

# 鼓形无励磁分接开关

Off-circuit cylinder tap changer

安装使用说明书

Installation instructions

辽宁金立电力电器有限公司

*Liaoning Jinli Electric Power Electrical Appliance Co., Ltd*

## 1. 产品应用范围及特点

### 1. APPLICATION SCOPE AND FEATURES OF THE PRODUCT

本系列产品适用于变压器额定电压等级 220KV 及以下，额定电流 3000A 及以下各种油浸式变压器，在变压器无励磁状态下改变开关分接位置从而改变变压器线圈有效匝数，达到改变变压器变比，调整和稳定输出电压的目的。

本产品外观简洁，安装尺寸小，安装方式灵活，操作手感强，触头具有自动归位功能，接触可靠，不易误操作，开关与变压器连接简便，电场分布均匀，布局灵活，便于变压器小型化设计。

The series of this product is applicable to kinds of oil immersed transformers with rated voltage 220KV and below as well as rated current 3000A and below. The effective number of turns of transformer coil can be changed by changing tap-changer position when the transformer is in non-excitation status, so to change transformation ratio, adjust and stabilize output voltage.

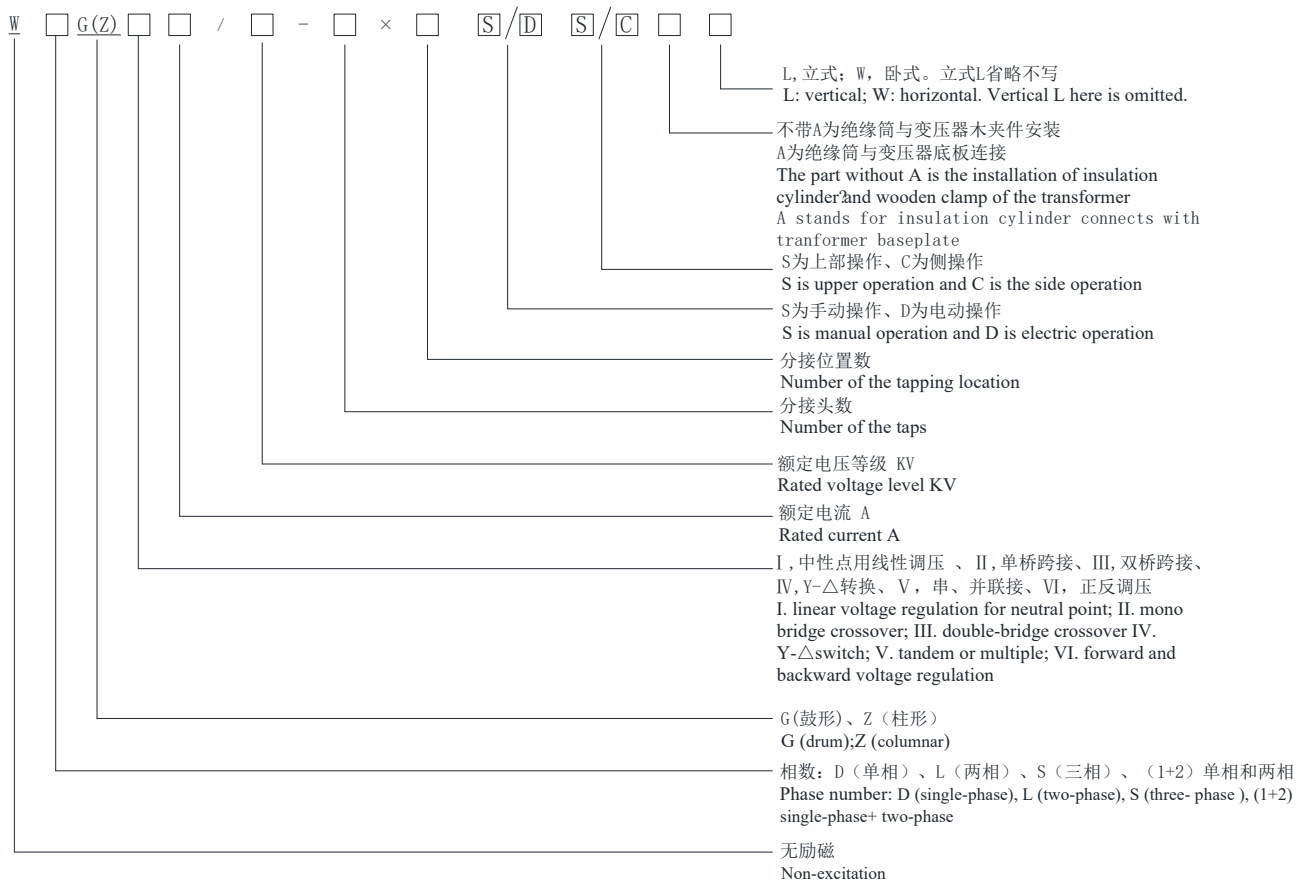
With simple appearance, small size of installation, flexible installation method, strong operation handle, automatic homing of contact, reliable touch, hard to operate wrongly, simple connection between switch and transformer, uniform electric field distribution, flexible layout, the transformer is easy to be miniaturized.

### 2. 无励磁鼓形、柱形分接开关主要技术参数

主要性能参数 Main performance parameter 设备最高工作电压 (KV) 接线方式 Wiring method of the highest working voltage (KV) of the equipment		绝缘水平 (KV) Insulation level (KV)						密封性能 Sealing performance	机械寿命 (次) Mechanical life (times)	额定通过电流 (A) Rated through-current (A)	短路能力 Short-circuit capacity	
		工频 (1min) Power frequency (1min)			冲击 (1.2/50 μs) Impact (1.2/50 μs)						热稳定 (3s) Thermal stability (3s) (KA)	动稳定 (KA) Dynamic stability (KA)
		对地 Over the ground	相间 Phase to phase	触头间首末间 In the contacts Between the first and end	对地 Over the ground	相间 Phase to phase	触头间 In the contacts					
12	(Y, Δ)	45	45	20	100	100	70	0.25MPa 24h	2000	250	5	12.5
40.5	Y	100	40	30	230	120	90			400	6	15
	Δ	100	100	30	230	230	90			630	7.5	18.75
72.5	Y	160	100	30	230	230	90			800	8	20
	Δ	160	160	45	350	350	150			1000	10	25
126	Y	230	140	45	550	350	150			1250	12.5	31.25
	Δ	230	230	55	550	550	175			1600	16	40
252		460	*	90	1050		285			2000	20	50

## 2. 无励磁鼓形、柱形分接开关产品型号说明

### 2. Specification instructions for non-excitation drum, columnar tap- switch



注: 1.当开关轴向出线并是单相时, 开关型号用(WDG), 如果不是用W□Z开头;

2.由于产品型号较多, 在选型时请准确书写型号和确认外形尺寸;

3.如果手动操作需要带远程位置显示请在S后加Y

例如: WDG II 630/40.5-6X5 S(Y)C W 此型号代表的意义为无励磁单相鼓形中部单桥跨接, 额定电流 630A, 额定电压 40.5KV, 手动(带远程档位显示), 侧操作, 6个分接头, 5个档位, 卧式安装。

4.WDZ 和 WLZ 一同使用时简写为 W(1+2)Z。

Note:

1. When the switch outgoing wire in axle and single-phase, switch specification shall use (WDG) rather than the one with W□Z as initial;

2. Since there are lots of specifications for the products, please write the specification accurately and confirm the appearance size;

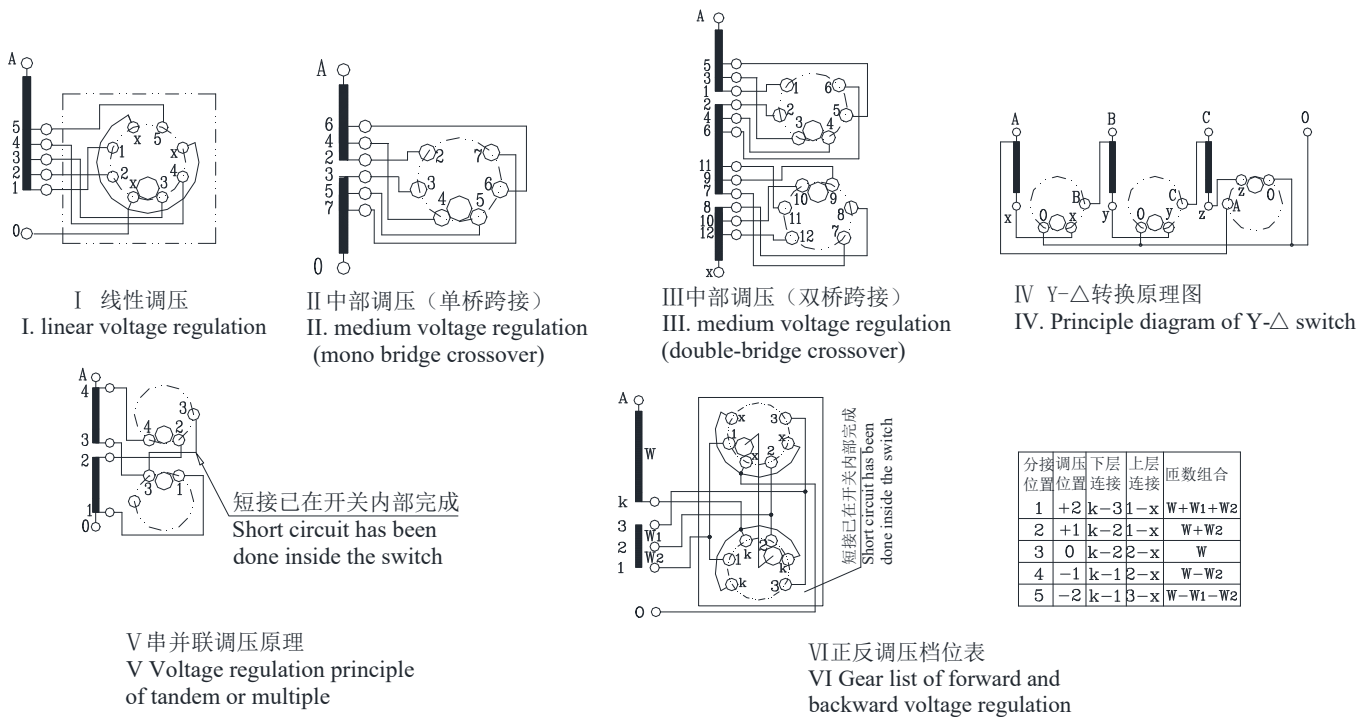
3. Y shall be added behind S if the remote location display is needed by manual operation

For example: WDG II 630/40.5-6X5 S(Y)C W refers to Non-excitation single-phase drum medium mono bridge crossover with rated current as 630A and rated voltage as 40.5KV. It is operated manually (equipped with remote gear display) with side operation, 6 taps, 5 gears and installed horizontally.

4. WDZ and WLZ can be written together as W(1+2)Z for short.

## 4.工作原理及基本接线图

### 4. Working principle and basic wiring diagram



## 5.用户选型与使用须知:

### 5. Selection and application notice for users::

1. 本产品采用操作部分与本体部分分离设计, 安装方式灵活多样, 选型时请按需要的操作机构和本体的型号进行组合选取。

Operation part and product body are separated and in flexible installation method. Please select the operation mechanism and product body specification in composition according to your demand.

2. 开关标配引线和操纵绝缘杆, 如有特殊要求请在合同和订货通知书中明确注明, 操纵绝缘杆在安装使用前需要随开关干燥, 干燥后方可使用。引线外部包有绝缘纸, 包绝缘纸厚度如有特殊要求请注明。

The standard lead wire and operation insulation rod are equipped for the switch. Please note it in the contact and order notice clearly if there is any special requirement. The operation insulation rod shall be dried with the switch before installation and then it can be used. The lead wire is wrapped with insulation paper outside. Please note it if there is any special requirement for thickness of the insulation paper.

3. 基本型号中开关无△符号均指变压器中性点接法。

When there is no  $\Delta$  in the basic specification, it refers to the neutral point solution.

4. 开关电流等级的选择应留有相应的裕度, 建议预留 20%的裕度。

It is suggested a 20% residual shall be left for the current level of the switch.

5. 开关电压等级的选择应满足主绝缘和纵绝缘的工频和冲击要求。如有特殊要求请注明。

Selection of the switch voltage shall meet power frequency and impact requirements of main insulation and longitudinal insulation. Please specify it if there is any special requirement.

6. 订货前请向本公司索取《订货规范书》与电子版外形图 (PDF 或 DWG 格式)。

Please ask our company for the Regulations for Ordering and E-version profile drawing (PDF or DWG).

7. 安装夹片式开关时, 开关与变压器夹件固定要稳固, 否则会出现震动后开关本体下移而导致操纵杆离合。

When installing the clamp type switches, switch and transformer clamp shall be fixed firmly, otherwise the operation rod may be on and off which is caused by switch moving downwards after vibration.

8. 开关与变压器线圈抽头进行连接时, 请按开关本体上引线标号与变压器进行连接, 对于径向出线的开关, 在接线时不允许用力敲击引线根部强行弯曲引线, 引线弯曲请采用静碾压的方式, 引线弯曲后根部绝缘会露出引线, 这时请用户自行包扎。

When the switch is connected with the transformer coil pigtail, please connect the switch with transformer

according to the lead wire labeling No. on the switch body. For the radial outgoing line switch, the lead wire root shall not be bended forcibly by striking it hard during the wiring. The lead wire shall be bended in peaceful rolling. When the lead wire is bended, the insulation on the root will expose the lead wire, which needs the user to pack on his own.

9. 开关干燥后，在未经充分润滑的情况下请勿进行打档操作，以免损害开关。开关操作机构与开关本体是分离的，干燥时不必干燥开关的操作机构。

When switch is dried, the gear cannot be put on when the switch is not lubricated thoroughly to avoid damage to it. The switch operation mechanism and switch body are separate, so there is no need to dry operation mechanism during the drying.

10. 开关操作机构设有机械限位，打档位时请勿超于开关极限档位，以免损害开关。打档时请使用冲击力操作。

The mechanical limit is set up in switch operation mechanism. Please do not exceed the switch limit gear when pulling up it to avoid damage to the switch. Please use impact operation during pulling up the gear.

11. 开关操作或传动机构在场内吊芯检查或现场调试时，如需拆卸机构，请在拆卸前做上标记，装配完成后请打档操作，并测试直流电阻、变比、以验证安装正确。

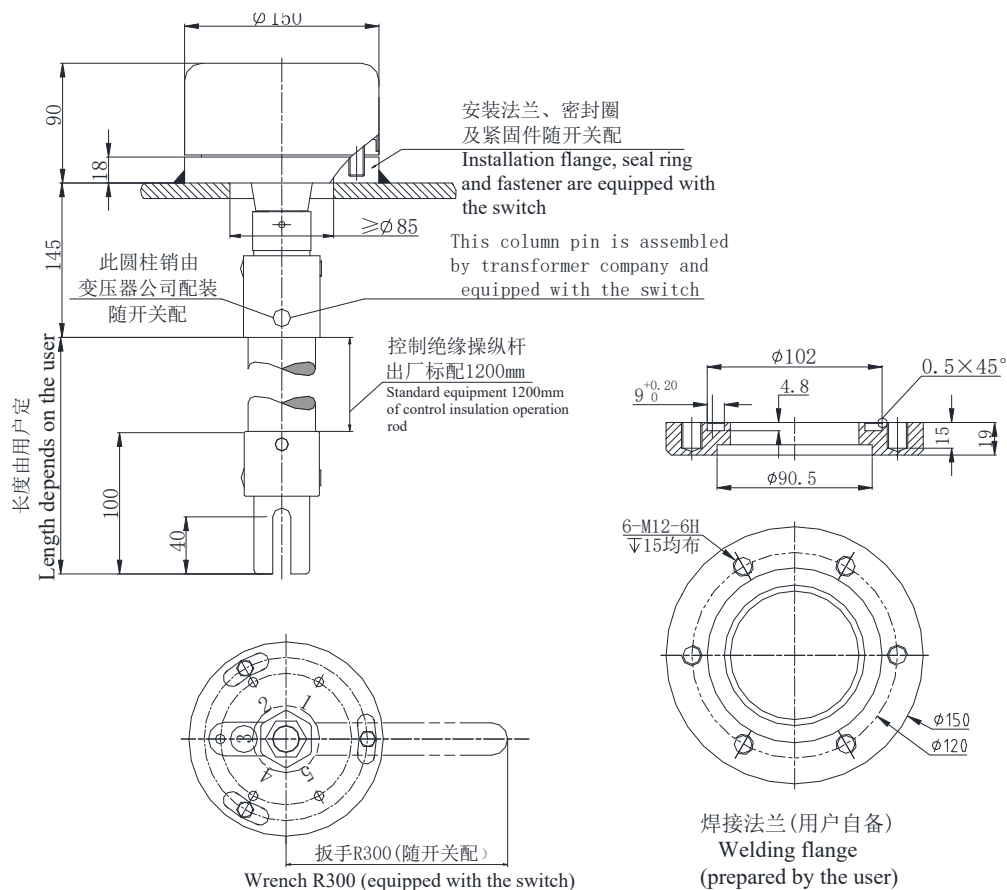
When the operation switch or transmission mechanism is processed with core suspension inspection or on-site commissioning, if the structures are needed to be removed, please mark them before removing them. Please pull up the gear after assembly and test DC resistance changes to verify if the installation correct.

## 6. 操作机构外形图

### Profile diagram of operation mechanism

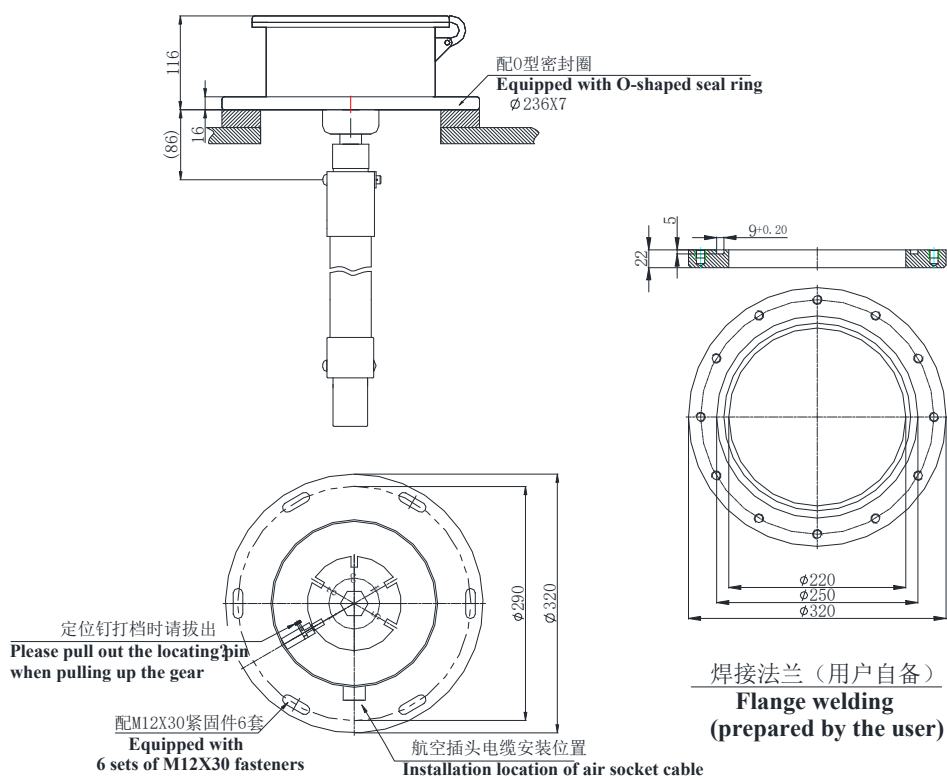
#### (1) 手动上操作 (SS)

##### Upper manual operation (SS)



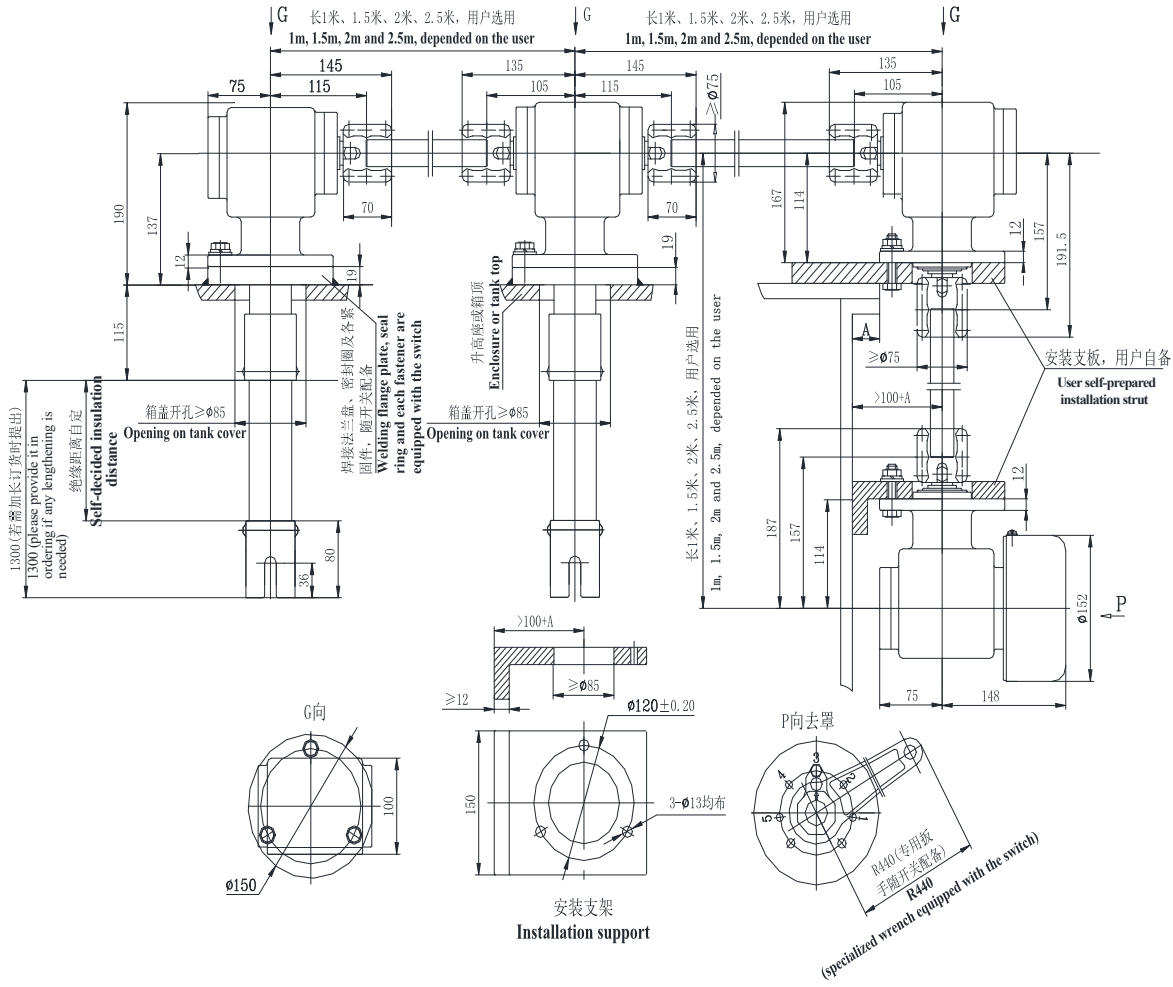
#### (2) 手动上操作 (带远程档位显示) S (Y) S

##### Upper manual operation (equipped with remote gear display) S (Y)S



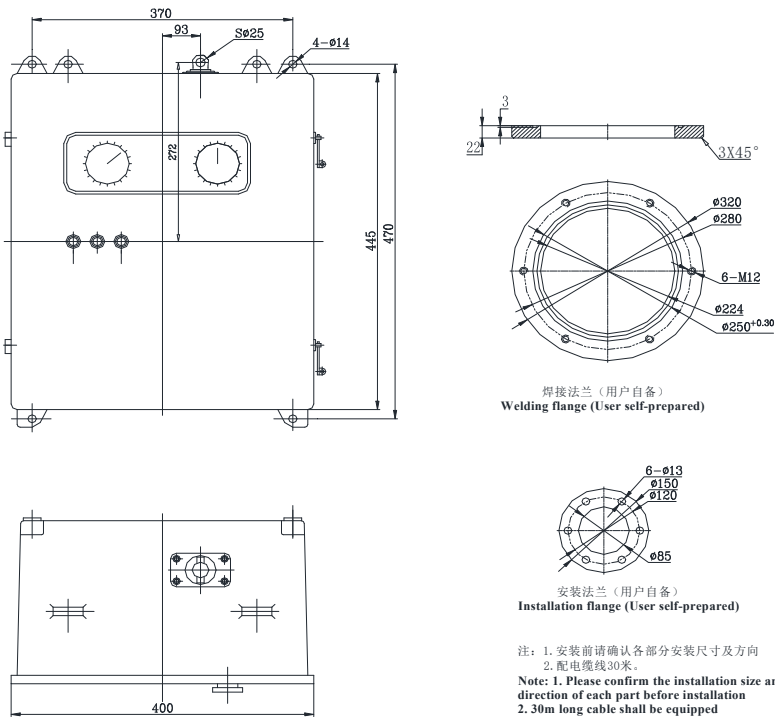
### (3) 手动侧操作 (SC)

#### Side manual operation (SC)

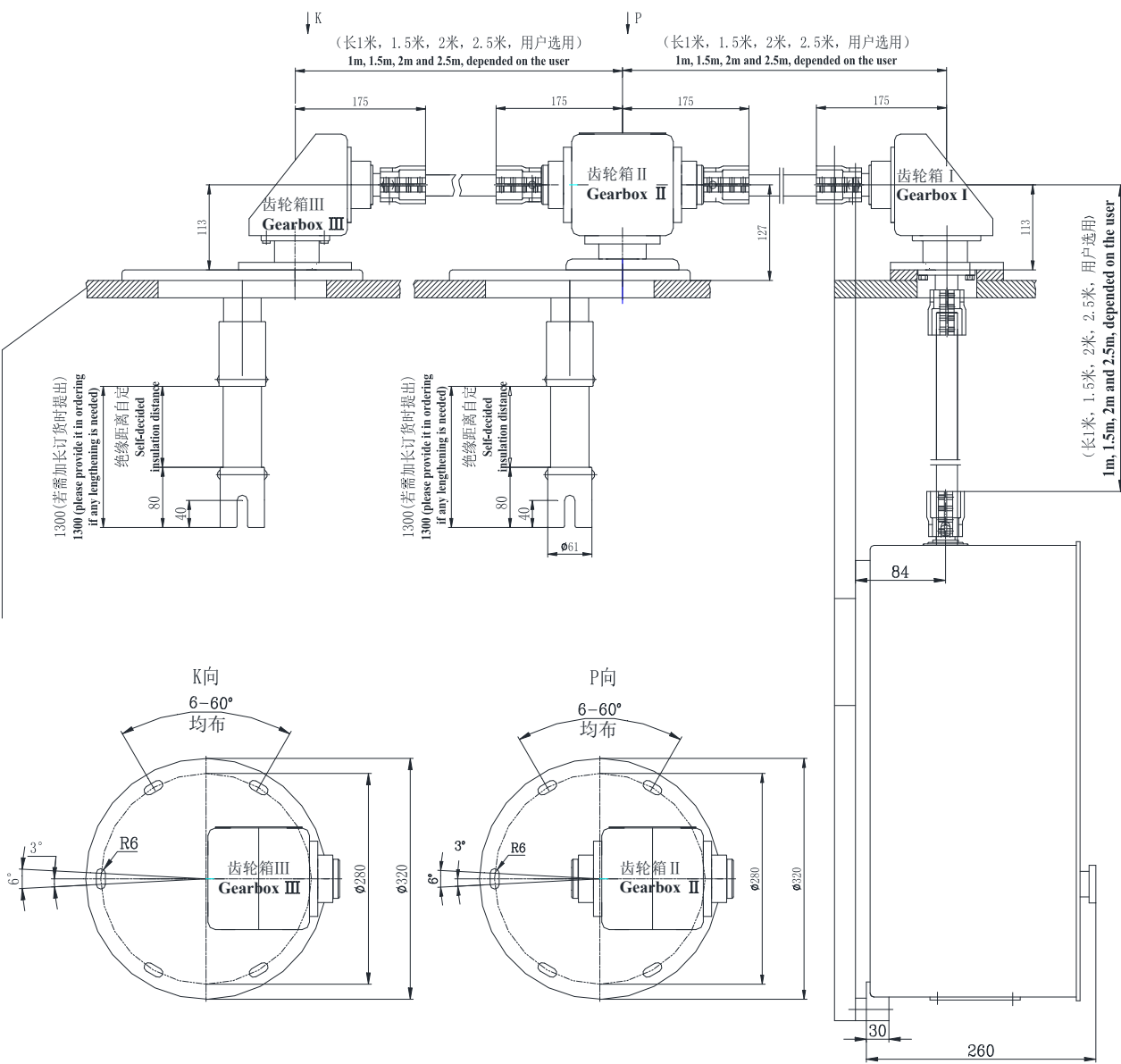


### (3) 电动侧操作 (DC)

#### Side electric operation (DC)



焊接法兰盘、密封圈及各紧固件，随开关配备



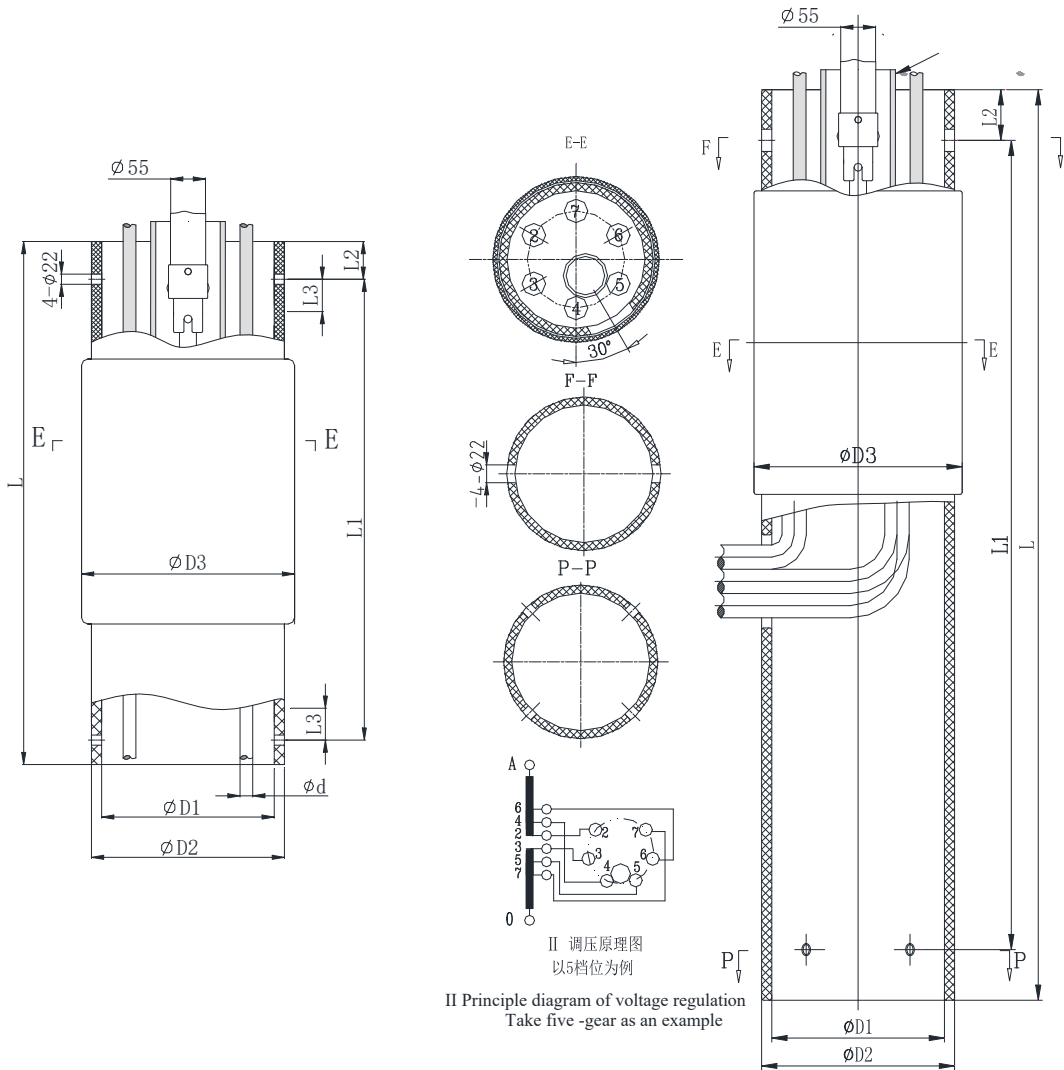


## 7.单相鼓形中部调压单桥跨接外形图 (WDG II)

Profile diagram of single-phase drum medium voltage regulation mono bridge crossover (WDG II)

夹件式安装 Clamp type installation

落地式安装 (A) floor type installation (A)



典型安装尺寸 Typical installation size	电压 Voltage (KV)	电流 Current (A)	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size (mm)								
				D1	D2	D3	L	L1	L2	L3		
WDG II 250~1600/40.5~126-4X3	40.5 126	250~ 1600	3	170	190	205	680	580	50			
WDG II 250~1600/40.5~126-6X5			5									
WDG II 250~1600/40.5~126-8X7			7									
WDG II 250~1000/40.5~126-4X3A			3	170	190	205	1200	1100				
WDG II 250~1000/40.5~126-6X5A			5									
WDG II 250~1000/40.5~126-8X7A			7									
WDG II 2000/40.5~126-6X5	220	800、 1000	5	225	245	260	1000	708	30	60		
WDG II 250~630/220-4X3			3						275	288	312	146
WDG II 250~630/220-6X5			5						275	288	312	

注：1、12KV、20KV 与 40.5KV 尺寸一致，72.5 与 126KV 尺寸一致，如有特殊要求请订货时特殊说明；

2、A 为落地式安装。

3、 $d=1.5\sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5 KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.

2.A is floor type installation.

3.  $d=1.5\sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

## 8. 柱形分接开关外形安装尺寸 (WDZ、WLZ、WSZ)

### Profile installation size of columnar tap-switch (WDZ, WLZ and WSZ)

#### W (1+2) Z 系列外形安装尺寸

#### Profile installation size of W (1+2) Z series

#### W (1+2) Z 线性调压 (I) 外形安装尺寸图

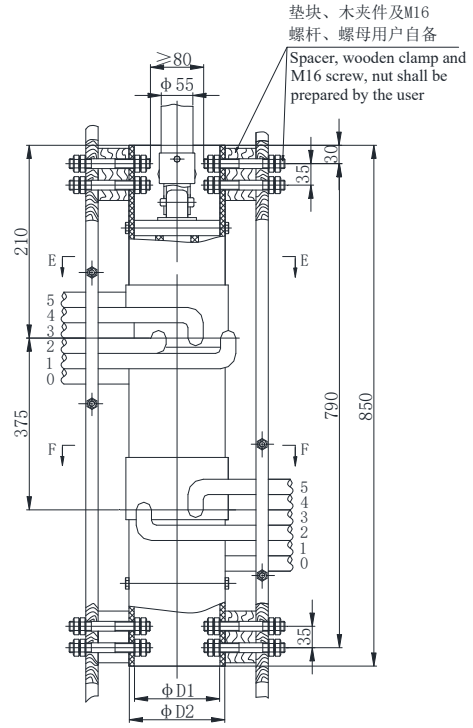
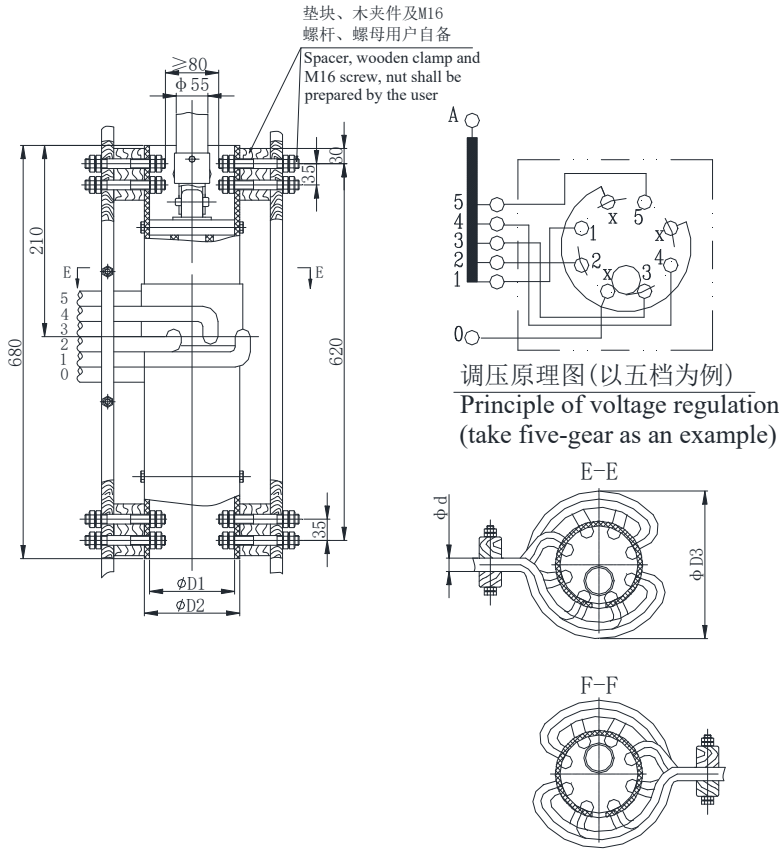
#### Profile installation size of linear voltage regulation (I) of W (1+2) Z

“D” 相 (1 相) 夹件式安装

Phase “D” (phase 1) clamp type installation,

“L” 相 (两相) 夹件式安装

phase “L” (two-phase) clamp type installation



典型安装尺寸 Typical installation size	电压 Voltage KV	电流 Current A	档位数 Number of gear	外形、安装尺寸 mm Profile and installation size (mm)			备注
				D1	D2	D3	
W (1+2) Z I 250~630/40.5-3X3	40.5	250、 400、 630	3	160	177	D2+d+ $\delta$ , $\delta \approx 40 \sim 50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40 \sim 50$ , the bigger the $\delta$ , the easier for the lead wire to bend.	
W (1+2) Z I 250~630/40.5-5X5			5				
W (1+2) Z I 250~630/40.5-7X7			7				
W (1+2) Z I 250~630/126-3X3	126	800、 1000	3	160	177		
W (1+2) Z I 250~630/126-5X5			5	180	197		
W (1+2) Z I 250~630/126-7X7			7	220	227		
W (1+2) Z I 800~1000/40.5-3X3	40.5	800、 1000	3	160	177		
W (1+2) Z I 800~1000/40.5-5X5			5	180	197		
W (1+2) Z I 800~1000/40.5-7X7			7	240	257		
W (1+2) Z I 800~1000/126-3X3	126	800、 1000	3	180	197		
W (1+2) Z I 800~1000/126-5X5			5	200	217		
W (1+2) Z I 800~1000/126-7X7			7	240	257		

注:1、12KV、20KV 尺寸与 40.5KV 尺寸级一致, 72.5KV 尺寸与 126KV 级尺寸一致, 如有特殊要求请订货时特殊说明

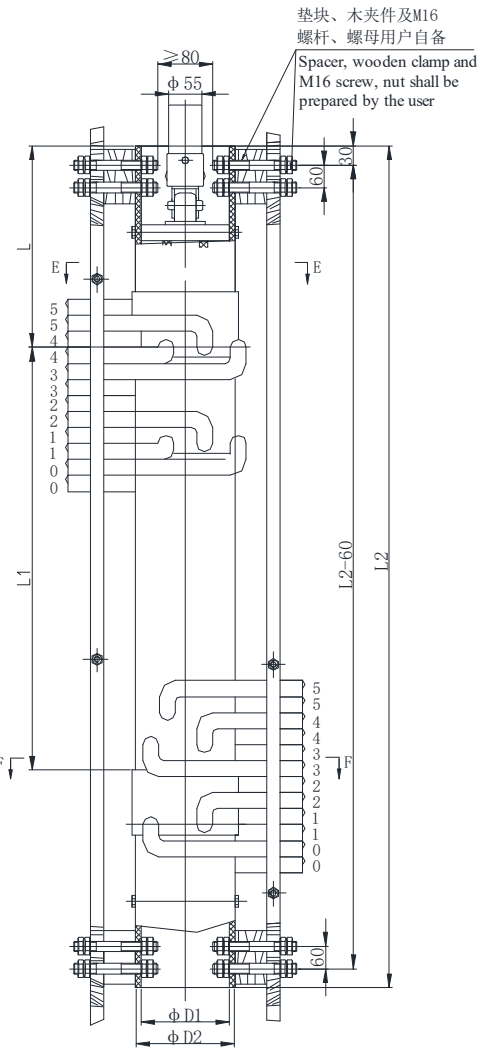
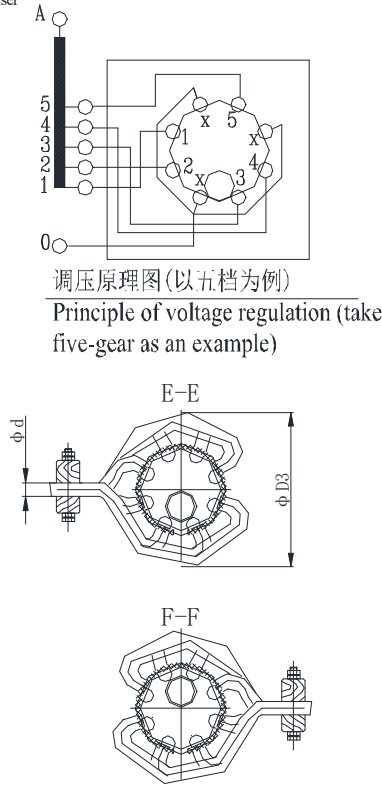
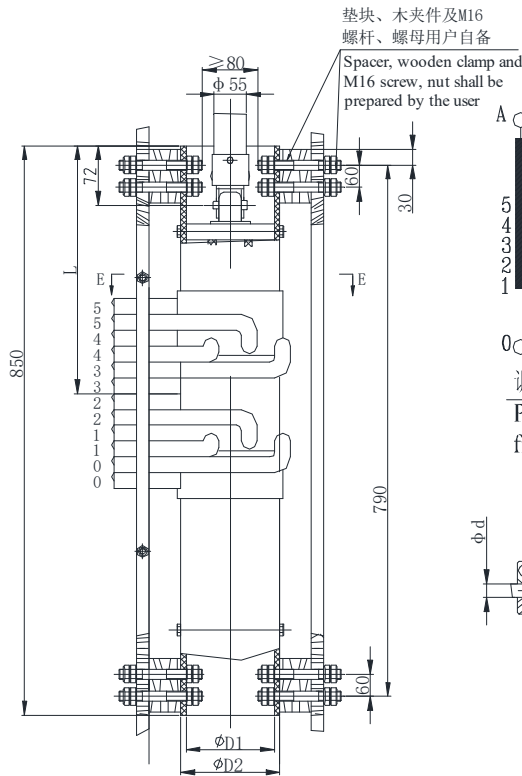
2、 $d=1.5\sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5 KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement

2、 $d=1.5\sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

“D”相（1相）夹件式安装

“L”相（两相）夹件式安装



典型安装尺寸 Typical installation size	电压 Voltage (KV)	电流 Current A	档位数 Number of gear	外形、安装尺寸 mm Profile and installation size (mm)					
				D1	D2	L	L1	L2	D3
W (1+2) I 1250~1600/40.5-3X3	40.5	1250、 1600	3	200	217	350	415	1150	D2+d+ $\delta$ , $\delta \approx 40\sim 50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40\sim 50$ , the bigger the $\delta$ , the easier for the lead wire to bend.
W (1+2) Z I 1250~1600/40.5-5X5			5						
W (1+2) Z I 1250~1600/40.5-7X7			7						
W (1+2) Z I 1250~1600/126-3X3	126	3	200	217	450	525	1400		
W (1+2) Z I 1250~1600/126-5X5		5							
W (1+2) Z I 1250~1600/126-7X7		7							
W (1+2) Z I 2000/40.5-3X3	40.5	2000	3	240	257	450	525	1400	
W (1+2) Z I 2000/40.5-5X5			5						
W (1+2) Z I 2000/40.5-7X7			7						
W (1+2) Z I 2000/126-5X5	126	2 5 0 0	5	240	257	450	525	1400	
W (1+2) Z I 2500/40.5-5X5	40.5		5	240	257				

注：1、12KV、20KV 尺寸与 40.5KV 尺寸级一致，72.5KV 尺寸与 126KV 级尺寸一致，如有特殊要求请订货时特殊说明

2、 $d=1.5\sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

3、变压器星形与三角形接法外形及安装尺寸一致。

Note: 1、Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5 KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement

2、 $d=1.5\sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

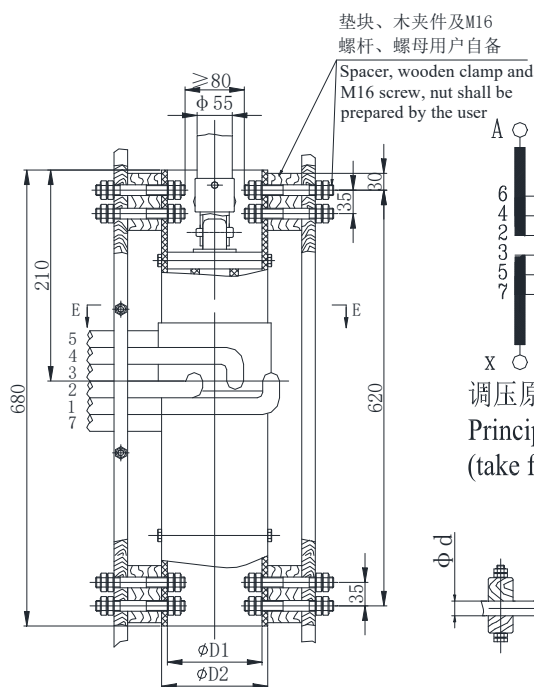
3、Profile and installation size of Y-connection and delta connection of the transformer are consistent

## W(1+2)Z 单桥跨接 (II) 外形安装尺寸图

### Profile installation size diagram of W (1+2) Z mono bridge crossover (II)

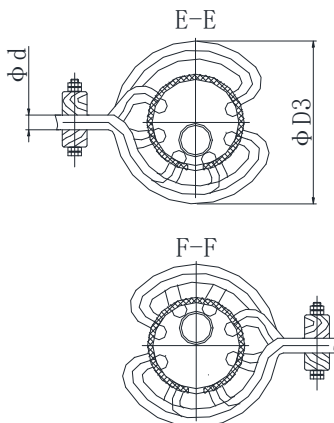
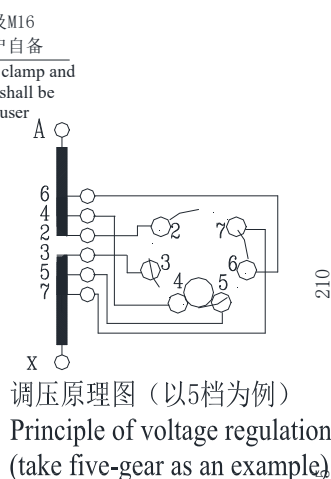
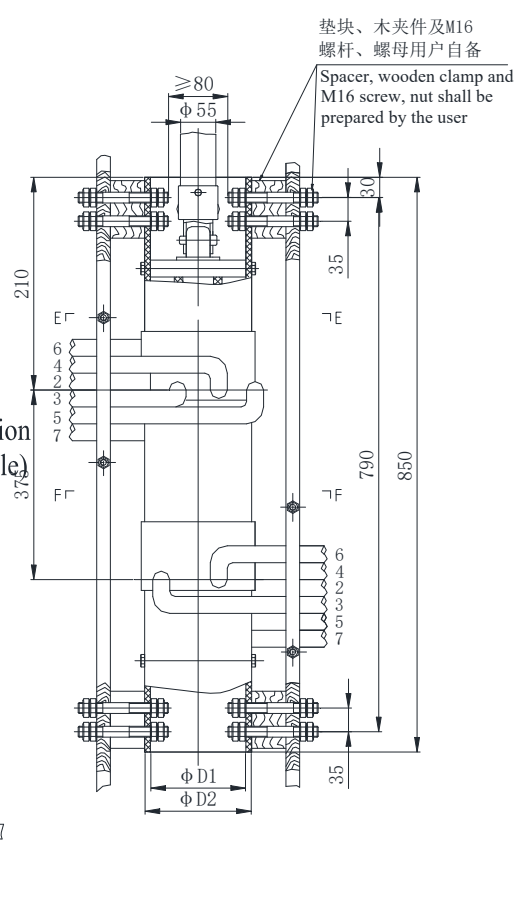
#### “D” 相 (1 相) 夹件式安装

#### Phase “D” (phase 1) clamp type installation



#### “L” 相 (2 相) 夹件式安装

#### phase “L” (two-phase) clamp type installation



典型安装尺寸 Typical installation size	电压 Voltage (KV)	电流 Current (A)	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size		
				D1	D2	D3
W(1+2) II 250~630/40.5-4X3	40.5	250、 400、 630	3	160	177	D2+d+ $\delta$ , $\delta \approx 40 \sim 50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40 \sim 50$ , the bigger the $\delta$ , the easier for the lead wire to bend.
W(1+2) II 250~630/40.5-6X5			5			
W(1+2) II 250~630/40.5-8X7			7			
W(1+2) II 250~630/126-4X3	126	800、 1000	3	180	197	
W(1+2) II 250~630/126-6X5			5			
W(1+2) II 250~630/126-8X7			7			
W(1+2) II 800~1000/40.5-4X3	40.5	800、 1000	3	160	177	
W(1+2) II 800~1000/40.5-6X5			5			
W(1+2) II 800~1000/40.5-8X7			7			
W(1+2) II 800~1000/126-4X3	126	800、 1000	3	180	197	
W(1+2) II 800~1000/126-6X5			5			
W(1+2) II 800~1000/126-8X7			7			

注: 1、本开关除分接抽头引线以外所有连接均在开关内部完成 (特殊说明除外)

2、12KV、20KV 尺寸与 40.5KV 尺寸级一致, 72.5KV 尺寸与 126KV 级尺寸一致, 如有特殊要求请订货时特殊说明

3、 $d=1.5 \sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

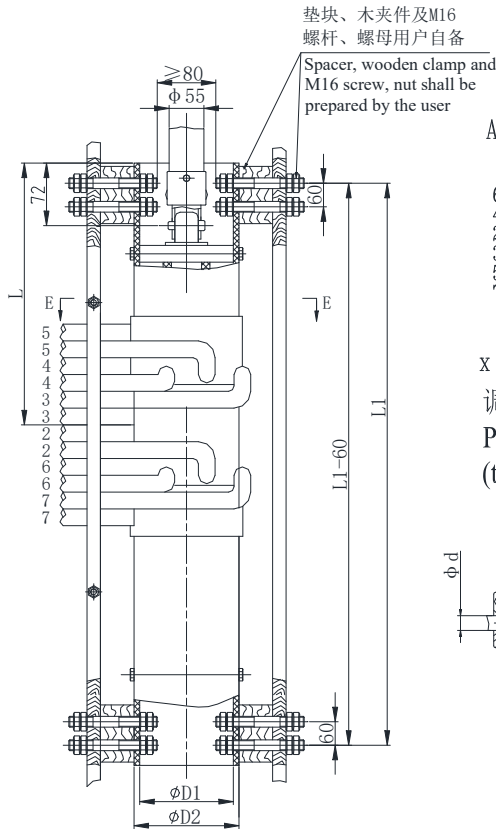
**Note: 1. All switches' connection shall be done inside except taping pigtail (except special instruction)**

**2. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.**

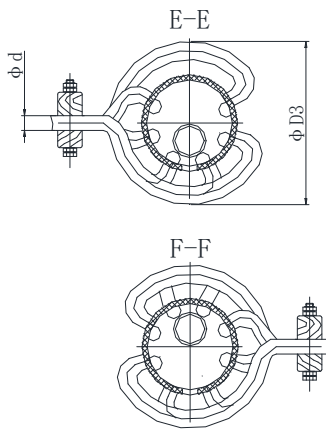
**3.  $d=1.5 \sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)**

### “D”相（1相）夹件式安装

#### Phase “D” (phase 1) clamp type installation

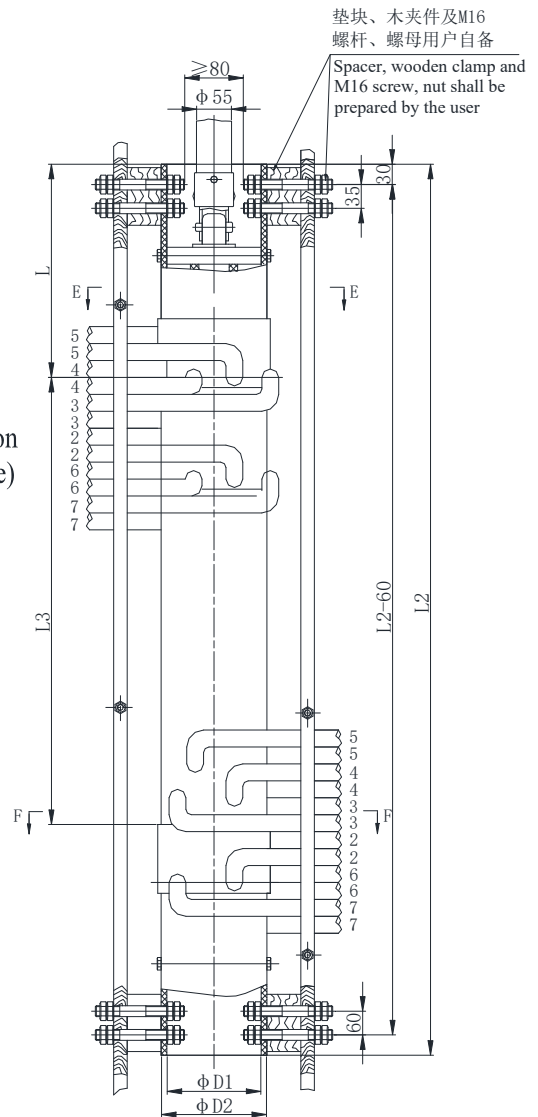


调压原理图（以5档为例）  
Principle of voltage regulation  
(take five-gear as an example)



### “L”相（2相）夹件式安装

#### phase “L” (two-phase) clamp type installation



典型安装尺寸 Typical installation size	电压 Voltage (KV)	电流 Current (A)	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size						
				D1	D2	D3	L	L1	L2	L3
W(1+2) II 1250~1600/40.5-6X5	40.5	1250	5	160	177	D2+d+ $\delta$ , $\delta \approx 40 \sim 50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40 \sim 50$ , the bigger the $\delta$ , the easier for the lead wire to bend.	250	850	1150	415
W(1+2) II 1250~1600/40.5-8X7			7	180	197					
W(1+2) II 1250~1600/126-6X5	126	1600	5	200	217					
W(1+2) II 1250~1600/126-8X7			7							
W(1+2) II 2000/40.5-6X5	40.5	2000	5	200	217	320	850	1150	525	
W(1+2) II 2000/40.5-8X7			7	220	237					
W(1+2) II 2000/126-6X5	126	2000	5	200	217	425	850	1150	525	
W(1+2) II 2000/126-8X7			7	220	237					
W(1+2) II 2500/40.5-6X5	40.5	2500	5	200	237	425	1150	1400	525	
W(1+2) II 3150~4000/40.5-6X5		3150 4000	5	220	237					425

注：1、12KV、20KV 尺寸与 40.5KV 尺寸级一致，72.5KV 尺寸与 126KV 级尺寸一致，如有特殊要求请订货时特殊说明

2、 $d=1.5\sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV.

Please specify it during ordering if there is any special requirement.

2.  $d=1.5\sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

### W(1+2)Z 双桥跨接 (III) 外形安装尺寸图

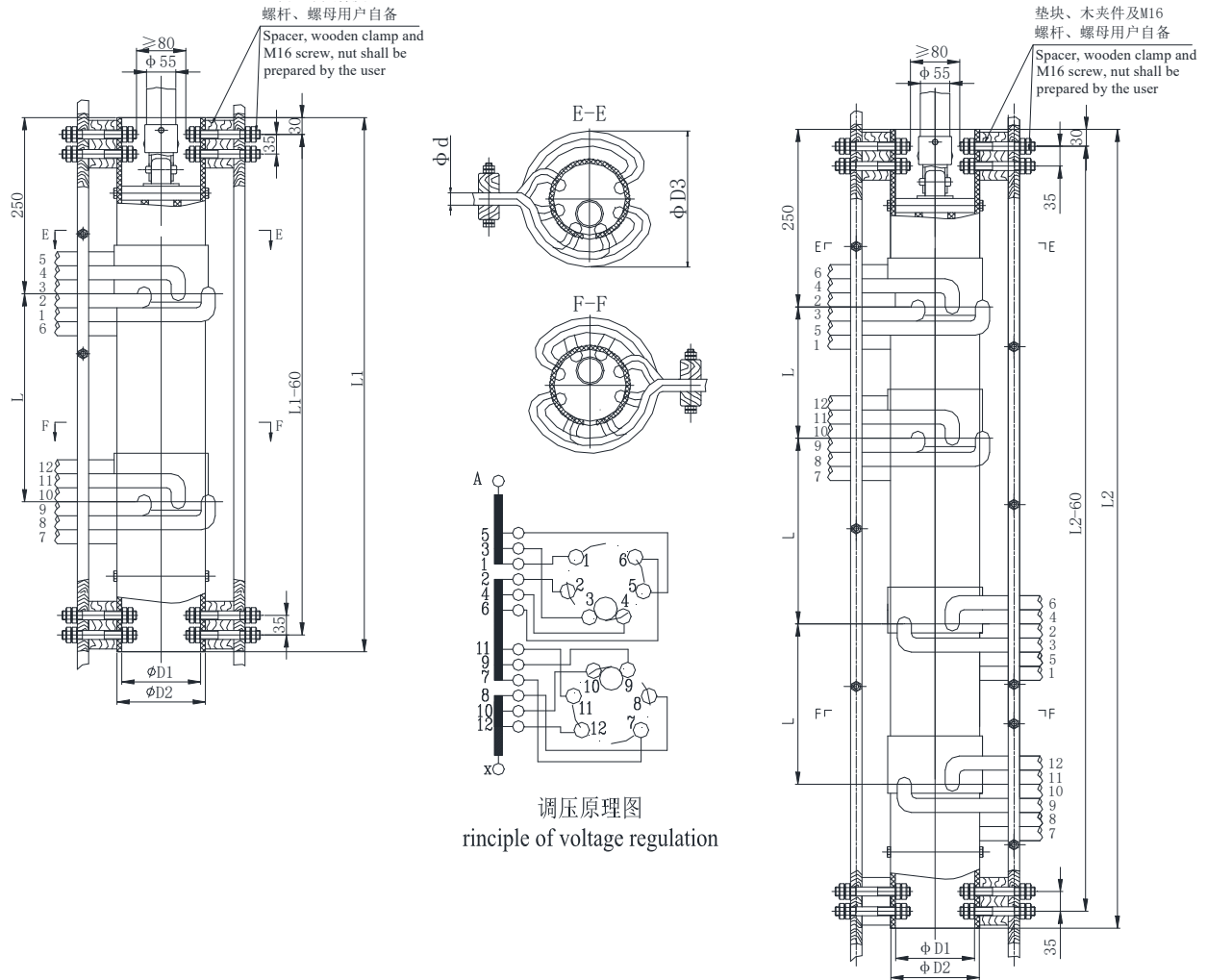
### Profile installation size diagram of W (1+2) Z double-bridge crossover (III)

#### “D” 相 (1 相) 夹件式安装

#### “L” 相 (2 相) 夹件式安装

#### Phase “D” (phase 1) clamp type installation

#### phase “L” (two-phase) clamp type installation



典型安装尺寸 Typical installation size	电压 Voltage (kV)	电流 Current (A)	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size						
				L	L1	L2	D1	D2	D3	
W(1+2) III 250~1000/40.5-4X3~6X5	40.5	250、400、 630、 800、 1000、 1250、 1600	3、5	275	850	1250	180	197	D2+d+ $\delta$ ， $\delta \approx 40 \sim 50$ ，其中 $\delta$ 越大，越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40 \sim 50$ , the bigger the $\delta$ , the easier for the lead wire to bend.	
W(1+2) III 1250~1600/40.5-4X3~6X5				315		1500				
W(1+2) III 250~1000/72.5-4X3~6X5	72.5			375		1600				
W(1+2) III 1250~1600/72.5-4X3~6X5				415		950				
W(1+2) III 250~1000/126-4X3~6X5	126		7	275	850	1250	200	217		
W(1+2) III 1250~1600/126-4X3~6X5				315		1500				
W(1+2) III 250~1000/40.5-8X7	40.5		7	7	375	850	1600	220		237
W(1+2) III 1250~1600/40.5-8X7										
W(1+2) III 250~1000/72.5-8X7	72.5		7	7	375	850	1600	220		237
W(1+2) III 1250~1600/72.5-8X7										
W(1+2) III 250~1000/126-8X7	126	7	7	375	850	1600	220	237		
W(1+2) III 1250~1600/126-8X7									415	950

注：1、12KV、20KV 尺寸与 40.5KV 尺寸级一致，72.5KV 尺寸与 126KV 级尺寸一致，如有特殊要求请订货时特殊说明

2、 $d=1.5 \sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.



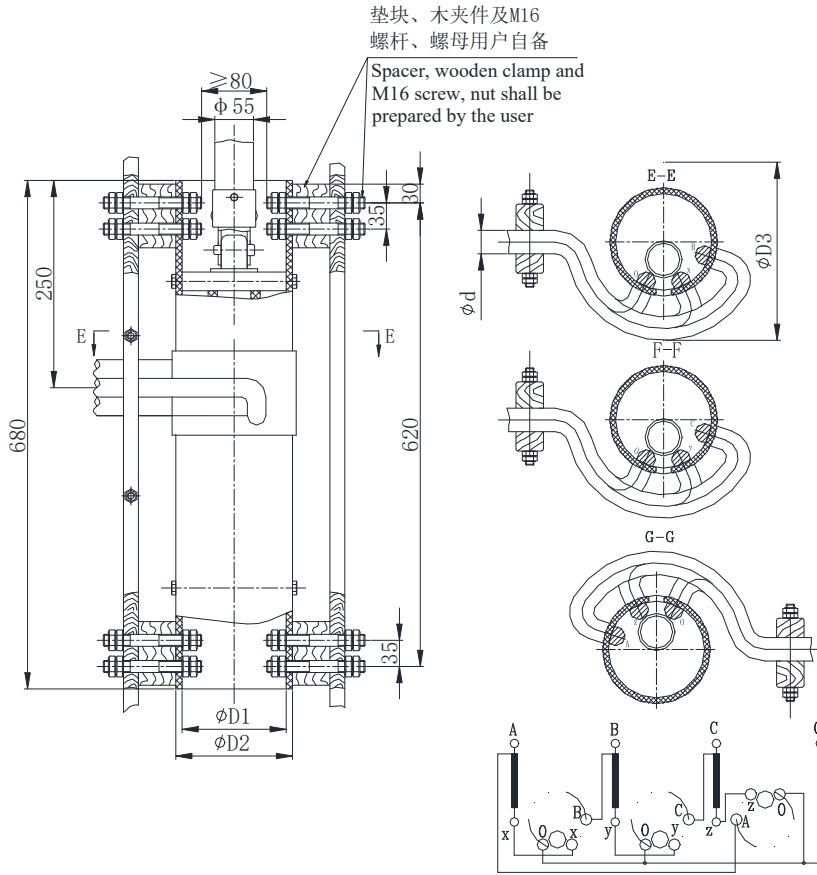
$2 \cdot d = 1.5 \sqrt{s}$  + wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

**W(1+2)Z 星角转换 (Y—Δ) (IV) 外形安装尺寸图**

**Profile installation size diagram of W(1+2)Z Y—delta switch (Y—Δ) (IV)**

**“D” 相 (1 相) 夹件式安装**

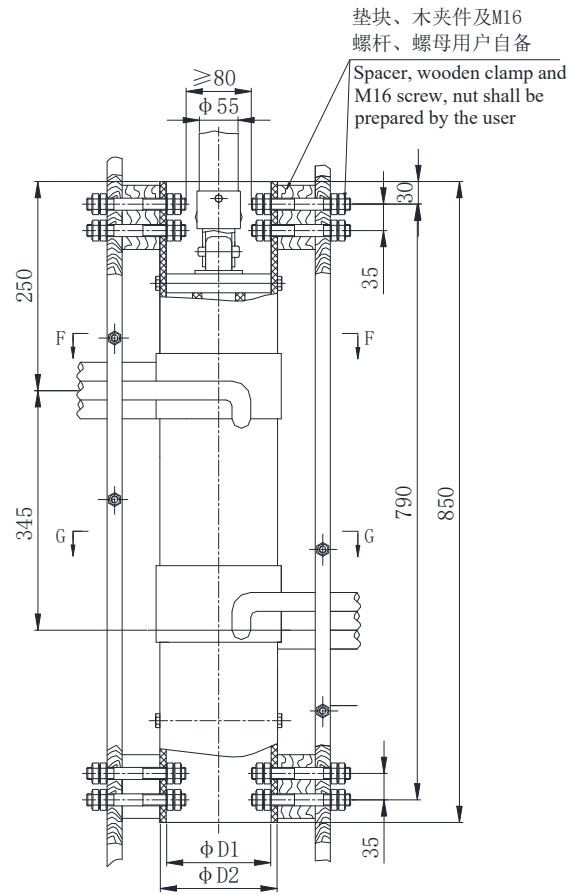
**Phase “D” (phase 1) clamp type installation,**



IV Y-Δ转换原理图  
IV Principle diagram of Y-Δ switch

**“L” 相 (2 相) 夹件式安装**

**phase “L” (two-phase) clamp type installation**



典型安装尺寸 Typical installation size	电压 Voltage (KV)	电流 Current (A)	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size			
				D1	D2	D3	d
W(1+2)IV 250~630/12-3X2	12	250、400 400、630	2	180	190	D2+d+δ, δ ≈ 40~50, 其中 δ 越大, 越便于引线的弯曲。 In D2+d+δ and δ ≈ 40~50, the bigger the δ, the easier for the lead wire to bend.	1.5√s+包绝缘厚度 S为引线截面积 (mm <sup>2</sup> ) 1.5√s+wrapped insulation thickness, S is lead wire section area (mm <sup>2</sup> )
W(1+2)IV 250~630/40.5-3X2	40.5			200	217		

注：1、12KV、20KV 尺寸与 40.5KV 尺寸级一致，72.5KV 尺寸与 126KV 级尺寸一致，如有特殊要求请订货时特殊说明

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.

W(1+2)Z 串并联转换 (V) 外形安装尺寸图

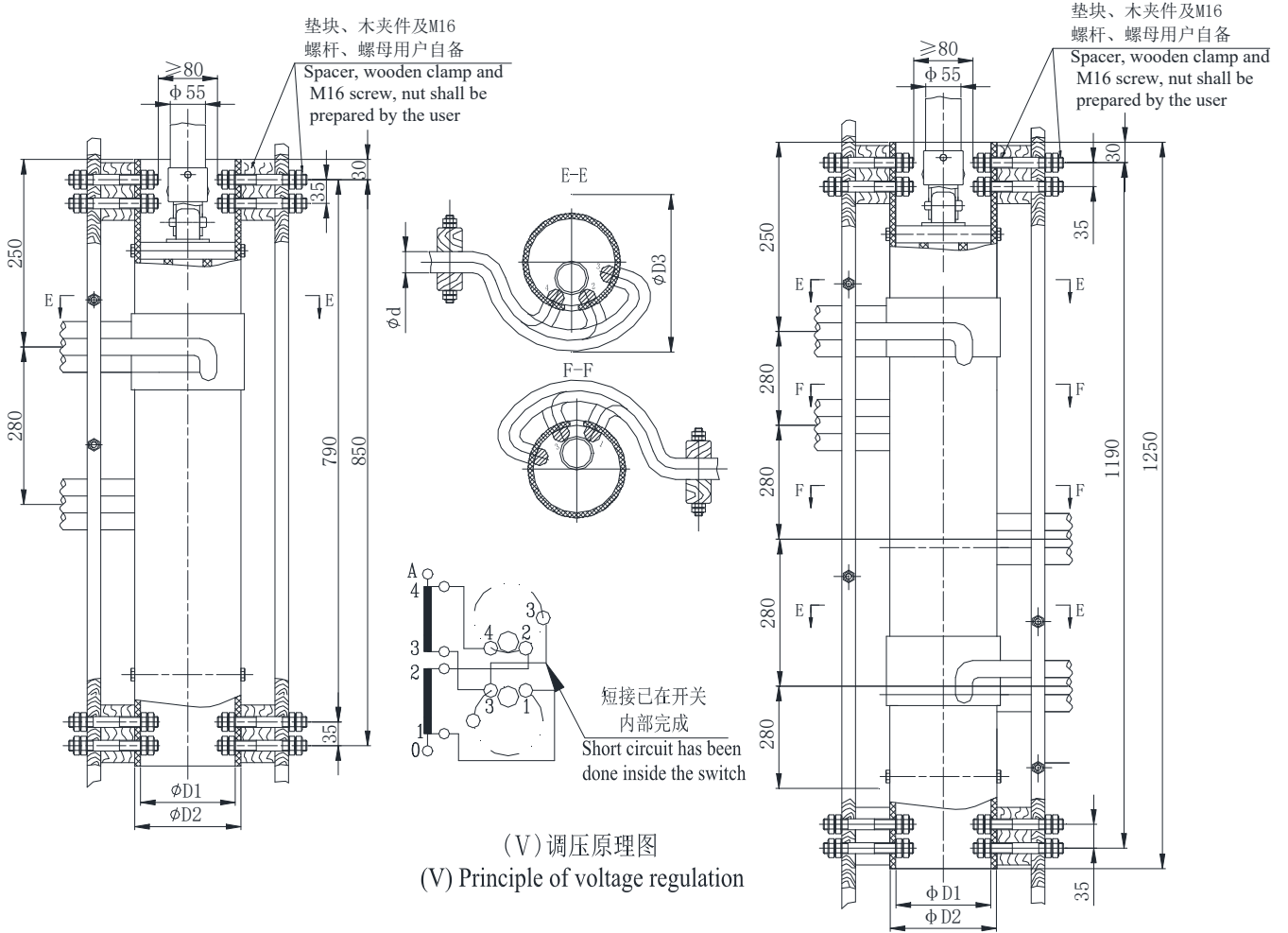
Profile installation size diagram of tandem or multiple switch (V)

“D” 相 (1 相) 夹件式安装

Phase “D” (phase 1) clamp type installation

“L” 相 (2 相) 夹件式安装

phase “L” (two-phase) clamp type installation



典型安装尺寸 Typical installation size	电压 Voltage (KV)	电流 Current (A)	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size			
				d1	d2	d3	d4
W(1+2) V 250~630/12-4X2	12	250、400 400、630	2	160	177	D2+d+ $\delta$ , $\delta \approx 40 \sim 50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40 \sim 50$ , the bigger the $\delta$ , the easier for the lead wire to bend.	1.5 $\sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm <sup>2</sup> ) 1.5 $\sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm <sup>2</sup> )
W(1+2) V 250~630/40.5-4X2	40.5			180	197		

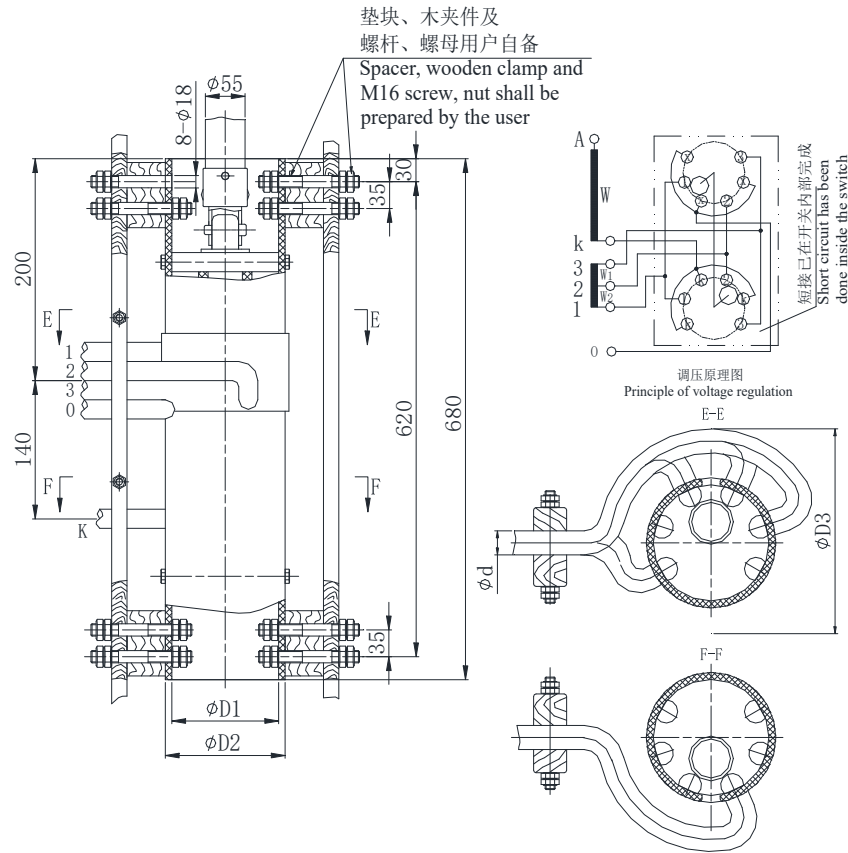


### W(1+2)Z 正反调压 (VI) 外形安装尺寸图

### Profile installation size diagram of tandem or multiple switch (VI)

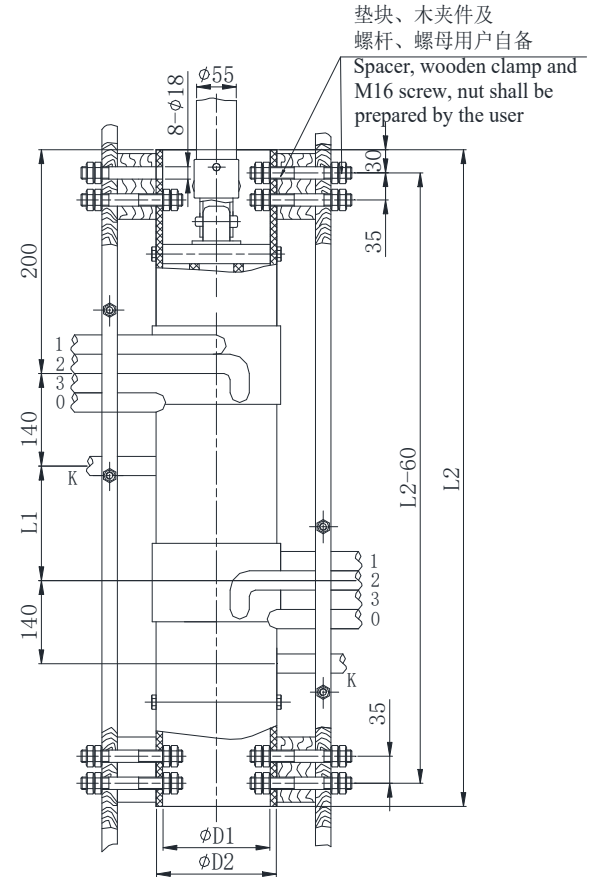
#### “D” 相 (1 相) 夹件式安装

#### Phase “D” (phase 1) clamp type installation



#### “L” 相 (2 相) 夹件式安装

#### phase “L” (two-phase) clamp type installation



典型安装尺寸 Typical installation size	电压 Voltage (KV)	电流 Current (A)	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size				
				L1	L2	D1	D2	D4
W(1+2) VI250~630/40.5-3X3~4X5	40.5	250、400、 630、	3、5	175	850	160	177	D2+d+δ, δ≈40~50, 其中δ越大, 越便于引线的弯曲。In D2+d+δ and δ≈40~50, the bigger the δ, the easier for the lead wire to bend.
W(1+2) VI△250~630/40.5-3X3~4X5				245	950			
W(1+2) VI250~630/126-3X3~4X5	245			950				
W(1+2) VI△250~630/126-3X3~4X5	380			1150				
W(1+2) VI250~630/126-5X7	40.5		7	175	850	180	197	
W(1+2) VI△250~630/126-5X7				245	950			
W(1+2) VI250~630/126-5X7	126			245	950			
W(1+2) VI△250~630/126-5X7				380	1150			

注: 1、12KV、20KV 尺寸与 40.5KV 尺寸级一致, 72.5KV 尺寸与 126KV 级尺寸一致, 如有特殊要求请订货时特殊说明

2、 $d=1.5\sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.

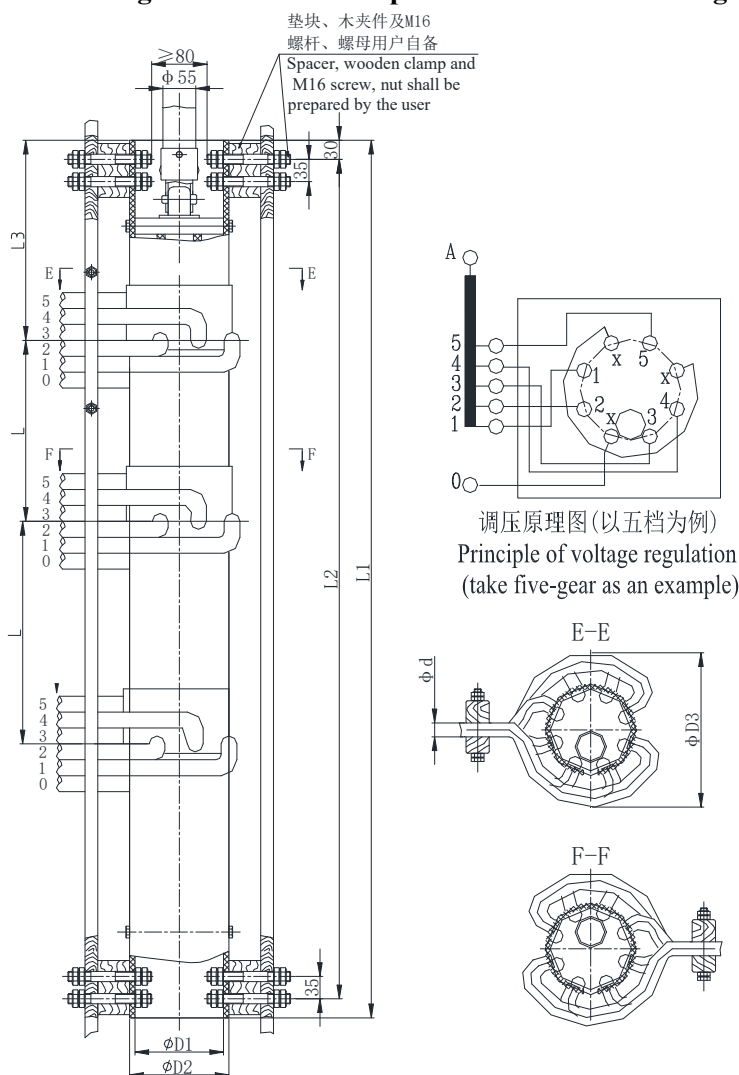
2.  $d=1.5\sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

# WSZ 系列外形安装尺寸图

## Profile installation size diagram of WSZ series

### WSZ 三相立式线性调压 (I) 外形安装尺寸图

### Profile installation size diagram of WSZ three-phase vertical linear voltage regulation (I)



典型安装尺寸 Typical installation size	电压 Voltage KV	电流 Current A	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size						
				D1	D2	D3	L	L1	L2	L3
WSZ I 250~630/40.5-3X3	40.5	250、 400、 630	3	160	177	D2+d+ $\delta$ , $\delta \approx 40 \sim 50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40 \sim 50$ , the bigger the $\delta$ , the easier for the lead wire to bend.	255	900	840	200
WSZ I 250~630/40.5-5X5			5	200	217					
WSZ I 250~630/40.5-7X7			7							
WSZ I 250~630/126-3X3	126	800、 1000	3	160	177		375	1150	1090	200
WSZ I 250~630/126-5X5			5	180	197					
WSZ I 250~630/126-7X7			7	220	227					
WSZ I 800~1000/40.5-3X3	40.5	800、 1000	3	160	177		315	1150	1090	235
WSZ I 800~1000/40.5-5X5			5	200	217					
WSZ I 800~1000/40.5-7X7			7	240	257					
WSZ I 800~1000/126-3X3	126	800、 1000	3	180	197		375	1150	1090	235
WSZ I 800~1000/126-5X5			5	200	217					
WSZ I 800~1000/126-7X7			7	240	257					

注: 1、12KV、20KV 尺寸与 40.5KV 尺寸级一致, 72.5KV 尺寸与 126KV 级尺寸一致, 如有特殊要求请订货时特殊说明

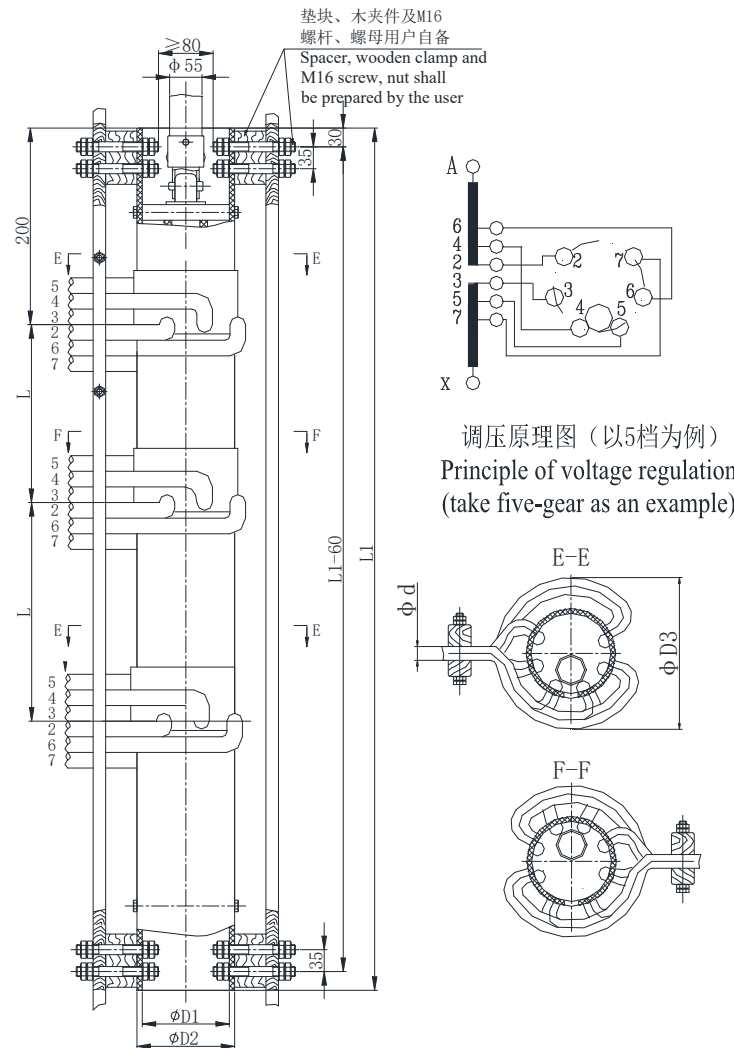
2、 $d=1.5 \sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.

2.d=1.5 √ s+wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

**WSZ 三相立式中部调压单桥跨接 (II) 外形安装尺寸图 (250A~1000A)**

**Profile installation size diagram (250A~1000A) of WSZ three-phase vertical medium voltage regulation mono bridge crossover (II)**



典型安装尺寸 Typical installation size	电压 Voltage KV	电流 Current A	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size						
				D1	D2	D3	L	L1		
WSZ II 250~630/40.5-4X3	40.5	250、 400、 630	3	160	177	D2+d+δ, δ≈40~50, 其中δ越大, 越便于引线的弯曲。 In D2+d+δ and δ≈40~50, the bigger the δ, the easier for the lead wire to bend.	255	900		
WSZ II 250~630/40.5-6X5			5							
WSZ II 250~630/40.5-8X7			7							
WSZ II 250~630/126-4X3	126	250、 400、 630	3	160	177		D2+d+δ, δ≈40~50, 其中δ越大, 越便于引线的弯曲。 In D2+d+δ and δ≈40~50, the bigger the δ, the easier for the lead wire to bend.	375	1150	
WSZ II 250~630/126-6X5			5							
WSZ II 250~630/126-8X7			7							
WSZ II 800~1000/40.5-4X3	40.5	800、 1000	3	160	177			D2+d+δ, δ≈40~50, 其中δ越大, 越便于引线的弯曲。 In D2+d+δ and δ≈40~50, the bigger the δ, the easier for the lead wire to bend.	365	1150
WSZ II 800~1000/40.5-6X5			5							
WSZ II 800~1000/40.5-8X7			7							
WSZ II 800~1000/126-4X3	126	800、 1000	3	180	197				D2+d+δ, δ≈40~50, 其中δ越大, 越便于引线的弯曲。 In D2+d+δ and δ≈40~50, the bigger the δ, the easier for the lead wire to bend.	365
WSZ II 800~1000/126-6X5			5							
WSZ II 800~1000/126-8X7			7							

注: 1、12KV、20KV 尺寸与 40.5KV 尺寸级一致, 72.5KV 尺寸与 126KV 级尺寸一致, 如有特殊要求请订货时特殊说明

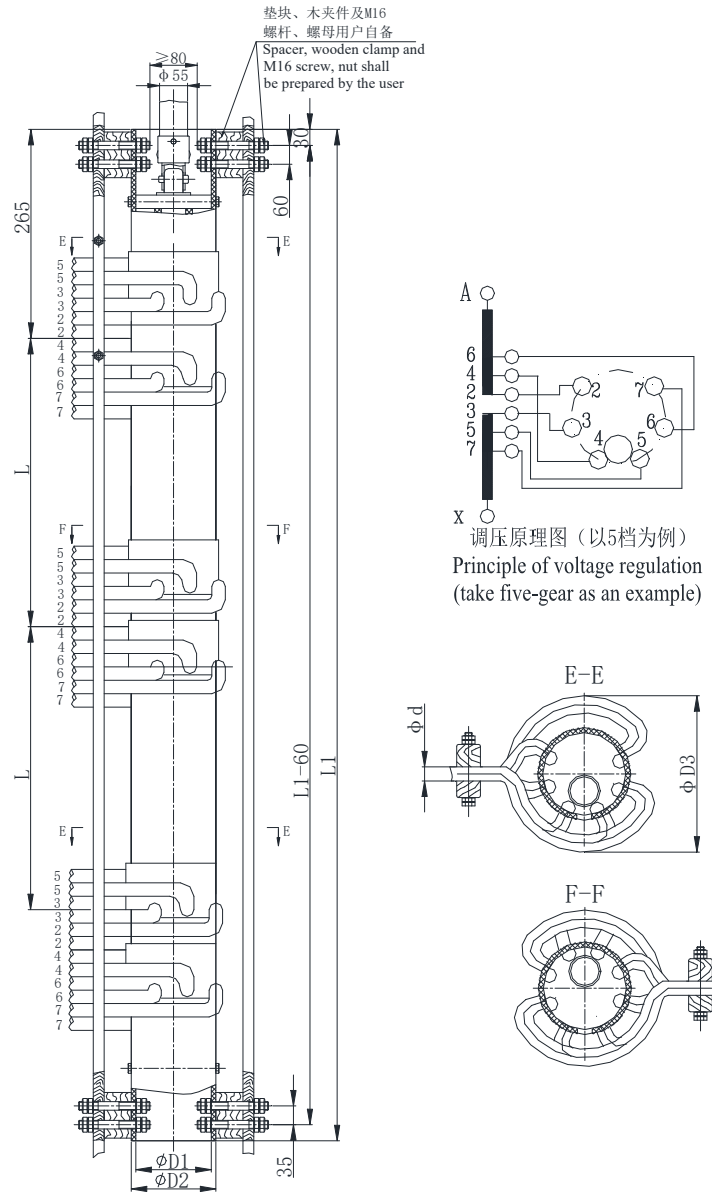
2、d=1.5 √ s+包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.

2.d=1.5 √ s+wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

WSZ 三相立式中部调压单桥跨接 (II) 外形安装尺寸图 (1250A~1600A)

Profile installation size diagram (1250A~1600A) of WSZ three-phase vertical medium voltage regulation mono bridge crossover (II)



典型安装尺寸 Typical installation size	电压 Voltage KV	电流 Current A	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size				
				D1	D2	D3	L	L1
WSZ II 1250~1600/40.5-4X3	40.5	1250 1600	3	180	197	D2+d+ $\delta$ , $\delta \approx 40\sim50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。	315	1150
WSZ II 1250~1600/40.5-6X5			5					
WSZ II 1250~1600/40.5-8X7			7					
WSZ II 1250~1600/126-4X3	126	1250 1600	3	200	197	In D2+d+ $\delta$ and $\delta \approx 40\sim50$ , the bigger the $\delta$ , the easier for the lead wire to bend.	415	1500
WSZ II 1250~1600/126-6X5			5					
WSZ II 1250~1600/126-8X7			7					

注: 1、12KV、20KV 尺寸与 40.5KV 尺寸级一致, 72.5KV 尺寸与 126KV 级尺寸一致, 如有特殊要求请订货时特殊说明

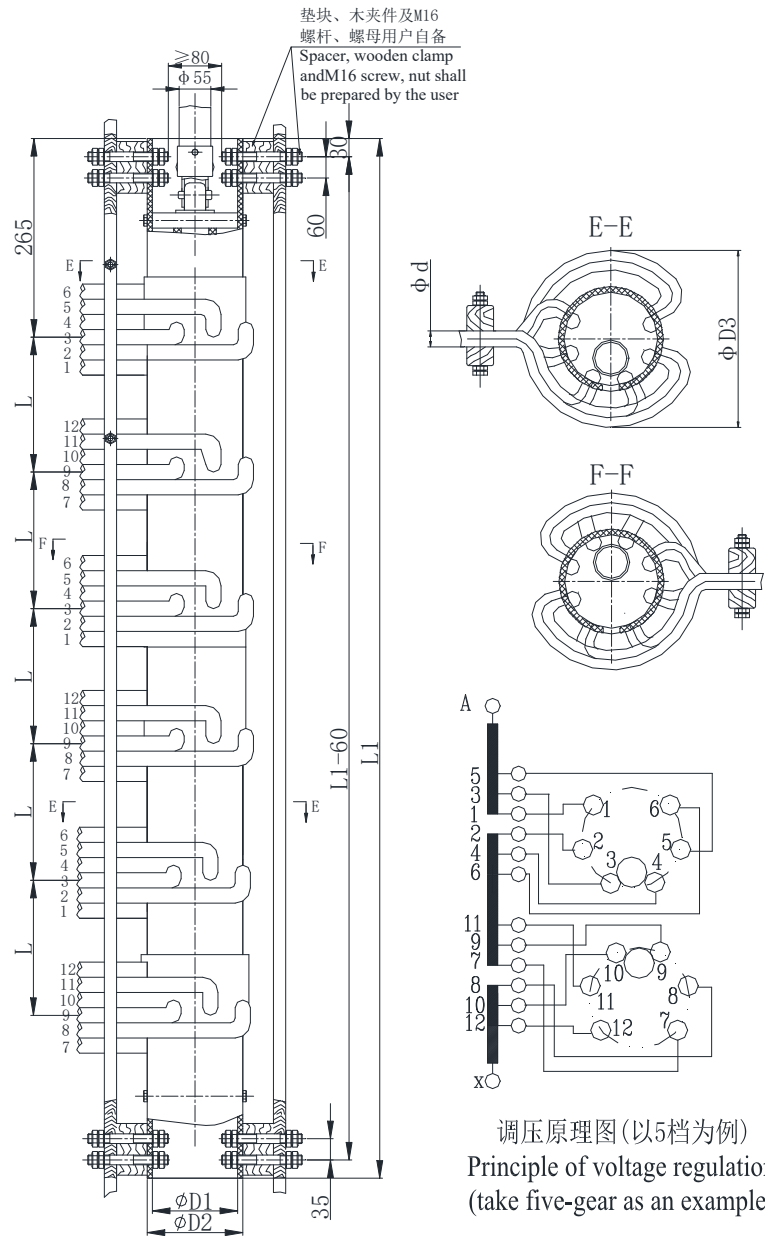
2、 $d=1.5 \sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.

2.  $d=1.5 \sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

### WSZ 三相立式中部调压双桥跨接 (III) 外形安装尺寸图

### Profile installation size diagram of WSZ three-phase vertical medium voltage regulation double-bridge crossover (III)



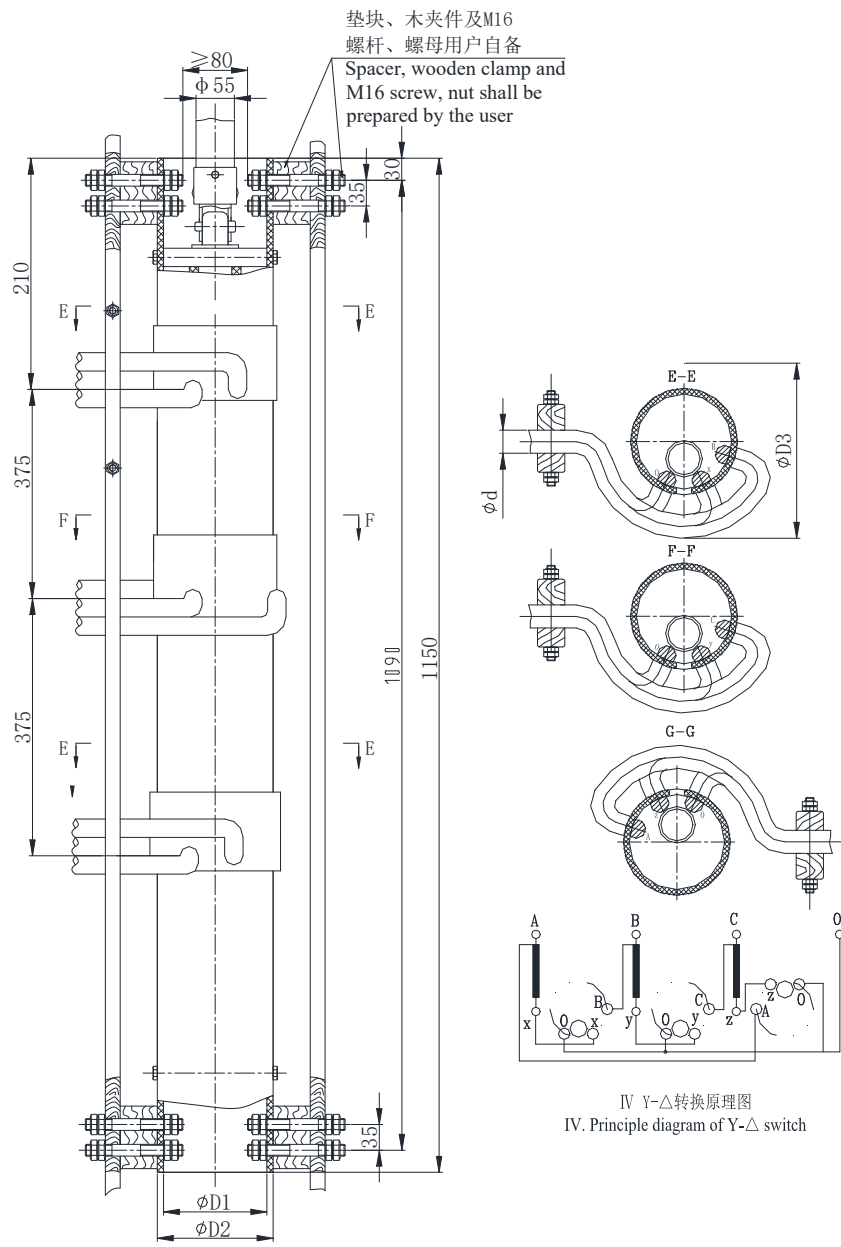
典型安装尺寸 Typical installation size	电压 Voltage KV	电流 Current A	档位数 Number of gear	外形、安装尺寸 (mm) Profile and installation size				
				D1	D2	D3	L	L1
WSZIII250~800/12-4X3~6X5	12	250 800	3、5	180	197	D2+d+ $\delta$ , $\delta \approx 40 \sim 50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40 \sim 50$ , the bigger the $\delta$ , the easier for the lead wire to bend.	180	1400
WSZIII250~800/72.5-4X3~6X5	72.5		3、5				225	1600
WSZIII250~800/12-8X7	12		7	200	197		180	1400
WSZIII250~800/126-8X7	126			200	197		225	1600

注: 1、 $d=1.5 \sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1.  $d=1.5 \sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

# WSZ 三相立式星角转换 (IV) 外形安装尺寸图

## Profile installation size diagram of WSZ three-phase vertical Y-delta switch WSZ



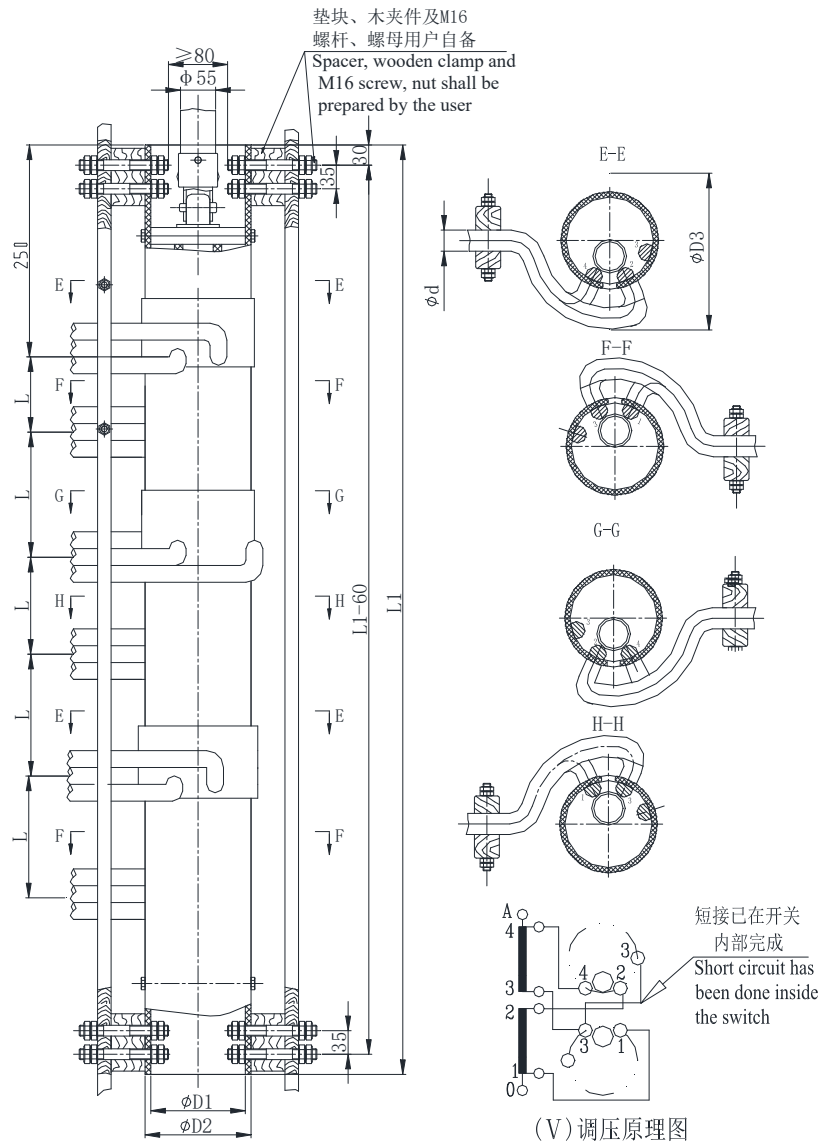
典型安装尺寸 Typical installation size	电压 Voltage KV	电流 Current A	档位数 Number of gear	外形、安装尺寸图 (mm) Profile and installation size		
				D1	D2	D3
WSZIV 250~800/12-3X2	12	250	2	160	177	D2+d+ δ , δ ≈ 40~50, 其中 δ 越大, 越便于引线的弯曲。 In D2+d+ δ and δ ≈ 40~50, the bigger the δ, the easier for the lead wire to bend.
WSZIV 250~800/72.5-3X2	72.5	800	2	180	197	

注: 1、 $d=1.5\sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1.  $d=1.5\sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

**WSZ 三相立式串并联转换 (V) 外形安装尺寸图**

**Profile installation size diagram of WSZ three-phase vertical tandem or multiple switch (V)**



典型安装尺寸 Typical installation size	电压 Voltage KV	电流 Current A	档位数 Number of gear	外形、安装尺寸图 (mm) Profile and installation size				
				D1	D2	D3	L	L1
WSZ V 250~800/12-4X2	12	250 800	2	180	197	D2+d+δ, δ ≈ 40~50, 其中 δ 越大, 越便于引线的弯曲。 In D2+d+δ and δ ≈ 40~50, the bigger the δ, the easier for the lead wire to bend.	180	1400
WSZ V 250~800/72.5-4X2	72.5		2	200	207		240	1600

注: 1、12KV、20KV 尺寸与 40.5KV 尺寸级一致, 72.5KV 尺寸与 126KV 级尺寸一致, 如有特殊要求请订货时特殊说明

2、 $d=1.5\sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

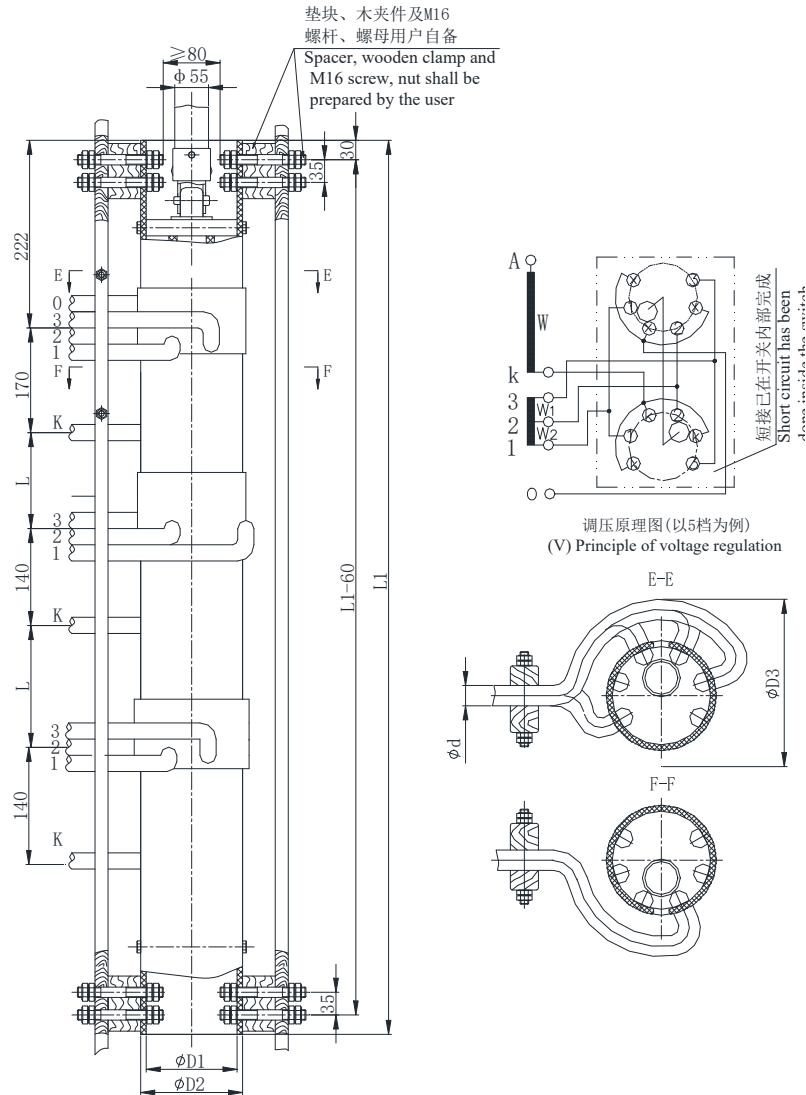
Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.



$2.d=1.5 \sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

### WSZ 三相立式正反调压 (VI) 外形安装尺寸图

### Profile installation size diagram of WSZ three-phase vertical forward and backward voltage regulation (VI)



典型安装尺寸 Typical installation size	电压 Voltage KV	电流 Current A	档位数 Number of gear	外形、安装尺寸 (mm)				
				L1	L	D1	D2	D3
WSZVI250~630/40.5-3X3~4X5	40.5	250、400、 630、	3、5	1400	225	160	177	for the lead wire to bend. D2+d+ $\delta$ , $\delta \approx 40 \sim 50$ , 其中 $\delta$ 越大, 越便于引线的弯曲。 In D2+d+ $\delta$ and $\delta \approx 40 \sim 50$ , the bigger the $\delta$ , the easier
WSZVI $\Delta$ 250~630/40.5-3X3~4X5				1500	250			
WSZVI250~630/126-3X3~4X5	126			1500	250	180	197	
WSZVI $\Delta$ 250~630/126-3X3~4X5				1750	375			
WSZ VI250~630/40.5-5X7	40.5		7	1400	225	180	197	
WSZ VI $\Delta$ 250~630/40.5-5X7				1500	250			
WSZ VI250~630/126-5X7	126			1500	250	200	217	
WSZVI $\Delta$ 250~630/126-5X7				1750	375			
WSZVI1000/35-4X5	40.5	1000	5	1500	225	160	177	
WSZVI1250/35-4X5	40.5	1250	5	1800	225	180	197	

注: 1、12KV、20KV 尺寸与 40.5KV 尺寸级一致, 72.5KV 尺寸与 126KV 级尺寸一致, 如有特殊要求请订货时特殊说明

2、 $d=1.5 \sqrt{s}$ +包绝缘厚度 S 为引线截面积 (mm<sup>2</sup>)

Note: 1. Size of 12KV and 20KV are the same with the one of 40.5KV. Size of 72.5KV is the same with the one of 126KV. Please specify it during ordering if there is any special requirement.



3.  $d=1.5\sqrt{s}$ +wrapped insulation thickness, S is lead wire section area (mm<sup>2</sup>)

## 使用和订货须知

用户应对运行及维修情况作好记录，如有特殊情况，请随时与我厂联系，以便互相交流运行和维修的经验。

用户在遵守保管及使用规则下，从本产品出厂之日起12个月内，由于制造质量的原因发生损坏或不能正常工作的情况，制造厂可无偿地为用户进行修理。

我公司将以优质的产品，优良的服务，优惠的价格，竭诚为用户服务。

## 辽宁金立电力电器有限公司

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