



On-Load Tap-Changers

VOLTA[®]

Why Voltap

- Reliable to operate – our confidence in VOLTAP tap-changers comes from our expertise in providing solutions for transformer manufacturers, grid operators and energy producers for over 70 years.
- Easy to maintain - our patented designs are simple and robust, proven in operation in more than 65 countries all over the world.
- Flexible design and manufacturing - we are ready to accommodate your technical and commercial requirements in the design of our products.
- Compact in size - our compact design will reduce the overall dimensions and weight of your transformer.
- Certified - Our tap-changers are certified in leading independent laboratories like CESI, KEMA, KERI, ZKU, and approved by many national electricity authorities. All type tests are performed according to IEC 60214-1 and all VOLTAP tap-changers meet and exceed the requirements of the standard.

R&D MILESTONES

1952

Manufacturing of On-Load Tap-Changers (OLTC) in Bulgaria starts in 1952. The first (YR) series of Tap-Changers is based on licenses from the established Austrian company ELIN-Union.

1962

The RS series of Tap-Changers starts development with the latest RS models still in production today. The improved RS2 (1964) and RS3 (1967) establish the main trends in Tap-Changer manufacturing in the company and Bulgaria.

1974

The new RS4 series is a significant step in the development of Elprom OLTC.

1983

Development and adoption of new series for general and specialized use: RS5, RS6 and RS7. Improved variants of these types are still in production today.

1988

The new series RS9 is adopted, a bestselling series which is still a major part of the Elprom product range.

1991

Research and development in Elprom continues with the adoption of the series RS12 and RS16. RS12 quickly becomes another bestselling series of Elprom OLTCs together with the

1997

Further improvement of the RS9 series with the RS9.3 and RS9.3 1200 A types.

2004

RS21 is designed to operate in SF6 gas insulated transformers according to requirements of the Korean Electric Power Corporation (KEPCO).

2009

The RSV9 series enters production, a vacuum interrupter variant of the RS9 oil-based OLTC. Initial types are with a single and three phases for 400 A, 550 A and 1200 A maximum rated current.

2013

New three phase vacuum OLTC type RSV 6.3 for 1250 A current was developed and put into production.

2016

The prototype for a new vacuum type OLTC is tested and put into production – RSV12, based on the single column design of the RS12 oil type series. Soon it turns into one of Elprom's most popular series.

2021

A three-phase development of the RS21 tap-changer for operation in SF6 environment in the KEPCO grid.



Three phase design for transformers with delta connected windings

OLTC Type	RS 5/ RS 5.3	RSV 5.3
Mechanical endurance	500,000 s.o.	500,000 s.o.
Electrical endurance	100,000 s.o.	300,000 s.o.
Maximum rated currents	200, 400, 630, 1250 A	up to 1250 A
Highest voltage for equipment	up to 41,5 kV	up to 24 kV
Step voltage	up to 3000 V	up to 1000 V
Maximum number of tap operating positions	14/27	14/27
Tap selector insulation level	K	K
Carrying flange shape	elliptic / round	round



Three phase design for regulation at neutral point

OLTC Type	RS 6 / RS 6.3	RSV 6.3
Mechanical endurance	500,000 s.o.	500,000 s.o.
Electrical endurance	150,000 s.o.	300,000 s.o.
Maximum rated currents	up to 1250 A	up to 1200 A
Highest voltage for equipment	up to 300 kV	up to 300 kV
Step voltage	up to 2500 V	up to 2500 V
Maximum number of tap operating positions	14/27	14/27
Tap selector insulation level	K, L, M	K, L, M
Carrying flange shape	elliptic / round	round



Three phase design for regulation at neutral point

Single phase design for regulation at any point on the winding

OLTC Type	RS 9 / RS 9.3	RSV 9.3
Mechanical endurance	1 000,000 s.o.	1 200,000 s.o.
Electrical endurance	500,000 s.o.	600,000 s.o.
Maximum rated currents	I ph: 200, 400, 630, 800, 1200, 1600 A III ph: 200, 400, 630 A	I ph: 400, 550, 700, 1200, 1500 A III ph: 400, 550, 700
Highest voltage for equipment	up to 300 kV	up to 300 kV
Step voltage	up to 4000 V	up to 3500 V
Maximum number of tap operating positions	18/35	18/35
Tap selector insulation level	K, L, M, N, P	K, L, M, N, P
Carrying flange shape	elliptic / round	round

Compact three phase design for transformers with star and delta connected windings

Single phase design for regulation at any point on the winding

OLTC Type	RS 12	RSV 12
Mechanical endurance	800,000 s.o.	1 200,000 s.o.
Electrical endurance	200,000 s.o.	800,000 s.o.
Maximum rated currents	200, 400 A	250, 400, 600 A
Highest voltage for equipment	up to 145 kV	up to 170kV
Step voltage	up to 2500 V	up to 2000 V
Maximum number of tap operating positions	14/27	12/23
Carrying flange shape	round	round



Tap-changers used in SF6 Gas Insulated Transformers

OLTC Type	RS21 (single-phase)	RSV22 (three-phase)
Mechanical Endurance	800,000 s.o.	800,000 s.o.
Electrical Endurance	200,000 s.o.	200,000 s.o.
Maximum rated currents	310 A	400 A
Highest voltage for equipment	72,5 kV	72,5kV
Step voltage	1200 V	1200 V
Maximum number of tap operating positions	up to 23	up to 23
Carrying flange shape	elliptic	round
Standard	IEC 60214-2014	IEC 60214-2014





Motor Drive Unit MZ 4.4

MZ 4.4 is the standard motor drive unit for VOLTAP tap-changers. It can also be used for tap-changers made by other manufacturers, as well as for replacement of outdated or damaged drive units. The MDU box is made of aluminium alloy, and the front panel is protected from environmental impact by a protective cover (door). A standard MZ 4.4 is equipped with a lighting device, contact socket, a document pocket, etc. Additional functions can be added to the motor drive unit according to customer's requirements.

Technical Data

Electrical motor rated power	kW	0,75 / 1,1 (0,9 / 1,3 for 60 Hz)
Rated frequency	Hz	50 / 60
Supply voltage	V	3 AC 380 / 400
Synchronous speed	min ⁻¹	1500 (1800 for 60 Hz)
Revolutions of hand crank per tap change operation	revs	33
Revolutions of outgoing shaft per tap change operation	revs	33
Drive shaft torque	Nm	17 / 24
Duration of the tap change operation	s	4,5
Maximum number of operating positions	-	35
Control circuit voltage	V	AC 220/230
Insulation level of voltage Ph - PE	kV	2,5
Heater elements power	W	300
Protective degree	IP	IP55
Weight	kg	104

The following special executions of motor drive are offered to meet the specific requirements of customers:

- Degree of protection IP 66.
- Revolutions of outgoing shaft per tap change operation: 0,5; 1; 6; 16,5.
- Various supply voltage for operation and control circuits at customer request.
- Execution for a cold climate with heater elements power 4 x 150 W for a minimum operating temperature of -60°C.
- With single phase el. motor
- Drive shaft torque 50 Nm
- Box from stainless steel
- Maximum number of operating positions 125

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