



JDEVs

High Voltage Engineering Center



WWW.JDEVs.COM

Designing, Engineering & Manufacturing of:
High Voltage Test Equipment



QUALITY & SAFETY

INTRODUCTION

JDEVS is an Iranian, public nongovernmental self-finance scientific, engineering and production organization, which has been established in 1980. It is mainly involved in technical and industrial activities in the fields of environmental, electrical, mechanical, civil and architecture engineering through its different subsections working as different centers by more than 500 well trained employee.

High Voltage Engineering Center has started its research in designing and manufacturing of electrical high voltage test equipment, since 1990. Now it is known as a major designer and manufacturer of high voltage test equipment, and high voltage test laboratory in accordance with international standards. Also, this center has capability for testing of generation, transmission and distribution of power system equipment in Iran.

This center has so far been able to carry out valuable expertise and professional test services for industries and manufacturers which use high voltage equipment, as well as making of high voltage test laboratory for higher education institutions and universities according to international standards. This center also has a high voltage test laboratory and portable high voltage equipment for proposing type and routine test services at its own laboratory and on-sites.

PRODUCTS

POWER FREQUENCY TEST SYSTEMS

AC test systems consist of modular transformer units that can be cascaded up to three stages to get higher voltages ranging up to 1200 kV. Our AC test systems can be provided with low or high power ratings. Small AC test systems with low power are mainly suitable for performing dielectric tests, whereas large systems with high power can be used to carry out additional tests such as high voltage withstand tests.



HIGH ENERGY IMPULSE TEST SYSTEMS

Impulse test systems are based on the Marx generator. They provide the standard lightning ($1.2 \mu\text{s} / 50 \mu\text{s}$) and switching ($250 \mu\text{s} / 2500 \mu\text{s}$) impulses to test various test objects such as transformers, bushings, cables, insulators, switchgears, and many more from 10 kV upto 2.4 MV other specifications upon request.

● MODULAR TEST SYSTEM (AC, DC AND IMPULSE)

The modular test system is based on portable and light elements which can constitute suitable circuits to provide AC, DC, and impulse voltages. For example a DC test system is based on an AC voltage transformer which charges HV capacitors with a DC voltage through HV diodes and resistors. These systems provide high DC voltages to test HVDC facilities, long AC cables, capacitors and so on.



● PORTABLE HIGH VOLTAGE TEST EQUIPMENT

The portable AC voltage test system consists of two separate units: a control panel and a high voltage transformer with a voltage divider. Its capabilities are as follows:

- Compatibility to provide high DC voltage tests
- LV and MV insulation tests at any location in the factory and before operation on the site
- Light weight
- Easy operation



● HIGH VOLTAGE RESONANT TEST SYSTEM

AC resonant test systems are especially valuable in any application where the load is largely capacitive with low loss such as HV cables, GIS, and generator windings. They are built for indoor applications.

Orders are accepted for any voltage and output power as requested.



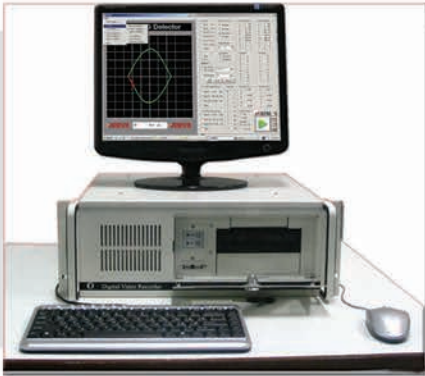
● HIGH VOLTAGE LABORATORY TRAINING KIT

The high voltage laboratory training kit constitutes suitable circuits to provide AC, DC, and impulse voltages. Its application is in training and research centres. The classic high voltage test is used to teach high voltage science principles. It is possible to hold various voltage engineering courses with the following syllabus:

- | | |
|--|--|
| - Study of DC high voltage and its measurement | - Study of discharge in gases |
| - Study of AC high voltage and its measurement | - Paschen's law |
| - Study of impulse high voltage and its measurement | - Study of the effect of electrode shapes on air breakdown under AC and DC high voltages |
| - Study of electrical breakdown in oil | - Study of the corona phenomenon |
| - Study of insulators' ability to withstand high voltage | - Study of load effects on AC and DC high voltage circuits |



PC BASED SYSTEM FOR PARTIAL DISCHARGE DETECTION AND ANALYSIS



Partial Discharge (PD) measurement is a non-destructive insulation test of HV equipment. It is a vital test for several HV apparatuses according to IEC standards. The PC based system is applicable for PD measurement of equipment such as HV capacitors, transformers, insulators, cables, and electrical machines. In this system, PD pulses generated in the test-object are transmitted to the PC based PD meter, which consists of a high-speed A/D card, a software environment for PD signal processing, an external calibrator and an external synchronizing system. This system has several features to achieve superior performance.

IMPULSE CURRENT GENERATOR TEST SYSTEM

Impulse Current Test Systems are manufactured for testing equipment applied in medium and high voltage transmission & distribution systems against the effects of lightning strokes (direct or indirect) or against electromagnetic interference effects.

The main application fields of impulse current testing are:

- Arresters and varistors (elements or complete systems)
- Lightning protection elements (For buildings, components of communication and distribution networks)
- Vehicles (Cars, bus, trucks, trains)
- Aircrafts
- Wind generators (Whole system or blades)
- Transmission lines with integrated fibre optic cables



IMPULSE ANALYZER

Control unit for operating an impulse generator. It provides control for the charging and triggering process of an impulse generator.

- 14 bit real vertical resolution at 100 MS/s
- 32/64 Mbytes memory
- Automatic evaluation of all common impulse shapes and their parameters
- Support IEC 60060-1, 2010 and 61083 standards
- Clear documentation and reporting including, test information, notes, grouping, etc.

SHORT CIRCUIT TEST EQUIPMENT (SYNTHETIC METHOD)

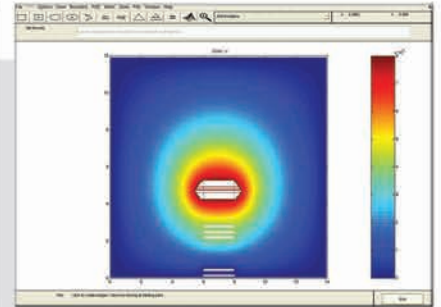
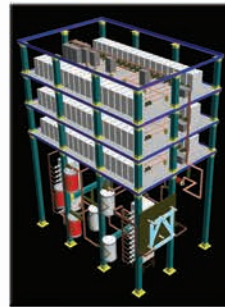
Technical specifications:

- Carrying out the short circuit tests on MV circuit breaker up to 36 kV / 31.5 kA
- Making and breaking test on MV circuit breaker
- Capability to do T10, T30, T60, T100 s tests
- According to IEC62271-100 , IEC62271-100



RESEARCH AND DEVELOPMENT

The High Voltage Engineering Centre is able to design and manufacture high voltage equipment with different voltage and power levels and to design high voltage laboratories.



TRAINING

JDEVs provides training courses on operation and maintenance at two levels: for industrial fields and for universities. The courses are presented at JDEVs headquarters, and complementary courses are offered at JDEVs workshops.

QUALITY CONTROL AND ON-SITE TESTING

Based on our experience and well-equipped facilities, we offer a wide range of quality control services and on-site testing to our clients according to well-known standards.



GUARANTEE AND WARRANTY

All of our products are guaranteed for 12 months after commissioning or 18 months after delivery and have 15-year spare parts supply.

SPARES

Extensive stocks of components and spare parts are maintained to support clients with fast delivery and replacement services.

AFTER-SALES SERVICES

JDEVs is pleased to announce its fast after-sales services in the regional market. We respond to any requests from clients for supervision of installation, pre-commissioning or maintenance of JDEVs products by dispatching our specialists to customer sites in a very short time.



CERTIFICATES AND AWARDS

With its strong design, engineering, QC/QA and production based on IEC standards, JDEVS has been able to achieve many prestigious awards, patents and certifications such as ISO 9001:2008



JDEVS HIGH VOLTAGE LABORATORY

High voltage laboratory of JDEVS is one of the reference laboratories in Iran. Its dimension is about 22 m × 22 m × 22 m. Its test ability is power frequency withstand voltage test up to 800 kV and lightning impulse withstand voltage/current test up to 1800 kV/20 kA

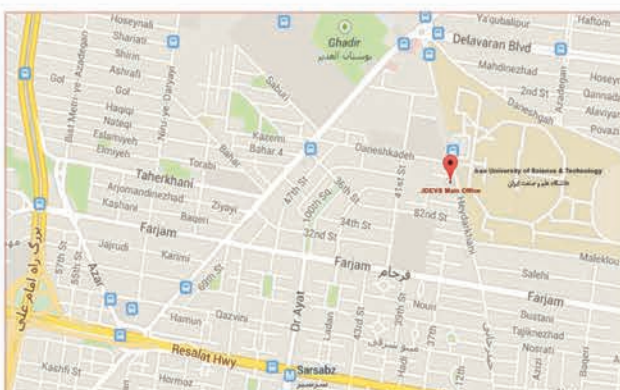




REFERENCE LIST

Equipment classes	Technical specifications	Number of customers	Date
Modular test systems	Up to 300 kVAC/ 400 kVDC/350 kV Impulse	More than 100	1994-2014
Portable high voltage test systems	75 kVAC/100 kVDC/1000 VA	More than 10	2008-2014
Laboratory training kits	Up to 300 kVAC/ 400 kVDC/350 kV Impulse	More than 30	1994-2014
Power frequency test systems	Up to 1200 kV/800 kVA	More than 20	1994-2014
High voltage resonant test systems	Up to 125 kV/1000 kVA	More than 10	2001-2014
High energy impulse test systems	Up to 2400 kV/240 kJ	More than 5	2010-2014

Test object	Technical specifications	Test title	Number of customers	Date
Insulator (dry test)	Power frequency withstand test Lightning impulse withstand test	Laboratory test	More than 80	1995-2014
Insulator (wet test)	Power frequency withstand test Lightning impulse withstand test		More than 50	1995-2014
Controlgear and switchgear	Power frequency withstand test Lightning impulse withstand test Temperature rise test		More than 90	1995-2014
Arrester	Power frequency withstand test Lightning impulse withstand test Residual voltage test Current impulse withstand test		More than 20	1995-2014
GIS station 400 kV	Power frequency withstand test	On-site test	2	1995-2014
GIS station 230 kV			2	1995-2014
GIS station 132 kV			2	1995-2014
GIS station 63 kV			12	1995-2014
GIS station 20 kV			10	1995-2014



CONTACT US

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- Main office address: No.184, Haidarkhani St., Farjam Ave., Narmak, Tehran, Iran,

(Postal box: 14155-4364, postal code: 1683851167)

- Laboratory address: ACECR R&D complex, end of Kavosh St., Supa Blvd., km 55 Tehran-Qazvin High way, Iran

ENGINEERING & MANUFACTURING OF DRILLING RIGS CENTER

- Designing & manufacturing of oil & gas land drilling rigs
- Designing & manufacturing of drilling rigs electrical and control system
- Supplying spare parts, upgrading and repairing of land drilling rigs
- Technical & consultant services in the field of oil & gas land drilling rigs
- Automation in oil, gas and petrochemical industries
- Turn-Key projects in electrical and control packages



CONVERTERS & POWER SUPPLIES CENTER

- Industrial UPS single/three phase(s)
- Industrial charger
- AC/DC no break system
- Special converter & inverter
- Standard UPS
- HVDC light system
- Electric propulsion system

AIR POLLUTION CONTROL CENTER

- ESPs, bag filters and scrubbers for non-metallic mineral and metal industries, refineries and petrochemicals
- Internal parts: collecting plates, electrodes, rapping systems, ...
- Upgrading of existing dedusting systems
- Supplying spare parts for ESPs and bag houses



SPECIAL TRANSFORMERS CENTER

- High current transformer rectifiers for zinc, copper and aluminum industries
- High voltage transformer rectifiers and microprocessor based controllers for ESPs
- Electroplating DC power supplies
- Special transformers (dry/oil)
- Multiplier voltage power supply
- Variable Frequency Driver (VFD)

ELECTROMECHANIC R&D GROUP

- Submerge Rotary Jet (SRJ)
- Oil loading arms
- Electrostatic oil desalter
- Gangway

