ASTEQRA are Sole Agent for IMEFY TRANSFORMERS SPAIN in Iraq

ASTEQRA Switchgear TECHNOLOGY * SAFETY * RELIABILITY
Introduction

Since 1973, when IMEFY began manufacturing oil-filled and silicone insulated distribution transformers, followed a bit later by cast-resin insulated distribution transformers, our Company has continuously grown up to power ratings of 100 MVA and voltage ratings up to 245 kV. To undertake this expansion, IMEFY has the most sophisticated engineering and Manufacturing resources available, as well as a highly qualified team. In this way we could grow both at national and international level, and our products are installed in all five continents. Moreover, IMEFY collaborates actively in several national and international working groups where the standards for this type of equipment are developed. IMEFY’s raw-material and final product laboratories are equipped with the latest and best technology in order to carry out the most severe checks and tests requested by national and international standards for equipment used to manufacture transformers. Due to the high qualification of its personnel and the high accuracy level of the equipment – all endorsed by the calibration certificates issued by official laboratories – the high-quality and reliable IMEFY test laboratories have been appraised by our customers for years. Germany, Saudi-Arabia, Algeria, Argentina, Brazil, Cameroon, Chile, Costa Rica, Croatia, Denmark, Ecuador, Egypt, Philippines, France, Greece, Netherlands, Hungary, Italy, Lebanon, Malaysia, Morocco, Peru, Portugal, United Kingdom, Rumania, Singapore, South Africa, Sweden, Taiwan, Tunis, United Arab Emirates, Uruguay, Venezuela.
IMEFY, S.L. was founded in Los Yébenes (Toledo Spain) in 1973 as manufacturer of dielectric liquids distribution transformers (mineral oil or silicone), followed a bit later by cast resin distribution transformers, being pioneer in Spain in the wake of its implantation in the year 1982.

From its beginnings till now, IMEFY, has followed a path of expansion, with a total area of 86,000 m² and a covered plant of 20,000 m², as follows:

- Cut and ensable of cores: 3,000 m²
- Cast resin transformers: 6,000 m²
- Oil and silicone transformers: 9,000 m²
- Laboratories: 1,500 m²
- Technical and Commercial Departments: 500 m²

The company is placed in Los Yébenes, Toledo, whose address is as follows:

Pol. Ind. La Cañada C/ Siglo XXI, s/n
E-45470 LOS YÉBENES (Toledo) - Spain
Tfno.: +34 925 32 03 00
Fax: +34 925 32 10 00
E-mail: imefy@imefy.com

IMEFY is one of the companies’ leaders in Spanish market, manufacturing always according to national and international standards, and using the best raw materials.

In 1992 and 1993, IMEFY had been guaranteed with UNESA quality (Certificate of the Spanish Electrical Power) and recently has obtained the certificate of REGISTRO DE EMPRESA according to ISO 9002.

Following the requirements about Quality Assurance of International and National Markets, IMEFY obtained (February, 1998) the Certificate of Registered Company for the Standard from the EN-ISO-9001 and EN-ISO 14001 that means to place our Company in the vanguard of Quality Assurance Systems, both in design and manufacturing process.

All of these certificates have been obtained thanks to the ideas and efforts of the enterprise like IMEFY, which have cooperated with standards working groups.

IMEFY is present in the following working groups:
- WG 14/SC05: Power transformers
- WG 027, AENOR: Standard for the Obtention Quality Certificate for transformers
- WG for UNESA
- WG 14/SC05:WG 11: Tank preassurized for integral filling transformers
- WG for ceramic bushing for distribution transformers
- WG for fluids in electro technical applications.

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DISTRIBUTION TRANSFORMERS

All our immersed on dielectric liquids transformers are manufactured according to the most demanding National and International standards.

Nowadays IMEFY has been pioneer in new systems for the transformer technology development. In this way IMEFY was the first manufacturer that developed and carried out a stress test procedure of elastic tank, which means that IMEFY has been pointed out as Spanish agent for CENELEC, for the International Standards development for this type of test.

IMEFY has got all the machinery and testing equipments of latest technology for transformer manufacture that five way, with the introduced quality system, that the IMEFY's products have a maximum high Safety, Reliability and Quality degree.

-Mineral oil distribution transformers according to CENELEC HD 428 and IEC76

Pole mounted transformers according to CENELEC HD 428 and IEC 76

Distribution transformers according to CENELEC HD 428 and IEC 76

Low losses transformers.
POWER TRANSFORMERS

IMEFY’s transformers are manufactured according to IEC 76 standard. If you wish transformers according to another standard (ANSI, BSI, IEEE, NEMA, etc.), let us know

IMEFY manufactures power transformers which the following characteristics

- Rated power: From 2.5 MVA up to 60 MVA-
- Rated primary voltage: From 12 kV up to 132 kV-
- Rated secondary voltage: From 0.4 kV up to 132 kV-
- Frequency: 50 Hz or 60 Hz-
- Tap changer: It is possible to realise no load no voltage with seven positions maximum.
- It is possible to realise in charge with seventeen positions maximum and automatic tap changer.
- Vector groups: On primary and secondary windings it is possible to realise in delta or star position.
- Cooling: Transformers are manufactured with the following cooling types:
  - Natural cooling (ONAN) or force cooling (ONAF). If you want OF cooling (oil-pumping), please let us know.
- Type of tank: Transformers can be manufactured with the radiators welded to the tank, or with detachable radiators. Radiators can be finished with a conventional finishing or hot galvanized finishing. Final painting is realised with two epoxi imprimators caps and another epoxi final cap. The final treatment guarantees outdoor transformer installation at the hardest environment. IMEFY normaliced finishing colour is the RAL 7033:

- Buchholz relay
Overpressure device-
Antivibrating dial thermometer-
Jacking support-
orientable wheels- 90°
Magnetic level-
Overpressure valve-

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**TECHNOLOGY**  *  **SAFETY**  *  **RELIABILITY**

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**CAST RESIN TRANSFORMERS**

IMEFY’s cast resin transformers are according to the highest specifications enviromental, climatic and fire of the interational standards CENELEC HD 464 and IEC 726

These transformers are called C2, E2, F1 and their thermal class is F (155°)

The tests for the qualifications of these specifications were carried out at the CESI laboratories in Italy

:The main characteristics of the specifications are

Climatic class "C2": Equipment that can work with environmental temperature up to -25°

Environmental class "E2": Equipments ready to work in environmental humidity up to 95 percent and with high pollution

Fire behaviour class "F1": Self-extinguishable transformers in a short period of time-starting from the disconnection of the transformer and without production of opaque smoke and halogen-free
We must say that these transformers are designed, manufactured and tested under the current national and international standards. All this is corroborated by a Quality System according to ISO 9001 standard.

The whole manufacture system of IMEFY is warranted by the ISO 14001 certificate, so it is known all the environmental legislation that affects to this product, and then we can assure that the cast resin transformers are ECOLOGICAL.

Cast-resin distribution transformers according to IEC 726, CENELEC HD 538 and IEC 76, CENELEC HD 464

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LABORATORIES

LIQUID-IMMERSED TRANSFORMERS

The electrical test laboratory is equipped to perform the tests and check the results in accordance with the applicable standards, IEC 60076

:Routine tests
Measurement of winding resistance.
Measurement of voltage ratio and check of phase displacement.
Measurement of short-circuit impedance and load loss.
Measurement of no-load loss and current at 100% and 110% of rated voltage.
Dielectric routine tests (IEC 60076 3).
--Separate source AC withstand voltage test.
-Inducted AC withstand voltage test.
-Check of the ratio and polarity of built-in current transformers.

:Type tests
-Temperature rise test (IEC 60076 2).
-Dielectric type tests (IEC 60076)
-Lightning Impulse test.
- Chopped Impulse test.
- Switched Impulse test.
- Determination of sound level (IEC 60076 10).

: Special tests
- Measurement of zero-sequence impedance.
- Measurement of d.c. insulation resistance each winding to earth and between windings.

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**POWER TRANSFORMERS LAB**

The electrical test laboratory is equipped to perform the tests and check the results in accordance with the applicable standards, IEC 60076 1

: Routine tests
- Measurement of winding resistance.
- Measurement of voltage ratio and check of phase displacement.
- Measurement of no-load loss and current at 100% and 110% of rated voltage.
- Dielectric routine tests (IEC 60076 3).
  Separate source AC withstand voltage test.
  Inducted AC withstand voltage test with partial discharge measurement where it’s required.
  Impulse Lightning test if Um > 72.5 kV.
  Test on on-load tap-changers, where appropriate.
  Check of the ratio and polarity of built-in current transformers.
  Check of core and frame insulation where appropriate.
  Functional test of the transformers accessories.

: Type tests
- Temperature rise test (IEC 60076 2).
- Dielectric type or special tests (IEC 60076 3).
- Lightning Impulse test.
- Chopped Impulse test.
- Switched Impulse test.
- Long Duration Inducted AC withstand voltage test with partial discharge measurement.
- Determination of sound level (IEC 60076 10).
- Measurement of the power taken by the fans and liquid pump motors where appropriate.

: Special tests
- Determination of capacitances windings-to-earth, and between windings.
- Measurement of dissipation factor ($\tan \delta$) of the insulation system capacitances.
- Measurement of zero-sequence impedance.
- Measurement of d.c. Insulation resistance each winding to earth and between windings.
- Measurement of frequency response analysis (FR).
- Recovery voltage measurement test (RVM).

Measurement of no load current harmonics.

Any other test, if it’s appropriate, could be defined and agreed between the customer and IMEFY.

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RAW MATERIAL CONTROL

The raw material laboratory is highly equipped for:
- the following tests

1. Magnetic Sheet: To EN 10107

Wire and Conductors: Checking of the dielectric strength to IEC 60317 and IEC 851. Adherence and flexibility tests. Dimensional checking


Epoxidiques Elements: Whitened voltage at industrial frequency. Determination of creepage line. Thermal shock to IEC 137 and IEC 85. Epoxi resin gelification temperature test

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**APPROVALS**

* RePro Certificate n° 300056
* E2, C2, F1, Certificate n° AT-A1/009523. 2001
* E3, C2, F1, Certificate N° B0005487. 2010

Homologations in spanish utilities companies: IBERDROLA, ENDESA, UNION FENOSA

Homologations international utilities companies: EDP (Portugal), ENEL CSA (Canada), GL (Alemania), Adwea (EAU), etc , (Italia)

Others: Routine, Type and Special test carried out in: LABEIN, CESI, and ...KEMA
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CERTIFICATES
Certificado del
Sistema de Gestión de la Calidad

INDUSTRIAS MECANO ELÉCTRICAS FONTECHA YEBENES (IMEFY, S.L.)

dispone de un sistema de gestión de la calidad conforme con la Norma UNE-EN ISO 9001:2000

para las actividades: El diseño y producción de transformadores de distribución y potencia numéricos en líquidos aislantes dieléctricos de 35 kV hasta 100 Mva y series de aislamiento de 11 kV hasta 245 kV. Transformadores de distribución y potencia encapsulados en resina epoxi de 100 kVa hasta 3000 kVa y series de aislamiento de 11 kV hasta 36 kV y transformadores de medida (tensión e intensidad) encapsulados en resina para interior hasta 200 kVa y 35 kV.

que se realizarán: PL. LA CANADA, AV SIGLO XXI, S/N: 45470 - LOS YEBENES (TOLEDO)

Fecha de emisión: 1994-02-23
Fecha de renovación: 2008-02-18
Fecha de expiración: 2011-02-18

AENOR
Asociación Española de Normalización y Certificación
Dirección: C/Clavijo, 1-3, 28004 Madrid, España
Tel. 913 222 201 - www.aenor.es

AENOR es miembro del IFCN (International Federation of Certification Bodies)
Certificado del
Sistema de Gestión Ambiental

AENOR
Gestión Ambiental
UN-EN ISO 14001

GA-1998/0053

AENOR, Asociación Española de Normalización y Certificación, certifica que la organización

INDUSTRIAS MECANO ELÉCTRICAS FONTECHA YEBENES (IMEFY, S.L.)

dispone de un sistema de gestión ambiental conforme con la norma UN-EN ISO 14001:2004

para las actividades:
- El diseño y producción de transformadores de distribución y potencia
  sumergidos en líquidos abraham aislados de 25 kV hasta 100 kV y
  series de abatimiento de 1,1 kV hasta 200 kV, transformadores de
  distribución y potencia encapsulados en resina epox de 100 kV hasta
  5000 kV y series de abatimiento de 1,1 kV hasta 36 kV, y transformadores
  de medida (autotensión y conversión) encapsulados en resina para interior
  hasta 2000 y 36 kV.

que se realiza en: PI LA CARRADA, AV SIGLO XXI, S/N, 45400 - LOS YEBOYES (TOLEDO)

Fecha de inicio: 1994-06-23
Fecha de renovación: 2010-04-23
Fecha de expiración: 2015-04-23

AENOR
Asociación Española de Normalización y Certificación

El Director Ejecutivo de AENOR
CERTIFICATE

IQNet and AENOR hereby certify that the organization

INDUSTRIAS MECANO ELÉCTRICAS FONTECHA YEBENES (IMEFY, S.L.)

P/LA CAÑADA, AV SIGLO XXI, S/N
45470 - LOS YEBENES
(TOM FDO).

for the following field of activities

The design and production of mineral oil and silicone dielectric react power transformers from 22 kva up to 160 mva and insulation level from 11 kv up to 660 kv, cast resin distribution and power transformers from 100 kva up to 5,300 kva and insulation level from 11 kv up to 36 kv and instruments transformers (current and voltage transformers) of cast resin indoor service up to 2010 a and 36 kv,

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard

ISO 9001:2000

Issued on: 1995-08-01
Renewed on: 2008-02-18
Validity date: 2011-02-18

Registration Number: E9-0009/1994

IQNet and AENOR

President of IQNet
General Manager of AENOR

IQNet Partners:

AENOR Spain AQAS AENOR France ABV - Worldwide International Network ADEC Mexico AQGZ Portugal CGIJ Belgium BLC China CIGI China QAC Czech Republic CQAC China Co., Ltd. Germany TAI Denmark FEIT Sweden PCW Brazil PNDF Peru POMG Peru RMD Colombia RMP Mexico RMD Argentina RSGM Mexico RMP North RMP Mexico RMP Spain RMP Portugal RMP Poland RMP Czech Republic RMP Hungary RMP Norway RMP Sweden RMP Denmark RMP Norway

IQNet is represented in the USA by AENOR Americas International, Inc., QCA, BSAC and SAI Global

* The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com
CERTIFICATE

IQNet and AENOR hereby certify that the organization

INDUSTRIAS MECANO ELÉCTRICAS FONTECHA YEBENES (IMEFY, S.L.)

P. LA CÁRANA, AV 31800 XIU, S/N
45170 - LOX YEBENES
(Toledo)

for the following field of activities

The design and production of mineral oil and silicon distribution and power transformers from 36 kVA up to 100 MVA and insulation level from 1,1 kV up to 245 kV, cast resin distribution and power transformers from 190 kVA up to 5,000 kVA and insulation level from 1,1 kV up to 33 kV and, current transformers (current and voltage transformers) of cast resin indoor service up to 200 A and 36 kV.

has implemented and maintains a

Environmental Management System

which fulfills the requirements of the following standard

ISO 14001

Issued on: 1999-08-01 Renewed on: 2007-09-02 Validity date: 2010-09-02

Registration Number: ES-1998/0053