

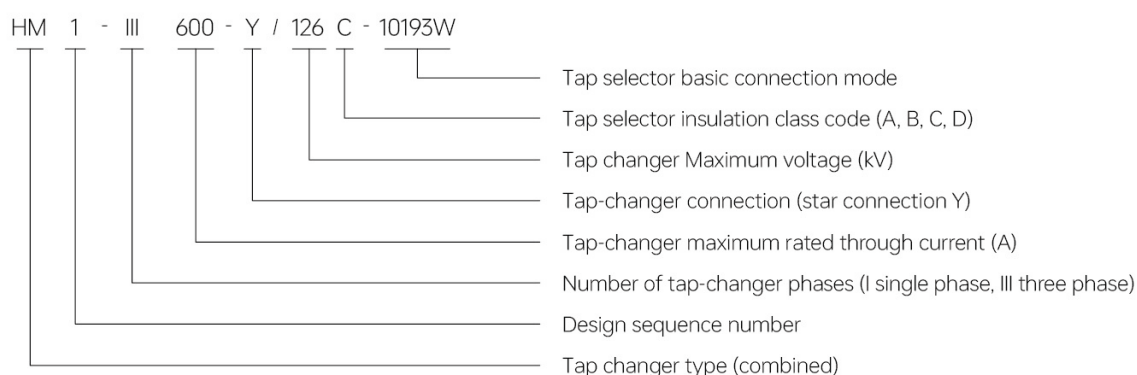
HM1 combined on-load tap-changer

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1. HM1 Model description

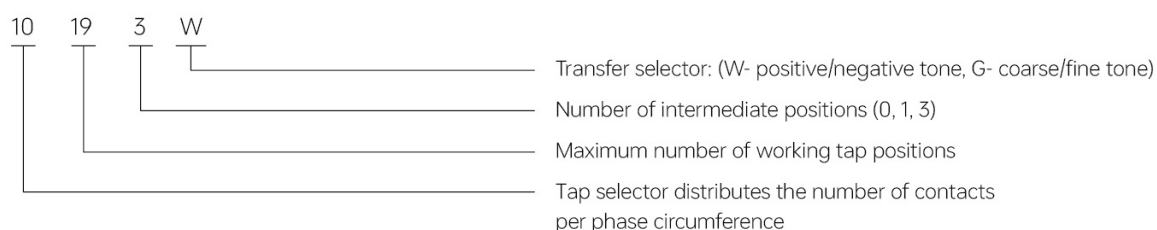
1.1 Model representation

The HM1 on-load tap-changer is available in a variety of models and specifications, depending on the 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:



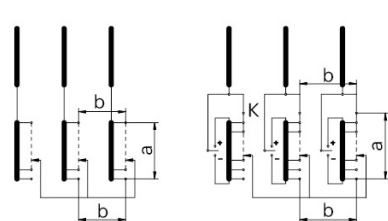
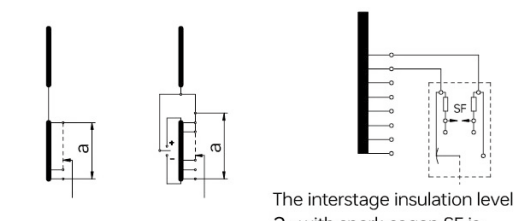
1.2 Basic connection method of tap selector

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:

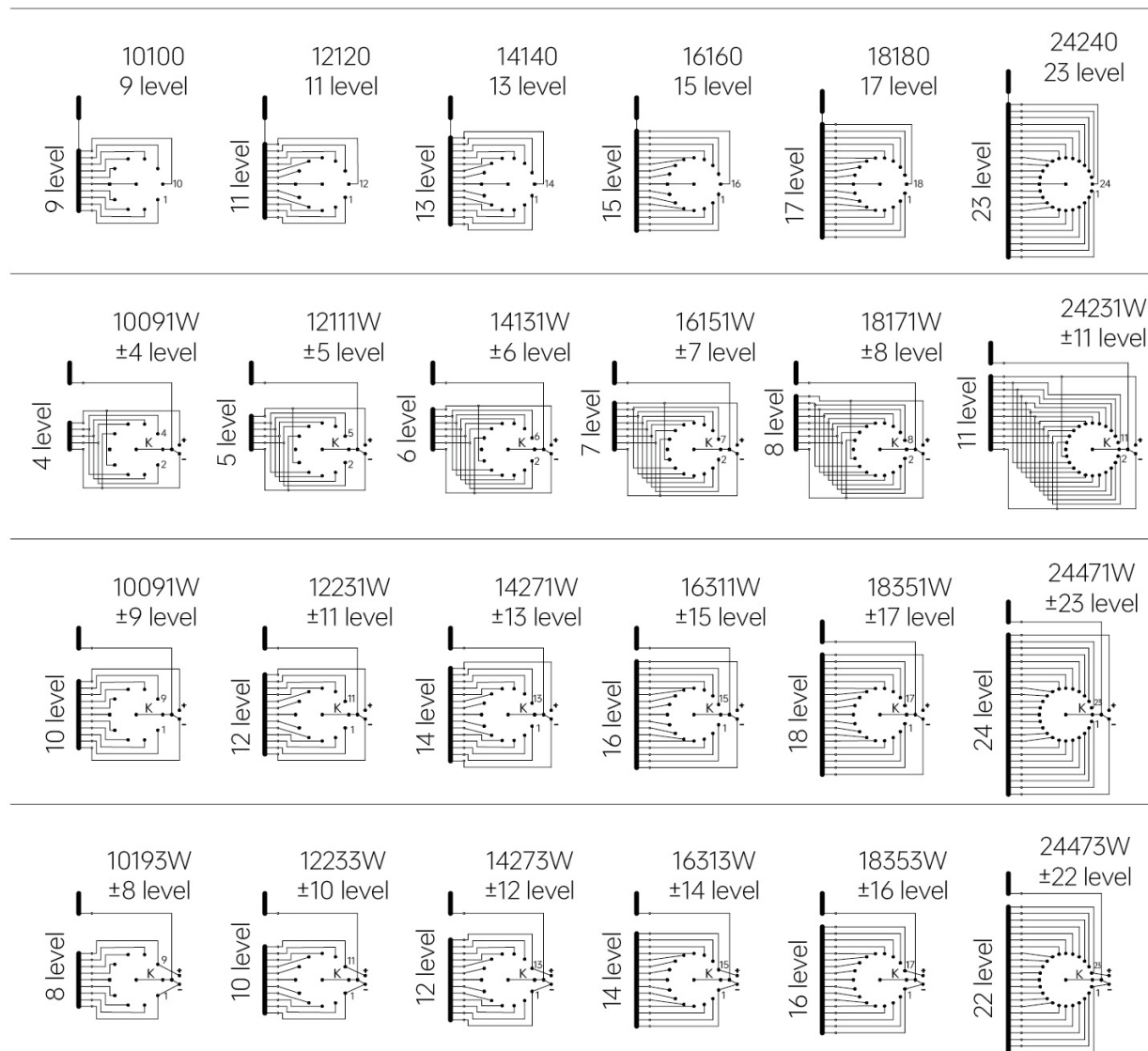


2. HM1 internal insulation level

insulation distance symbol	Tap selector type A		Tap selector Type B		Tap selector type C		Tap selector type D	
	kV 1.2/50μs	kV 50Hz1min	kV 1.2/50μs	kV 50Hz1min	kV 1.2/50μs	kV 50Hz1min	kV 1.2/50μs	kV 50Hz1min
a	135	50	265	50	350	82	490	105
b	135	50	265	50	350	82	490	146
C1	200	95	485	143	545	178	590	208
C2	200	95	495	150	550	182	590	225
d	135	50	265	50	350	82	490	105

Insulation distance of each part of the voltage regulator coil	
III500、III600	I 500、I 600、I 800、I 1200、I 1500
 Linear key flipflop	 Linear key flipflop The interstage insulation level a_0 with spark gap SF is: 5Hz 1min 20kV and 1.2/50μs 90kV

3. HM1 Basic wiring diagram



4. HM1 technical parameters

item	Classification feature		III 500	III 600	I 500	I 600	I 800	I 1200	I 1500
1	Maximum rated passing current (A)		500	600	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)		1400	1500	1400	1500	2640	3100	3500
6	Withstand short circuit Ability (kA)	Thermal stability (3 s RMS)	8	8	8	8	16	24	24
		Dynamic stability	20	20	20	20	40	60	60
7	Number of working positions		Linear keys 7, 10, 12, 14, 16, 18, 24 Positive and negative adjustment $\pm 3 \sim \pm 23$						
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 4 sizes: number A, B, C, D						
10	Mechanical life		No less than 800,000 times						
11	Electrical life		No less than 200,000 times						
12	Toggle Switch Oil chamber	Working pressure	3×10 ⁴ Pa						
		Sealing performance	6×10 ⁴ Pa 24h no leakage						
		Overpressure protection	Rupture cap (4~5)×10 ⁴ Pa						
		Protective relay	QJ4-25 Set oil speed 1.0m/s±10%						
13	Oil discharge (L)		about 190~270						
14	Oil charge (L)		about 125~190						
15	Weight (Kg)		about 240~350						
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. The selection of single-phase tap-changer with three-phase tap-changer contacts in parallel should consider the transformer line country shunt, HM1I800 two-way shunt, HM1I1200, I1500 three-way shunt.
3. The voltage regulation series can be designed according to the user's needs within the range of working positions in the table above.

5. HM1 outline size drawing

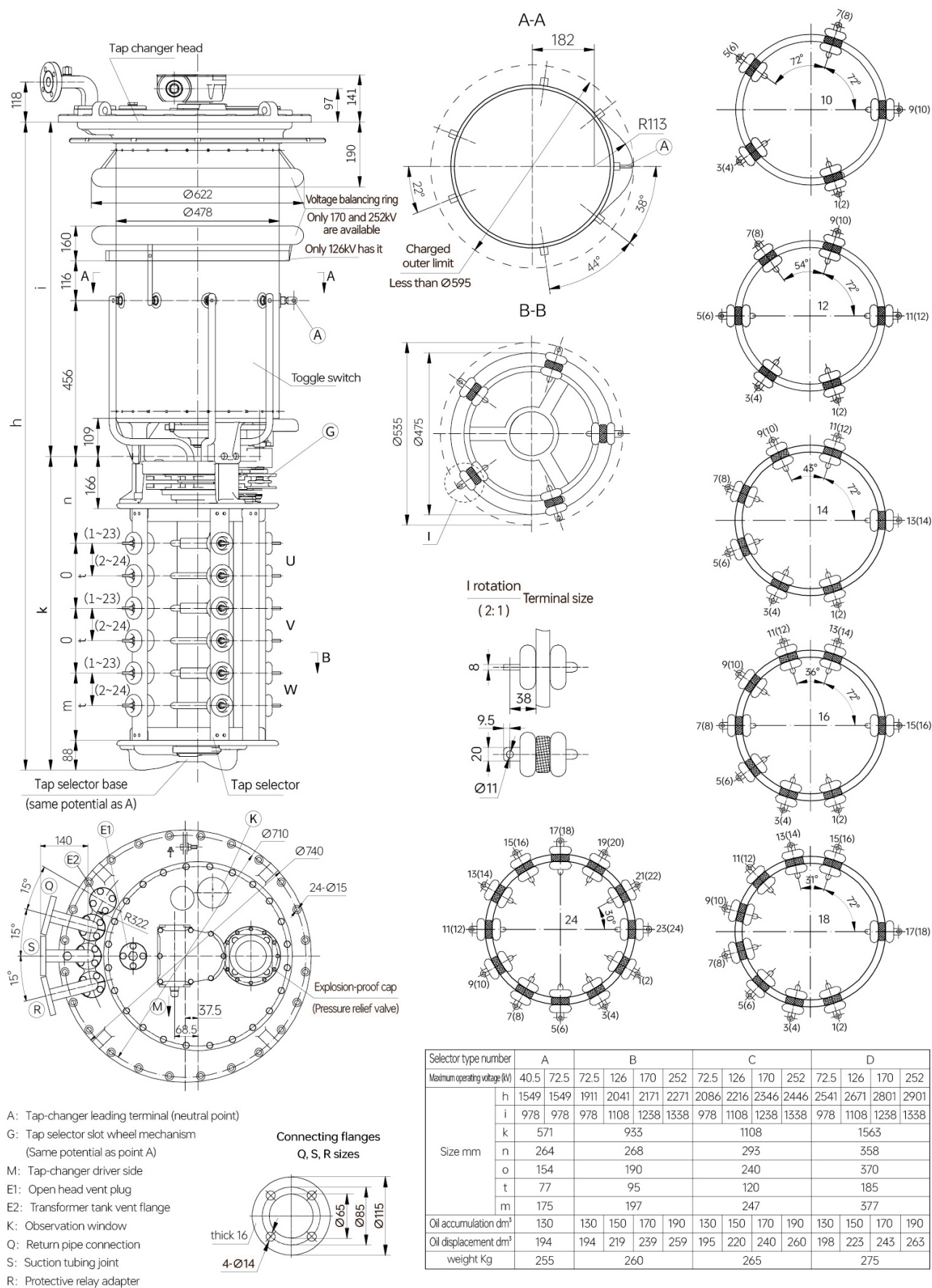


Figure1 HM1 III500/600 linear tone

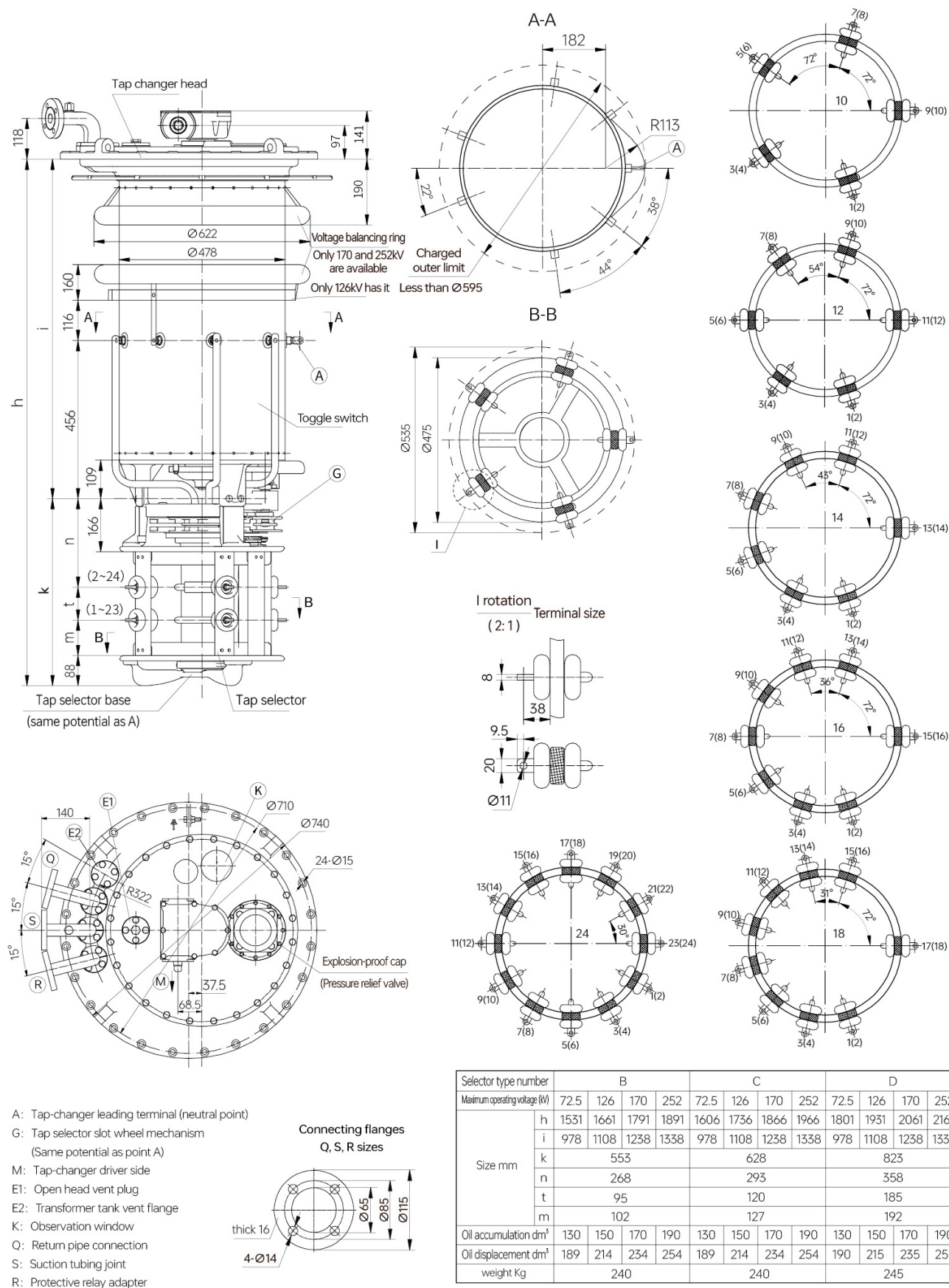


Figure 3 HM1 I 500/600 linear tone



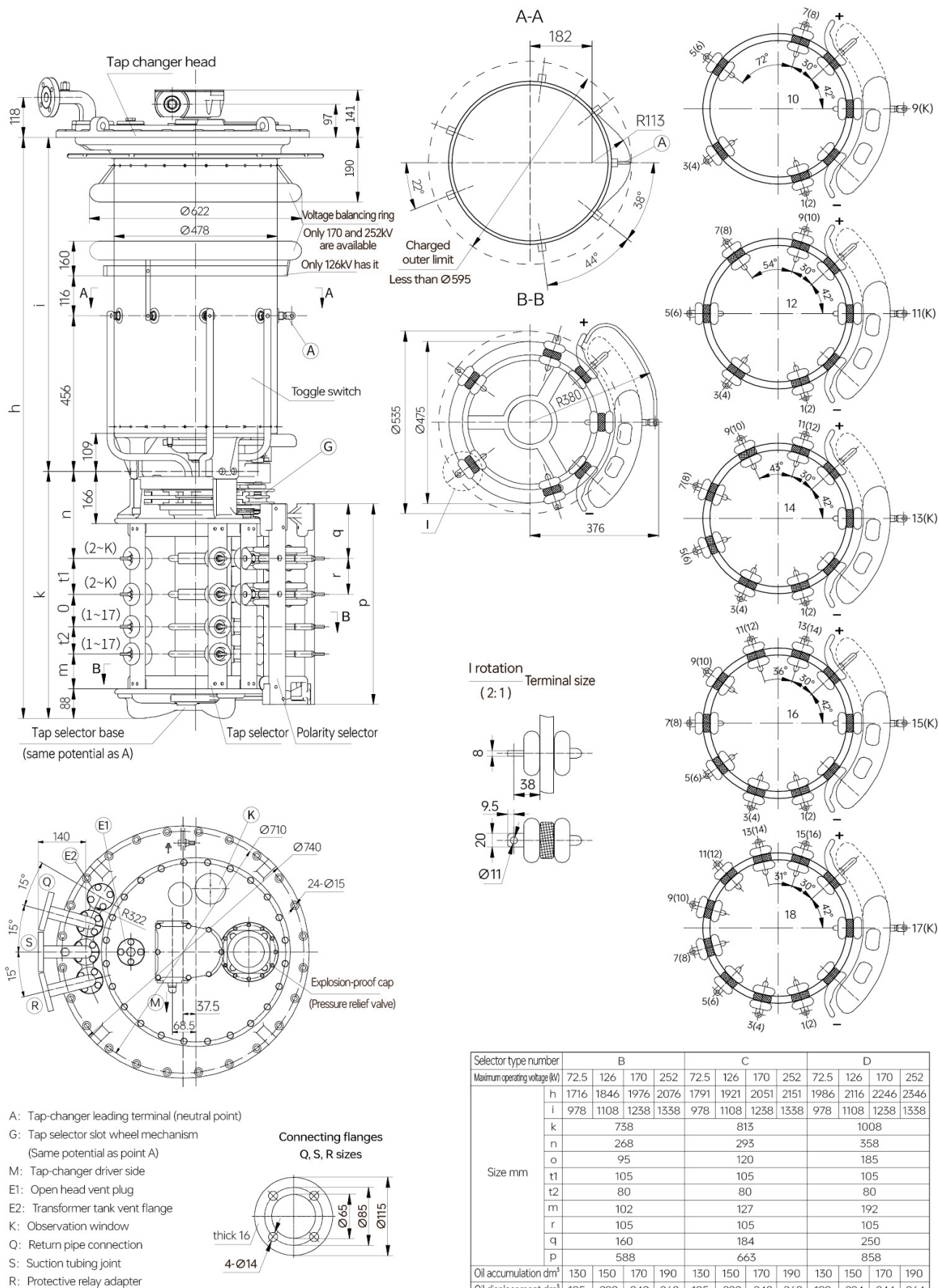


Figure 6 Positive and negative tones of HM1 I 800

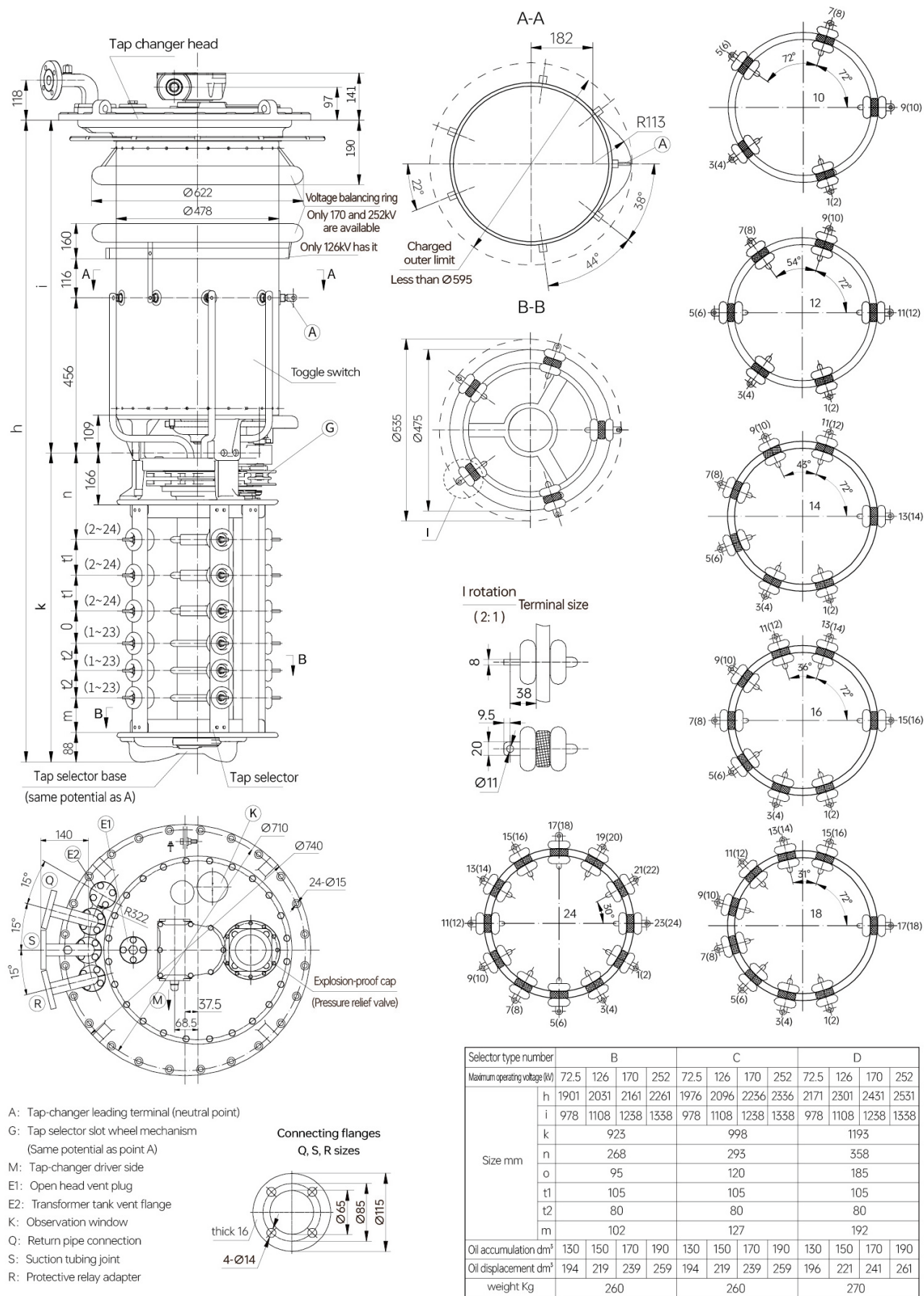
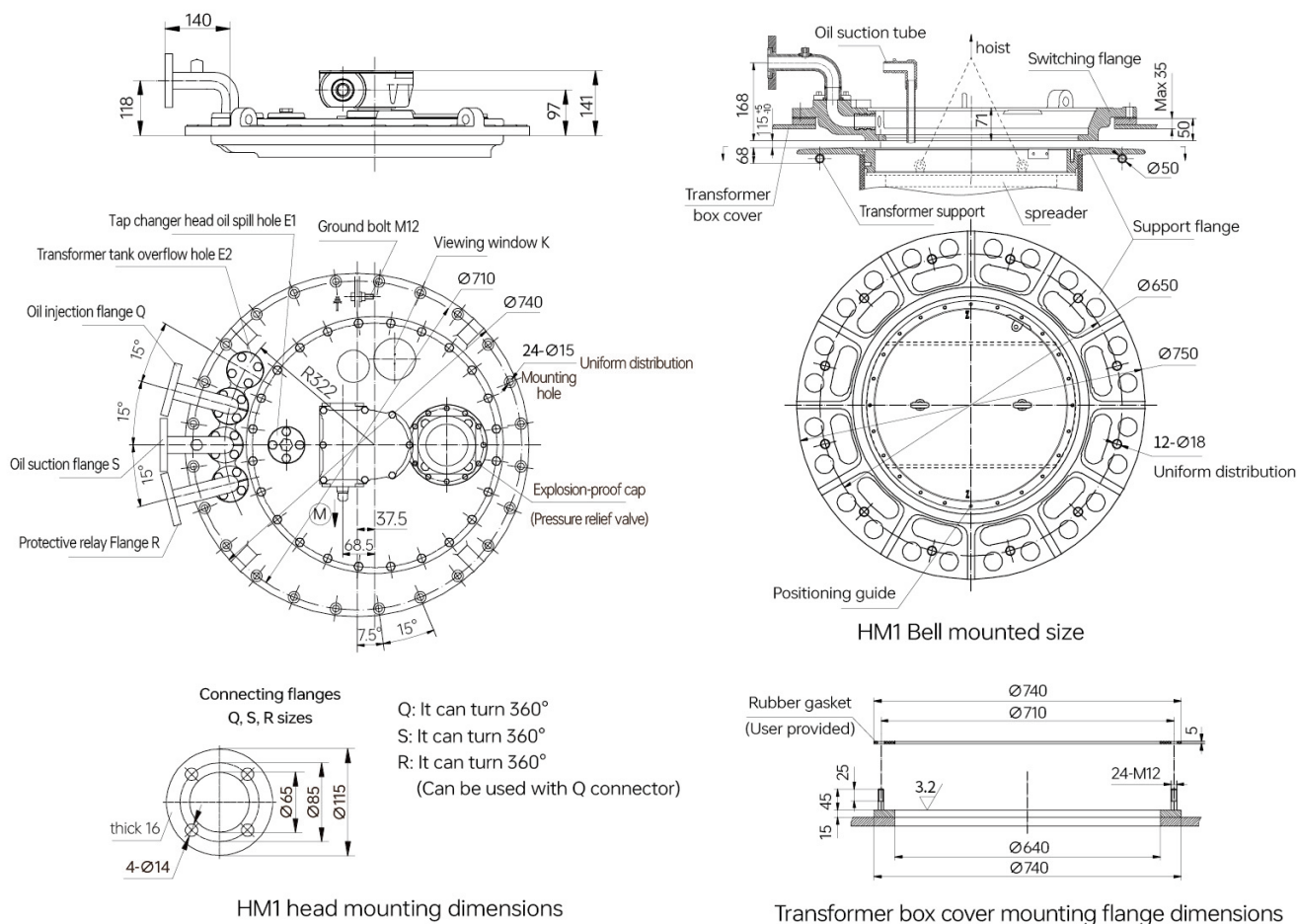


Figure 7 HM1 I1200/1500 linear tone

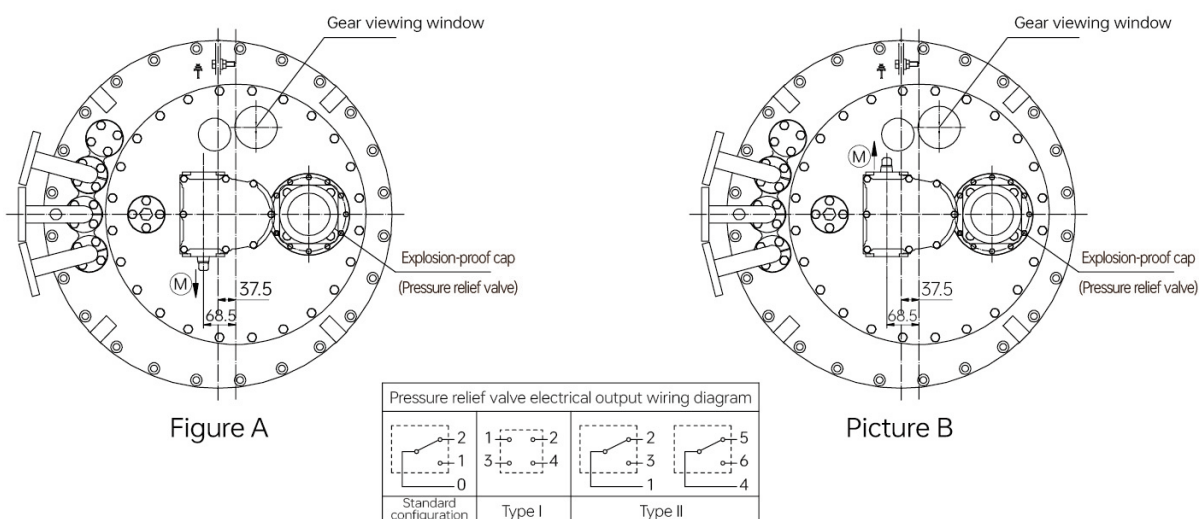
Figure 8 HM1 I 1200/1500 flip flop

6. HM1 installation dimension diagram



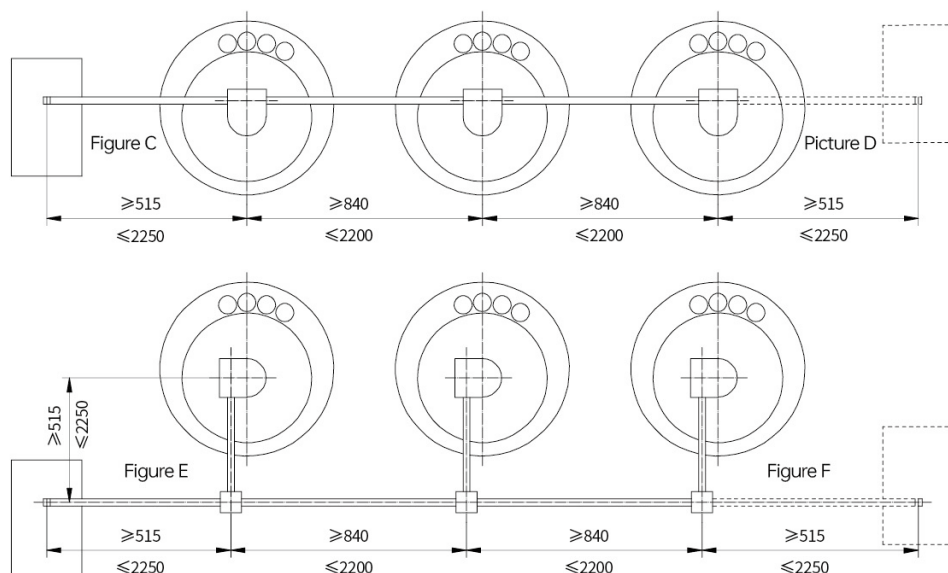
7. HM1 Head cover layout

In order to meet user requirements, when ordering HM1 switch head cover, please select the appropriate head cover layout, if the user does not choose to determine, then according to Figure A production. In case of special Angle, please give the solution supplier's confirmation when ordering.



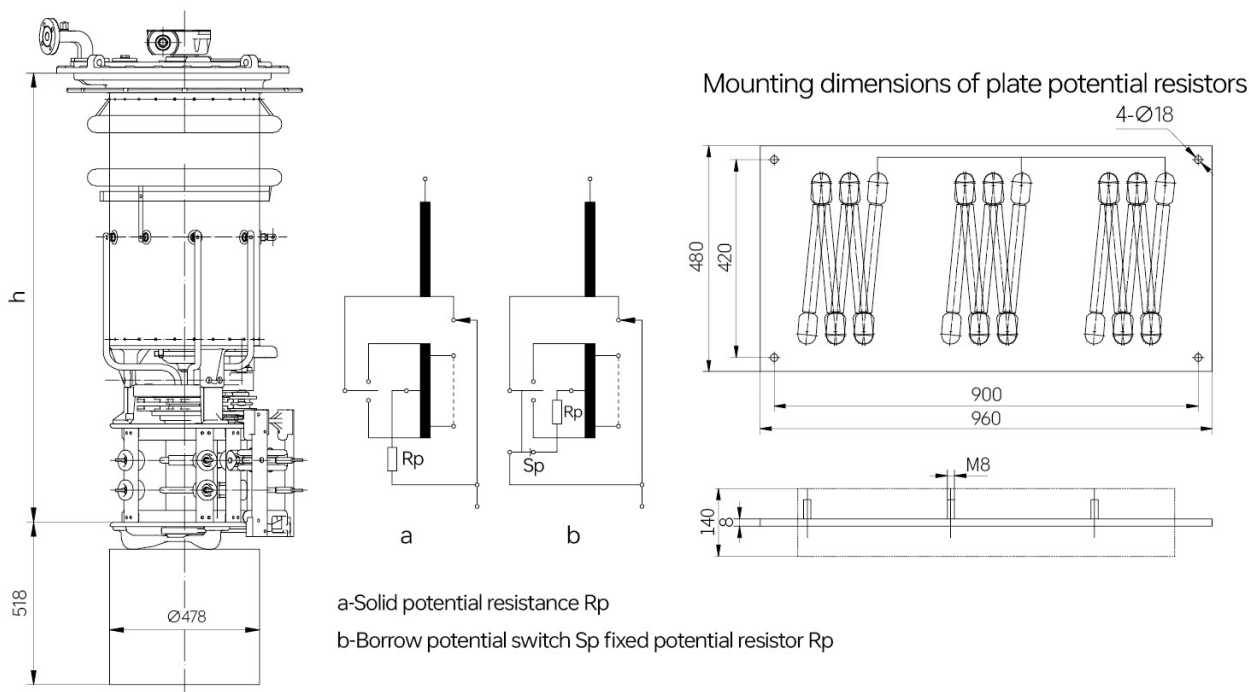
8. HM1 three mechanical linkage layout

In order to facilitate the user's three mechanical linkage arrangement, HM1 three mechanical linkage is provided with four schemes such as 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. HM1 potential resistor and potential switch

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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