit current, and acted as main switch or master switch infrequently operated by hand, it is particularly suitable in the relative high class with drawable low voltage complete equipment. They provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

#### 1.2 Standard: IEC/EN 60947-3.

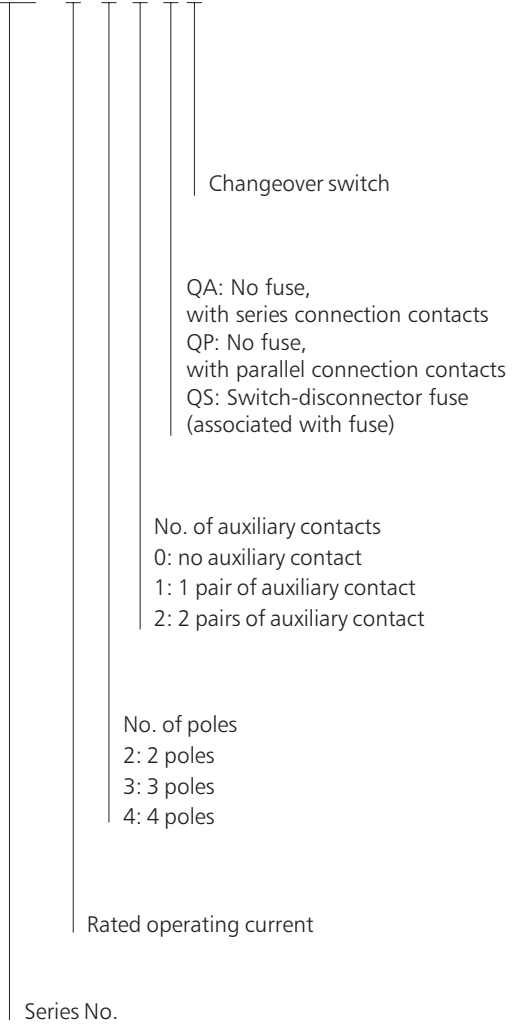
#### 1.3 General characteristic

Full-enclosed structure  
 Unique rolling insert type contact system.

## 2. Switch disconnecter, with connection contact in series

### 2.1 Ordering information

HH15 - □ / □ □ □ S



**Note: This switch may only be operated outside the cabinet.  
 QSS series switch should be used with RT36 (NT,RT16) or  
 Rt20 series fuses provided by the user.**

2.2 Property

HH15/QAS

Specification	125	160	200	400	630	1000
No. of poles	3	3	3	3	3	3
Rated insulating voltage(V)	U <sub>e</sub> =400V, U <sub>i</sub> =690V. U <sub>e</sub> =690V, U <sub>i</sub> =1000V.					
Rated operating voltage U <sub>e</sub> (V)	AC400	AC400	AC400	AC400	AC400	AC400
	AC690	AC690	AC690	AC690	AC690	AC690
Conventional thermal current(A)	125	160	200	400	630	1000
Rated operating current(A)	400V: AC-21B	125	160	200	400	1000
	400V: AC-22B	125	160	160	315	630
	690V: AC-23B	125	160	160	400	400
Rated Short-circuit making capacity (Peak)(kA)	20	20	20	50	50	50
Rated Short-time withstand current(kA)	1.5	1.6	2.4	4.8	8	12
Mechanical life	1400	1400	1400	800	800	500
Electric Life	200	200	200	200	200	100
Operating torque (N • m)	7.5	16	16	16	30	40
Conventional thermal current of auxiliary contact I <sub>th</sub> 400, AC-15(A)	5	5	5	5	5	5

HH15/QPS

Specification	250	630	1000	1250	1600	2500	3150	
No. of poles	3	3	3	3	3	3	3	
Rated insulating voltage(V)	U <sub>e</sub> =400V, U <sub>i</sub> =690V. U <sub>e</sub> =690V, U <sub>i</sub> =1000V.							
Rated operating voltage U <sub>e</sub> (V)	AC400	AC400	AC400	AC400	AC400	AC400	AC400	
	AC690	AC690	AC690	AC690	AC690	AC690	AC690	
Conventional thermal current(A)	250	630	1000	1250	1600	2500	3150	
Rated operating current(A)	400V:AC-21B	250	630	1000	1250	1600	2500	3150
	400V:AC-22B	250	630	630	630	800	-	-
	690V:AC-21B	250	630	1000	1250	1470	2500	2500
Rated Short-circuit making capacity (Peak)(kA)	39	60	60	85	85	130	130	
Rated Short-time withstand current(kA)	3	8	12	15	20	30	38	
Mechanical life	1400	800	500	500	500	500	300	
Electric Life	200	200	100	100	100	100	100	
Operating torque (N • m)	16	30	40	45	60	75	90	
Conventional thermal current of auxiliary contact I <sub>th</sub> 400, AC-15(A)	5	5	5	5	5	5	5	

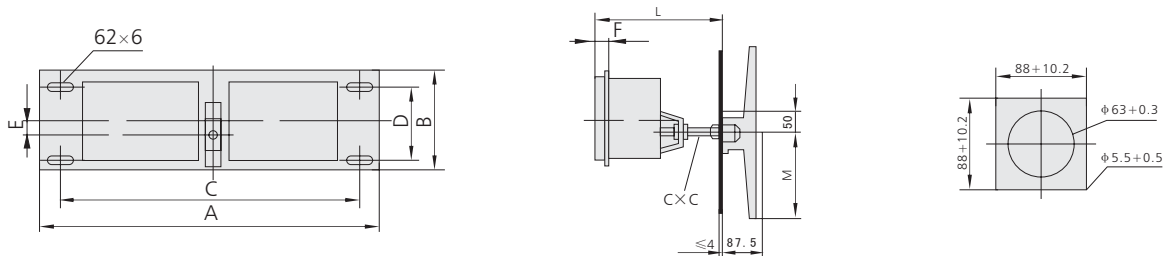
HH15/QSS

Specification	HH15-63	HH15-125	HH15-160	HH15-250	HH15-400	HH15-630	
No. of poles	3	3	3	3	3	3	
Rated insulating voltage U <sub>i</sub> (V)	U <sub>e</sub> =400V, U <sub>i</sub> =690V. U <sub>e</sub> =690V, U <sub>i</sub> =1000V.						
Rated operating voltage U <sub>e</sub> (V)	AC400	AC400	AC400	AC400	AC400	AC400	
	AC690	AC690	AC690	AC690	AC690	AC690	
Conventional thermal current(A)	63	125	160	250	400	630	
Rated operating current(A)	400V:AC-23B	63	125	160	250	400	630
	690V:AC-23B	63	100	160	250	315	425
Rated Limiting Short-circuit current 400V/H(kA)	50/100	50/100	50/100	50/100	50/100	50/100	
Rated Limiting Short-circuit current when 690V(kA)	50	50	50	50	50	50	
Mechanical life	1700	1400	1400	1400	800	800	



Specification	HH15-63	HH15-125	HH15-160	HH15-250	HH15-400	HH15-630
Electric Life	300	200	200	200	200	200
Rated current of fuse 400V/690V(A)	63/63	125/100	160/160	250/250	400/315	630/425
Model of fuse	400V	RT16	RT16	RT16	RT16	RT16
		RT20	RT20	RT20	RT20	RT20
		NT00	NT00	NT00	NT2	NT2
	690V	RT16	RT16	RT16	RT16	RT16
		NT00	NT00	NT1	NT2	NT3
Operating torque (N • m)	7.5	7.5	16	16	16	30
Conventional thermal current of auxiliary contact I <sub>th</sub> 400, AC-15(A)	5	5	5	5	5	5

2.3 Mounting dimension(mm)



Model	A	B	C	D	E	F	G	L	M
HH15-63/QSS	430	170	386	120	14	25	10	300	140
HH15-125/QSS	430	170	386	120	14	25	10	300?	140
HH15-125/QAS	430	170	386	120	14	25	10	300	140
HH15-160/QAS	430	170	386	120	14	25	10	300	140
HH15-250/QPS	430	170	386	120	14	25	10	300	140
HH15-160/QSS	630	190	590	120	25	25	12	300	200
HH15-250/QSS	630	190	590	120	25	25?	12	300	200
HH15-400/QSS	630	190	590	120	25	25	12?	300	200
HH15-400/QAS	630	190	590	120	25	25	12	300	200
HH15-630/QAS	630	190	590	120	25	25	12	300	200
HH15-630/QPS	630	190	590	120	25	25	12	300	200
HH15-1000/QPS	630	190	590	120	25	25	12	300	200
HH15-630/QSS	950	250	906	180	28	28	12	400	200
HH15-1000/QAS	950	250	906	180	28	28	12	400	200
HH15-1250/QPS	950	250	906	180	28?	28	12	400	200
HH15-1600/QPS	950	250	906?	180	28	28	12	400	200
HH15-2500/QPS	950	250	906	180	28	28	12	400	400
HH15-3150/QPS	950	250	906	180	28	28	12	400	400





## NH40S Changeover Switch

### 1. General

#### 1.1 Application

Mainly used in the distributing and motor circuit which has high short-circuit current, and acted as main switch or master switch infrequently operated by hand, it is particularly suitable in the relative high class with drawable low voltage complete equipment. They provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

#### 1.2 Standard: IEC/EN 60947-3.

#### 1.3 General characteristic

Full-enclosed structure  
Unique rolling insert type contact system.

## 2. Changeover switch

### 2.1 Ordering information

NH40 - □ / □ C S □ □

With "F": terminal protection type  
(only for 125~250A)  
Without "F": without terminal protection

With "W": the handle is operated outside the cabinet  
Without "W": the handle is operated inside the cabinet

S: Changeover switch

C: lateral operation  
Blank: front operation

3 represents three poles: 31 represents three poles with auxiliary, one open and one closed  
32 represents three poles with auxiliary, two open and two closed  
4 represents four poles: 41 represents four poles with auxiliary, one open and one closed  
42 represents four poles with auxiliary, two open and two closed

Conventional thermal current

Series No.

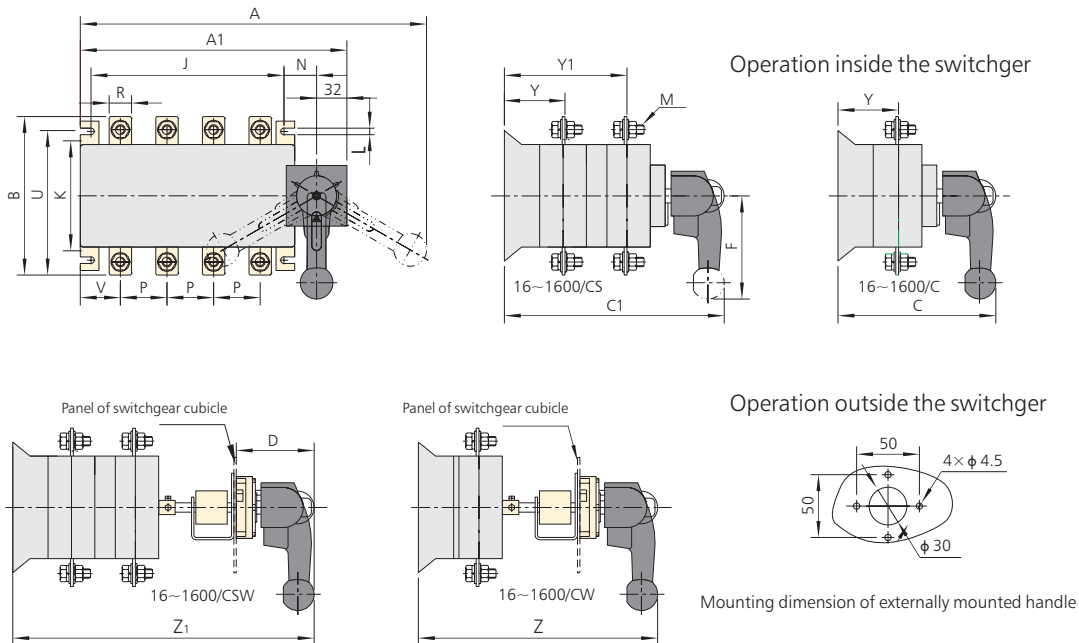


## 2.2 Property

Conventional thermal current	16	32	40	63	80	100	125	160	200	250	315	400	630	
Associated fuse rating (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	
Rated insulation voltage(V) Ui	800													
Rated current (A)	400V AC21B	16	32	40	63	80	100	125	160	200	250	315	400	630
	400V AC22B	-	-	-	-	-	-	125	125	200	250	315	400	630
	400V AC23A	-	-	-	-	-	-	125	160	200	250	315	400	630
	690V AC21B	16	32	40	63	80	80	125	160	200	200	315	400	500
	690V AC22B	-	-	-	-	-	-	100	100	160	160	200	250	315
	690V AC23A	-	-	-	-	-	-	50	63	70	80	125	160	200
Operation force (N)	30~50						40~60			65~100				

Conventional thermal current	1000	1250	1600	2000	2500	3150	
Associated fuse rating (A)	1000	1250	2×800	2×1000	2×1250		
Rated insulation voltage(V) Ui	800						
Rated current (A)	400V AC21B	1000	1250	1600	2000	2500	3150
	400V AC22B	1000	1250	1600	2000	2500	3150
	690V AC21B	800	800	1000	1600	1600	2000
	690V AC22B	800	800	800	1000	1000	1250
Operation force (N)	200~300						

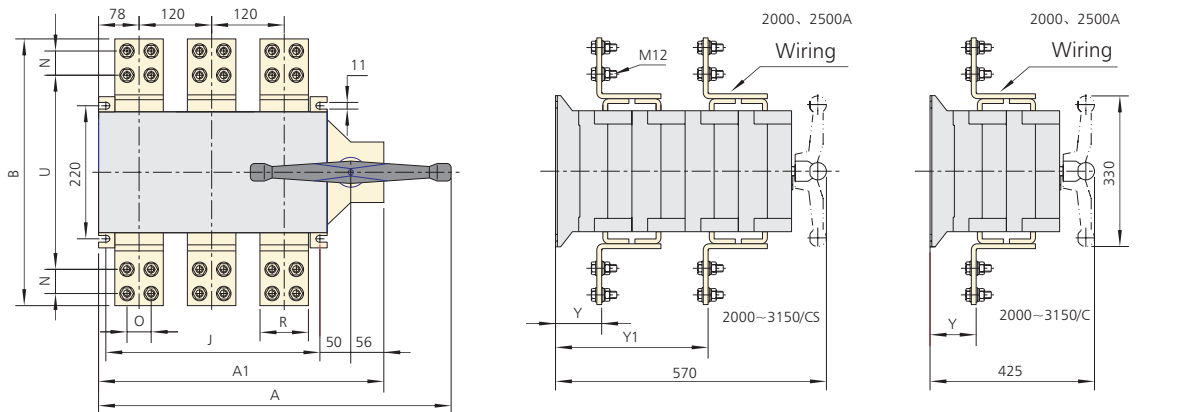
Mounting dimensions of NH40-16~1600/C and NH40-16~1600/CS



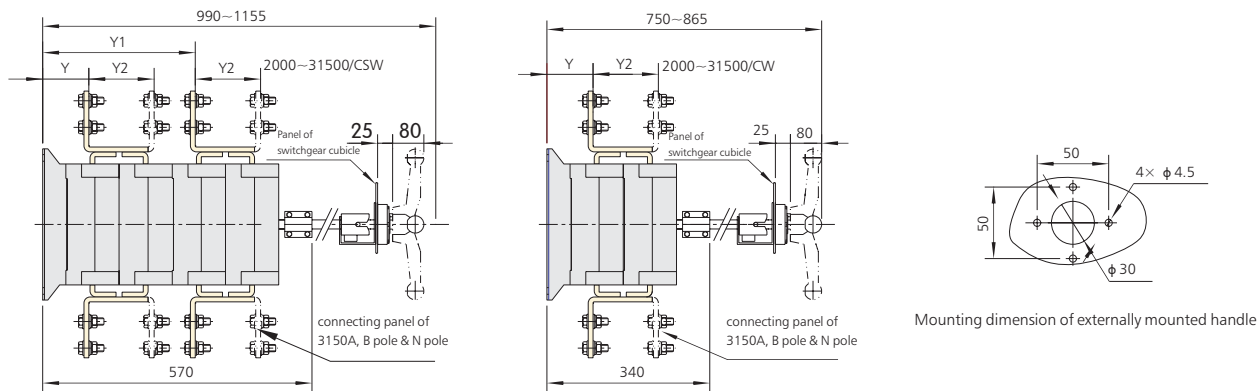
Mounting dimension of NH40 lateral operation and NH40 changeover switch disconnecter

Specification	NH40-XX/C NH40-XX/CS Overall and mounting dimensions (mm)																			
	A	A1	B	C	C1	D	F	J	K	L	N	P	R	U	V	M	Y	Y1	Z	Z1
16~100A/3	290	170	107	135	185	85	135	116	84	7	25	30	14	90	20	6	39	90	360~465	440~545
16~100A/4	290	170	107	135	185	85	135	116	84	7	25	30	14	90	20	6	39	90	360~465	440~545
125A/3	295	192	135	155	235	85	135	120	95	7	29.5	36	18	115	31	8	58	122	410~515	480~595
160A/3	295	192	135	155	235	85	135	120	95	7	29.5	36	20	115	29	8	58	122	410~515	480~595
125A/4	325	222	135	155	235	85	135	150	95	7	29.5	36	18	115	31	8	58	122	410~515	480~595
160A/4	325	222	135	155	235	85	135	150	95	7	29.5	36	20	115	29	8	58	122	410~515	480~595
200A/3	335	232	170	176	260	85	135	160	115	7	29.5	50	25	142	37	10	67	148	430~535	510~615
250A/3	335	232	170	176	260	85	135	160	115	7	29.5	50	25	142	37	10	67	148	430~535	510~615
200A/4	385	282	170	176	260	85	135	210	115	7	29.5	50	25	142	37	10	67	148	430~535	510~615
250A/4	385	282	170	176	260	85	135	210	115	7	29.5	50	25	142	37	10	67	148	430~535	510~615
315A/3	430	298	240	233	335	105	160	210	180	9	43	65	32	205	48	12	84	196	515~630	620~735
400A/3	430	298	240	233	335	105	160	210	180	9	43	65	35	205	48	12	84	196	515~630	620~735
630A/3	430	298	260	233	335	105	160	210	180	9	43	65	40	220	48	12	84	196	515~630	620~735
315A/4	490	358	240	233	335	105	160	270	180	9	43	65	32	205	48	12	84	196	515~630	620~735
400A/4	490	358	240	233	335	105	160	270	180	9	43	65	35	205	48	12	84	196	515~630	620~735
630A/4	490	358	260	233	335	105	160	270	180	9	43	65	40	220	48	12	84	196	515~630	620~735
1000A/3	580	472	316	280	424	105	165	353	220	11	50	120	60	240	78	12	108	253	605~720	750~865
1250A/3	580	472	356	280	424	105	165	353	220	11	50	120	70	246	78	12	108	253	605~720	750~865
1600A/3	580	472	356	280	424	105	165	353	220	11	50	120	80	246	78	12	108	253	605~720	750~865
1000A/4	700	592	316	280	424	105	165	473	220	11	50	120	60	240	78	12	108	253	605~720	750~865
1250A/4	700	592	356	280	424	105	165	473	220	11	50	120	70	246	78	12	108	253	605~720	750~865
1600A/4	700	592	356	280	424	105	165	473	220	11	50	120	80	246	78	12	108	253	605~720	750~865

Mounting dimensions of NH40-2000~3150/C and NH40-2000~3150/CS



Operation inside the switchger



Operation outside the switchger

Mounting dimension of NH40 changeover switch disconnect

Specification	NH40-XX/C NH40-XX/CS Overall and mounting dimensions (mm)										
	A	A1	B	R	J	U	O	N	Y	Y1	Y2
2000A/3	580	472	440	80	353	325	40	40	80	420	-
2500A/3	580	472	440	80	353	325	40	40	80	420	-
3150A/3	580	472	510	120	353	360	50	50	80	420	230
2000A/4	700	592	440	80	473	325	40	40	80	420	-
2500A/4	700	592	440	80	473	325	40	40	80	420	-
3150A/4	700	592	510	120	473	360	50	50	80	420	230





**NH40SZ**  
**Automatic Changeover Switch**

**1. General**

NH40SZ automatic changeover switch disconnecter integrates electrical and mechanical interlocking systems to guarantee safe transfer operation. It is applicable for the three-phase four-wire power supply system of AC 50Hz, rated voltage AC 380V and below, DC 440V and below, rated current up to 3200A. It can realize automatic and manual changeover between normal and back up power supply power, and stop power supplying to load when changeover process of power supply is carried out. The switch is applicable for two circuits power supply and in the condition which requires high quality power supply.  
Standard: IEC/EN 60947-3, 60947-6-1



**2. Switch Disconnecter**

N H 40 - □ / □ SZ □

Blank: common type  
Main power supply —— standby power supply, automatic change and automatic recovery;  
I : mains supply-mains supply, mutual standby, phase loss protection;  
II : mains supply-mains supply, automatic change and automatic recovery, phase loss protection, overvoltage and undervoltage protection;  
III : mains supply-oil engine, automatic change and automatic recovery, phase loss protection, overvoltage and undervoltage protection;

Dual-power supply automatic transfer

"3" represents three poles  
"4" represents four poles

Rated operational current

Design sequence No.

Isolating switch

Company code

**3. Povrameter**

Conventional thermal current (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	1000	1250	1600
Rated current of fuse (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	1000	1250	2×800
Rated insulation voltage (V)	800															
400V AC-33IB	16	32	40	63	80	100	125	160	200	250	315	400	630	1000	1250	1600
Rated current(V)																
Operation force (N)	30~50					40~60			65~100			75~120		200~300		

#### 4. Control characteristics and product structure

##### 4.1 Control characteristics:

There are two types of switch products, three-pole and four-pole (three poles + switchable neutral pole).

Four control types (common type, I, II, III).

- a. Common type: Main power supply-standby power supply, automatic change and automatic recovery.
  - b. I : mains supply-mains supply, mutual standby, phase loss protection.
  - c. II : mains supply-mains supply, automatic change and automatic recovery, overvoltage and undervoltage protection, phase loss protection.
  - d. III : mains supply-oil generator, automatic change and automatic recovery, overvoltage and undervoltage detection.
- The automatic change-over control mechanism uses a key switch for the selection of operation mode.  
The position can be maintained by padlock.

##### Control characteristics of common type switch:

- a. This switch applies to the automatic change and automatic recovery of main power supply-standby power supply (including manual oil generator; Note: Manual oil generator does not have to be used with type III switches) systems. Power supply I precedes. When power supply I is normal, it is switched on; when power supply I fails and power supply II is normal, the switch changes to power supply II; when power supply I resumes, the switch automatically changes to power supply I.

##### Control characteristics of type I switch:

- a. This switch applies to the mutual standby of mains supply-mains supply systems. When the switch is in the "0" position, power supply I precedes. When power supply I fails and power supply II is normal, the switch changes to power supply II; when power supply II is on and power supply I resumes, the switch does not automatically change to power supply I, it will change to power supply I only when power supply II fails. The main power supply changes to the standby power supply (the delay continuously adjustable between 1~999s), the standby power supply changes to the main power supply (the delay continuously adjustable between 1~999s).
- b. Phase loss detection protection function.

##### Control characteristics of type II switch:

- a. This switch applies to the automatic change and automatic recovery of mains supply-mains supply systems. Power supply I precedes. When power supply I is normal, it is switched on; when power supply I fails and power supply II is normal, the switch changes to power supply II; when power supply I resumes, the switch automatically changes to power supply I. The main power supply changes to the standby power supply (the delay continuously adjustable between 1~999s), the standby power supply changes to the main power supply (the delay continuously adjustable between 1~999s).
- b. Three-phase overvoltage, undervoltage and phase loss detection protection functions.

##### Control characteristics of type III switch:

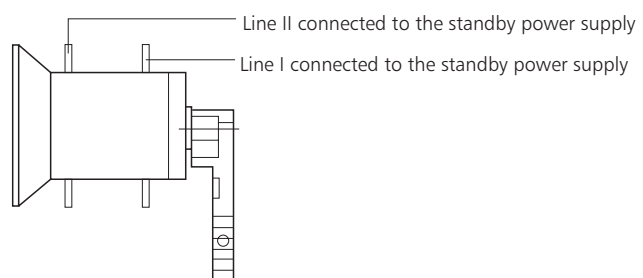
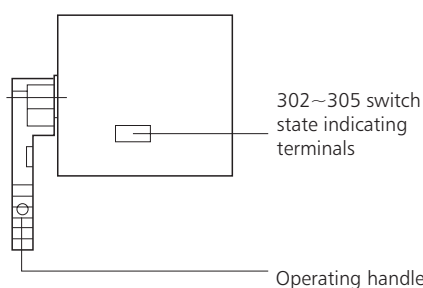
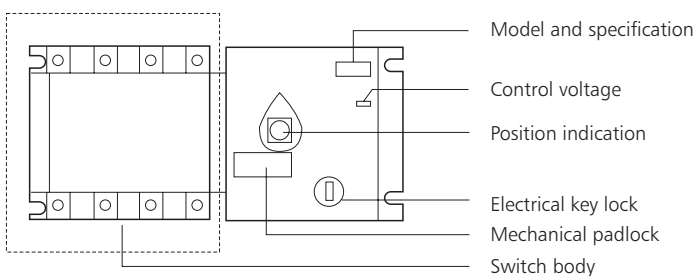
- a. This switch applies to the mutual standby or automatic change and automatic recovery of mains supply-oil generator (automatic oil generator with signals) systems. Power supply I (the mains supply) precedes. When power supply I fails, the switch gives a signal to start the oil generator. The oil generator has warm-up delay (continuously adjustable between 0~180s) function. After the oil generator has started, the switch changes to power supply II (the oil generator). When power supply I resumes, the switch automatically changes to power supply I, the oil generator automatically stops after a cooling delay (continuously adjustable between 0~180s).
- b. Three-phase overvoltage and undervoltage protection functions for mains supply and oil generator.

##### Type I, type II and type III switches have:

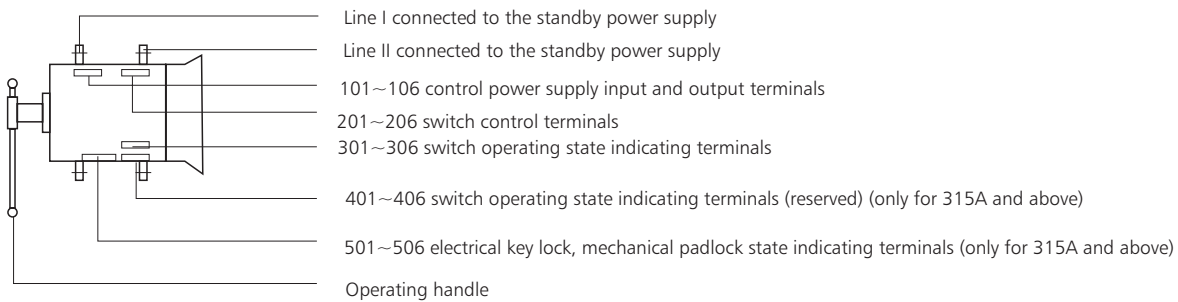
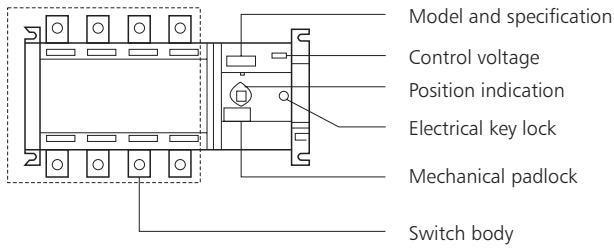
- 1) Automatic, remote and manual control functions
- 2) A 0.5s delay of the detection signal, to prevent misoperation.
- 3) A remote control "0" position in automatic state.
- 4) A key switch for the selection of operation mode.

#### 4.2 Product structure

16A-100A/4(Common type)



100A/3 common type; 100A/3, 4 type I, type II, type III; 125A-3200A/3, 4 common type, type I, type II, type III

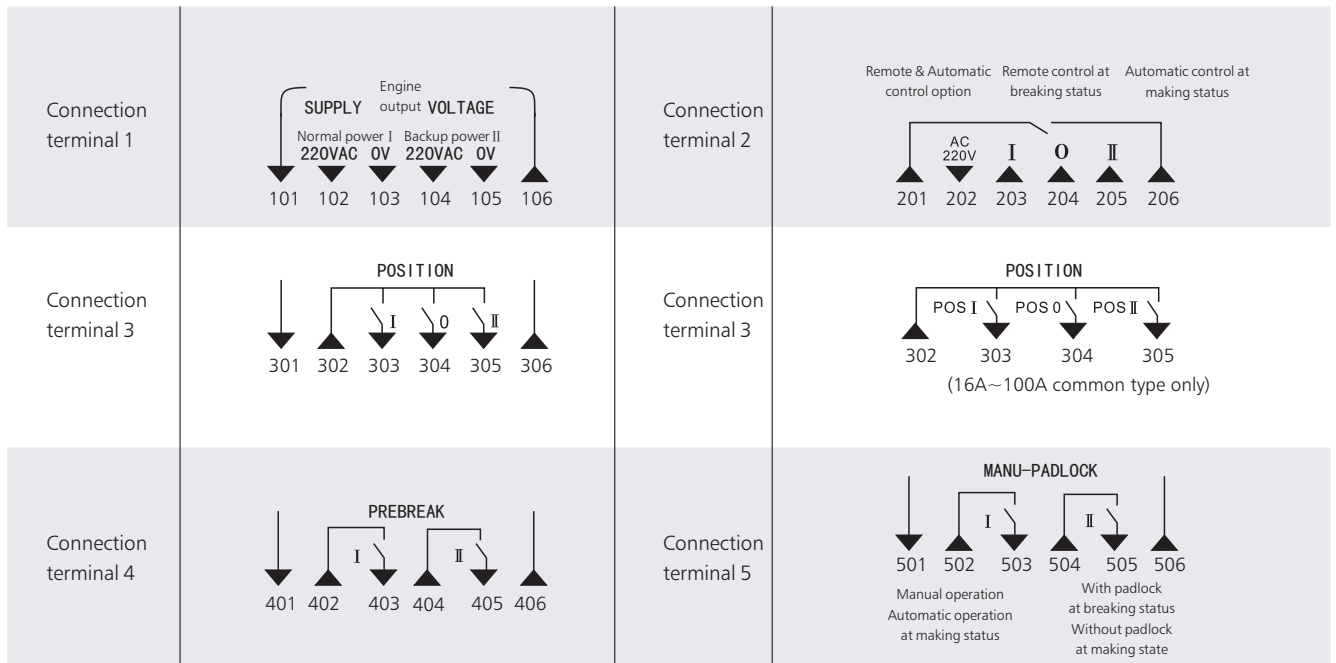


- a. Electrical key lock: It controls the power supply of the internal control circuit of the switch. When the electrical lock is in the "Automatic" position, the switch can be operated automatically or remotely. When the electrical lock is in the "Manual" position, the switch can only be operated manually;
- b. Operating handle: When operating the switch with the operating handle, the electrical lock must be in the "Manual" position;
- c. Mechanical padlock: Before maintenance, put the switch to the 0 position with the operating handle, pull up the padlock structure and lock the padlock. (Pulling up the mechanical padlock switches off the internal control power supply of the switch so that it cannot be operated electrically or manually);
- d. Position indication: It indicates the operating position (I; 0; II) of the switch;
- e. Control voltage: The control voltage class of the switch is 220VAC;
- f. Switch body: The front part is line I, which is connected to the "Normal power supply"; the rear part is line II, which is connected to the "Standby power supply".

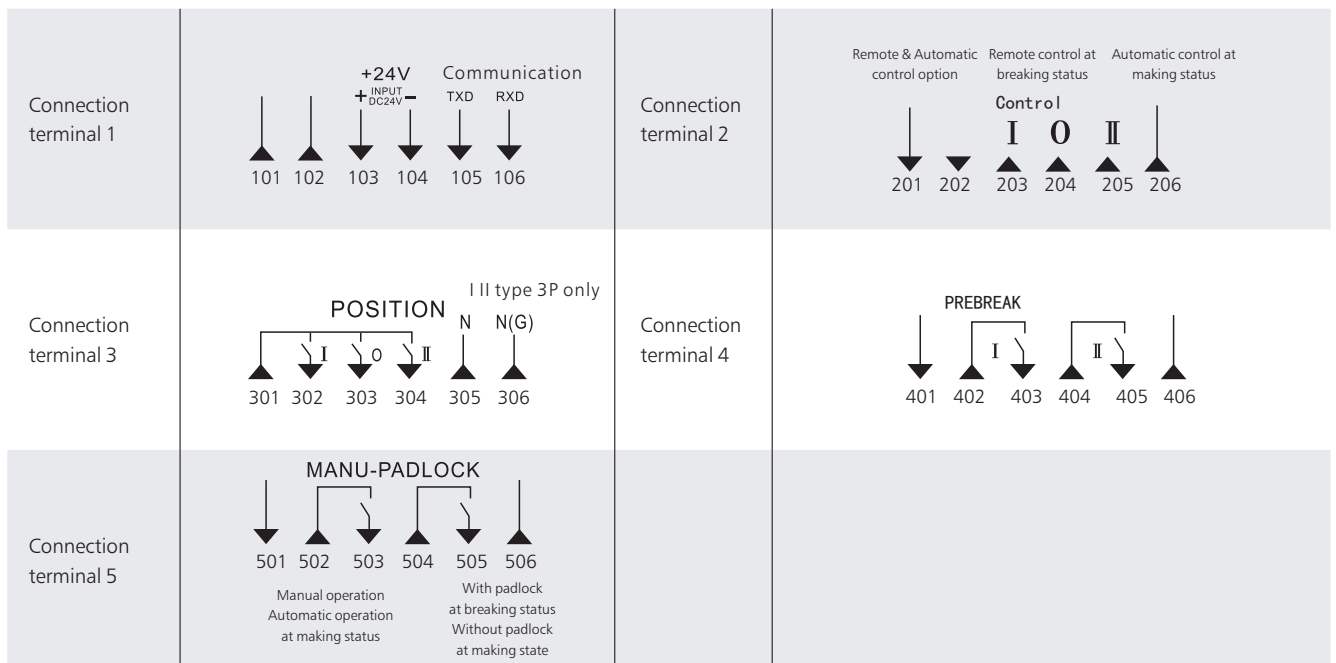


4.3 Connection terminal of control circuit

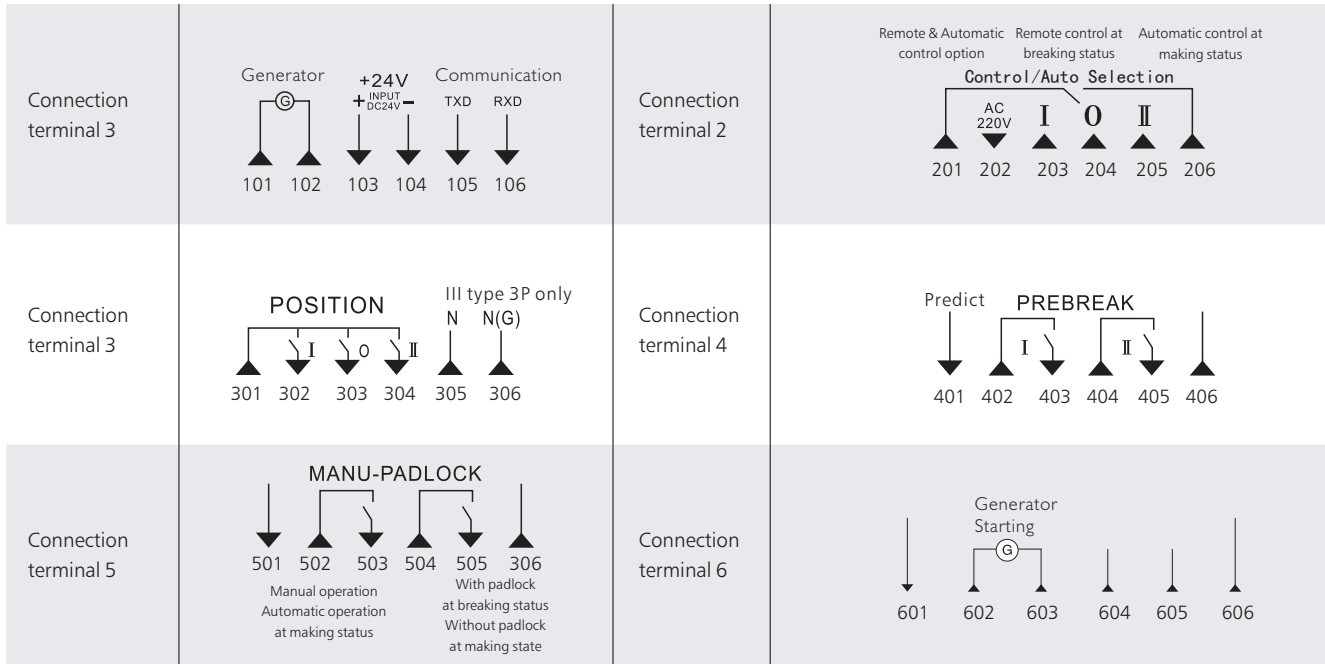
Common type



Type I and type II



Type III



Terminal 1, main options

- 101, 106-AC220V output terminals of engine (only for common type)
- 102, 103-Power control terminal of circuit I (only for common type)
- 104, 105-Power control terminal of circuit II (only for common type)
- 101, 102-Generator starting signal input (for type III)
- 103, 104-Firefighting +24V input, enforce "0", both switches breaks (for type I, II, III)
- 105, 106-Communication Interface (Reserved)

Terminal 2, remote control

- 201, 206-Terminal of remote controlling, automatic controlling functions, Remote control at breaking status and automatic control at making status.
- 202, 203-Making switch I.
- 202, 204-At "0" position, both switches breaks (for type I, II, III) (include preferring position "0")
- 202, 205-Making switch II.

Terminal 3, position indication and zero-line terminal

- 301, 302-Switch I position
- 301, 303-At "0" position, all swithes breaks
- 301, 304-Switch II position, (301~304 for I II III, 4 poles switch)
- 302, 303-Switch I position
- 302, 304-"0" position
- 302, 305-Switch II position (302~305 for common type)
- 305-Type I, II, switch I controls zero-line "N1"; type III switch I controls zero-line "N" (only for 3 poles)

Terminal 4, pre-breaking auxiliary contact

- 306-Type I, II, switch II controls zero-line "N2"; type III, switch II controls zero-line "N(G)"
- 402, 403, Pre-breaking position of indication switch I .
- 404, 405, Pre-breaking position of indication switch II .

Terminal 5 Manual

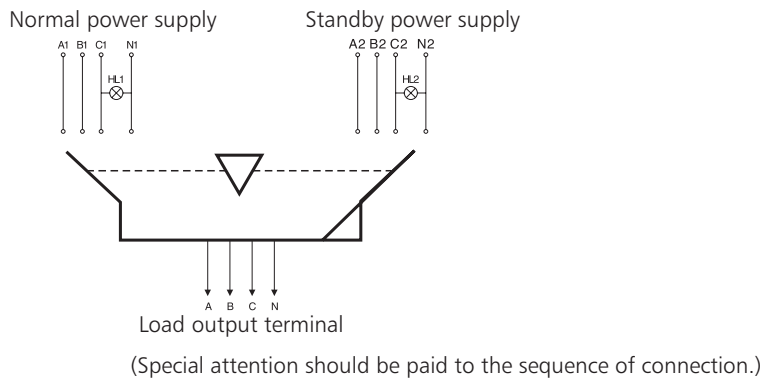
- and automatic operation mode and whether locking the switch
  - 502, 503, Automatic and manual control indication
  - 504, 505, Indcation of whether locking the switch
- Terminal 6 Start-up terminals for diesel generator

Terminal 6, control generator

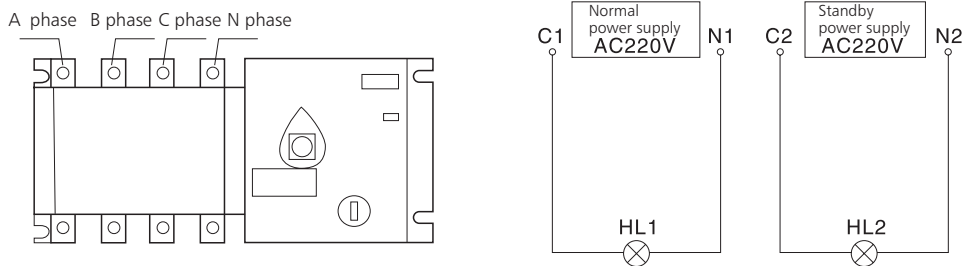
- 602, 603, Generator starting terminal. (Only for type III). Two zero-lines of 3-poles switch should be connected to the terminal 305, 306 (1~1.5mm<sup>2</sup> copper), at right side switch. (for Type III ≥800A)

## 5 Connection diagram

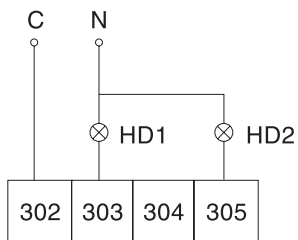
### 5.1 16A~100A 4 poles main switch wiring diagram



### Secondary connection diagram

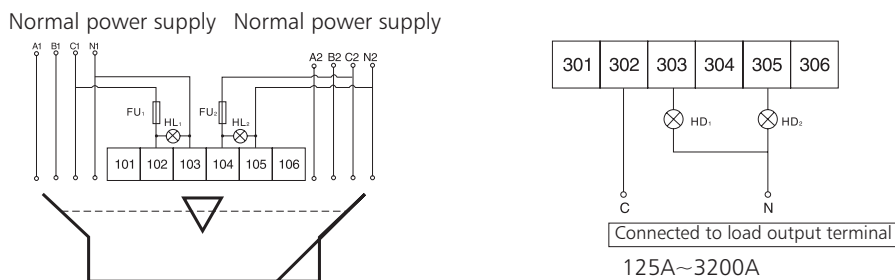


Connected to load output terminal



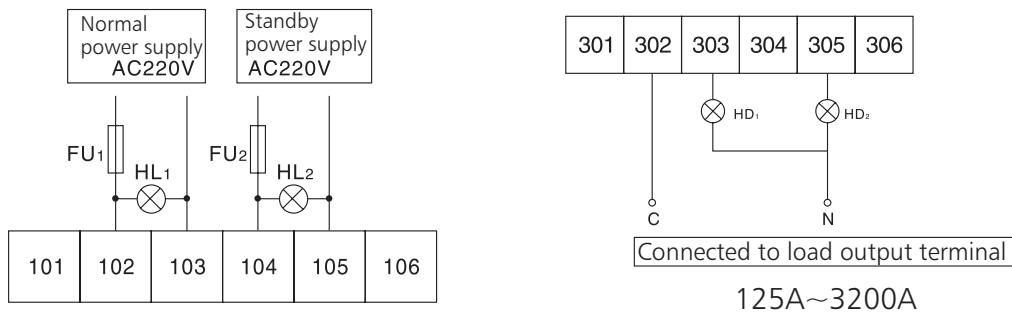
HL1 and HL2 are respectively the resumption indicators of the normal and standby power supplies;  
HD1 and Hd2 are respectively the service indicators of the normal and standby power supplies;  
302~305 are switch terminals.

### 5.2 125A~3200A main switch wiring diagram



Note: Secondary connection of terminal 1 is required (for 16A~100A with forced reset, the connection mode is the same as above).

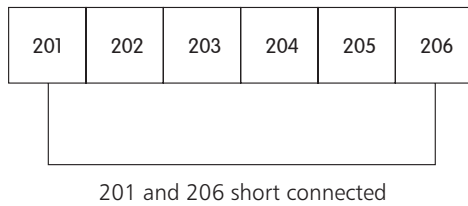
5.3 125A~3200A Secondary wiring diagram (3P, 4P)



HL1 and HL2 are respectively the resumption indicators of the normal and standby power supplies;  
 HD1 and HD2 are respectively the service indicators of the normal and standby power supplies;  
 FU1 and FU2 are 5A fuses;  
 101~106, 201~206, 301~306 are switch terminals.

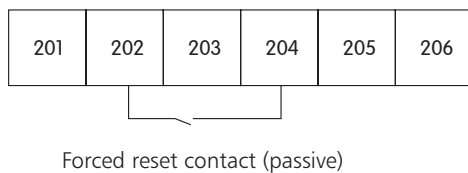
5.4 Depending on the operating mode, the following connection modes can be used for terminal 2:

a. Fully automatic connection mode



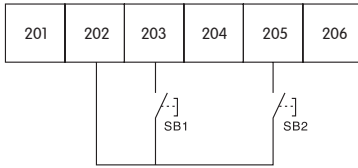
Note: Secondary connection of terminal 1 is required.

b. Remote reset (the two power supplies are disconnected) connection mode



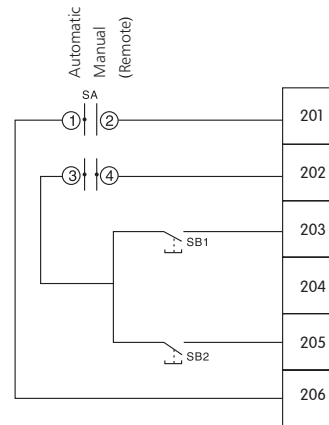
Only for 16A~3200A ( Type I II III )

c. Remote connection mode (Note: SB1 and SB2 are external push-button switches)



Note: When switch SA is in the automatic position, ① and ② are connected.  
When switch SA is in the manual position, ④ and ③ are connected.

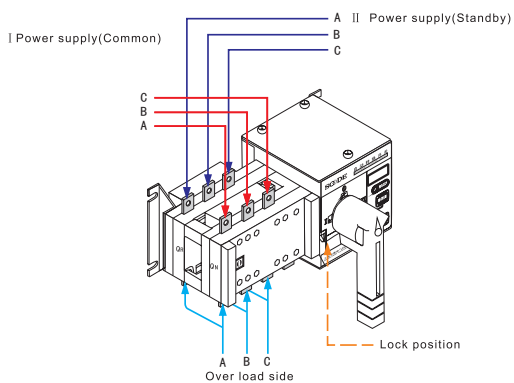
d. Fully automatic + manual (remote) connection mode (Note: SB1 and SB2 are external push-button switches)



## 5.5 Connection diagram

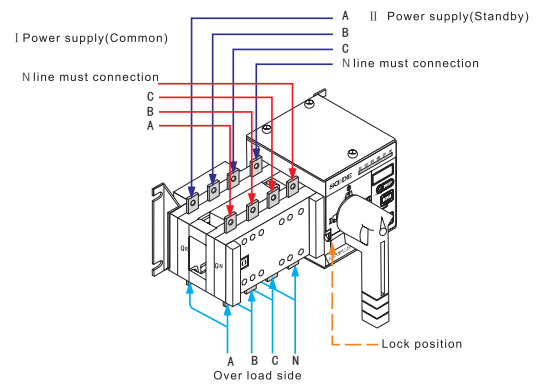
NH40-16~100

16~100A 3P connection chart



16~100A 3P connection chart

16~100A 4P connection chart



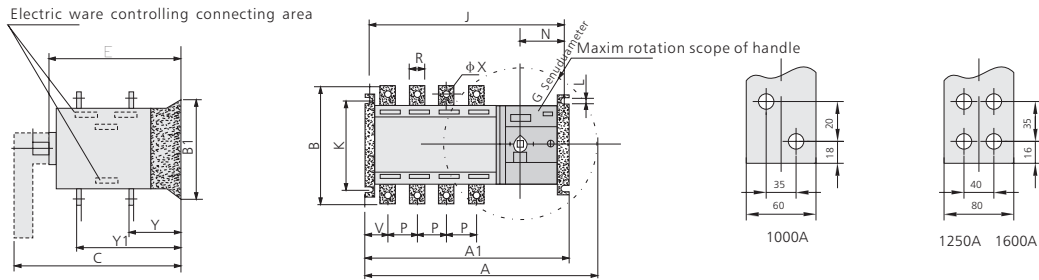
16~100A 4P connection chart

Correct mounting of the switch:

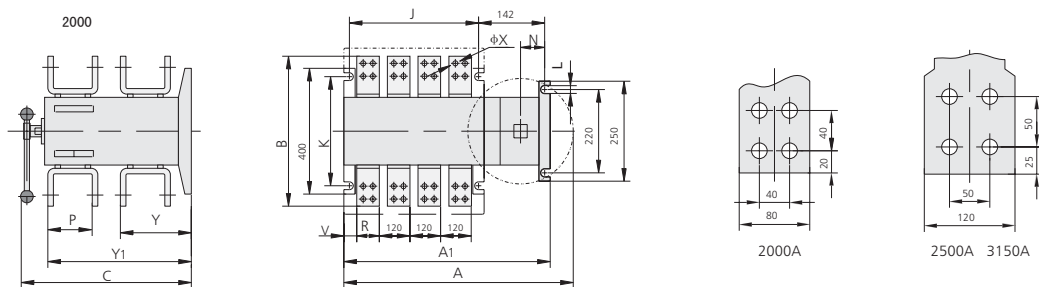
- Copper busbars I and II are respectively connected to phases A, B, C, N of the normal (front) and standby (rear) power supplies from left to right.
- The control power supplies are obtained respectively from phases C and N of the normal and standby power supplies.
- AC220V control power supplies I and II are respectively connected to terminals 102~103 and 104~105, among which 102 and 104 are respectively the live wires of the normal and standby power supplies.
- Terminals 1.1 and 106 are only used as the control power supplies of the signal lamps. Note: They should not be connected to any other lines.
- When upper (lower) incoming line is used, phases A, B, C, N of the lower (upper) lines I and II are respectively connected with copper busbars or conductors as the output.

6. Mounting dimension of NH40SZ automatic changeover switch disconnecter

≤ 1600A



≥ 2000A



Specification	NH40SZ Mounting dimensions														
lth/Poles	A	A1	B	C	E	J	K	L	N	P	R	V	φX	Y	Y1
16A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
32A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
40A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
63A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
80A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
100A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
125A/3	405	270	135	240	208	255	95/110	7	87	36	20	20	9	58	135
160A/3	405	270	135	240	208	255	95/110	7	87	36	20	20	9	58	135
125A/4	435	300	135	240	208	285	95/110	7	87	36	20	20	9	58	135
160A/4	435	300	135	240	208	285	95/110	7	87	36	20	20	9	58	135
200A/3	416	310	170	240	208	293	95/110	7	87	50	25	27	11	60	140
250A/3	416	310	170	240	208	293	95/110	7	87	50	25	27	11	60	140
200A/4	466	360	170	240	208	343	95/110	7	87	50	25	27	11	60	140
250A/4	466	360	170	240	208	343	95/110	7	87	50	25	27	11	60	140
315A/3	465	375	240	315	270	355	180	11	95	65	32	37.5	11	84	195
400A/3	465	375	240	315	270	355	180	11	95	65	32	37.5	11	84	195
630A/3	465	375	260	315	270	355	180	11	95	65	40	37.5	13	84	195
315A/4	525	435	240	315	270	415	180	11	95	65	32	37.5	11	84	195
400A/4	525	435	240	315	270	415	180	11	95	65	32	37.5	11	84	195
630A/4	525	435	260	315	270	415	180	11	95	65	40	37.5	13	84	195
1000A/3	887	515	310	368	320	490	220	13	88	120	60	198	13	108	252
1250A/3	887	515	360	368	320	490	220	13	88	120	70	198	13	108	252
1600A/3	887	515	360	368	320	490	220	13	88	120	80	198	13	108	252
1000A/4	1007	635	310	368	320	610	220	13	88	120	60	198	13	108	252
1250A/4	1007	635	360	368	320	610	220	13	88	120	70	198	13	108	252
1600A/4	1007	635	360	368	320	610	220	13	88	120	80	198	13	108	252
2000A/4	1007	633	455	562	495	467	220	11	85	147	80	33	13	226	457
2500A/4	1007	633	455	562	495	467	220	11	85	152	120	33	13	230	462
3200A/4	1007	633	505	562	495	467	220	11	85	152	120	33	13	230	462