

EPRO Gallspach GmbH

> high standards in high voltage <



PRODUCT PORTFOLIO

Electrotechnical products for power distribution and measurement

EPRO GALLSPACH GMBH

CONTENT

EPRO Gallspach GmbH is one of the quality leaders in the sector:

Electrical technology for energy distribution and measurement.


Flexibility and customer orientation is what distinguish our company.

High standards in high voltage

You will not find massproducts in our product portfolio. Our high accuracy, innovative and customized systems are used in laboratories, institutes and HV test bays all over the world.

Family business with a long tradition

The company was established in 1957 as Austrian subsidiary of German Messwandlerbau GmbH. A management buy-out took place in 1994 and EPRO GALLSPACH GMBH was founded. EPRO Gallspach GmbH stands for highest accuracy measurement systems and products for power distribution in high voltage, with a high durability.



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Standard current transformers, type NCO & standard voltage transformers, type NVOS



TEST BAY EQUIPMENT

EPRO Gallspach GmbH's test bay equipment is used in the industry since decades. The devices are internationally well known for maximum reliability and accuracy and are produced on customers requirements. As the devices are purely inductive, the lifetime is up to 30 years and even more, without any accuracy drift or any changes. The devices are totally maintenance free. International calibration and metrological institutes as PTB Germany, INMETRO Brazil, VMI Vietnam and many others are using these devices as their national standard.

All products in the EPRO test bay equipment range, meet the special requirements of PTB Germany

TEST TRANSFORMERS

From 50 kV / 5kVA to 500 kV / 50 kVA
 Partial discharge less than 2 pC
 Over 200 kV in cascade execution

STANDARD CURRENT TRANSFORMERS

Dry insulated from 50 A to 20.000 A
 Oil insulated up to 200kV, up to 3.000 A
 Maintenance free and long lifetime (> 30 Years)
 Max. accuracy of +/-0,005% and +/-0,5 with range of 1...200% (at each tapping)

STANDARD VOLTAGE TRANSFORMERS

Dry insulated up to 6 kV
 Oil insulated from 15 kV to 800/√3 kV
 Cast resin insulated model: the worldwide most accurate and most stable voltage transformer up to 40 kV
 Maintenance free and long lifetime (> 30 Years)
 Max. accuracy of +/-0,005% and +/-0,5 with range of 40...120% (at each tapping)



- Standard current transformers up to 20kA
- Standard voltage transformers up to 800/√3kV
- High voltage transformers up to 500kV
- High current transformers up to 6 kA
- Busbar currentmeters up to 2000A

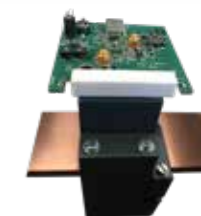
GRID TRANSFORMERS

Compact sized, touch-safe step-down transformer, that enables a 230V supply in transfer stations of wind, PV, or hybrid parks.
 2 Types are available (others on request):
 Type HVOTT 24/5 transforms 20 kV to 230 V,
 and Type HVOTT 36/5, 33 kV to 230 V, with a power rating of 5 kVA



BUSBAR CURRENTMETERS

Monitoring system for substations to store and monitor current on busbars.
 (Load management system)



HIGH CURRENT TRANSFORMERS AND MEASURING SOLUTIONS

Typical data are:
 Input voltage: 230V to 400V
 Output of high current transformer up to 100kA.
 Measured current up to 20.000A in short term use,
 compensating reactors aligned to complete cell.



MOBILE TEST BAY EQUIPMENT

Most of the devices are also available in special silicone coating for mobile use.

FEED IN TRANSFORMER

AUDIO FREQUENCY FEED IN TRANSFORMERS

Audio frequency feed in transformers for medium voltage applications are a main part of EPRO production program since decades.

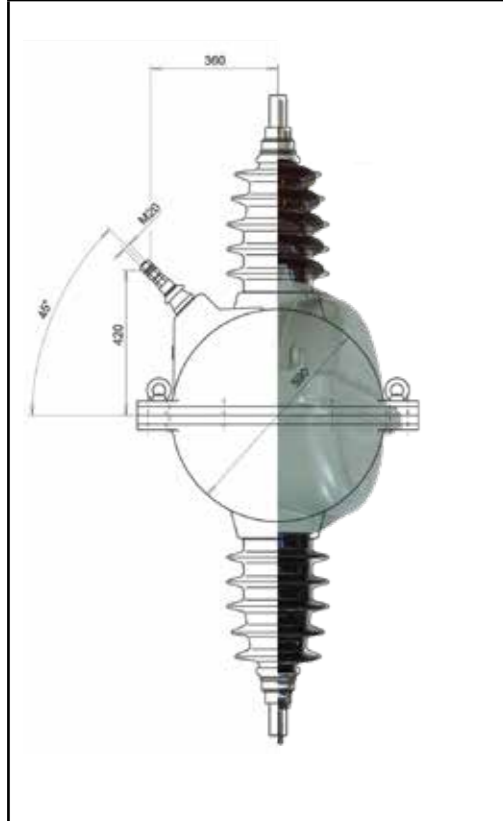

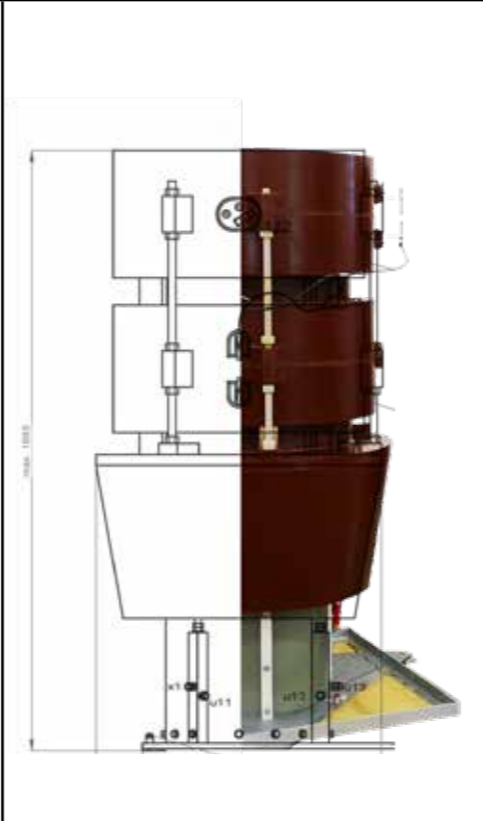
Due to the extreme high reliability of these devices with lifetimes up to 30 years and more, they still face worldwide demand in the medium voltage networks.

Decades of optimization in the medium voltage sector

EPRO offers in this product segment parallel couplings, serial couplings and audio frequency suppressors.



Production of feed in transformers, type FET and FKT

<p>Series Coupling Single - pole, cast resin insulated in aluminium housing 12-36kV at a network up to 50 MVA</p>	<p>Series Coupling Single - pole, cast resin insulated, from 12-36kV at a network current of up to 3000A, different types available.</p>	<p>Parallel Coupling Single - pole, dry insulated, air-core coil, 12 - 72,5 kV, available in 4 sizes</p>
		

AUDIO FREQUENCY SUPPRESSORS

Resonance barriers basically consist of an inductive transformer and a capacitor bank and are used to block audio-frequency voltages in the medium-voltage network. This prevents and attenuates the unwanted spread of the audio frequency in power supplies and devices.

Conversely, the impressed audio frequency in the medium-voltage network is protected from interference from systems such as wind turbines with frequency converters.

Due to this control of the audio frequency, a lower audio frequency level is possible and the reception reliability is increased.



EPRO MEASUREMENT SYSTEMS

TRAFO TEST Premium & Compact

TRAFO TEST is an innovative and new, full automatic transformer test system. It has a type approve of PTB Germany as full system and can be calibrated according to EN ISO / IEC 17025. The system's architecture is completely modular and the main parts are the control unit, electronic measurement boxes and inductive standard transformers for voltage and current measurement. The standard version of the system is able to process the 5 main tests according to IEC and IEEE norms as:

- Load loss test
- No load loss test
- Induced overvoltage test
- Zero sequence impedance test
- Heat run (temperature rise test)



Plus to this it can be upgraded modular to a complete transformer test center for all needed tests, for example:

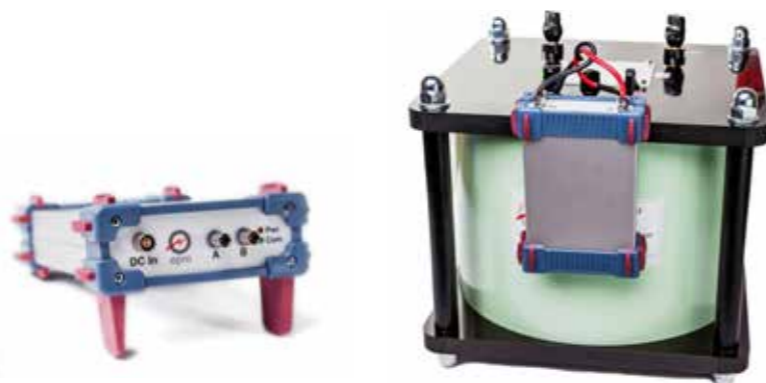
- Winding resistance test
- Transformer turns ratio test
- C and tan delta test
- Insulation resistance test
- Sound level test
- And many more



**Type approval by
PTB Germany**

The system shows its power in the daily use of international customers. It is able to cover a wide range of test objects, three phase as well as single phase transformers. For voltage and current measurement, the whole range of EPRO standard transformers can be used. The system is easy to expand and very flexible, even a change of the main measuring components is possible, without a total investment in a new system.

**ONE operation interface
for the COMPLETE LAB**



ROUTINE TESTING FOR THE WHOLE RANGE OF POWER AND DISTRIBUTION TRANSFORMERS

**TRAFO
TEST**




TRAFO TEST PREMIUM



TRAFO TEST COMPACT

TRAFO TEST - COIL TEST

TRAFO TEST - COIL is used for pre-testing transformer coils after finishing of the casting process. As the design of coils is getting smaller and smaller, the technical borders of insulation gets closer and therefore a pre-testing secures good coils in further production steps.

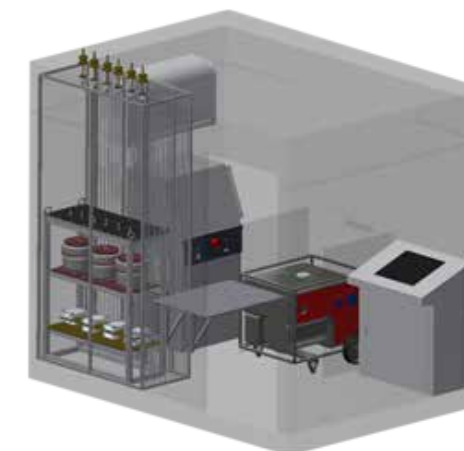
This dramatically reduces failure rate in the end testing process.



TRAFO TEST MOBILE

A mobile and totally independent measuring system for small and medium distribution transformers in a container, what can be mounted on a (light duty) truck.

This is the new and revolutionary possibility to measure the losses of small to medium distribution transformers in the field.



EPRO MEASUREMENT SYSTEMS

INSULATION TEST TAN DELTA



The ITTD- Insulation Test Tan Delta- measures the loss factor of solid insulation materials and resins under controlled temperature and pressure.

Highly efficient tan delta measurement in one compact device

Adjustable values:

Amplitude adjustable from 0 to 630/2000VAC

Frequency adjustable from 0 to 1000Hz

Pressure on probe adjustable from 20 to 1000g/cm²

Temperature adjustable from ambient to 200°C



The powerful and easy operating software makes it possible to simulate any condition the insulation system might face in the future, in real use. Ramps can be programmed for voltage, frequency and temperature, the machine automatically fulfills the program routines, over a very long duration.

EASY TEST TAN DELTA



The EASY TD is an unique and very compact, versatile device for C and TAN delta testing of various test objects like transformers, capacitors, stators of electric motors, cables and many more.

Special feature:

For calibration only the plug-in module with the measurement electronic needs to be dismantled and interchanged if necessary- for maximum availability in the lab.



ROUTINE AND SCIENTIFIC TESTING FOR VPI / RR INSULATION MATERIALS

THE INSULATION TEST PREMIUM



The insulation test premium is the worlds first integrated testing solution for insulation materials. The most important test for R&D process mostly is the measurement of capacitance and tan delta, the most important tests for production monitoring is the breakdown voltage detection.

EPRO offers the customers especially tailored systems.

No matter if the main use is R&D or production monitoring. For each user case there are special solutions.

Highest accuracy and reliability compared with an easy and reproducible testing methode, characterize this test place. The systems architecture is highly modular.

The measurement place can be upgraded very easily and fits perfectly for renovation of old test places.



THE INSULATION TEST ENDURANCE



With the ENDURANCE test system it's possible to speed up the aging of solid insulation materials. The test transformer is the centerpiece of the system, with an adjustable voltage (depending on used transformer) and a frequency up to 1000 Hz.

With the high frequency of 1000 Hz the system manages a **20x faster aging** for insulation materials, compared to 50 Hz aging. This means, the simulation of 1 year aging process takes 18 days.



TOROIDAL CORE CURRENT TRANSFORMERS

EPRO Gallspach GmbH offers to its customers a bright variety of toroidal core current transformers. All devices are calculated according to customers specifications.

FLEXIBILITY AND CUSTOMER SERVICE

Flexibility and finding the right solution together with our customers, is the key point in this segment. EPRO is capable to produce a bright variety of options.

All state of the art core materials can be used for reaching accuracy classes up to 0,2S, single core or multi core CT's up to 6 single cores are available. Special customer wishes as specific color codes on connectors, compensation of magnetic stray flux, primary test loop and many more options are done according to customer's needs.

Generally EPRO offers minimum reaction times, minimum and flexible delivery times and maximum customer service and consulting. We see our business in this segment as finding the best solution together with our customer.

From core winding to the tested end product the whole process underlies our rigid quality control. Electrical tests are fulfilled directly in our own state of the art current transformer laboratory.

TYPE JR

This is the most common execution. The CT's are built in transformer bushings or in switchgears under oil or SF6. EPRO offers all kinds of standards and accuracy classes.



TYPE JRG

The standard version of the JRG has a varnished aluminium housing. Special version for outdoor application in a stainless steel housing, for offshore application and covered with cast resin for Um up to 0,72kV, test voltage 3kV.



CAST RESIN PRODUCTS

EPRO is operating a high tech fully automatic casting plant for epoxy resin in vacuum casting process.

The main products in this range, are insulators for the cable industry, like cable end plugs and muffles. EPRO is offering its customers full service, from product development, to the finished end product.

EPRO's collaboration with toolmakers and manufacturers of electrodes, offers the customer the possibility of an one-stop-shop for finished parts, tools, tool service and electrodes. The electrodes are one of the crucial parts of the whole insulator. We at EPRO collaborate exclusively with high quality manufacturers, for best available quality also on the metal parts.

Tests on raw materials are standard at EPRO cast resin production and are done regularly. Tests on the insulators are done according to customer's requirements. Pressure test from the inside, can be done in house, Xray test and others can be offered via partners.

Cable end plugs can be offered also with silicone coating



EPRO's cast resin products are designed for voltage levels from

72,5 kV to 500kV.

They conform with the IEC 62271-209 regulations, or can be manufactured according special customer requirements.



CALIBRATION SERVICE

Since 2010 EPRO Gallspach GmbH is accredited calibration authority according to **EN ISO / IEC 17025** standard for voltage and current transformers (accuracy measurement).

More and more european and international customers are processing their recalibration activities via EPRO Gallspach GmbH, due to flexibility and speed of service.

The main issue on calibration is, that the customer has to give a needed measuring device out of his/her hands and this means a loss of productivity. EPRO is focusing on this and offers a very fast calibration process.

Our goal in calibration service is, to finish any calibration within 5 working days, from receipt of device to readiness of dispatch for the transport back to customer.



Worldwide valid calibration certificates due to ILAC



The EPRO calibration service is fully fulfilled under the standard **EN ISO / IEC 17025** and fully traceable to the Austrian Metrologic Institute BEV and the German Metrologic Institute PTB. Due to the mutual recognition agreement (ILAC) the calibration certificates are worldwide valid.

Scope of accreditation- Accuracy measurement

Measurement subject	Measuring range	Measurement conditions or measurement sequence	Uncertainty related to the measured value (best possible)	Remarks
Voltage Transformer	Voltage error: 0% to ≤ 2% Phase displacement: 0' to ≤ 60'	Primary: 50V to 500000/√3 V Secondary: 100V to 110 V 100/√3 V to 220/√3 V Frequency: 50 Hz and 60 Hz	50V to 40 kV Voltage error: ±0,006 % Phase displacement δ: ± 0,4'	Please see remark below
			≥ 40 kV to 500/√3kV Voltage error: ±0,011 % Phase displacement δ: ± 0,5'	
Current Transformer	Voltage error: 0% to ≤ 2% Phase displacement: 0' to ≤ 60'	Primary: 1A to 3000A Secondary 1A to 5 A Rating factor: RF 1.2 2.0 Frequency: 50 Hz and 60 Hz	Current error: ±0,006 % Phase displacement δ: ± 0,4'	Please see remark below

Remark for Voltage & Current Transformer:

The given extended measurement uncertainty corresponds to the double standard deviation (k=2) what means for a normal distribution a degree of confidence of approximately 95%. The standard deviation was determined in accordance to document EA-4/02.



DISTRIBUTORS WORLD WIDE



China: Wavetronic Co. Ltd
 Malaysia/ Singapore: Pan-Amp Controls Pte Ltd
 Thailand: Pacific Power Technology Co. Ltd
 India, Bangladesh, Sri Lanka: Next Gen Equipments P. Ltd
 South Africa: Xamax Electrical SA (Pty) Ltd
 Turkey: Boydem Sanayi Ve Ticaret Ltd
 Czech and Slovak Republic: En-centrum s.r.o
 Spain: SP4 Energy
 Poland: Enertest testery i diagnostyka sp.z
 Middle East: Smart Vision Electrical & Electronics Devices
 Brasil: Oceantec Ltda.
 Italy: GB Services Srl
 Japan: GTM Weidmann Co. Ltd
 Vietnam: Equipment and Technology Transfer Company
 Russia, Ukraine, former CIS states: Macdem LLC

Other Countries: please contact Epro Gallspach GmbH

Some of our Clients / References:

EPRO is supplying the leading manufacturers in the industries. Our customers are the world's most reputable manufacturers of transformers or instrument transformers, as well as national metrologic institutes and research organizations.
 In the cast resin business our customers rank among the biggest cable system manufacturers of Europe.

Nexans Suisse S.A	CPRI - Central Power Research Institute of India
PTB Braunschweig	Starkstrom Gerätebau GmbH
Hercorub N.V	Syna GmbH
ZERA GmbH	Prysmian Cavi e Sistemi S.r.l
Winder power Ltd	Swistec System AG
Andritz Hydro GmbH	VMI - Vietnam Metrologic Institute
EVN AG	ELEQ Kerpen
Seba	Ohv diagnostics GmbH
Landis+Gyr AG	Schneider Electric GmbH
Von Roll	Hydro-Quebec
ABB	Pfiffner Messwandlerbau GmbH
Brush Transformer	UL International
I.N.Ri.M- Italian National Metrologic Institute	DNV GL (Kema)
NKT GmbH	Megger Germany GmbH
ICMET Craiova	Özgüney Elektrik
Raytech	Mitsubishi
Axalta Coating Systems	Fuji Tusco Co. Ltd
Solutec Automation AG	Ritz
Isovolta	Hitachi
GTM Weidmann Co. Ltd	Megger Germany
3M Deutschland	Koncar Power Transformers Ltd.
Amtest -TM s.r.o.	Raytech
MVV Netze GmbH	ETD Transformatory a.s
Sigma Rubber	BEV- Austrian National Metrologic Institute
HTT Hochspannungstechnik	Axalta Coating Systems
Siemens	Solutec Automation AG
Nidec ASI S.p.A	Isovolta
Tatung Co	Spanish National Metrologic Institute
Elantas Europe S.R.L	GTM Weidmann Co. Ltd
....and many more	3M Deutschland
	Amtest -TM s.r.o.
	MVV Netze GmbH
	Sigma Rubber
	HTT Hochspannungstechnik
	Siemens
	Nidec ASI S.p.A
	Tatung Co
	Elantas Europe S.R.L
and many more

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