TBB type compensate installation of high voltage shunt capacitor

1. General Description

High-voltage shunt capacitor installations are applicable to 6-35KV electric power system to increase the power factor, reduce circuit losses and improve voltage quality.

2. Executing Standards

- GB50227-2008
- JB/T7111-1993
- JB/T10577-2006
- DL/T604-2009

3. Application Ambient Conditions

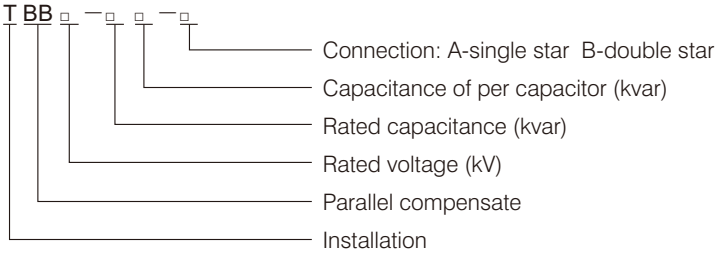
3.1 Indoor: Cabinet type, outdoor: frame type.

3.2 Altitude≤1000m,consult us if the altitude>1000m.

3.3 Operating temperature: Indoor equipment: -25℃～+45℃, Outdoor equipment: -40℃～+45℃.

3.4 No causticity gas,vapor, no inflammable gas, no blaze, no explosion risk, no frequent violent shake;

4. Type meaning and specification



5. Main Technical Parameter

5.1 Insulate level

Unit: kV Table 1

Rated voltage of installation	The patience voltage (RMS value) with power frequency for 1min in primary circuit	Impulsion withstand voltage (RMS value)in primary circuit (1.2～5)/50 μ s peak value	The patience voltage (RMS value) with power frequency for 1min in secondary circuit
6	32	60	2
10	42	75	2
35	95	200	2

5.2 Steady state over-voltage

Table 2

Power frequency over-voltage	The longest persist time	Explain
1.10	Long time	The most value of over-voltage isn't exceed 1.1 Un for long time.
1.15	30 min each 24 h	Adjust and fluctuate of system voltage.
1.20	5min	As light load, the voltage raise.
1.30	1min	As light load, the voltage raise.

6. The primary connecting line of compensate installation

6.1 Connecting line fashion of compensate installation: there are "Y" and "YY" connecting line fashion. The neutral point don't connected to earth. The primary connecting line drawing and primary system connecting line principle drawing for every product to see drawing 1～2.

6.2 The configuration and setting of the compensate installation of shunt capacitor.

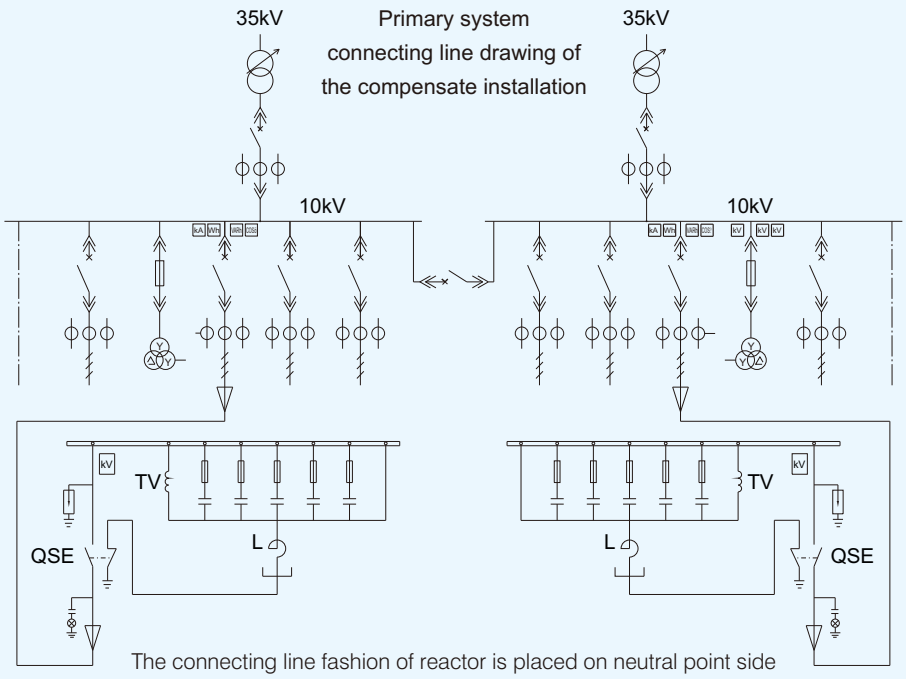
6.2.1 Configuration of cabinet.

High Voltage Capacitor

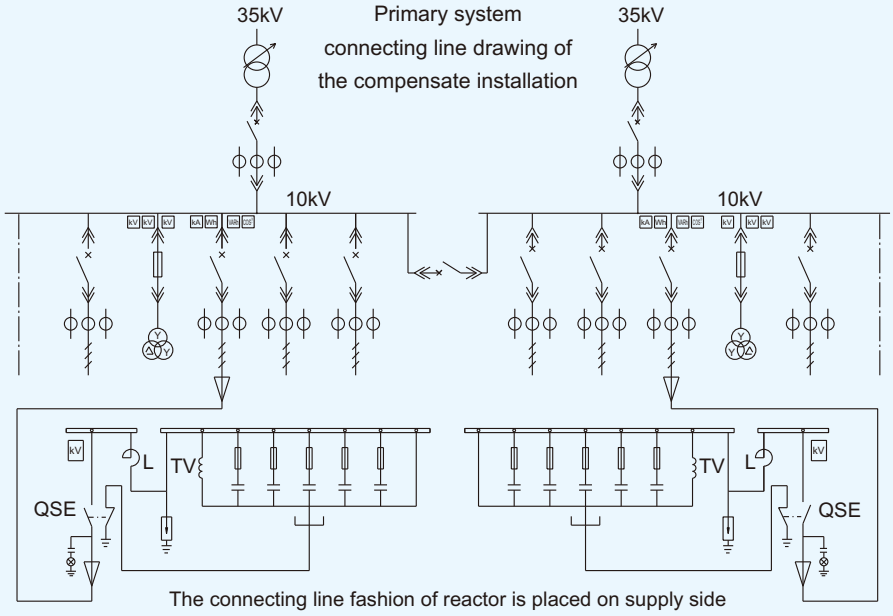
The technology parameter of compensate installation of shunt capacitor.

No.	Type spec	Rated parameter Ue(kV)	Ie(A)	Qe(kvar)	Shunt capacitor	Outline dimension (L×W×H)	Drawing No.
1	TBB10-800/134-AK	11/ √3	42	800	BFM11/ √3-134-1	2200×1350×2600	3
2	TBB10-900/150-AK	11/ √3	47.2	900	BFM11/ √3-150-1		
3	TBB10-1000/167-AK	11/ √3	52	1000	BFM11/ √3-167-1		
4	TBB10-1200/200-AK	11/ √3	63	1200	BFM11/ √3-200-1		4
5	TBB10-1500/250-AK	11/ √3	78.7	1500	BFM11/ √3-250-1		
6	TBB10-1600/267-AK	11/ √3	84	1600	BFM11/ √3-267-1		

Drawing 1

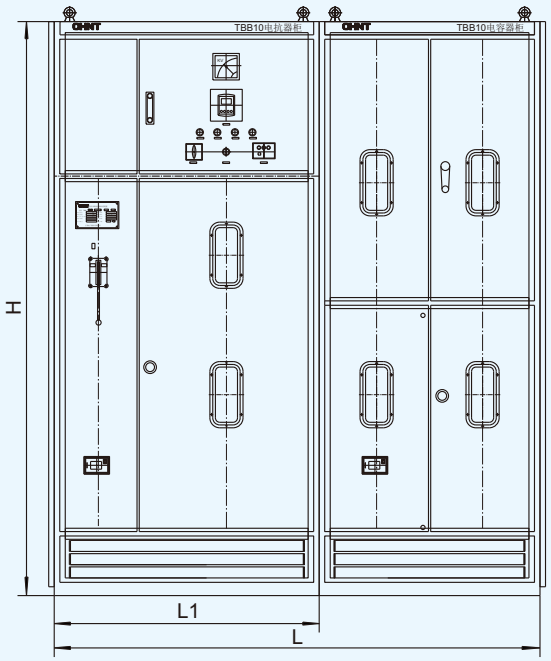


Drawing 2



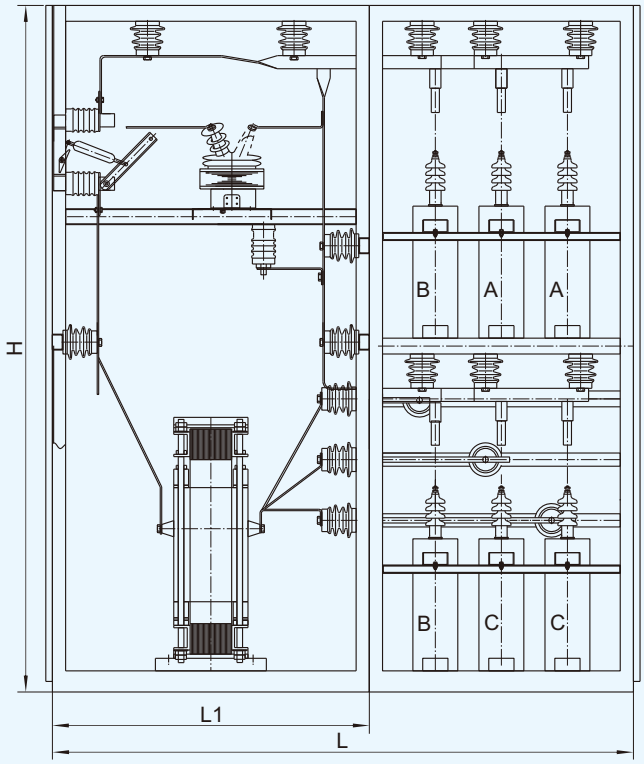
6.2.1.1 Outline drawing of the reactor is placed on neutral point side.

Drawing 3 outline of the compensate installation of shunt capacitor.



6.2.1.2 Inside configuration of the reactor is placed on neutral point side.

Drawing 4 Inside configuration drawing of the compensate installation of shunt capacitor.



6.2.2 Another type of series reactor is placed on neutral point side.

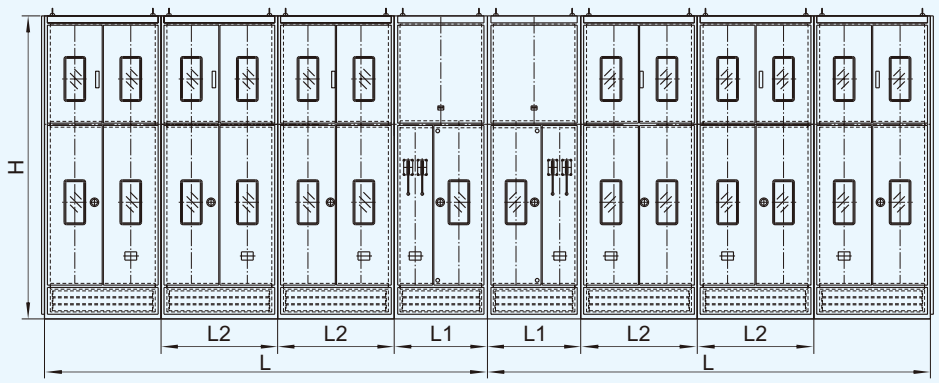
The technology parameter of compensate installation of shunt capacitor.

Table 2

No.	Type spec	Rated parameter Ue(kV)	Ie(A)	Qe(kvar)	Shunt capacitor	Outline dimension (L×W×H)	Drawing No.
1	2×TBB10-1200/200-AK	11/ √3	63	1200	BFM11/ √3-200-1	7600×1400×2600	5
2	2×TBB10-1404/234-AK	11/ √3	73.6	1404	BFM11/ √3-234-1		
3	2×TBB10-1500/250-AK	11/ √3	78.4	1500	BFM11/ √3-250-1		
4	2×TBB10-1602/267-AK	11/ √3	84	1602	BFM11/ √3-267-1		6
5	2×TBB10-1800/300-AK	11/ √3	94.4	1800	BFM11/ √3-300-1		
6	2×TBB10-2004/334-AK	11/ √3	105	2004	BFM11/ √3-334-1		
7	2×TBB10-2400/400-AK	11/ √3	126	2400	BFM11/ √3-400-1		

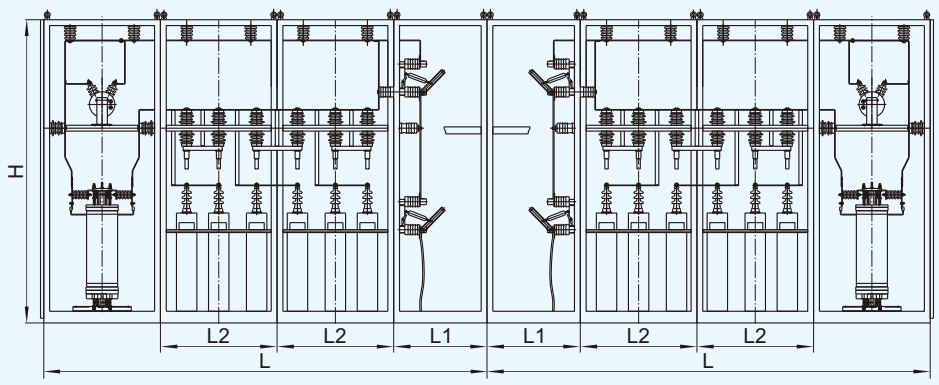
6.2.2.1 Outline of series reactor is placed on neutral point side.

Drawing 5 Outline and fixing dimension of the compensate installation of shunt capacitor.



6.2.2.2 Inside configuration drawing of series reactor is placed on neutral point side.

Drawing 6 Inside configuration of the compensate installation of shunt capacitor.



6.3 Hollow reactor is placed on supply side.

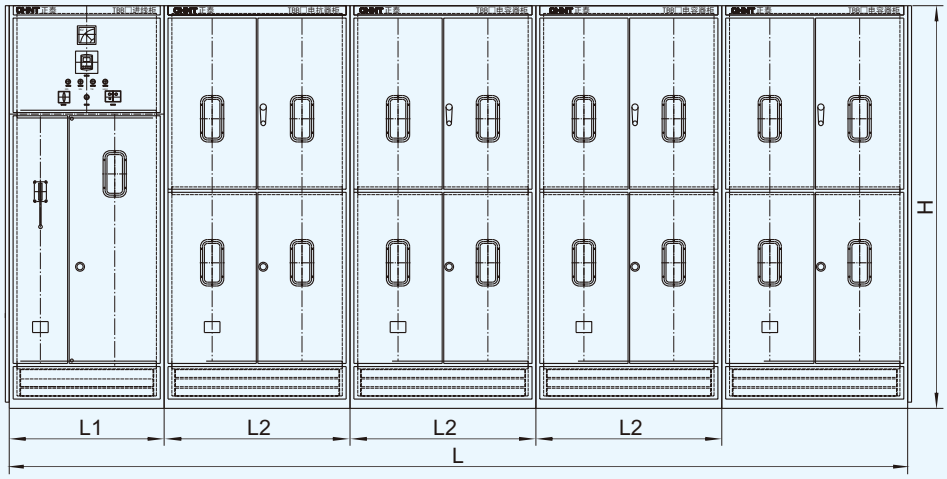
The technology parameter of compensate installation of shunt capacitor.

Table 3

No.	Type spec	Rated parameter Ue(kV)	Ie(A)	Qe(kvar)	Shunt capacitor	Outline dimension (L×W×H)	Drawing No.
1	TBB10-4008/167-AK	11/ √3	210	4008	BFM11/ √3-167-1	5800×1600×2600	7
2	TBB10-4800/200-AK	11/ √3	252	4800	BFM11/ √3-200-1		
3	TBB10-5616/234-AK	11/ √3	295	5616	BFM11/ √3-234-1		
4	TBB10-6000/250-AK	11/ √3	315	6000	BFM11/ √3-250-1		
5	TBB10-6408/267-AK	11/ √3	336	6408	BFM11/ √3-267-1		8
6	TBB10-7200/300-AK	11/ √3	378	7200	BFM11/ √3-300-1		
7	TBB10-8016/334-AK	11/ √3	420	8016	BFM11/ √3-334-1		
8	TBB10-9600/400-AK	11/ √3	504	9600	BFM11/ √3-400-1		

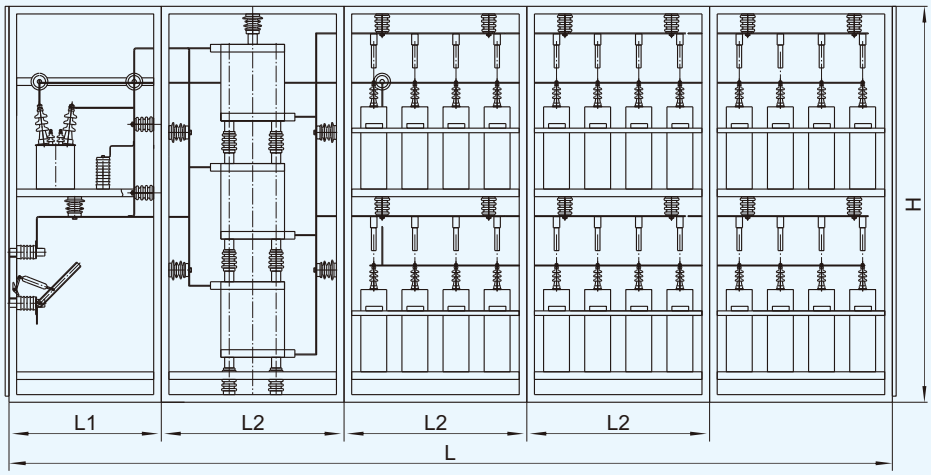
6.3.1 Outline and fixing of the compensate installation of shunt capacitor (using dry type hollow reactor).

Drawing 7 Outline of the compensate installation of shunt capacitor (reactor is placed on supply side).



6.3.2 Inside configuration drawing of series reactor is placed on supply side.

Drawing 8 Inside configuration of the compensate installation of shunt capacitor (reactor is placed on supply side).



6.4 Another type of series reactor is placed on supply side.

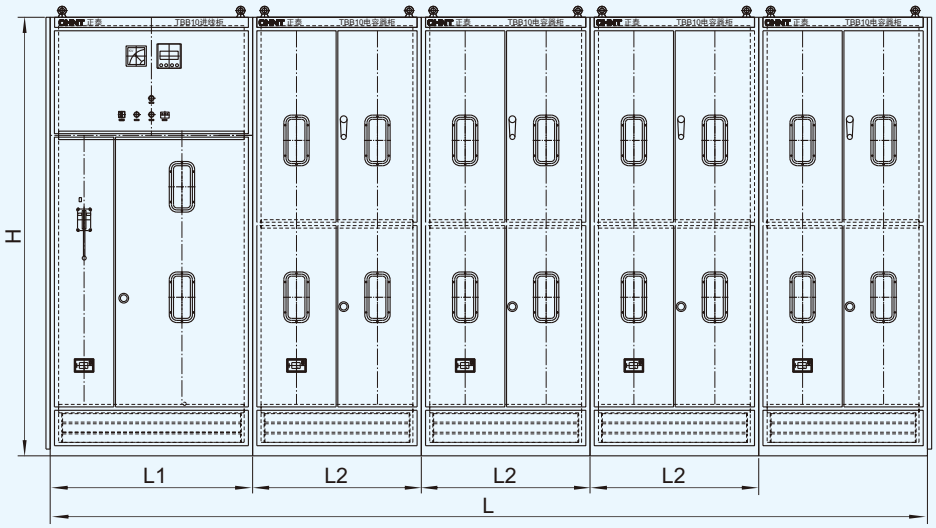
The technology parameter of compensate installation of shunt capacitor.

Table 4

No.	Type spec	Rated parameter Ue(kV)	Ie(A)	Qe(kvar)	Shunt capacitor	Outline dimension (L×W×H)	Drawing No.
1	TBB10-2400/100-AK	11/ √3	126	2400	BFM11/ √3-100-1	5200×1200×2600	9
2	TBB10-3000/125-AK	11/ √3	157.4	3000	BFM11/ √3-125-1		
3	TBB10-3216/134-AK	11/ √3	168.8	3216	BFM11/ √3-134-1		
4	TBB10-3600/150-AK	11/ √3	188.9	3600	BFM11/ √3-150-1		10
5	TBB10-4008/167-AK	11/ √3	210.3	4008	BFM11/ √3-167-1		
6	TBB10-4800/200-AK	11/ √3	252	4800	BFM11/ √3-200-1		

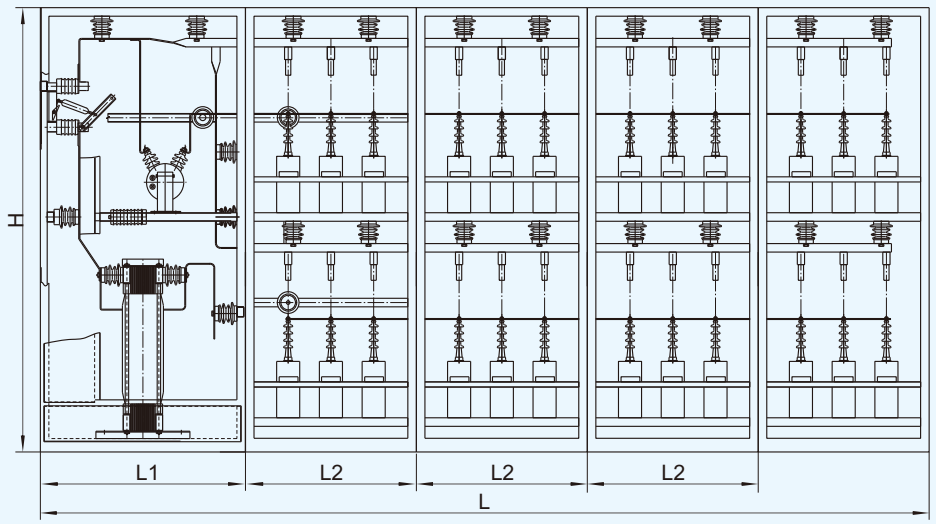
6.4.1 Another type of series reactor is placed on front side.

Drawing 9 Outline and fixing dimension of the compensate installation of shunt capacitor (reactor is placed on supply side).



6.4.2 Another inside configuration of series reactor is placed on supply side.

Drawing 10 Inside configuration drawing of the compensate installation of shunt capacitor (reactor is placed on supply side).



6.5 The frame type of compensate installation of shunt capacitor.

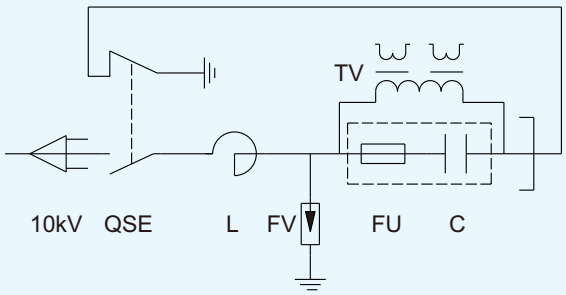
6.5.1 The technology parameter of installation

Table 5

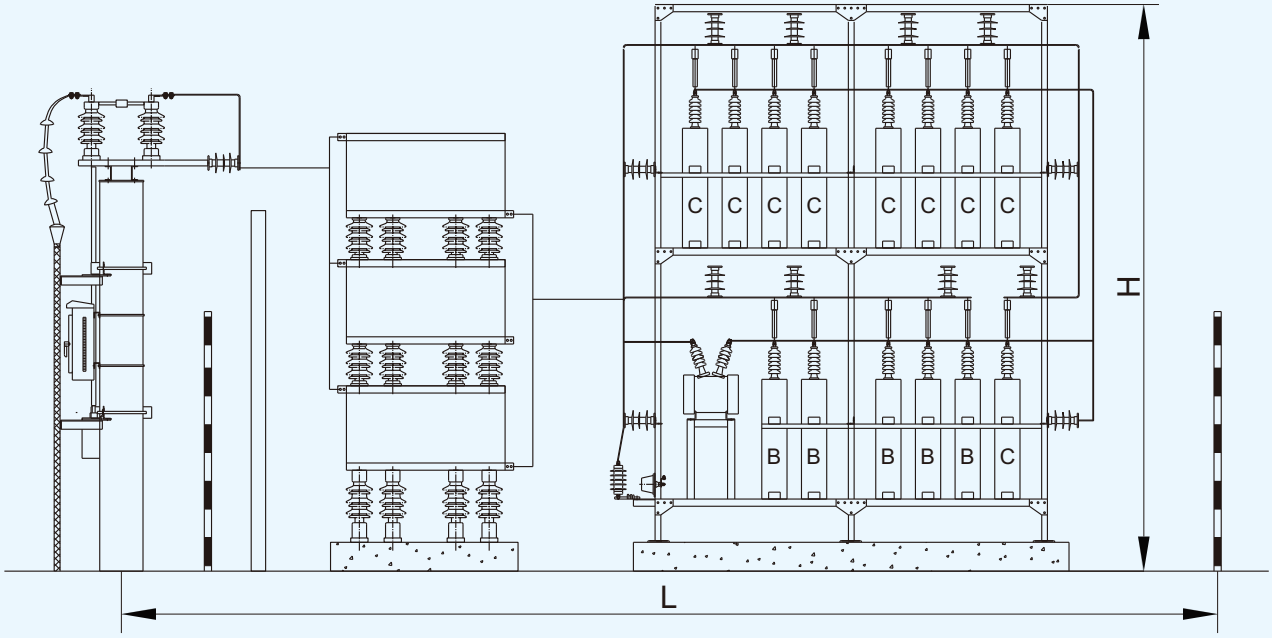
No.	Type spec	Rated parameter Ue(kV)	Ie(A)	Qe(kvar)	Shunt capacitor	Outline dimension (L×W×H)	Drawing No.
1	TBB10-2400/200-AKW	11/ √3	126	2400	BFM11/ √3-200-1W	5400 × 3000 × 3920	11
2	TBB10-3000/200-AKW	11/ √3	157	3000	BFM11/ √3-200-1W	6200 × 3000 × 3920	
3	TBB10-4500/300-AKW	11/ √3	236	4500	BFM11/ √3-300-1W	6200 × 3000 × 3920	
4	TBB10-4800/400-AKW	11/ √3	252	4800	BFM11/ √3-400-1W	5400 × 3000 × 3920	
5	TBB10-6000/400-AKW	11/ √3	315	6000	BFM11/ √3-400-1W	6200 × 3000 × 3920	
6	TBB10-7500/500-AKW	11/ √3	393	7500	BFM11/ √3-500-1W	6800 × 3600 × 3920	
7	TBB10-9000/334-AKW	11/ √3	472	9000	BFM11/ √3-334-1W	7000 × 3600 × 3920	
8	TBB10-21600/450-BLW	11/ √3	1134	21600	BFM11/ √3-450-1W	7600 × 7000 × 3300	12
9	TBB10-2000+2000-AKW	11/ √3	105+105	4000	BFM11/ √3-334-1W	6600 × 4800 × 4300	13
10	TBB10-3000+3000-AKW	11/ √3	157+157	6000	BFM11/ √3-334-1W	7600 × 4800 × 4300	
11	TBB10-3600+3600-AKW	11/ √3	189+189	7200	BFM11/ √3-300-1W	7800 × 4800 × 4300	
12	TBB10-4800+4800-AKW	11/ √3	252+252	9600	BFM11/ √3-400-1W	7800 × 4800 × 4300	
13	TBB10-2100+4200-AKW	11/ √3	110+220	6300	BFM11/ √3-350-1W	7800 × 4800 × 4300	14
14	TBB10-2400+4800-AKW	11/ √3	126+252	7200	BFM11/ √3-400-1W	8000 × 5000 × 4300	
15	TBB10-4800+9600-AKW	11/ √3	252+504	14400	BFM11/ √3-400-1W	9000 × 6000 × 4300	
16	TBB35-4000/334-ACW	11×2	60	4000	BFM11-334-1W	6000 × 7000 × 3700	15
17	TBB35-6000/500-ACW	11×2	91	6000	BFM11-500-1W	6600 × 7200 × 3700	
18	TBB35-8000/334-ACW	11×2	120	8000	BFM11-334-1W	6000 × 7000 × 3700	
19	TBB35-9000/500-ACW	11×2	136	9000	BFM11-500-1W	6600 × 7200 × 3700	
20	TBB35-9600/400-ACW	11×2	145	9600	BFM11-400-1W	9000 × 7300 × 3700	
21	TBB35-12000/500-ACW	11×2	181	12000	BFM11-500-1W	6000 × 7200 × 3700	
22	TBB66-10020/167AQW	20×2	83.5	10020	BFM20-167-1W	8000 × 8000 × 4000	16
23	TBB66-15000/250-AQW	20×2	125	15000	BFM20-250-1W	8000 × 8000 × 4000	
24	TBB66-18000/300-AQW	20×2	150	18000	BFM20-300-1W	8000 × 8000 × 4000	
25	TBB66-20040/334-AQW	20×2	167	20040	BFM20-334-1W	8000 × 8000 × 4000	
26	TBB66-36000/500-AQW	20×2	300	36000	BFM20-500-1W	10000 × 10000 × 4000	
27	TBB110-12000/167-AQW	5.9×12	56	12000	BFM5.9-167-1W	21000 × 13000 × 6000	17
28	TBB110-28000/195-AQW	5.9×12	132	28000	BFM5.9-195-1W	21000 × 18000 × 6000	

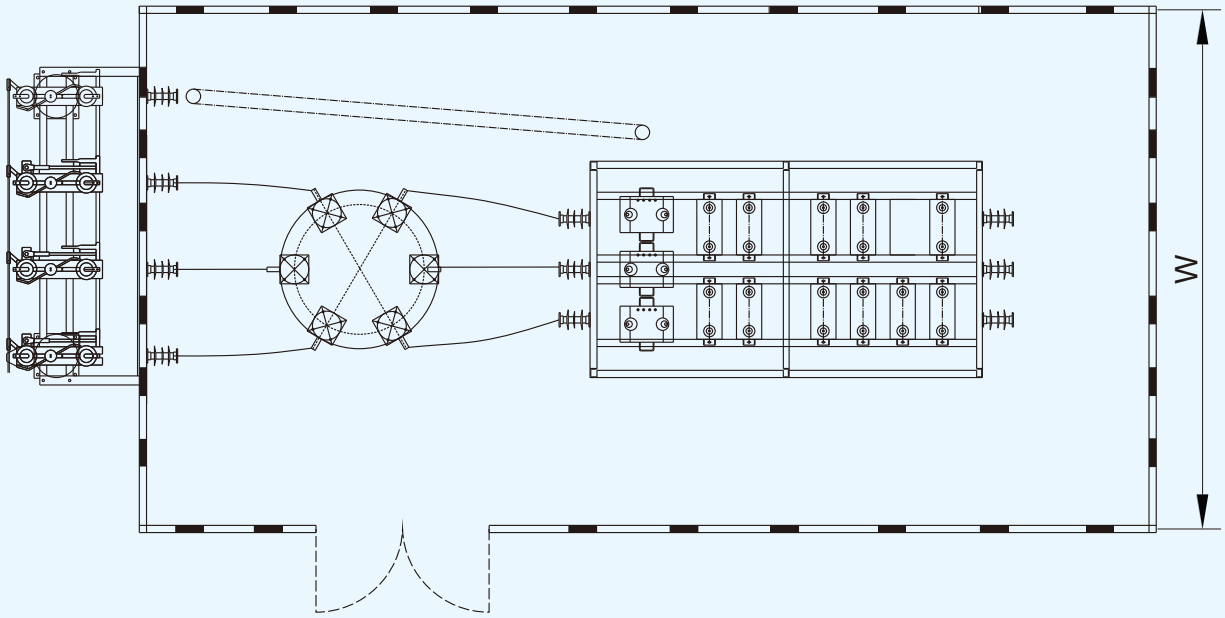
6.5.2 Outline configuration of the installation

Drawing 11

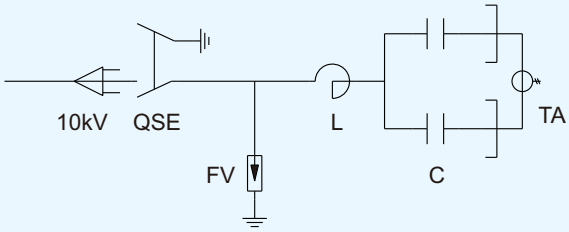


Primary principle drawing of the installation

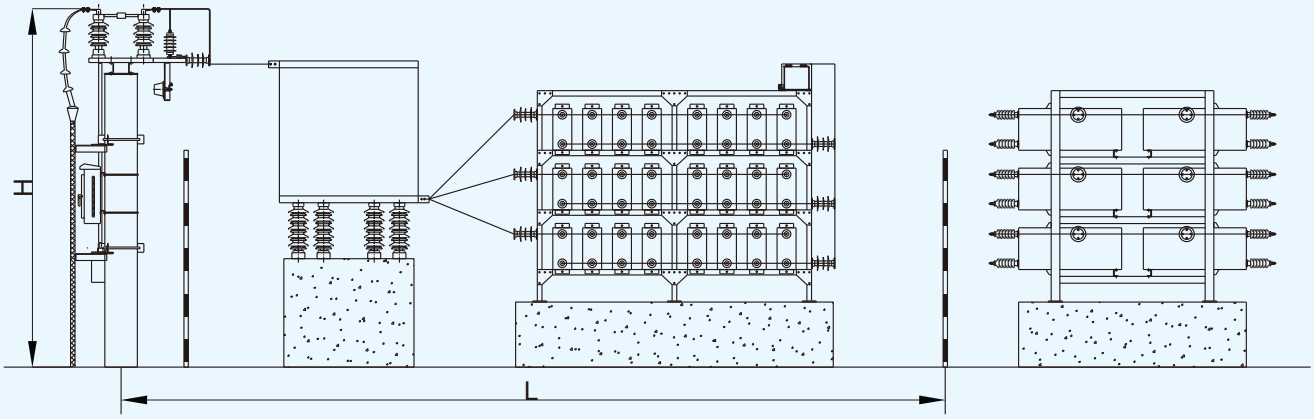


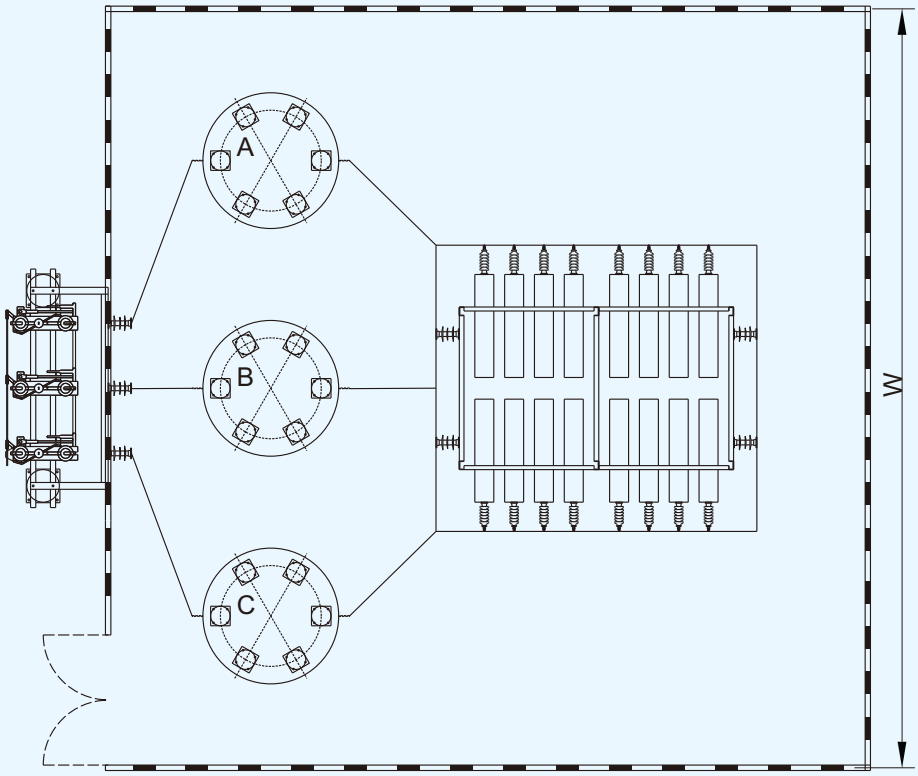


Drawing 12

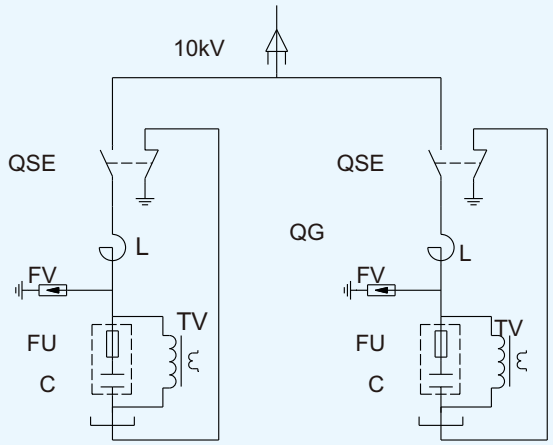


Primary principle drawing of the installation

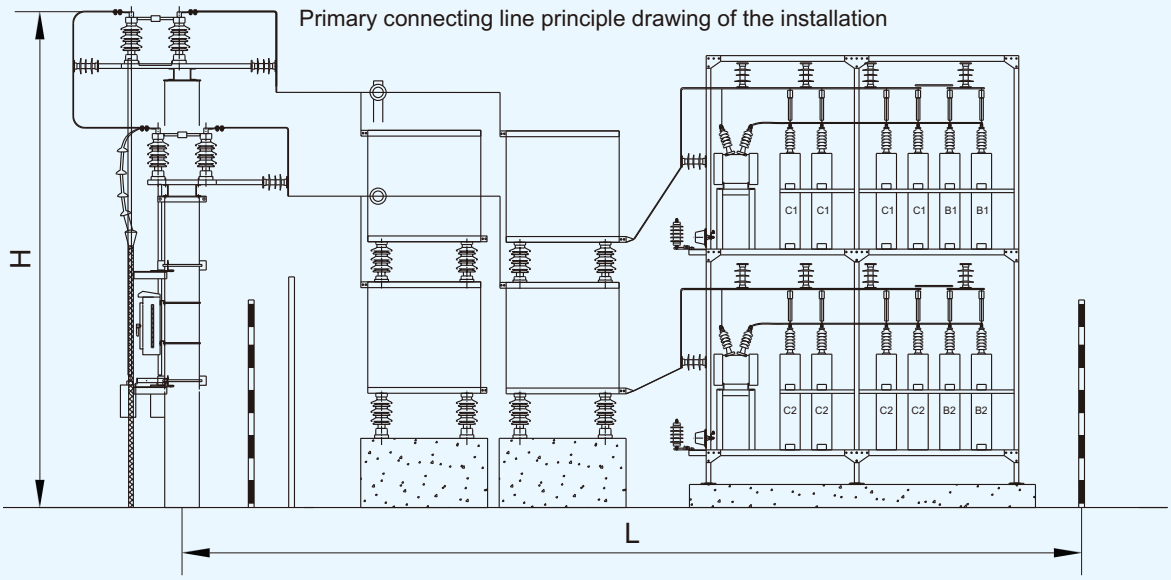


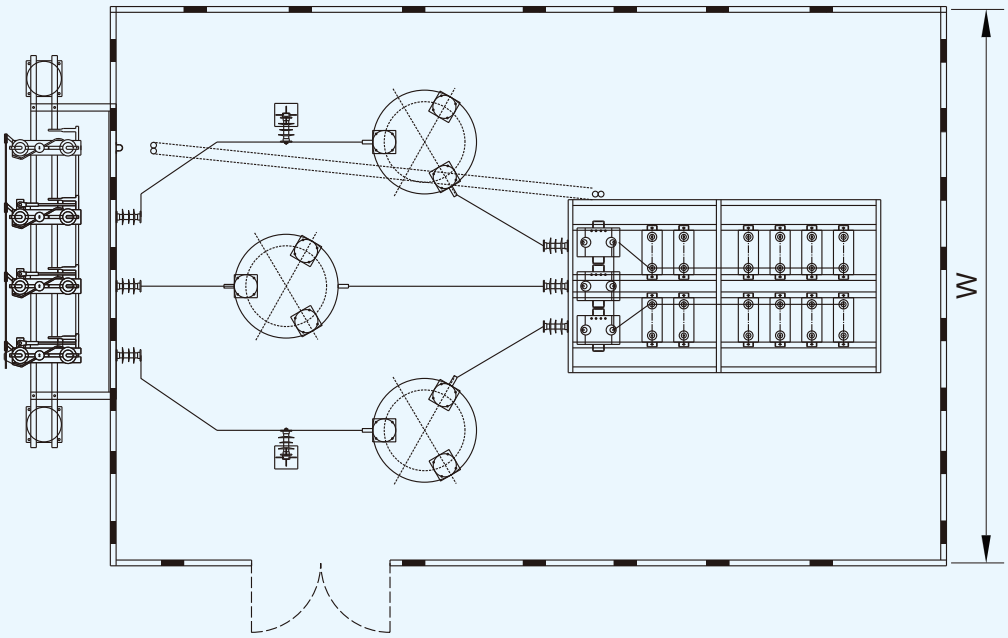


Drawing 13

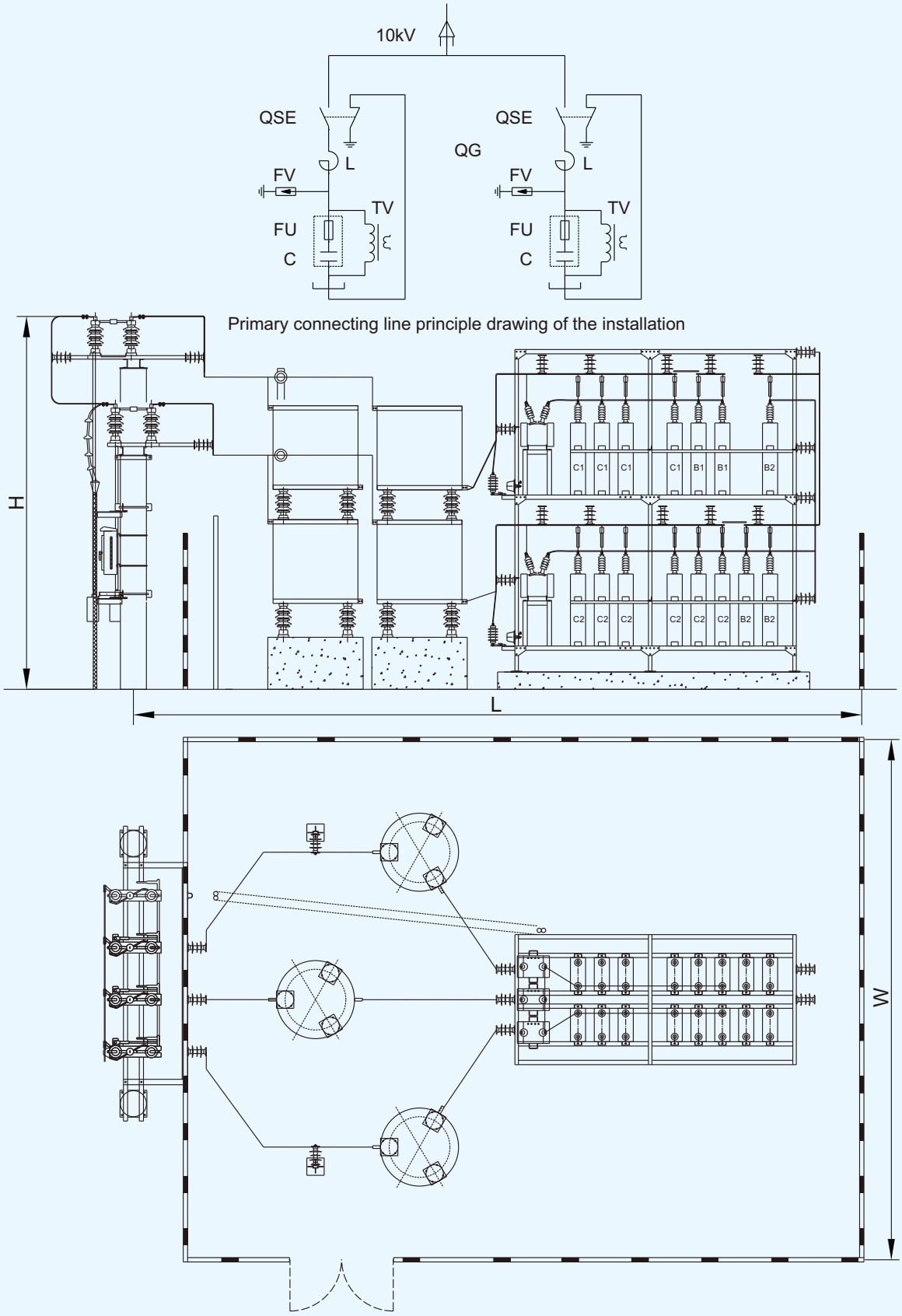


Primary connecting line principle drawing of the installation

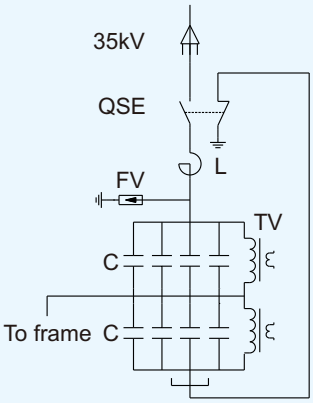




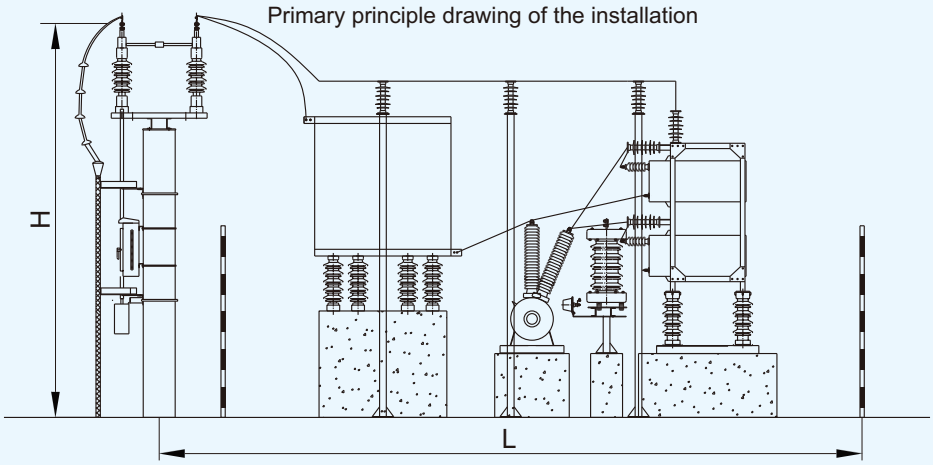
Drawing 14

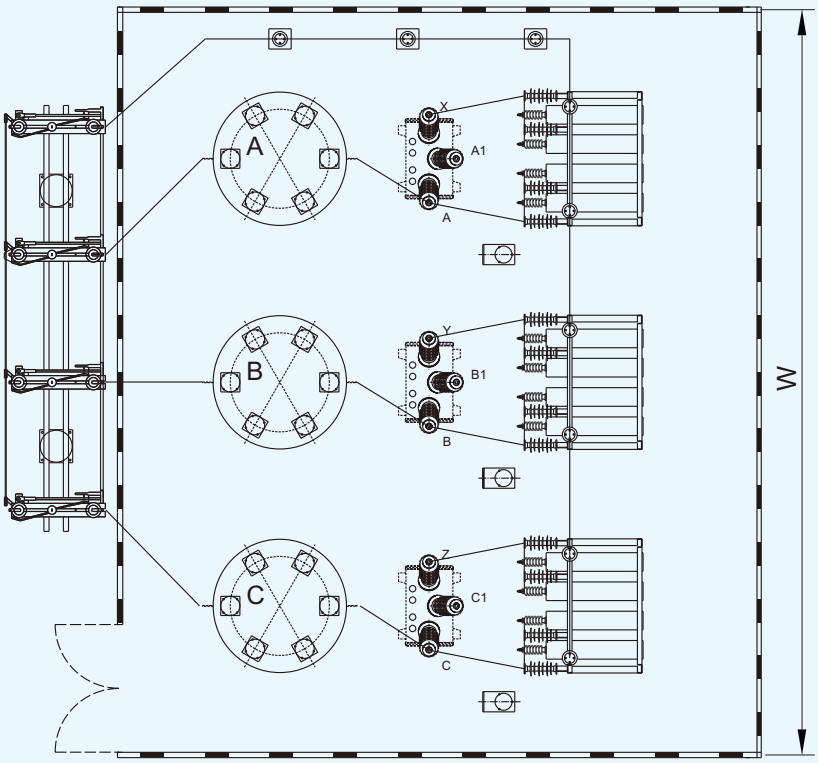

10kV
QSE
QSE
QG
L
L
FV
FV
TV
TV
FU
FU
C
C
Primary connecting line principle drawing of the installation
H
C1
C1
C1
C1
B1
B1
B2
C2
C2
C2
C2
C2
C2
B2
B2
L
W

Drawing 15

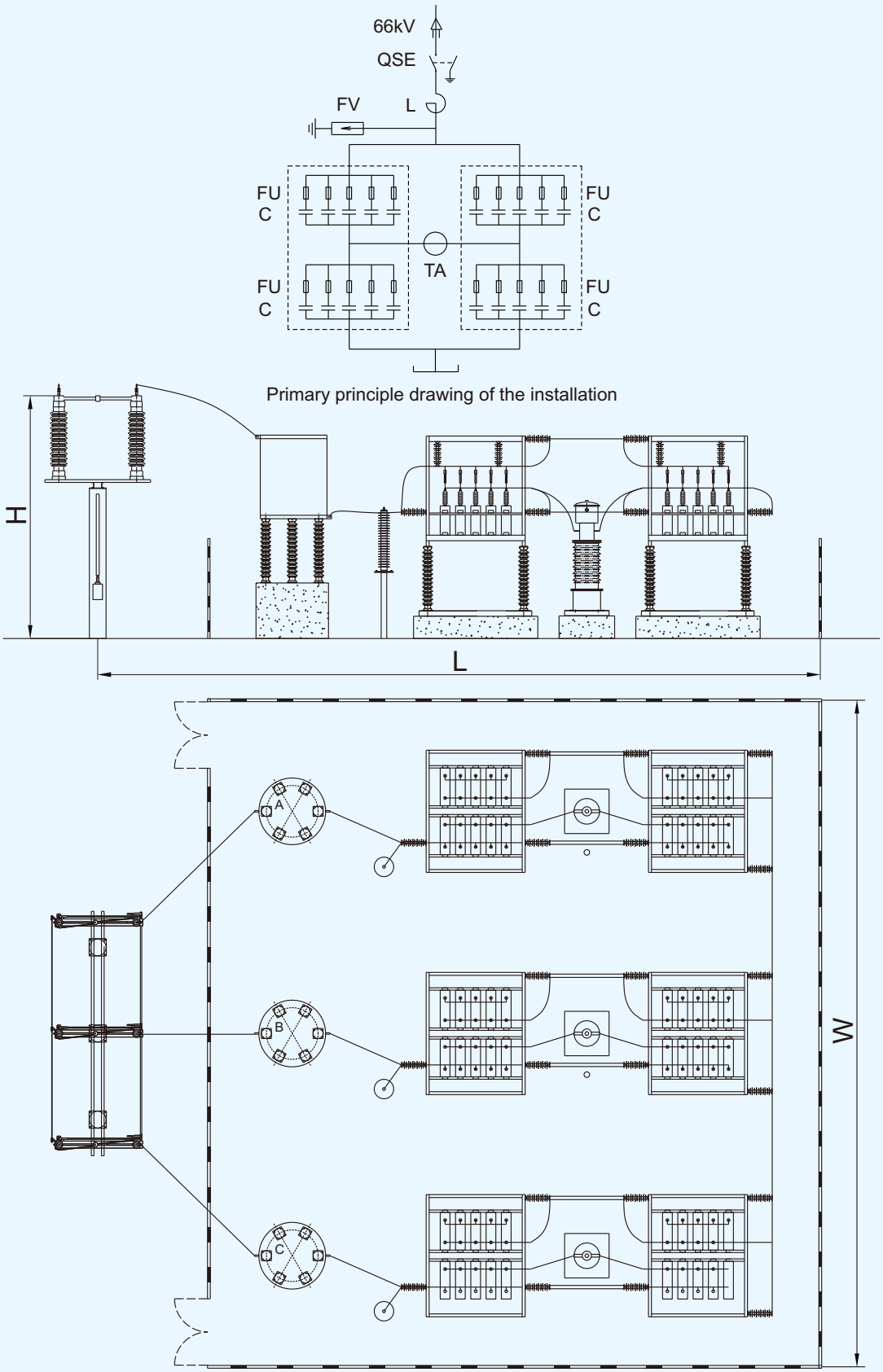


Primary principle drawing of the installation

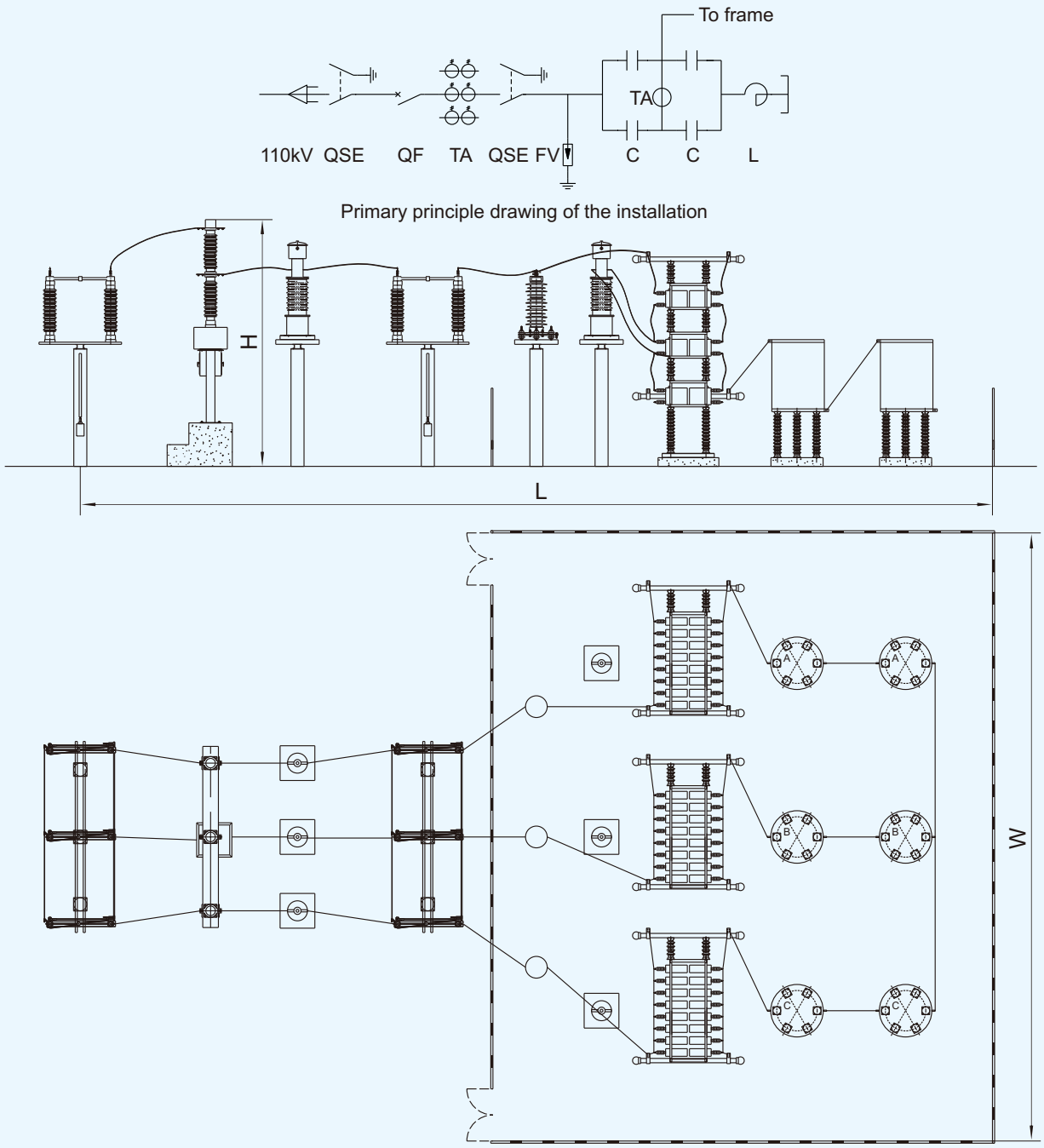




Drawing 16


66kV
QSE
FV
L
FU
C
FU
C
TA
FU
C
FU
C
Primary principle drawing of the installation
H
L
A
B
C
W

Drawing 17



7. The notice of user subscribe for goods

7.1 The subscribe for goods by user want to write about type, spec, quantity and high order harmonic condition in network,and configure demand for discharge wingding,series reactor and shunt capacitor.

7.2 User must provide fashion of primary connecting line and secondary protecting, and room plane disposal and dissect drawing(Up enter line or below enter line;left or right enter line;use cable or busbar).

7.3 The short circuit discharge capability Sd of compensate installation.

7.4 The altitude, temperature and air condition.

7.5 The time of deliver for goods and fashion of transport.

7.6 If there is special demand, deliver a letter to consult, please.