



WSL

Head Motorized Off-Circuit Tap Changer

Operating instructions

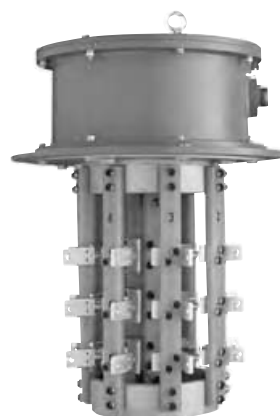
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1. General

WSL head motorized off-circuit tap changer (hereinafter referred as OCTC) is structured as cage shape and non-oil chamber, which could be vertically mounted into transformer tank.



1.1 Designation of model:

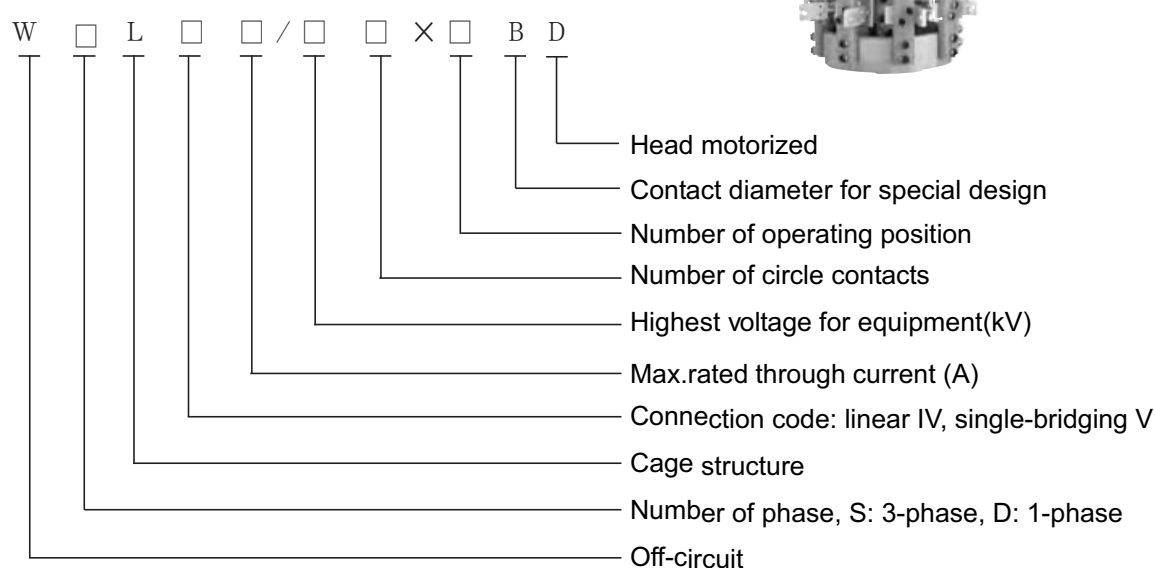


Table 1 Code of Connection

Connection	Linear regulation	Single-bridging regulation
Code	IV	V

Remark: Linear regulation is only application for neutral point of star connection, without neutral point output terminal.

1.2 Application range

The max. current of the tap changer is 600A, the highest voltages for equipment are 12kV and 40.5kV, It is divided to linear regulation at neutral point and single-bridging regulation at middle of winding, the max. operation position is up to 13 for single-bridging regulation and 14 for linear regulation.

Warning: The tap changer can be operated for changing the tap of a winding only when the transformer is de-energized.

2. Technical data

For technical data please refer to table 2

3. Structure

This type off-circuit tap changer consists of gearing mechanism and body, gearing mechanism is on the head of the tap changer, which can be mounted onto top cover of transformer tank; while the body, structured as cage form and without oil compartment, can be mounted into transformer tank.

Characteristics:

- (1) All gearing components are located inside the compartment above the flange, isolating from transformer. Gearing components features as compact structure, small size, good appearance and convenient for maintenance.

Note: The gearing mechanism compartment on the tap changer head should be fully filled with transformer oil before putting into operation.

- (2) WSLV and WSLIV series off-circuit tap changer can be affiliated with HMWK-1 controller that can indicate the tap position and operate the tap changer manually by push button at control room.
- (3) Clip contact structure, good heat dissipation, reliable contact and strong ability to withstand short-circuit current.
- (4) Reliable operation is secured further by electrical and mechanical limit protection.
- (5) The control circuit of tap changer controller is interlocked with that of transformer, the power supply of controller is disconnected when transformer is energized, and therefore, ensuring tap changer could not operate in on-load condition.
- (6) It is only suitable for standard tank mounting

4. Drying

4.1 Open the top cover of tap changer

4.2 Drying procedure: under standard atmospheric pressure, heat up the tap changer at a temperature increasing rate of 10°C per hour until 110°C, and then keep drying with circulating hot air for 24 hours.

5. Appendix

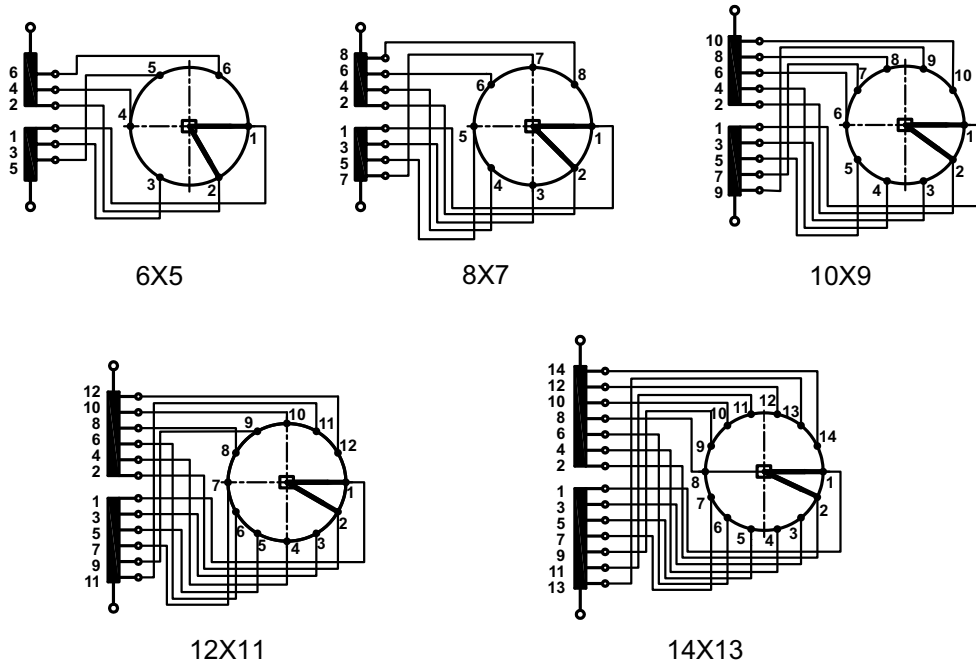
Table 2 Technical Data

Model			WSL IV-600 & WSLV-600 WDL IV-600 & WDLV-600 ¹⁾				
Max. rated through-current (A)			600				
Phase			S for 3-phase, D for 1-phase				
Contact diameter (mm)			5 class: Ø 382, Ø456, Ø490, Ø 516, Ø576, please refer to operating instructions for details				
Short-circuit withstand current (kA)	Thermal stability (3s)		9				
	Dynamic stability (peak value)		22.5				
Connection code			V-single-bridging regulation at middle of the winding IV-linear regulation at neutral point				
Max. operation positions			Single-bridging regulation: 13; linear regulation: 14				
Insulation level	Insulation to ground	Highest voltage for equipment (kV)		12		40.5	
		Rated power frequency withstand voltage (kV, 1min)		42		95	
		Rated lightning impulse withstand voltage (kV, 1.2/50µs)		75		200	
	Internal	Connection mode		V	IV	V	IV
		Between phases	Rated power frequency withstand voltage (kV, 1min)	42	18	95	42
			Rated lightning impulse withstand voltage (kV,1.2/50µs)	75	40	200	75
		2) Between max. and min. tap	Rated power frequency withstand voltage (kV, 1min)	18		45	
			Rated lightning impulse withstand voltage (kV,1.2/50µs)	40		105	
		3)Between adjacent taps	Rated power frequency withstand voltage (kV, 1min)	18		45	
			Rated lightning impulse withstand voltage (kV,1.2/50µs)	40		105	
	Mechanical endurance			Not less than 200,000 operations			
Drying			Vapor: Max. 125℃ Vacuum :Max.110℃				
Type of controller			HMWK-1				
Power supply voltage for motor and HMWK-1 controller			380V/AC, 50Hz				

¹⁾ The overall dimensions for single phase WDL OCTC will be submitted when ordering

2) & 3) Insulation data between Max. and Min. tap and adjacent taps is only for standard design, for special B contact diameter OCTC, it will be offered when ordering.

Single bridging



Linear

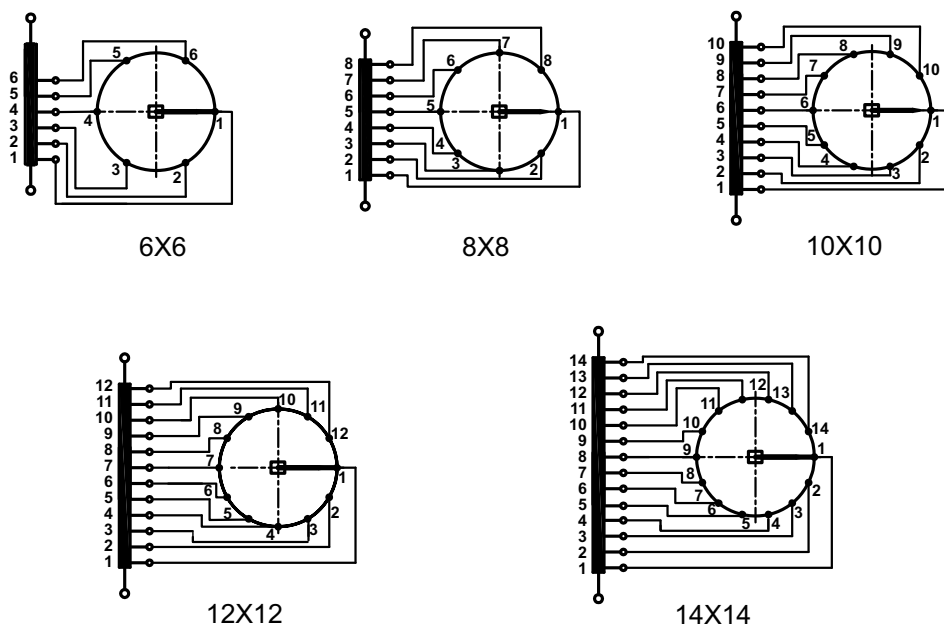
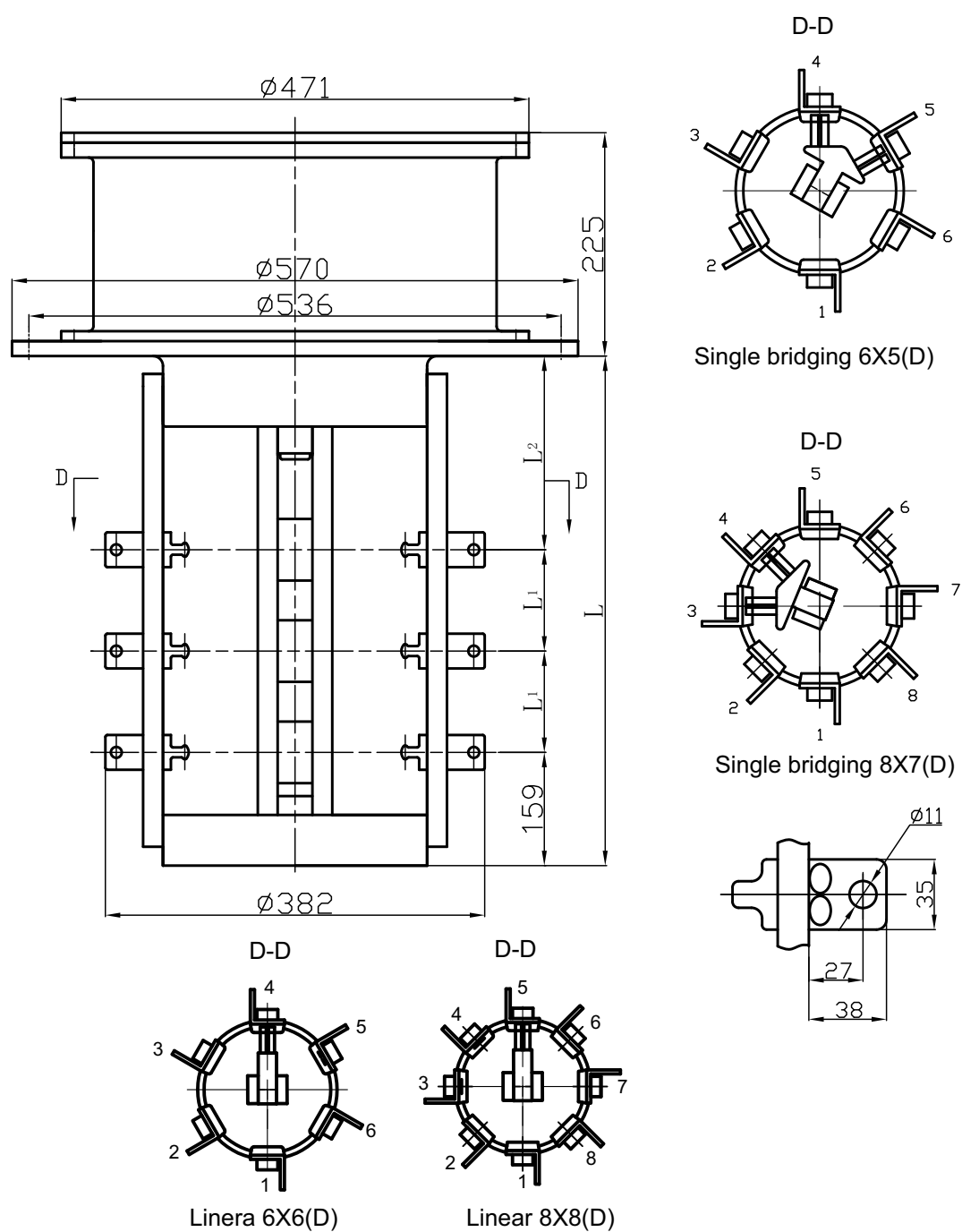


Figure 1 Basic connection diagram

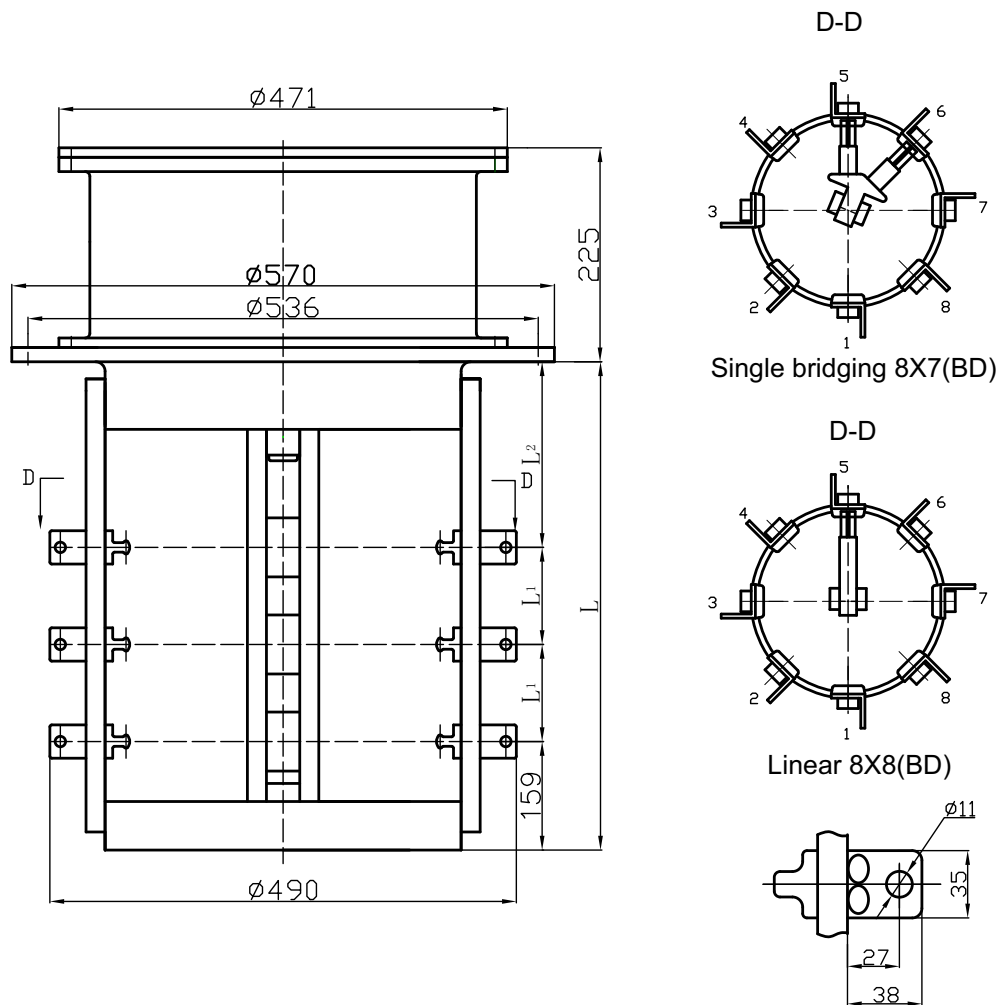


Rated voltage	L1	L2	L
12kV	102	195	558
40.5kV	179	280	797

WSLIV-600/12(40.5)-6X6D (8X8D)

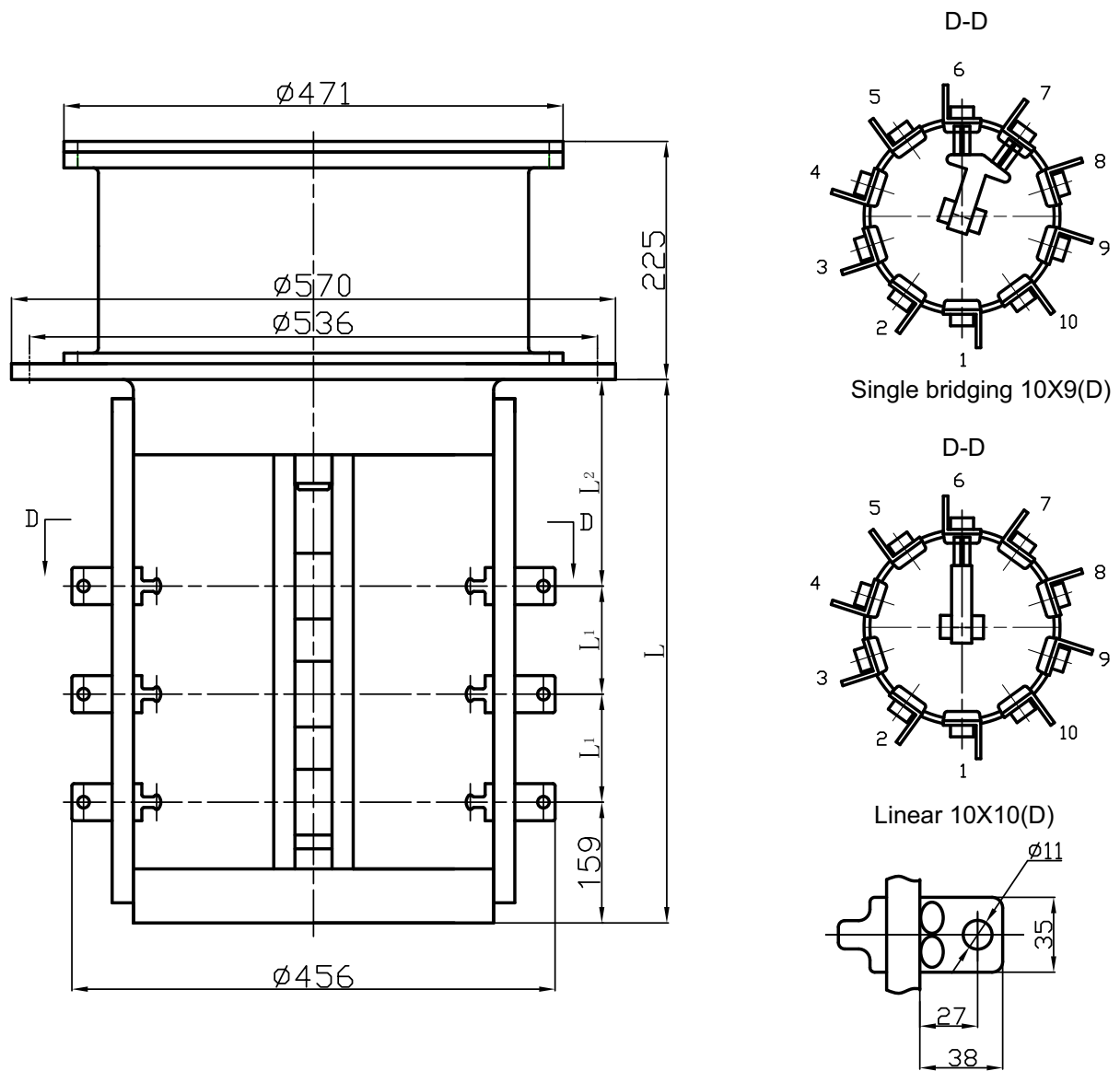
WSLV-600/12(40.5)-6X5D (8X7D)

Figure 2 Overall dimensions a



Rated voltage	L1	L2	L
12kV	102	195	558
40.5kV	179	280	797

WSLIV-600/12(40.5)-8X8BD
WSLV-600/12(40.5)- 8X7BD
Figure 3 Overall dimensions b

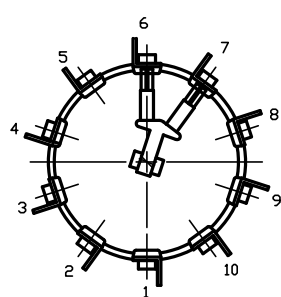
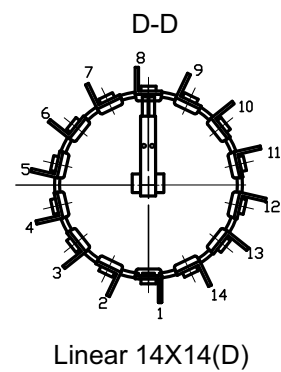
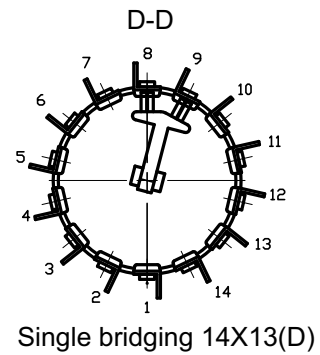
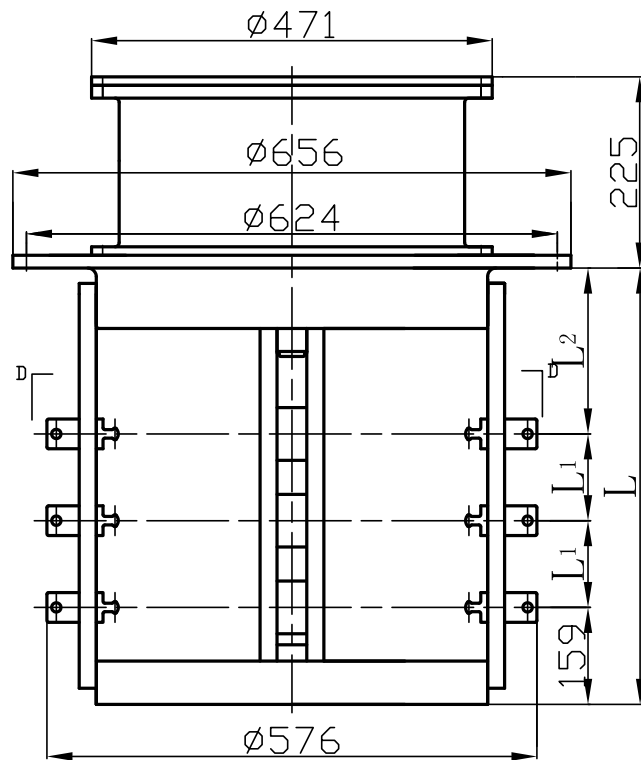


Rated voltage	L1	L2	L
12kV	102	195	558
40.5kV	179	280	797

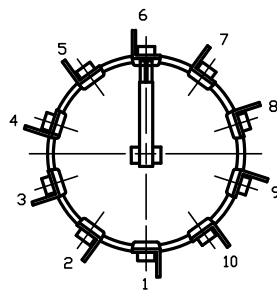
WSLIV-600/12(40.5)-10X10D

WSLV-600/12(40.5)-10X9D

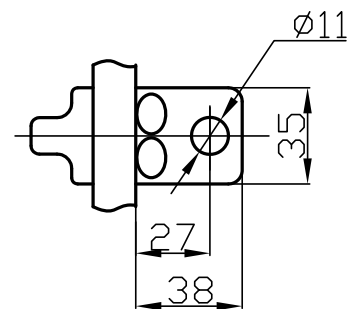
Figure 4 Overall dimensions c



Single bridging 10X9(BD)



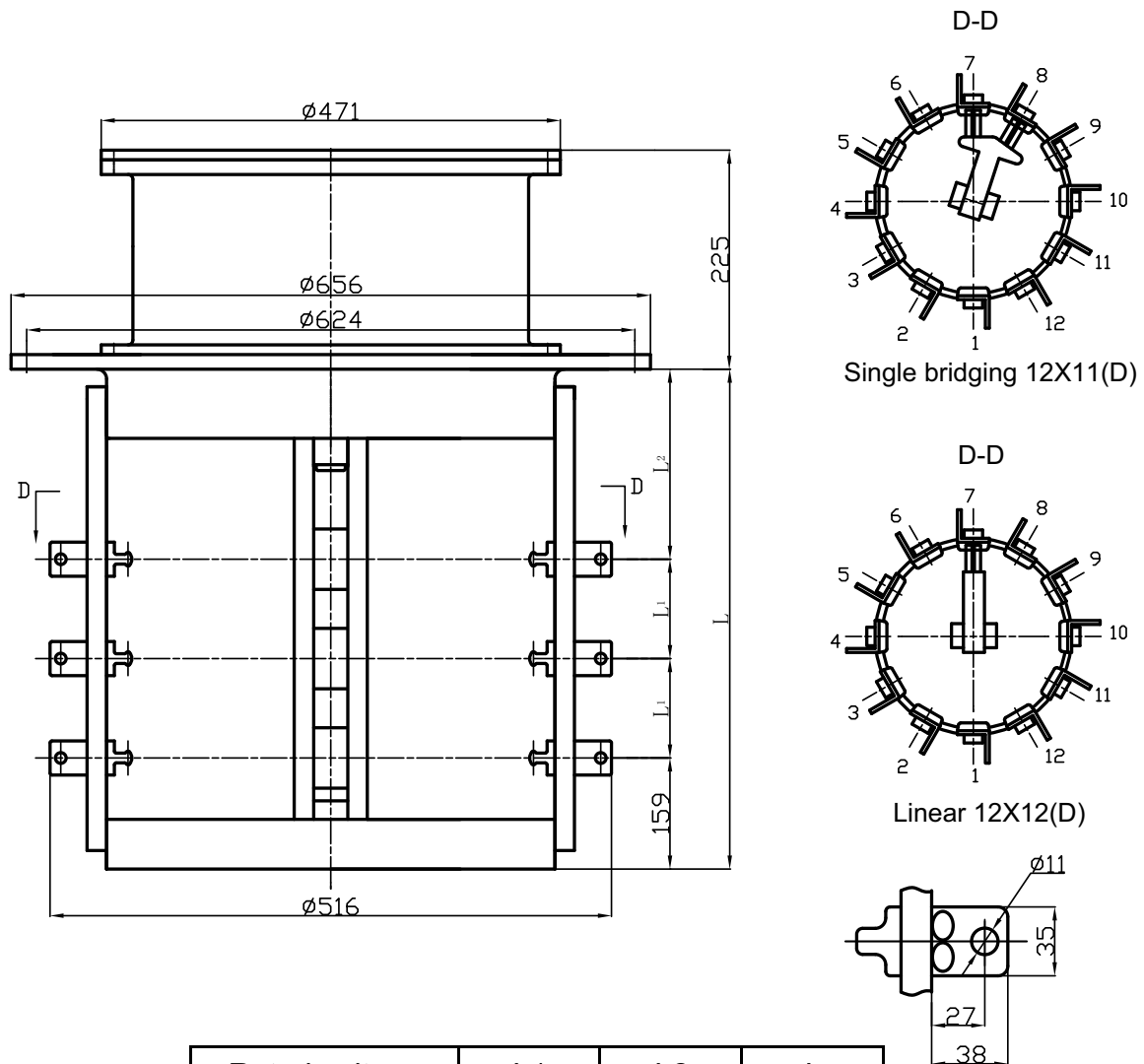
Linear 10X10(BD)



Rated voltage	L1	L2	L
12kV	102	195	558
40.5kV	179	280	797

WSLIV-600/12(40.5)-10X10BD (14X14D)
WSLV-600/12(40.5)-10X9BD (14X13D)

Figure 5 Overall dimensions d

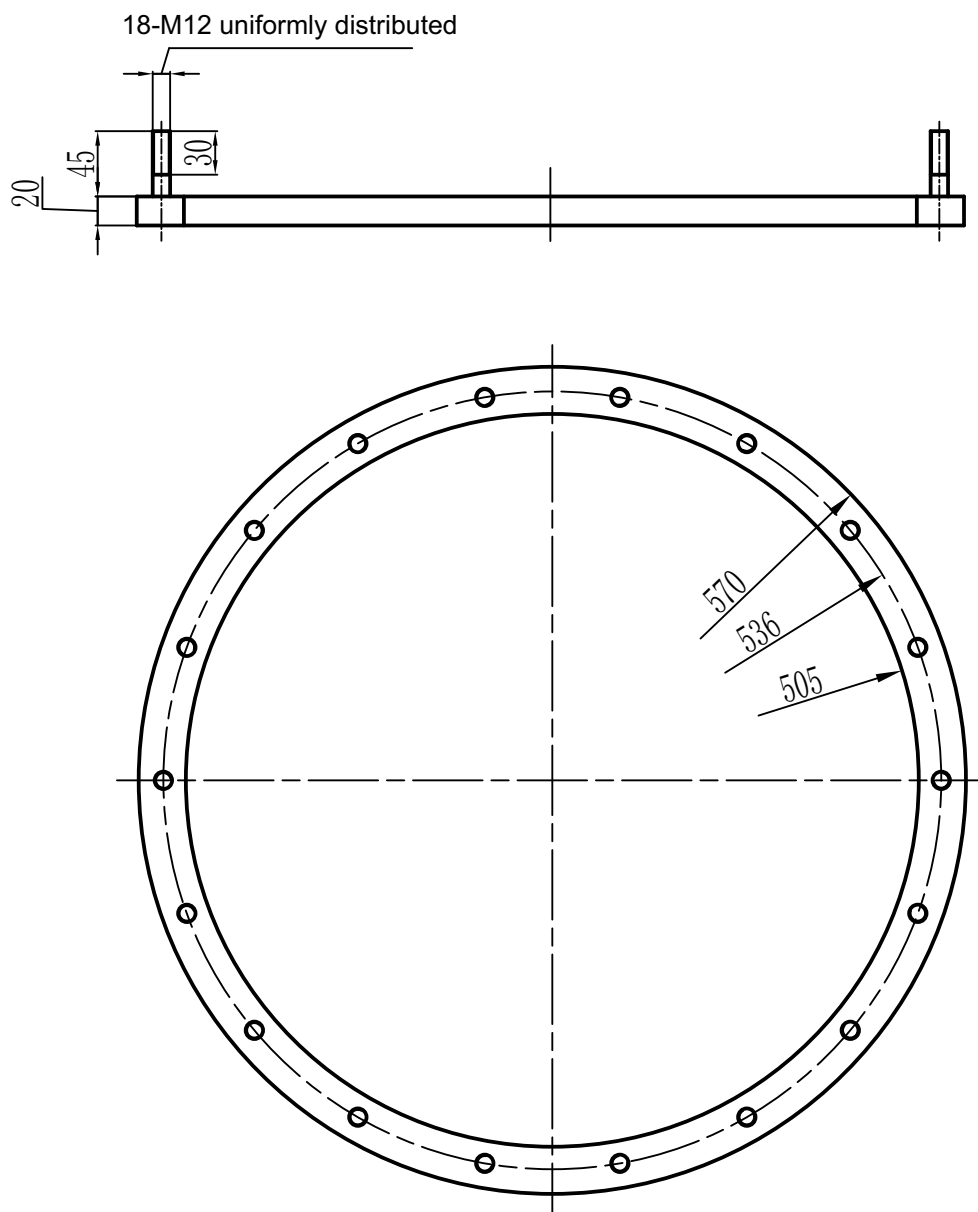


Rated voltage	L1	L2	L
12kV	102	195	558
40.5kV	179	280	797

WLSIV-600/12(40.5)-12X12D

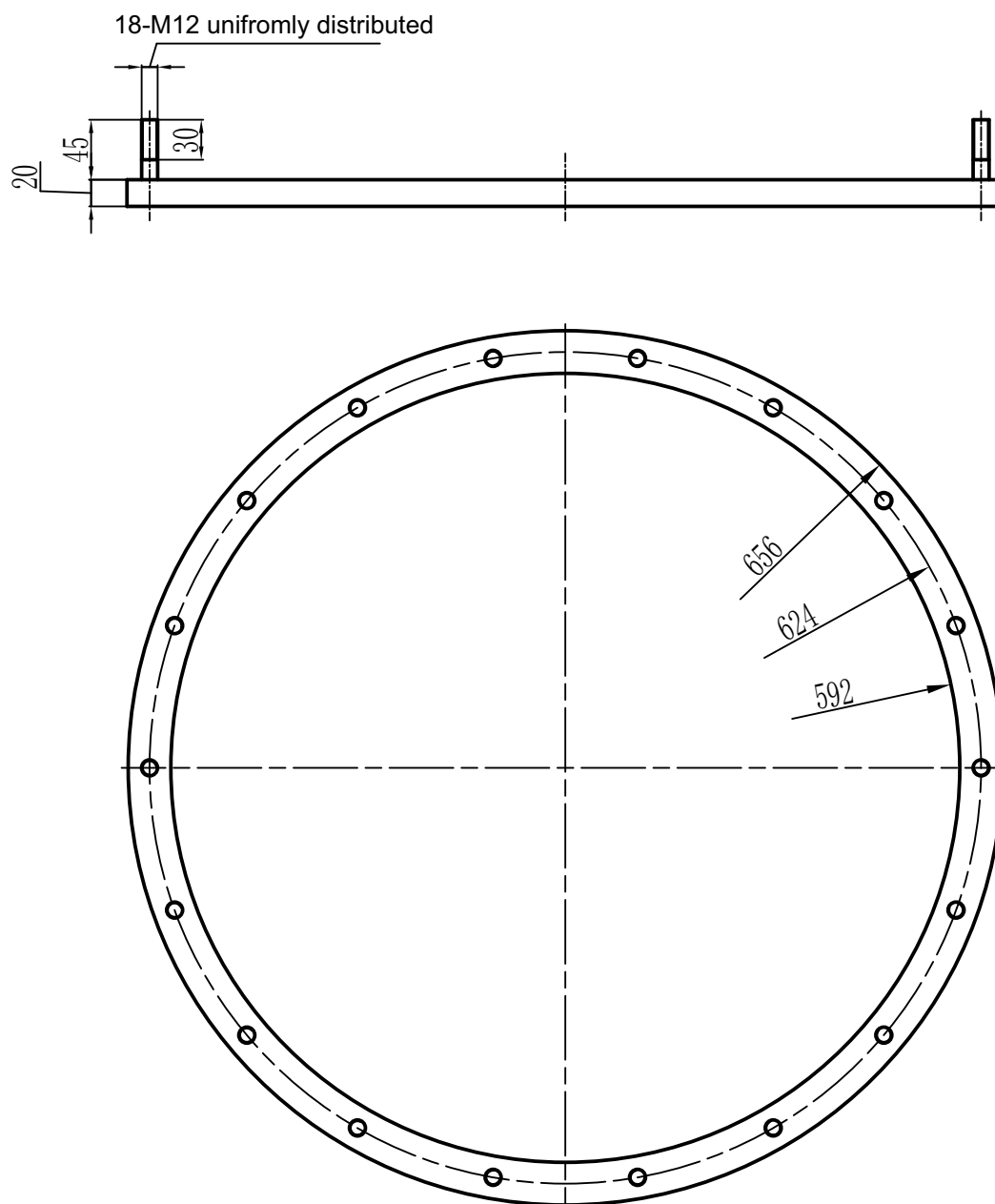
WSLV-600/12(40.5)-12X11D

Figure 6 Overall dimensions e



WSLIV-600/12(40.5)-6X6D; 8X8D; 8X8BD; 10X10D
 WSLV-600/12(40.5)-6X5D; 8X7D; 8X7BD; 10X9BD

Figure 7 Dimensions of transformer mounting flange a



WSLIV-600/12(40.5)-10X10BD; 12X12D; 14X14D
 WSLV-600/12(40.5)-10X 9BD; 12X11D; 14X13D

Figure 8 Dimensions of transformer mounting flange b



Shanghai Huaming Power Equipment Co.,Ltd.

Address: No. 977 Tongpu Road Shanghai 200333 P.R.China

Telephone: (86) 21 5270 2715/5270 3965 Fax: (86) 21 5270 2715

E-mail: export@huaming.com

Web site: <http://www.huaming.com>
