

Rosseti, St. Petersburg, Russia	Basic Design of a National Testing Center in Russia	2015-2016	*
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Testing Facilities and maximum ratings of equipment to be tested

The Power supply of the Laboratory includes 4 Short-circuit Generator each rated 3500 MVA.

- The High Power Synthetic Section is able to perform:
 - Synthetic tests on circuit-breakers up to 1200 kV, 80 kA and on generators circuit-breakers up to 360 kA,
 - Direct tests on circuit-breakers up to 123 kV, 40 kA,
 - Direct tests on HV disconnectors and earthing switches, gas insulated switchgear and controlgear up to 160 kA.
- The MV-LV Section able to perform MV and LV short-circuit direct tests on equipment with rated voltage up to 52 kV with a maximum current of 160 kA.
- HVDC Power Section for power tests of thyristor valves up to 8 kAdc rated current.
- The Transformer Section for short-circuit withstand tests on Power Transformers up to 400 MVA, 500 kV class, 3-phase and 1-phase unit up to 267 MVA, $750/\sqrt{3}$.
- High Voltages Sections to perform dielectric tests in UHV testing hall (up to 1200 kV class, including MVU thyristor valves), EHV testing hall (up to 550 kV class), HV testing hall (up to 145 kV class) and MV testing hall (up to 72,5 kV class) .
- Pollution tests Section for testing insulators up to 1200 kV.
- Temperature rise Laboratory for Power Transformers (up to 667 MVA, 1200 kV class) and Reactors (up to 300 MVar, 1200 kV class).
- Temperature rise Laboratory for Switchgear up to 10 kA for equipment with rated voltage up to 1200 kV and 30 kA for generator circuit-breakers.

Tasks performed:

<p><u>High Power Laboratory</u></p> <ul style="list-style-type: none"> ● Assessment of HPL testing requirements, ● HPL General Configuration, ● HPL Power system description, ● Calculation of HPL circuit parameters and testing capabilities, ● Main equipment Technical Specification of: <ul style="list-style-type: none"> ○ MV-LV Laboratories for direct tests up to 52 kV, 160 kA, ○ High Power Transformer Laboratory, ○ HVDC Power Laboratory for power tests on thyristor valves, ○ TRV Control Banks, MV Resistor Banks and MV Load Circuits. ● Technical Specification of: <ul style="list-style-type: none"> ○ 3500 MVA Short circuit Generators, ○ 1100 MVA MV/HV and MV/MV Laboratory Transformers, ○ 100 MVA MV/LV1 and 200 MVA MV/LV2 Laboratory Transformers. 	<p><u>High Voltage Laboratory</u></p> <ul style="list-style-type: none"> ● Assessment of HVL testing requirements ● HVL Testing capabilities and configuration ● Technical Specification of: <ul style="list-style-type: none"> ○ Impulse Voltage Generators, ○ Power Frequency Sources and relevant Regulator Transformers, ○ Coupling and standard capacitors, ○ DC Voltage Generator for MVU testing, ○ Static Frequency Converter, ○ Heating cycle system for temperature rise test, ○ Power Transformers for Temperature Rise and Induced Voltage tests on Reactors, ○ Testing equipment for Artificial Pollution tests on Insulators, ○ Capacitors Compensative banks.
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