

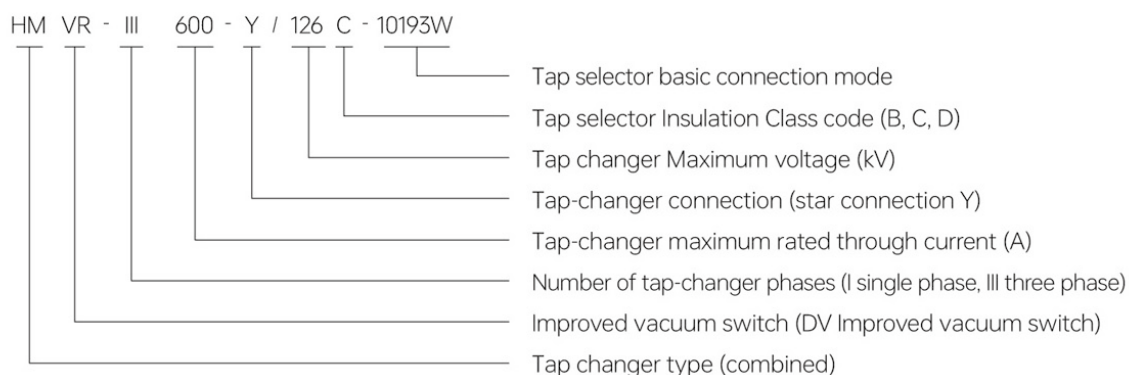
HMVR and HMDV combined
improved vacuum
on-load tap-changer

HMVR and HMDV combined on-load tap-changer

1. HMVR and HMDV model description

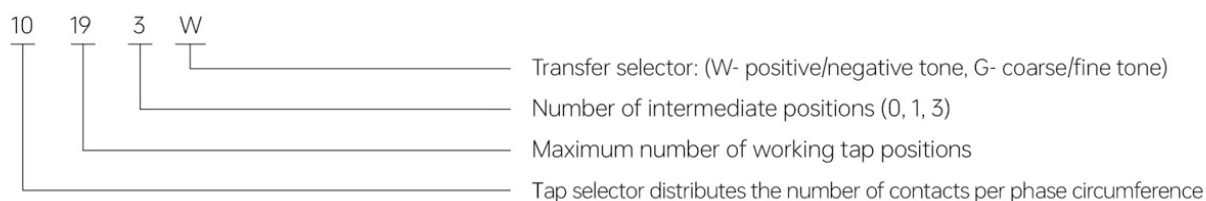
1.1 Model representation

HMVR and HMDV on-load tap-changers are available in a variety of models and specifications depending on their combination of phase number, maximum rated passing current, maximum voltage, tap-selector insulation class and connection mode. The meanings of parameters in the model are described as follows:



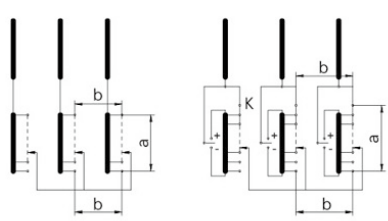
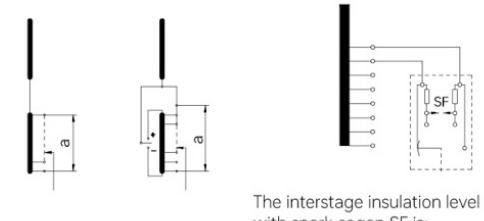
1.2 Basic connection method of tap selector

Tap selectors are available in a variety of sizes according to the voltage regulation range of the transformer and the connection mode of the windings. The specification of the tap selector consists of the tap selector distributing the number of contacts, the number of operating positions, the number of intermediate positions and the conversion selector. In the basic connection mode, the meanings of parameters are described as follows:

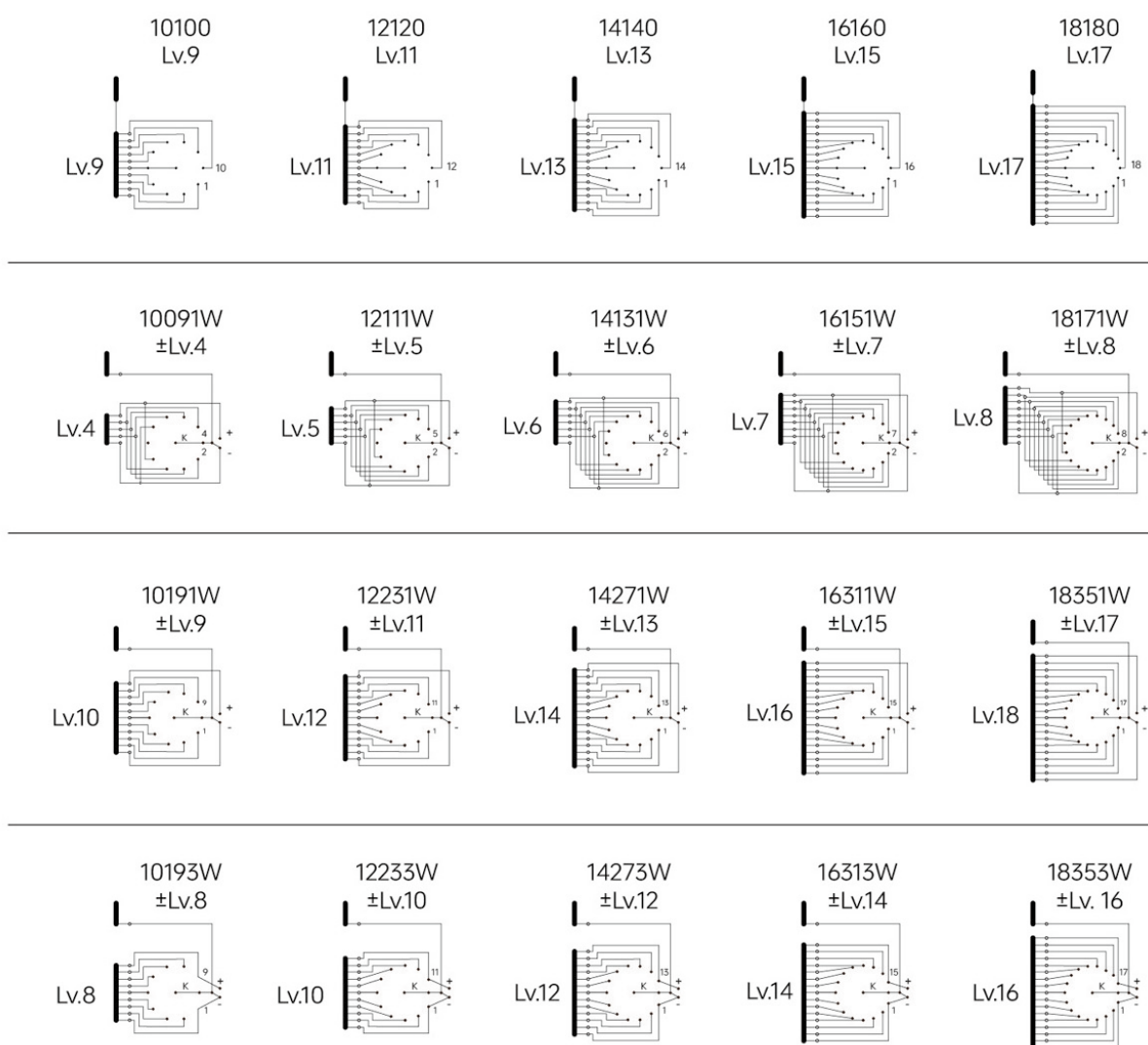


2. HMVR and HMDV internal insulation level

Insulation distance symbol	Tap selector Type B		Tap selector type C		Tap selector type D	
	kV 1.2/50 μ s	kV 50Hz1min	kV 1.2/50 μ s	kV 50Hz1min	kV 1.2/50 μ s	kV 50Hz1min
a	265	50	350	82	490	105
b	265	50	350	82	490	146
C1	485	143	545	178	590	208
C2	495	150	550	182	590	225
d	265	50	350	82	490	105

Insulation distance of each part of the voltage regulator coil	
III 600、III 800、III 1000、III 1300	I 500、I 600、I 800、I 1200、I 1500
 Linear key flipflop	 Linear key flipflop The interstage insulation level Δ_0 with spark cogap SF is: 5Hz 1min 20kV and 1.2/50μs 90kV

3. Basic wiring diagrams of HMVR and HMDV



4. HMVR and HMDV technical parameters

item	Classification feature		Ⅲ 600	Ⅲ 800	Ⅲ 1000	Ⅲ 1300	Ⅰ 500	Ⅰ 600	Ⅰ 800	Ⅰ 1200	Ⅰ 1500
1	Maximum rated passing current (A)		600	800	1000	1300	500	600	800	1200	1500
2	Rated frequency (Hz)		50 or 60								
3	Number of phases and connection mode		Three-phase Y connects to the center point				Single-phase arbitrary connection mode				
4	Maximum grading voltage (V)		3300								
5	Rated capacity (kVA)		1500	2250	3000	3200	1400	1500	2640	3100	3500
6	Withstand short circuit Ability (kA)	Thermal stability (3 s RMS)	8	12	15	18	8	8	16	24	24
		Dynamic stability	20	30	37.5	42	20	20	40	60	60
7	Number of working positions		Linear keys 7, 10, 12, 14, 16, 18 Positive and negative adjustment ±3~±17								
8	Tap off Off insulation level (kV)	Rated voltage	35		66		110		150		220
		Maximum operating voltage	40.5		72.5		126		170		252
		Power frequency test voltage (1min)	85		140		230		325		460
		Impulse test voltage (1.2/50)	200		350		550		750		1050
9	Tap selector		According to the insulation level is divided into 3 sizes: number B, C, D								
10	Mechanical life		No less than 1.5 million times								
11	Electrical life		No less than 350,000 times								
12	Toggle Switch Oil chamber	Working pressure	3×10 ⁴ Pa								
		Sealing performance	6×10 ⁴ Pa 24h no leakage								
		Overpressure protection	Bursting cap (4~5)×10 ⁴ Pa								
		Protective relay	QJ4-25 Set oil speed 1.0m/s±10%								
13	Oil discharge (L)		About 240~320								
14	Oil charge (L)		About 168~240								
15	Weight (Kg)		About 250~390								
16	Equipped with electric mechanism		HED-200								

Note: 1. The stage capacity is equal to the product of the stage voltage and the load current, and the rated stage capacity is the maximum continuously allowed stage capacity.

2. When selecting the single-phase tap-changer formed by the parallel surface of the three-phase tap-changer contacts, the transformer diagram shunt should be considered, HMDV I 800 two-way shunt, HMDV I 1200, I 1500 three-way shunt.

3. The voltage regulation series can be designed according to the user's needs within the range of the number of working positions in the table above.

5. HMVR and HMDV outline size drawing

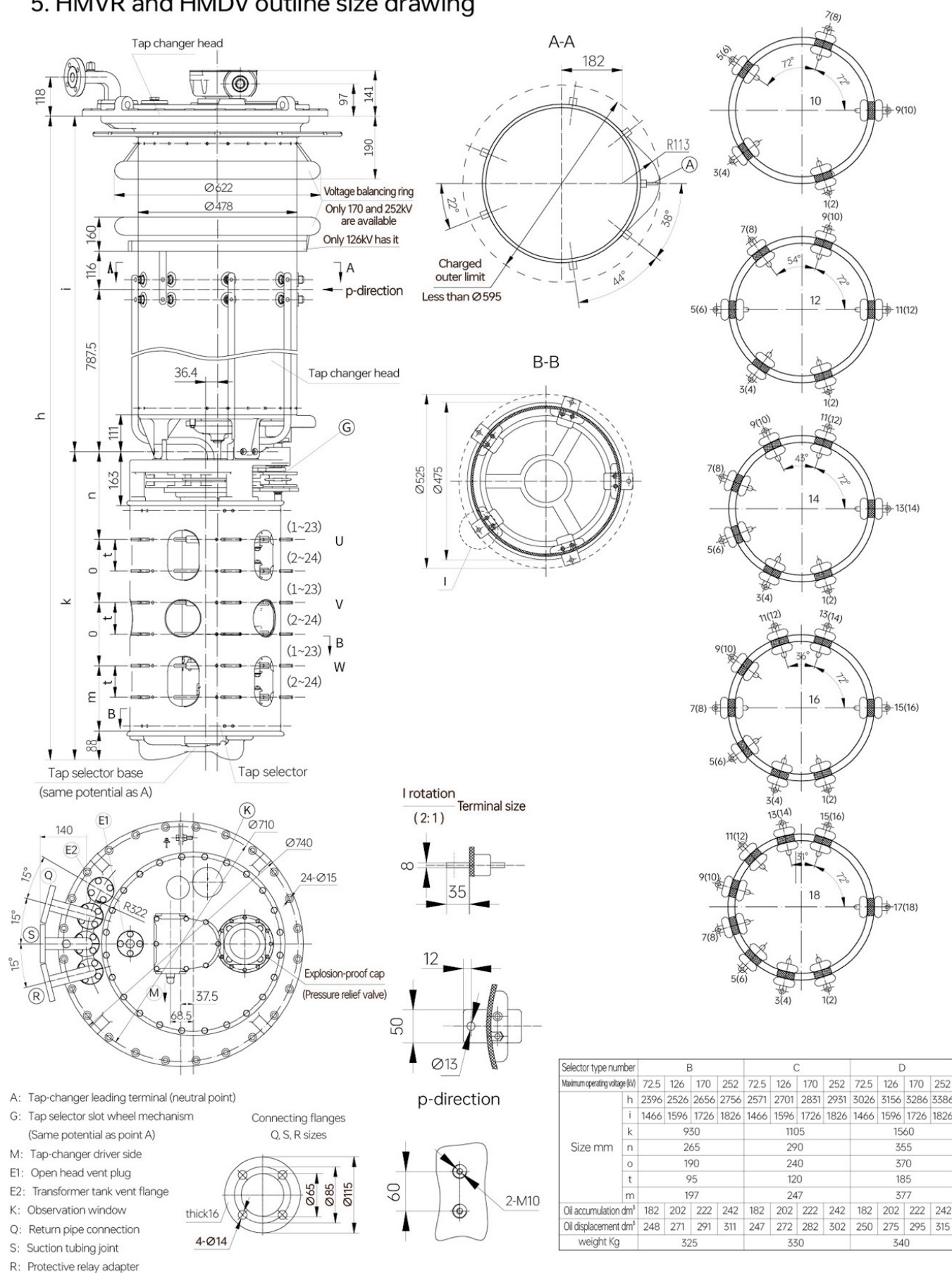


Figure 1 HMVR III1300 linear tone

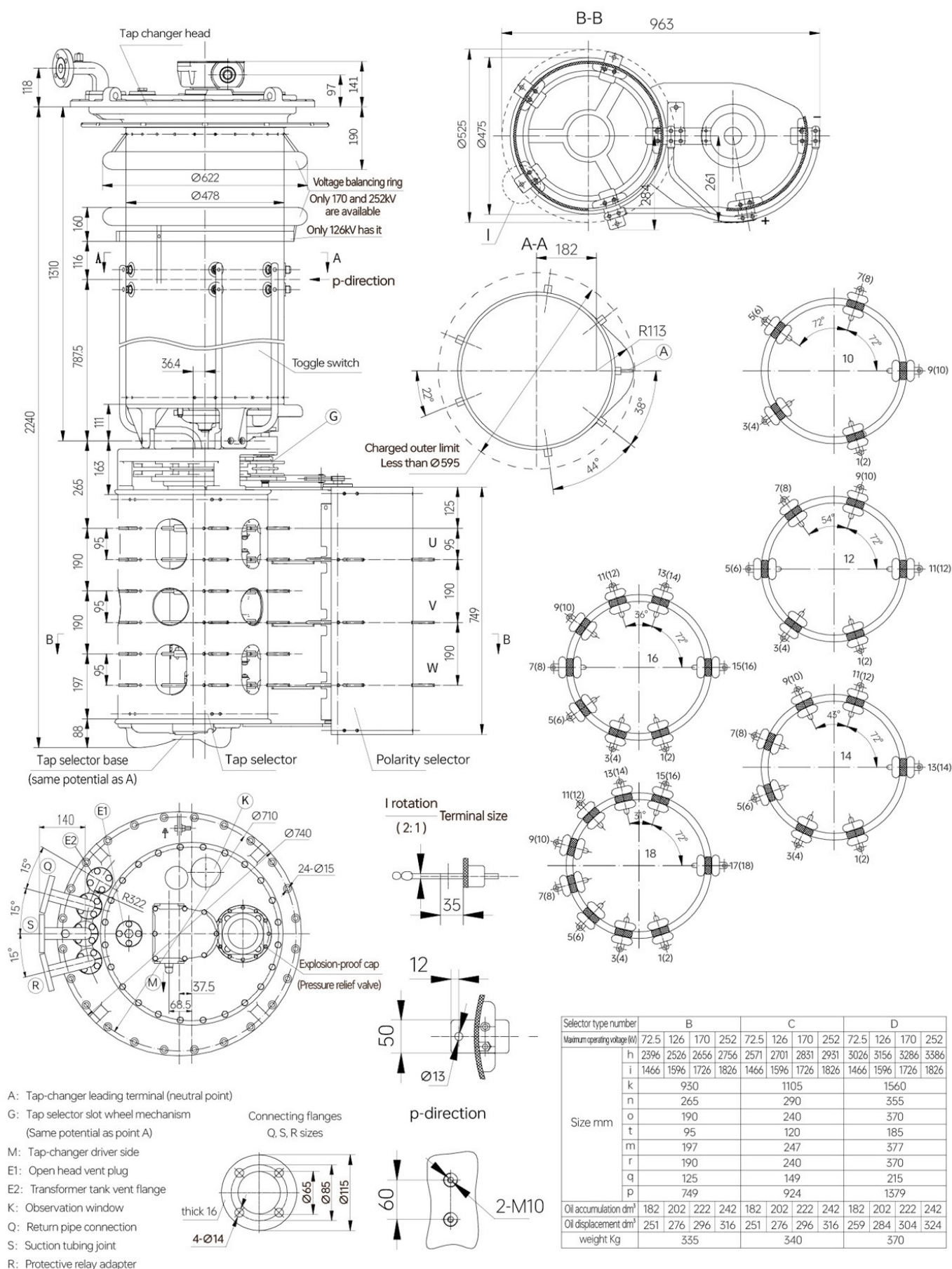


Figure 2 Positive and negative tones of HMVR III 1300

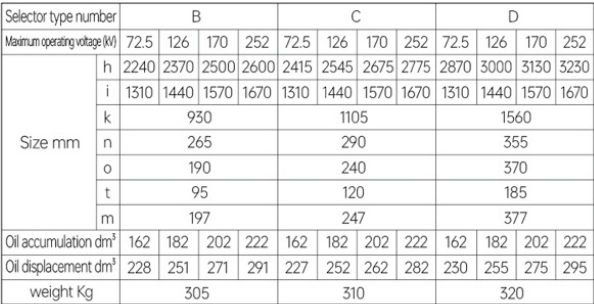


Figure 3 HMDV III800/1000 linear tone

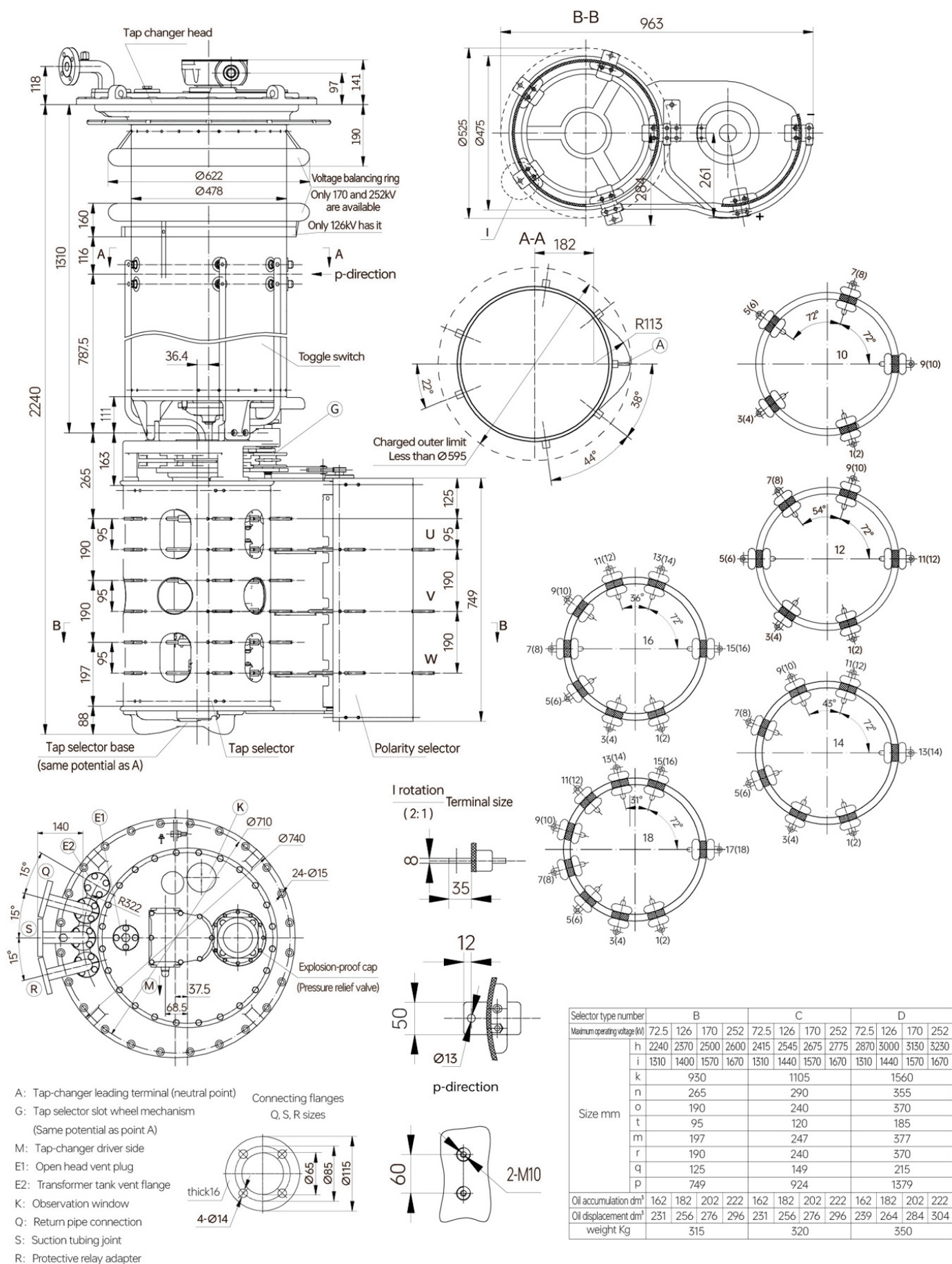


Figure 4 HMDV III 800/1000 positive and negative tones

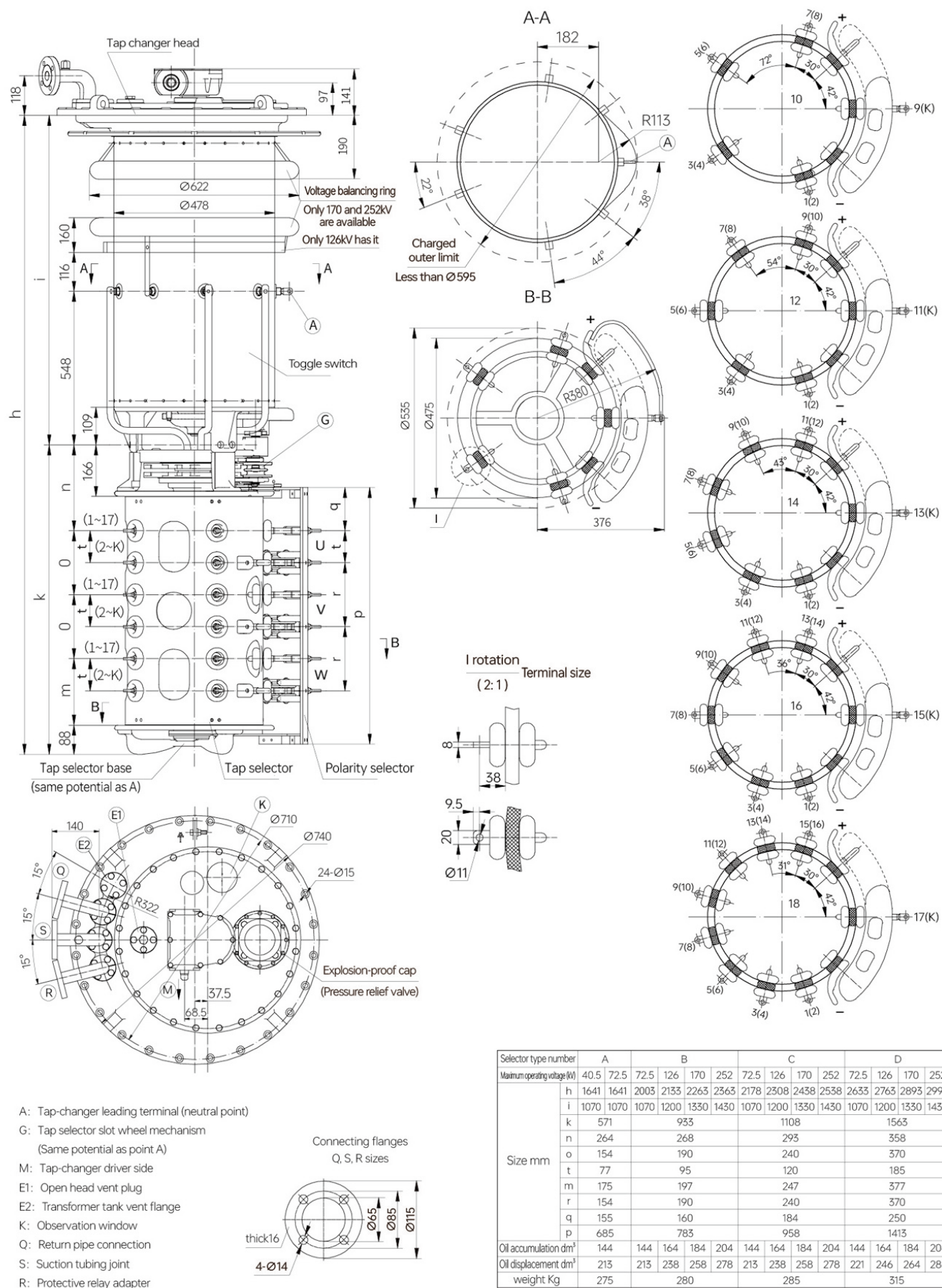


Figure 6 HMDV III600 positive and negative tones

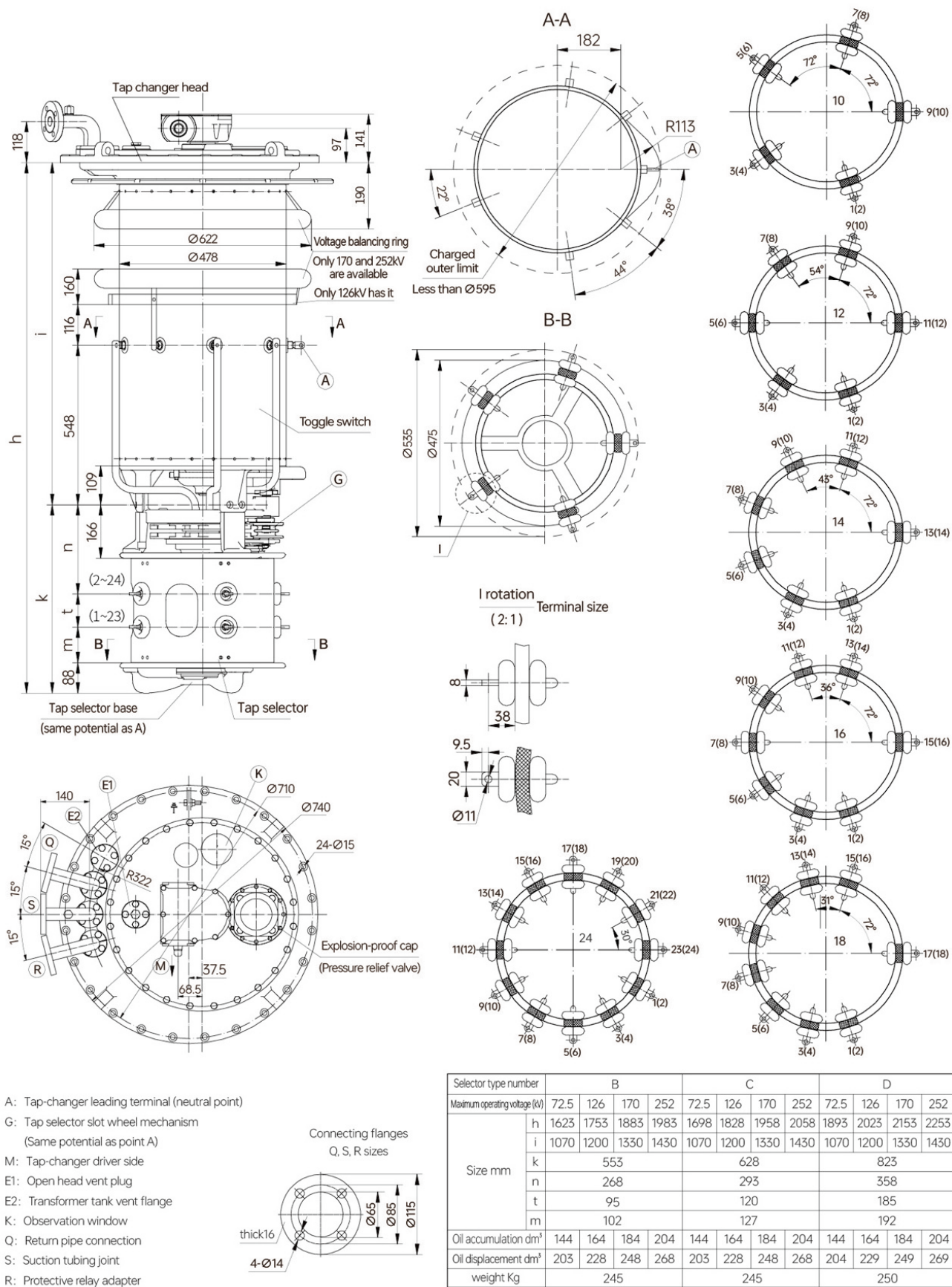


Figure 7 HMDV I 500/600 linear tone

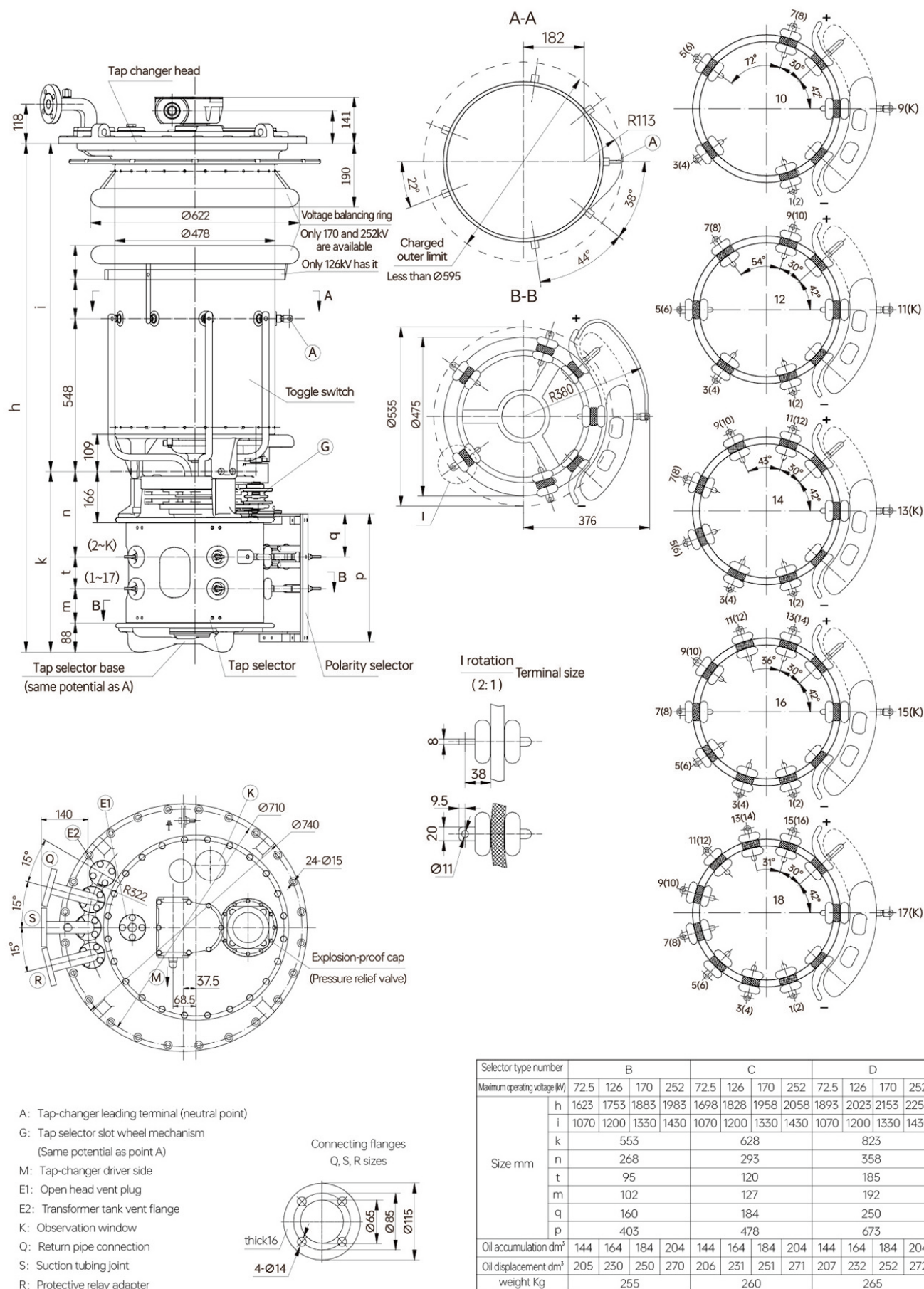


Figure 8 HMDV I 500/600 positive and negative tones

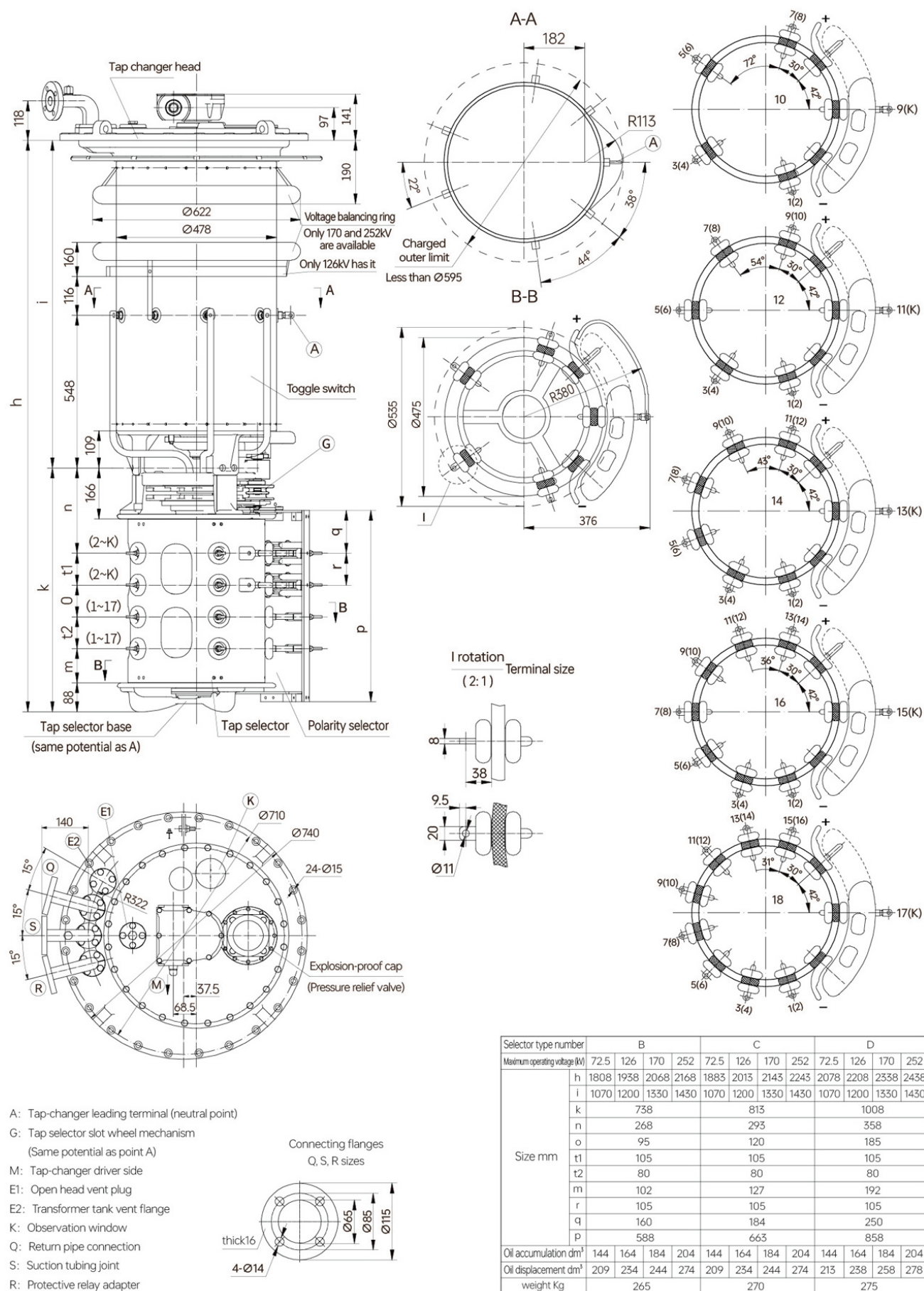


Figure 10 HMDV I 800 positive and negative tones

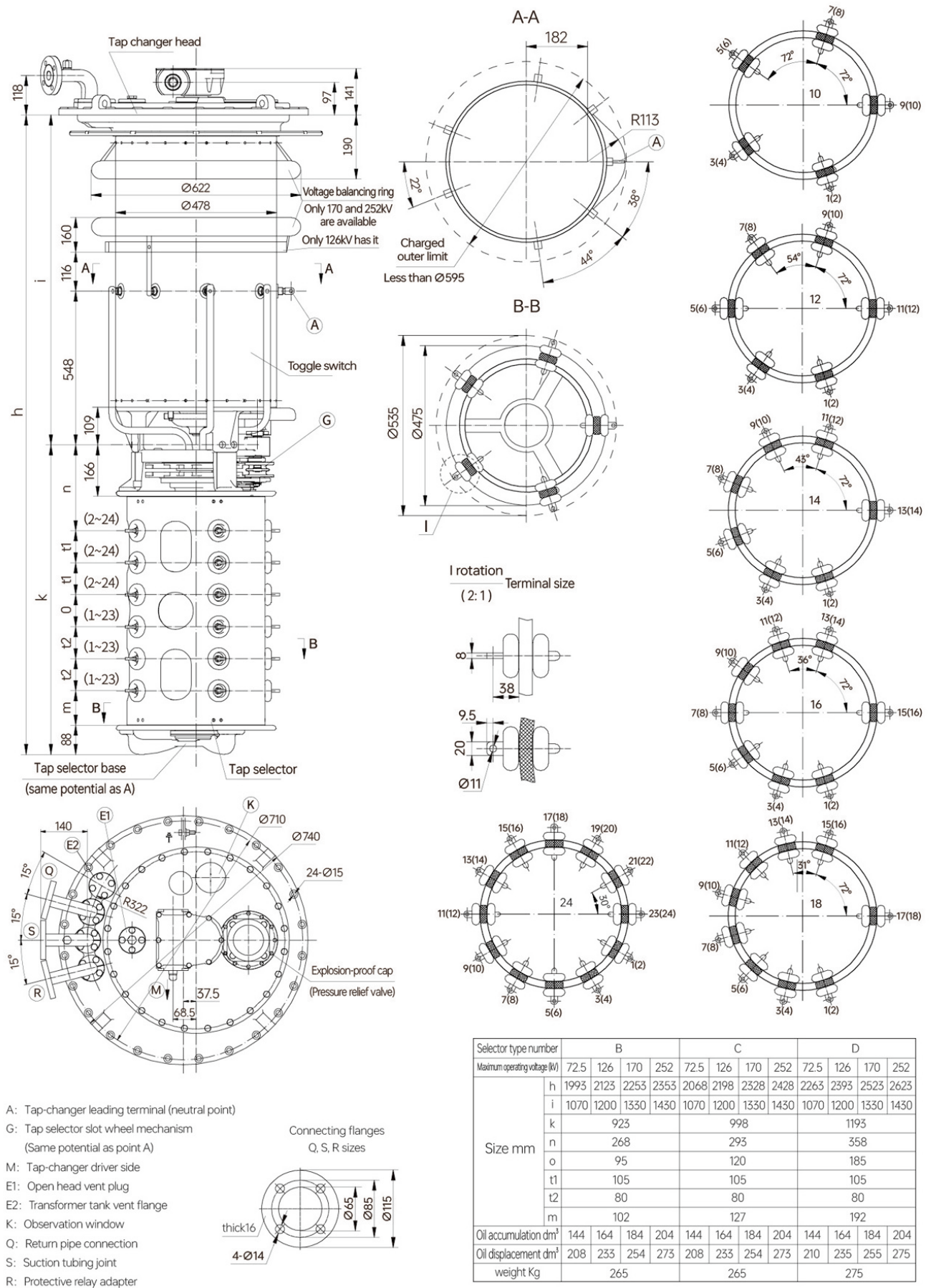
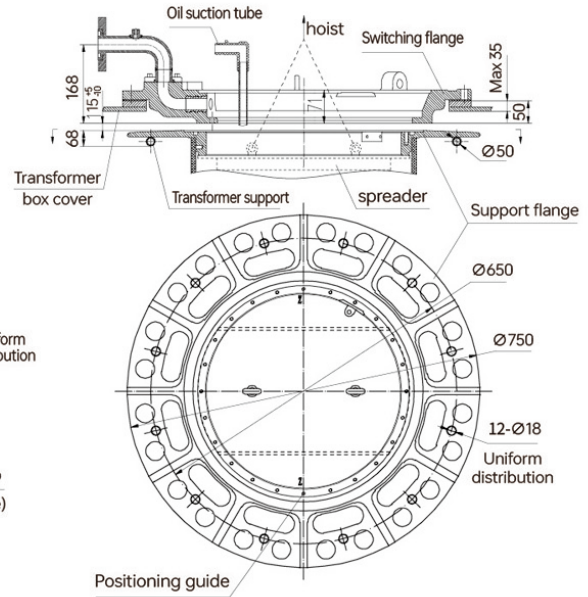
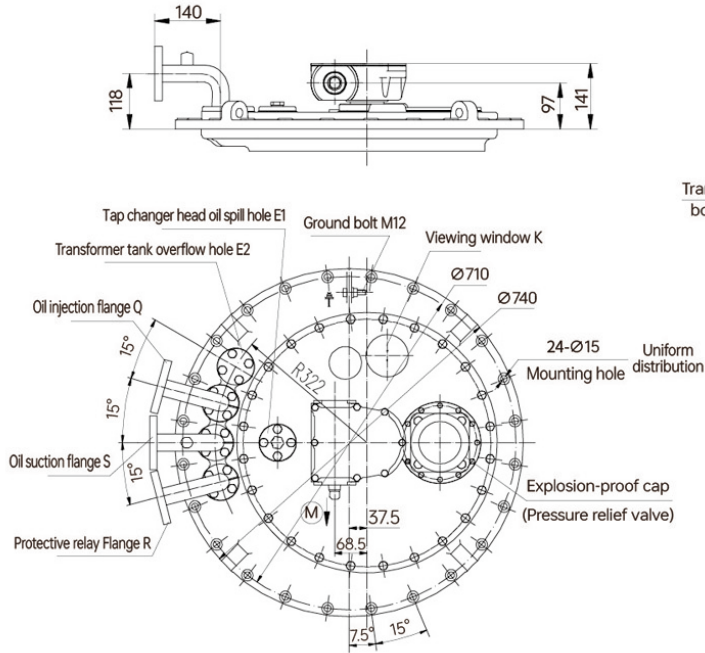
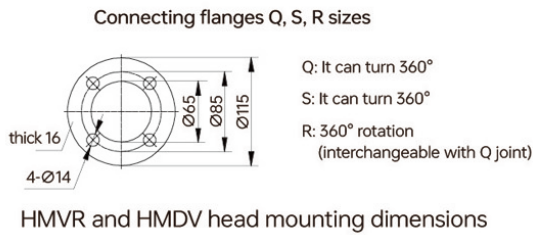


Figure 11 HMDV I1200/1500 linear tone

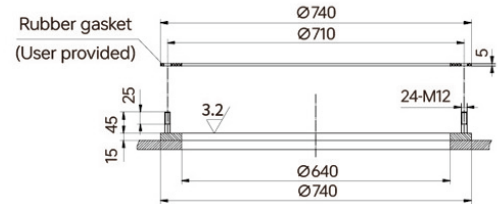
6. HMVR and HMDV installation dimensions



HMVR and HMDV bell mounted dimensions



HMVR and HMDV head mounting dimensions



Transformer box cover mounting flange dimensions

7. HMVR and HMDV head cover layout

In order to meet the requirements of users, when ordering HMVR and HMDV switch head covers, please select the appropriate head cover layout. If the user does not choose to confirm, the production is according to Figure A. In case of special Angle, please give the solution supplier's confirmation when ordering.

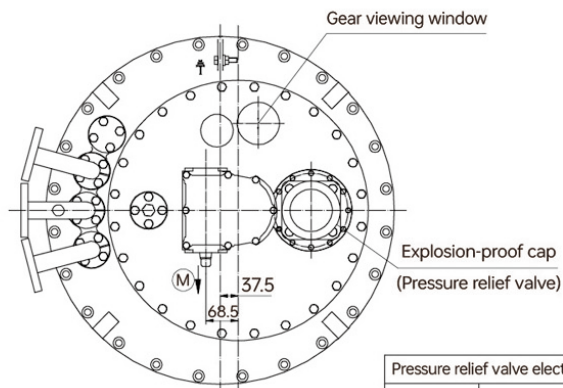
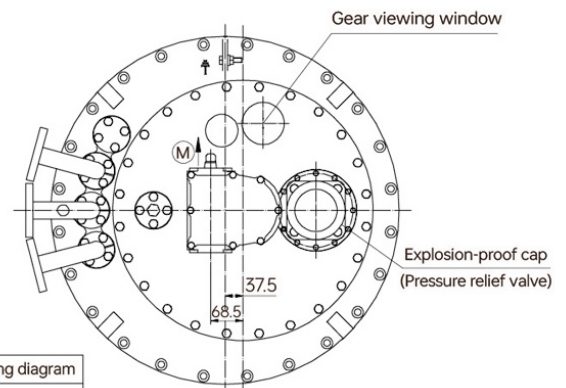


Figure A

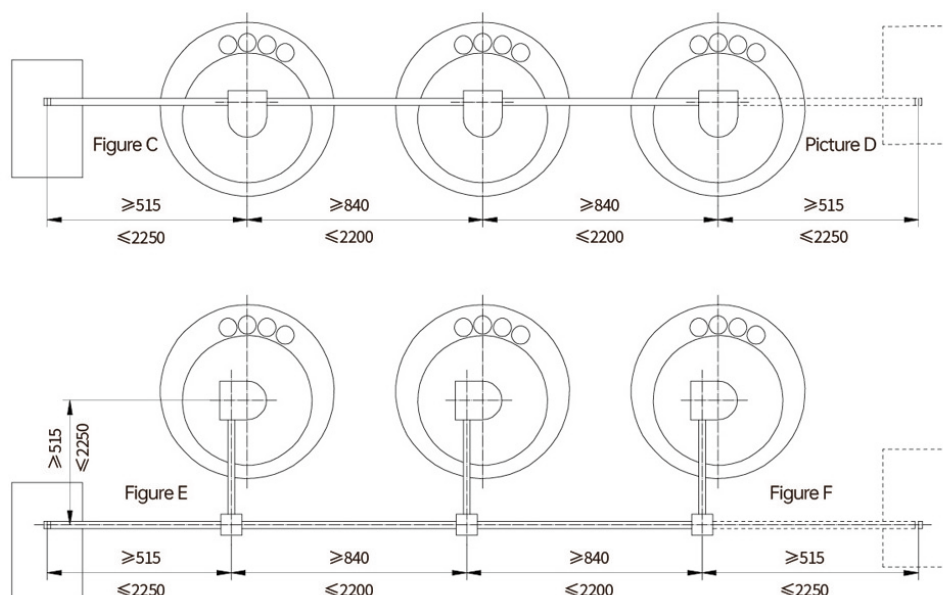


Picture B

Pressure relief valve electrical output wiring diagram			
Standard configuration	Type I	Type II	

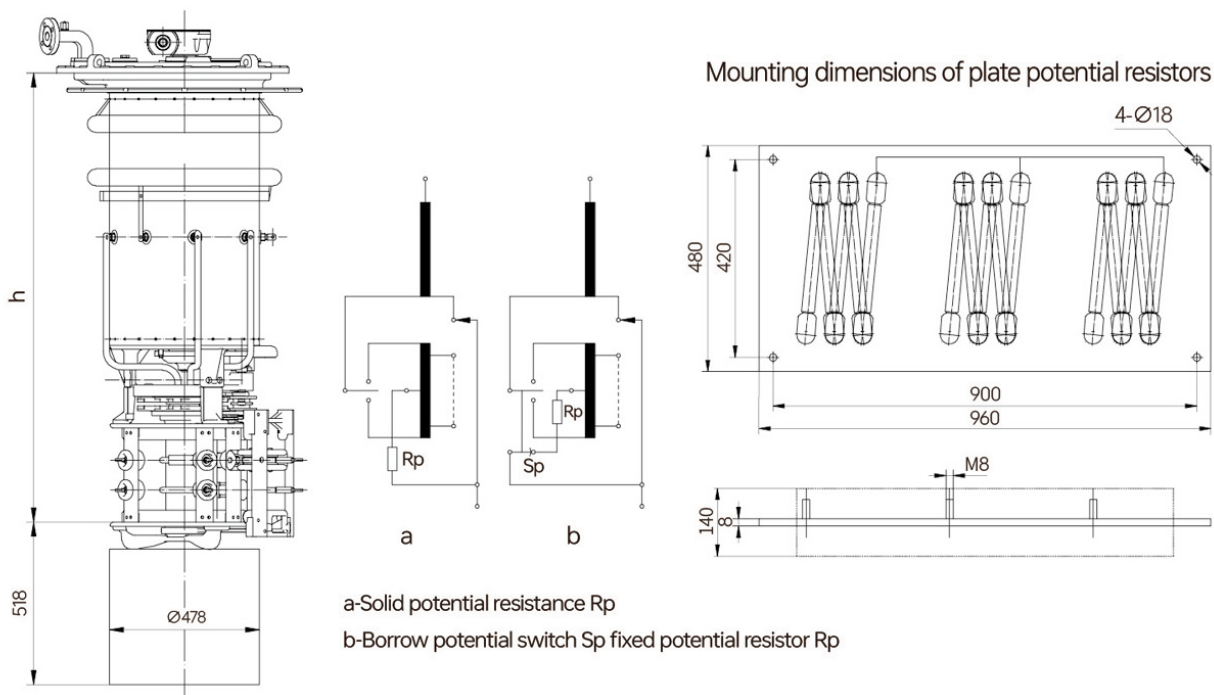
8. HMVR and HMDV triadic mechanical linkage layout

In order to facilitate the user's three mechanical linkage arrangement, HMVR and HMDV three mechanical linkage are provided with four schemes, including Figure C, Figure D, Figure E and Figure F, for the user's reference. If there are other layout parties, as agreed by both parties.



8. HMVR and HMDV potential resistors and potential switches

The tap-changer winding is "suspended" when the tap-changer selector is in action. Because there is a coupling capacitor C between the main winding and the tap-winding, and a coupling capacitor C between the tap-winding and the box shell, the conversion selector generates spark discharge. In order to reduce the spark discharge gas, the potentiometric resistor is fixed or connected by a potentiometric resistor switch.



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