# SUMMARY

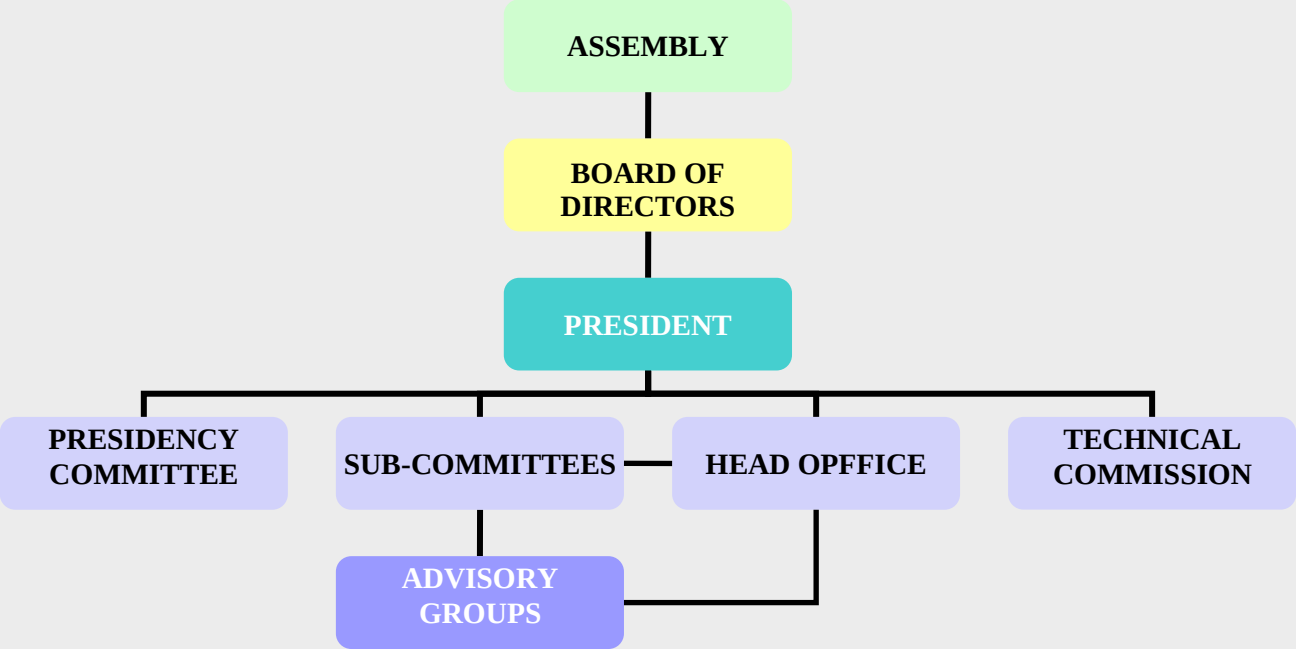
# 1. INTRODUCTION

## 1.1 CTI at a glance

The standardization activity in the thermo-technical and energy fields started officially in 1918 when the Italian Thermo-Technical Association (ATI) was constituted. But it was some year later that the need to create a body able to develop autonomously the standardization activity became very strong and therefore in 1933 the Italian Thermo-Technical Committee was founded. CTI was born under the high patronage of the National Research Institute (CNR) with the support of the National Association for Combustion Control (ANCC) together with the Syndicate of Engineers.
It was necessary to wait until the 15th December 1950 for the constitution of the Thermo-Technical Committee as an Association, no profit and without political aims, thanks to ATI and ANCC.
The following years saw CTI strongly committed, as a Body federated to UNI, to the standardization activity on national and international basis in the many thermo-technical sectors and in the field of production and use of thermal energy in general; CTI has always been very interested to find solutions about energy and environmental issues and that is why it became so popular in the last years . And it was for the specific environmental implications of CTI's key activities that on 1st December 1998 the Committee decided to add to the acronym CTI the heading "Energy and Environment".
The following year the Association obtained the recognition of legal status with the Decree of the Ministry of Industry, Commerce and Handcraft which corresponds to the current Ministry of Productive Activities, while in 2007 the agreement UNI-Federated Bodies was signed recognizing the role of CTI with very specific competencies.
In 2008 a choice to guarantee the brand and logo of the Committee was made, filing them at the Milan Chamber of Commerce.
Over its 60 years activity CTI saw the growth of its role both at national level –creating the standards supporting many laws and regulations in the thermo-energy field – and at international level participating more and more to CEN and ISO activities. Such position was reached both through the various co-operations with Private and Public Bodies, Companies and Associations sharing its scopes, and through the interaction with the International European Standardization Bodies within the sector, besides CTI's skills in promoting and participating to studies, publications, discussions, initiatives and researches both technical and scientific about the energy and environmental themes., This stronger and stronger commitment led CTI to renovate the offices of the operational headquarters according to the new working needs, and to increase the number of employees of the Head Office.

## 2. ORGANIZATION

The Italian Technical Committee is structured in conformity with its current Statute and Technical Policy as follows:




The Assembly is constituted by all the Members and represents all of them. It is convened at least once a year and its deliberations, taken in conformity with the law and the Statute, bind all the members even if absent or dissenting. The Assembly elects the Board of Directors, the Board of Statutory Auditors and the Board of Trustees and ratifies the decisions taken by the Board of Directors. .

The Board of Directors is constituted by 24 Members, and among them nine are chosen by the Honorary Members; the Board of Directors designates the President determining his powers, as well as the 2 Vice-Presidents and the Managing Director. The decisions taken by the Board of Directors are valid only if the participants to the Assembly are superior to one fifth. The Board of Directors meet when the President believes it is necessary and any time the request is made by the majority of the Directors. The President legally represents the Association and in case of impediment he can be substituted by one Vice-President. The President designates the Members of the Presidency Committee, the Members of the Technical Commission, the Presidents of the Sub-Committees and the Managing Director, granting them powers. The Technical Commission should assist and cooperate with CTI's President about all the technical national and international issues, and should examine only the national documents worked out by the Sub-Committees, as well as the results of CTI's internal enquiries providing the President its opinion for the prosecution of the procedures. The Technical Commission currently comprises a Coordinator and the Presidents of the 10 Sub-Committees (SC). All the Members of CTI's Administrative and Technical Bodies are serving for three years and are re-eligible.

## 2.1 Committee Positions

*Presidents elected over the years*

| | |
|---|---|
| *Panetti* Sen. prof. Modesto | 1950/56 |
| *Cuttica* dr. ing. Angelo | 1957/63 |
| *Castelli* dr. ing. Franco | 1964/69 |
| *Rossi* dr. ing. Piero | 1970/72 |
| *Zanchi* prof. ing. Camillo | 1973/81 |
| *Elias* prof. ing. Giacomo | 1982/87 |
| *Andreini* prof. ing. Pierangelo | 1988/94 |
| *Cazzaniga* comm. Luigi | 1995/03 |
| *Boffa* prof. ing. Cesare | 2004/12 |

*CTI Board of Directors in 2010-2011-2012*

| | |
|---|---|
| *Agostini* dr. Antonio | Director |
| *Andreini* prof. Pierangelo | Director |
| *Bertoli* prof. Claudio | Director |
| *Boffa* prof. Cesare | President |
| *Cazzaniga* comm. Luigi | Vice-President |
| *Clini* dr. Corrado | Director |
| *Dattilo* ing. Fabio | Director |
| *De Felice* ing. Pietro Ernesto | Director |
| *De Santoli* prof. Livio | Director |
| *Esitini* ing. Maurizio | Director |
| *Ferroli* d.ssa Paola | Director |
| *Gallesio* ing. Giorgio | Director |
| *Grazia* p.i. Mauro | Director |
| *Iaria* ing. Leopoldo | Director |
| *Lato* ing. Costantino | Director |
| *Macioce* dr. Leonardo | Director |
| *Moccaldi* prof. Antonio | Director |
| *Moneta* ing. Roberto | Director |
| *Quaglia* dr. Roberto | Vice-President |
| *Righini* geom. Walter | Director |
| *Romani* ing. Rino | Director |
| *Riva* prof. Giovanni | Managing Director |
| *Ruopoli* ing. Massimo | Director |
| *Santoro* rag. Alessandro | Director |

*Board of Trustees in 2010-2011-2012*

| | |
|---|---|
| *Ferro* prof. Vincenzo | President |
| *Elias* prof. Giacomo | Trustee |
| *Brancaleoni* dr. Maurizio | Trustee |

*Presidency Committee in 2010-2011-2012*

| | |
|---|---|
| *Boffa* prof. Cesare | President |
| *Cazzaniga* comm. Luigi | Vice-President |
| *Esitini* ing. Maurizio | Director |
| *Riva* prof. Giovanni | Managing Director |

| | |
|---|---|
| *Santoro* rag. Alessandro | Director |

*Board of Statutory Auditors in 2010-2011-2012*

| | |
|---|---|
| *Moretti* d.ssa Gisella | President |
| *Riva* rag. Roberto | Effective Auditor |
| *Fresta* dr. Alfio | Effective Auditor |

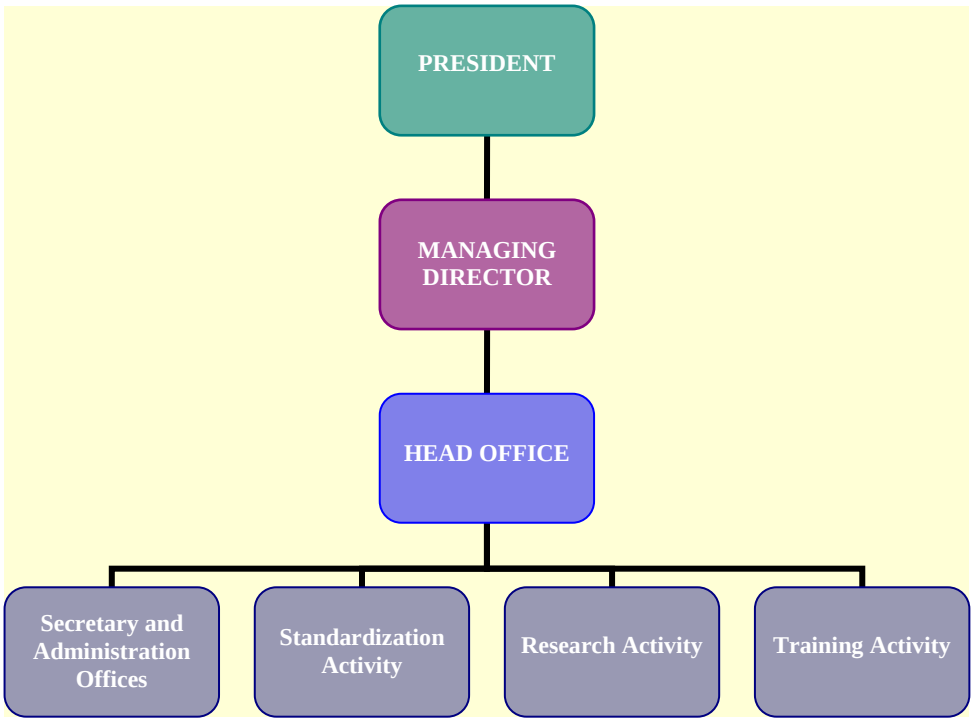
*Scientific Committee in 2010-2011-2012*

| | |
|---|---|
| *Butera* prof. Federico | Director |
| *Macchi* prof. Ennio | Director |
| *Cumo* prof. Maurizio | Director |
| *Lombardi* prof.ssa Carla | Director |
| *Tomasetti* ing. Giuseppe | Director |
| *Colombo* p.i. Sergio | Director |

## 3. HEAD OFFICE

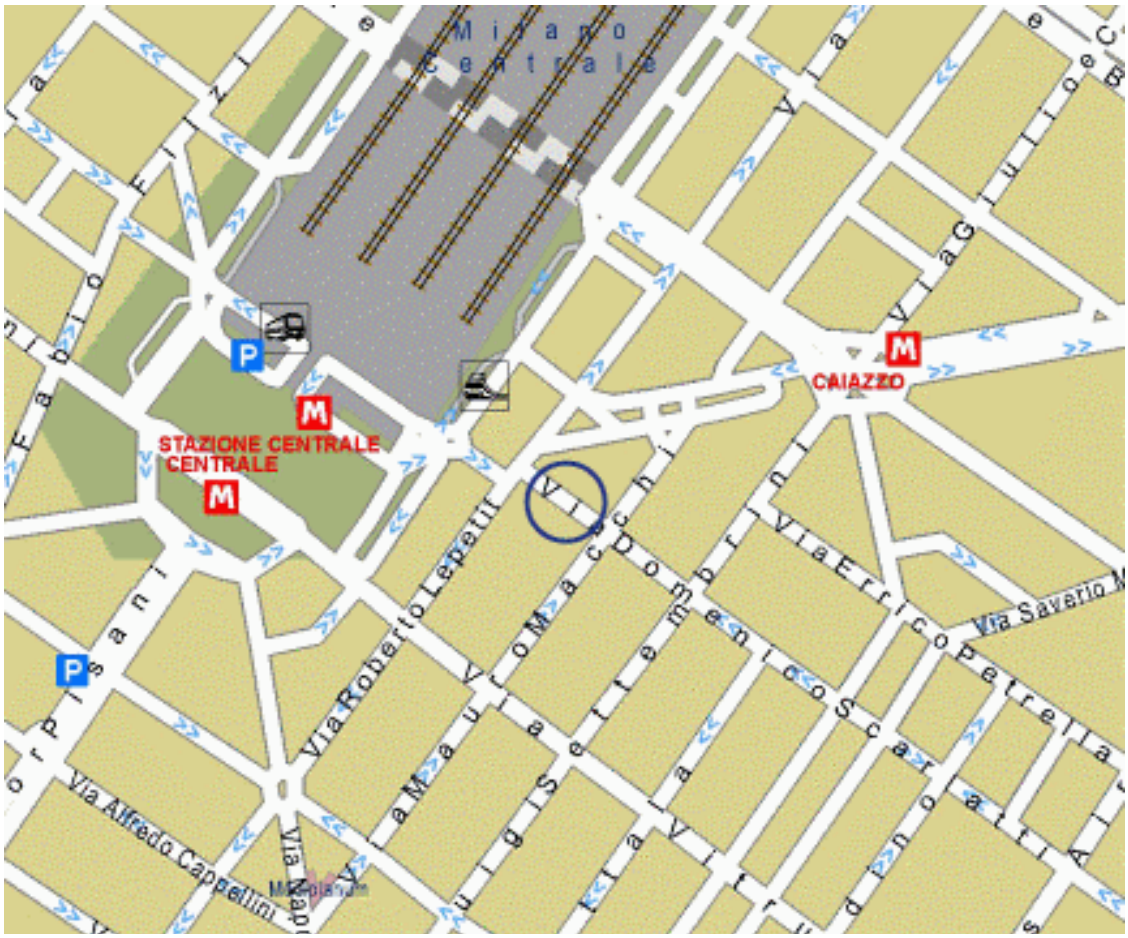
### 3.1 Management

CTI's Head Office, organized according the chart below, is in Milan and represents the operational key of all the Committee's activities. In the last years the hardest challenge was to succeed in winning over a market strongly weakened by a long economic crisis, but CTI at the same time provided new topics characterized by an applicability projected to the future and focused on the solution of long term problems. The Committee succeeded in emerging and being well known, with great effort and strong commitment, not only adapting its activities on the basis of the research development of the sector, but sometimes also being the spokesman about new topics of remarkable general interest. To do that, the Head Office exploited the works performed by its Working Groups (GL), described in the proper section of this document.



### 3.2 Headquarters

The Committee is in Milan, located in an ancient building in Via Scarlatti, 29. Thanks to its position next to the Central Station CTI is easily reachable from any area of the town, as the area is also served by two lines of the underground (stations: MM3 Centrale, MM2 Centrale; MM2 Caiazzo) and by several public transport lines (tram lines: 33, 9, 1, 2; trolleybus lines: 90, 91, 92; buses: 82, 83, 60, 81, 42; long-distance buses: 620, 727), as well as by the State Railway or through the shuttle service connecting the Station to the Linate, Malpensa and Orio al Serio airports.
The office has also two large meeting rooms for working needs.



# 4. SCOPES AND ACTIVITIES

## 4.1 Standardization Activity

The Italia Thermo-Technical Committee is a body federated to UNI, whose scope is to carry out standardization activities in the thermo-technical sectors. CTI's activity is supported by the companies within the sector, associations, private and public bodies, providing their technical and financial support. CTI provides the normative instruments necessary to evaluate, control and guarantee the characteristics of the thermo-technical plants and of their components in terms of performances, dimensional and structural properties, formal aspects of classification and terminology.
CTI's objective consists in the development of the following institutional tasks in cooperation with UNI and with the proper international standardization bodies: arrange and elaborate project standards at national basis, including technical standards, technical specifications and technical reports; participate to the definition of the project standards for CEN and ISO, as well as to the implementation and adoption process at national level; study and promote the diffusion of the normative culture; update and review existing standards and documents.

The standardization activity is organized distributing the working programme among the 10 Sub-Committees (SC) currently in force, on the basis of their specific competencies. The SC, respectively, are divided into a variable number of Working Groups (GL): each GL under the supervision of the Head Office, carries out the standardization activity on very specific issues always linked to the sector of activity of the Members joining it. The participation to the meetings of each GL allows therefore the CTI Members to provide a significant contribution both to the drafting of national standards, and to the definition of the Italian position in the elaboration of the CEN and ISO project standards.

## 4.2 Research activity

CTI has always been focusing part of its resources on the research activity both at national and international level, often to support the work on standardization. The research activity is focused mainly on the sectors of renewable sources and energy saving, where the aim is a strong reduction in the consumption of primary energy and emissions of polluting agents in the atmosphere. More in detail CTI is currently focused on deepening the study on alternative and waste derived fuels, as well as on the development of new standards for the recovery of energy consumptions.

### 4.3 Software validation activity

In order to achieve the objectives of the Kyoto Protocol, aimed at reducing carbon dioxide emissions and fighting the global warming, the UE issued the 2002/91/CE Directive, also called EPDB – Energy Performance of Buildings Directive. In Europe buildings are responsible for approximately 40% of global energy needs and the reduction of their consumptions is absolutely a priority. The EPBD was supported by a series of standards which were elaborated by CEN. These standards provide the methodology for calculating energy need of a building and they give a tool to estimate their energy performance.
In Italy EN standards were transposed by UNI/TS 11300 which tried making the methodology easier and most suitable to support legislation, because one of the most important requirement is the un-ambiguity. Another key factor of standard is the software-proofing. In fact the calculation method is quite complex and a software is necessary to support the professionals to make energy certificates. In Italy there isn't only one software or tool but there are many software-houses which developed their own product on the basis of standards. In this contest the critical aspect was that nobody could be sure about repeatability and reproducibility of results.
In order to guarantee that the results calculated by all these software are correct and in conformity with the standards, CTI, in accordance with Italian department of energy, started to test the software, using a series of case studies prepared to stress every aspect of the standard. In practice a case study is a document in which there are all the data and the information, about a specific building, required to calculate the energy need. The paper is essentially divided in two parts: the first one with all the input data and the second one containing output data, not only the final results but also the most significant intermediates. Experience has shown that these case studies have proved a very effective tool for testing software and for helping users to familiarize with them. For the near future a restyling of these cases is planned. In particular it's necessary their updating also to follow the continuous development of the standards, both European and national.
In conclusion, this activity on one hand was very relevant to support the energy certification system, on the other hand allowed to acquire important skills about this kind of software in order to improving standards and energy evaluations of building.

### 4.4 Training courses

As more and more often the stakeholders and the institutions request to fill in their technical and scientific gaps about thermo-technical and environmental energy topics , CTI decided to respond to this necessity organizing specific training courses with a duration variable from one to three days, taking place in Milan.
For more information about other courses organized in 2011 please see the website at the following link: http://www.cti2000.it/index.php?controller=formazione&action=eventi

## 5. SUB-COMMITTEES – THE ACTIVITY

### 5.1 SC01 "Heat transmission and fluidodynamics"

President: Dall'O' prof. Giuliano – Polytechnic University of Milan

National Advisory Groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 101 | Thermal Insulation in buildings – Materials | Piana ing. Marco | Martino arch. Anna<br>Murano arch. Giovanni |
| 102 | Thermal Insulation in buildings – Calculation and test methods | Corrado prof. Vincenzo | Martino arch. Anna<br>Murano arch. Giovanni |

International activities:

| *CEN/TC* | *Topic* |
|---|---|
| 088 | Thermal insulating materials and products |
| 089 | Thermal performance of buildings and building components |
| 350 | Sustainability of construction works |
| *ISO/TC* | *Topic* |
| 163 | Thermal insulation |

### 5.2 SC02 "Conventional energy sources and conversion processes"

President: Barbero prof. Antonio Maria – Polytechnic University of Turin

National Advisory groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 201 | Liquid bio-fuels | Del Manso ing. Franco | Pinna dr. Giuseppe |
| 203 | Rational use and management of energy | Piantoni ing. Ettore | Panvini dr. Antonio<br>Molinari ing. Dario |
| 206 | Hydrogen | Santarelli prof. Massimo | Merlini dr. Mattia |

International Activities:

| *CEN/TC* | *Topic* |
|---|---|
| 221 | Shop fabricated metallic tanks and equipment for storage tanks and for service stations |
| 265 | Site built metallic tanks for the storage of liquids |
| SF EM | Sector Forum Energy management |
| CLC JWG 1 | Energy audits |
| CLC JWG 2 | Guarantees of origin and energy certificates |
| CLC JWG 3 | Energy Managers and Experts |
| CLC JWG 4 | Energy Efficiency and saving calculations |
| *ISO/TC* | *Topic* |
| 197 | Hydrogen Technologies |
| 203 | Technical energy systems |
| 242 | Energy management |
| IEC JPC 2 | Common terminology for energy efficiency and renewable sources |
| 257 | Energy savings |

### 5.3 SC03 “Heat generators and pressure vessels”

President: Cannerozzi de Grazia ing. Matteo - Expert

National Advisory Groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 303 | Unfired pressure vessels and industrial furnaces | Cannerozzi de Grazia ing. Matteo | Pinna dr. Giuseppe |
| 304 | Evaluation of integrity of pressure equipment | Delle Site ing. Corrado | Pinna dr. Giuseppe |
| 305 | Safety devices for protection against excessive pressure | Rondinella ing. Gioacchino | Pinna dr. Giuseppe |
| 305 SG01 | Safety devices for protection of pressure equipment | Rondinella ing. Gioacchino | Pinna dr. Giuseppe |

International activities:

| *CEN/TC* | *Topic* |
|---|---|
| 054 | Unfired pressure vessels |
| 269 | Shell and water-tube boilers |
| 186 | Industrial thermoprocessing - Safety |
| *ISO/TC* | *Topic* |
| 011 | Boilers and pressure vessels |
| 244 | Industrial furnaces and industrial thermal process devices |

### 5.4 SC04 “Systems and machines for energy production”

President: Spina prof. Pier Ruggero –University of Ferrara

National Advisory Groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 401 | Gas and thermal turbines | Spina prof. Pier Ruggero | Merlini dr. Mattia |
| 403 | Compressors | Riva prof. Giovanni | Merlini dr. Mattia |
| 405 | Small scale generation systems | Bianchi prof. Michele | Merlini dr. Mattia |
| 406 | Motors | To be defined | Merlini dr. Mattia |

International Activities

| *CEN/TC* | *Topic* |
|---|---|
| 232 | Compressors - Safety |
| 399 | Gas turbines applications - Safety |
| CLC TC 2 | Power Engineering |
| *ISO/TC* | *Topic* |
| 70 | Internal combustion engines |
| 118 | Compressors and pneumatic tools, machines and equipment |
| 192 | Gas Turbines |
| 208 | Thermal turbines for industrial application (steam turbines, gas expansion turbines) |

### 5.5 SC05 “Air-conditioning and refrigeration””

President: Boccardi ing. Gino – ENEA

National Advisory Groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 501 | Ventilation and conditioning systems of buildings – Project, installation and testing | De Santoli prof. Livio | Martino arch. Anna<br>Nidasio ing. Roberto |
| 502 | Air filtering | Tronville prof. Paolo | Martino arch. Anna |
| 503 | Performances of heat pumps, systems for conditioning, heat exchangers and compressors | Pennati ing. Walter | Merlini dr. Mattia |
| 504 | Commercial refrigerated cabinets. Safety and protection requisites and requisites for environmental protection. | Radaelli ing. Giovanni | Merlini dr. Mattia |
| 505 | Commercial and industrial refrigeration | Riva prof. Giovanni | Merlini dr. Mattia |

International Activities:

| *CEN/TC* | *Topic* |
|---|---|
| 044 | Commercial refrigerated cabinets, catering refrigerating appliances and industrial refrigeration |
| 110 | Heat exchangers |
| 113 | Heat pumps and air conditioning units |
| 156 | Ventilation for buildings |
| 182 | Refrigerating systems, safety and environmental requirements |
| 195 | Air filters for general air cleaning |
| *ISO/TC* | *Topic* |
| 086 | Refrigeration |
| 117 | Industrial fans |
| 142 | Clean equipment for air and other gases |
| 144 | Air distribution and air diffusion |
| 205 | Building environment design |

### 5.6 SC06 "Heating and ventilation"

President: Colle ing. Augusto - Expert

National Advisory Group:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 601 | Project, execution and testing of the plants (UNI TS 11300-2; UNI TS 11300-4) | Colle ing. Augusto | Martino arch. Anna<br>Nidasio ing. Roberto |
| 602 | Management, start-up and maintenance of the plants | Raimondini ing. Giovanni | Martino arch. Anna<br>Merlini dr. Mattia |
| 604 | Characteristics, requisites, technical specifications of the components for heat production | Lonardi ing. Andrea | Merlini dr. Mattia |
| 605 | Characteristics, requisites and technical specifications of the components for the use of heat | Marchesi prof. Renzo | Martino arch. Anna<br>Merlini dr. Mattia |
| 606 | Components for the heat distribution networks | Soma p.i. Franco | Merlini dr. Mattia |
| 608 | Low temperature geothermal heat pump | Savoca ing. Domenico | Panvini dr. Antonio<br>Molinari ing. Dario |
| 609 | Chimneys, stoves and barbecues | Bonello avv. Piero | Panvini dr. Antonio<br>Molinari ing. Dario |

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|---|---|---|---|
| 610 | Interface CEN/TC 166 and CEN/TC 297 | Castorina cap. Francesco | Pinna dr. Giuseppe |
| 611 | CIG-CTI National Group for Chimneys | Castorina cap. Francesco | Pinna dr. Giuseppe |

International Activities:

| *CEN/TC* | *Topic* |
|---|---|
| 046 | Oil stoves |
| 047 | Atomizing oil burners and their components - Function - Safety - Testing |
| 057 | Central heating boilers |
| 105 | Valves and fittings to equip radiators |
| 130 | Space heating appliances without integral heat sources |
| 228 | Heating systems in buildings |
| 281 | Appliances, solid fuels and firelighters for barbecuing |
| 295 | Residential solid fuel burning appliances |
| 247 | Building Automation, Controls and Building Management |
| *ISO/TC* | *Topic* |
| 109 | Oil and gas burners and associated equipment |
| 166 | Chimneys |
| 297 | Free-standing industrial chimneys |

### 5.7 SC07 ”Safety technologies”

President: Ricchiuti ing. Alberto – Ministry of Environment, Land and Sea - ISPRA

National Advisory Groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 703 | Safety of high-risk plants | Barone ing. Domenico | Molinari ing. Dario |

### 5.8 SC08 “Measures and instrumentation devices””

President: Saccani prof. Cesare – University of Bologna

National Advisory Groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 803 | Heat metering | Poeta ing. Terenzio | Merlini dr. Mattia |

International Activities:

| *CEN/TC* | *Topic* |
|---|---|
| 171 | Heat cost allocation |
| 176 | Heat meters |

### 5.9 SC09 “Renewable energy sources””

President: Martelli prof. Francesco – University of Florence - CEAR

National Advisory Groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 901 | Solar Energy | Braccio ing. Giacobbe | Pinna dr. Giuseppe |

| | | | |
|---|---|---|---|
| 902 | Solid Bio-fuels | Panvini dr. Antonio | Panvini dr. Antonio<br>Molinari ing. Dario |
| 903 | Energy from waste | Riva prof. Giovanni | Merlini dr. Mattia<br>Scrosta d.ssa Vanessa |
| 904 | Biogas from anaerobic fermentation and Biogenic Syngas | Calcaterra dr. Enrico | Panvini dr. Antonio<br>Merlini dr. Mattia |
| 905 | Bioliquids for energy use | Panvini dr. Antonio | Merlini dr. Mattia |

International Activities:

| *CEN/TC* | *Topic* |
|---|---|
| 312 | Thermal solar systems and components |
| 335 | Solid Bio-fuels |
| 343 | Solid Recovered Fuels |
| PC 363 | Project Committee - Organic contaminants (tar) in biomass producer gases |
| *ISO/TC* | *Topic* |
| 180 | Solar energy |
| 238 | Solid bio-fuels |
| 255 | Biogas |

### 5.10 SC10 "Environmental ThermoEnergy"

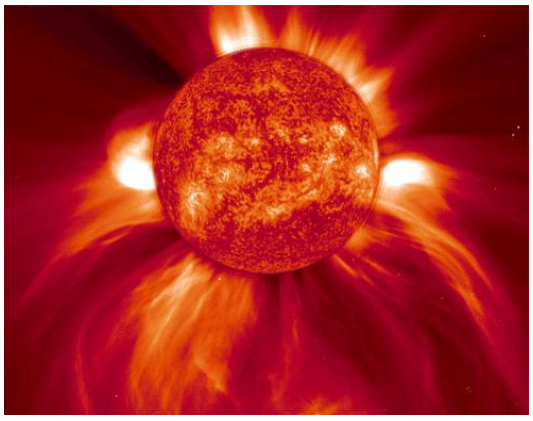
President: To be defined

National Advisory Groups:

| *GL* | *Topic* | *Coordinator* | *CTI Team Member* |
|---|---|---|---|
| 1001 | Industrial and civil plants. Environmental aspects | Panvini dr. Antonio | Panvini dr. Antonio<br>Molinari ing. Dario |
| 1002 | Sustainably produced biomass - Biofuel | Riva prof. Giovanni | Panvini dr. Antonio<br>Duca dr. Daniele |
| 1003 | Sustainably produced biomass - Solid biofuels for energy applications | Riva prof. Giovanni | Panvini dr. Antonio<br>Duca dr. Daniele |

International Activities:

| *CEN/TC* | *Topic* |
|---|---|
| 383 | Sustainably produced biomass for energy applications |
| *ISO/TC* | *Topic* |
| PC 248 | Sustainability Criteria for bioenergy |



# 6. RESEARCH PROJECTS

## 6.1 On-going research projects

| | |
|---|---|
| *Project* | European Project - Intelligent Energy for Europe Action Bio-business |
| *Title* | FOREST – Fostering Efficient Long Term Supply Partnerships |
| *Synthesis* | FOREST is here to develop supply chains across the biomass industry as a means of supporting the growth of renewable heat across Europe. We are funded by Intelligent Energy Europe to work with businesses from regions in Austria, Italy, Ireland, Poland, Spain, Sweden and the UK. We want to engage with businesses involved in all aspects of biomass heating to share experience, examples of best practice and to develop the partnerships that we believe will enable the industry to provide the viable alternatives to fossil fuels that are increasing required by end users.<br>Within the FOREST Programme there are opportunities for direct business support, training, local networking and business exchanges across Europe so please get in touch with your nearest FOREST project office if you think that your business can benefit from any of these activities. |

| | |
|---|---|
| *Project* | European Project - Intelligent Energy for Europe Action Bio-business |
| *Title* | MIXBIOPELLS - Market Implementation of Extraordinary Biomass Pellets |
| *Synthesis* | According to the worldwide rising energy demand and the increased ambitious climate protection targets, the use of biomass for combustion will gain even more importance than it already has. At the time especially in Europe small-scale combustion units (20 to 200 kW) are used almost only with high quality wood fuels. Since nowadays wood is getting more scarce caused by the growing demand in material and the energetic use, alternative solid biofuels, like low quality wood, straw or olive press cake, are experiencing growing interest for energetic use.<br>In most of the European countries first activities in industrial as well as in public sectors have been started to integrate these alternative biofuels. Furthermore for the mentioned range of performance, pelletized fuels seem to have the best chances due to their vantages like high energy density, similar physical characteristics, easy handling and efficient transportation. However, the market integration of alternative biomass pellets is still blocked by various constraints. Therefore the target of this project is to identify the constraints and drivers in detail and to find promising market introduction concepts for enhancing the market relevance of alternative pellets in Europe. |

| | |
|---|---|
| *Project* | European Project - Intelligent Energy for Europe Action Bio-business |
| *Title* | MAKE-IT-BE - Decision Making and Implementation Tools for Delivery of Local & Regional Bio-Energy Chains |
| *Synthesis* | MAKE-IT-BE is a new EC-DG TREN (Transport and Energy) project, which is co-financed by the Intelligent Energy - Europe programme, managed by the Executive Agency for Competitiveness & Innovation (EACI). The project focuses on decision-making and implementation tools for local and regional bioenergy chains.<br>The MAKE-IT-BE project is aimed at delivering agendas for bio-energy promotion in 4 EU Regions (Austria, Italy, Slovenia and UK) by developing and applying decision-making tools that assist in extensively identifying, evaluating and initiating bio-energy chains.<br>MAKE-IT-BE is working on methods for mapping biomass supply and demand at a local level, using and developing adaptable tools. The overall project objective is to convert the general targets of bioenergy promotion of 4 EU Regions into concrete agendas for delivery of bio-energy chains. A long term results of the project will be the increased share of bio-energy throughout Europe by means of Regional Biomass Action Plans. |

## 6.2 Projects under the negotiation phase:

In 2011 CTI submitted to the European Commission the following project proposal, currently under the negotiation phase::

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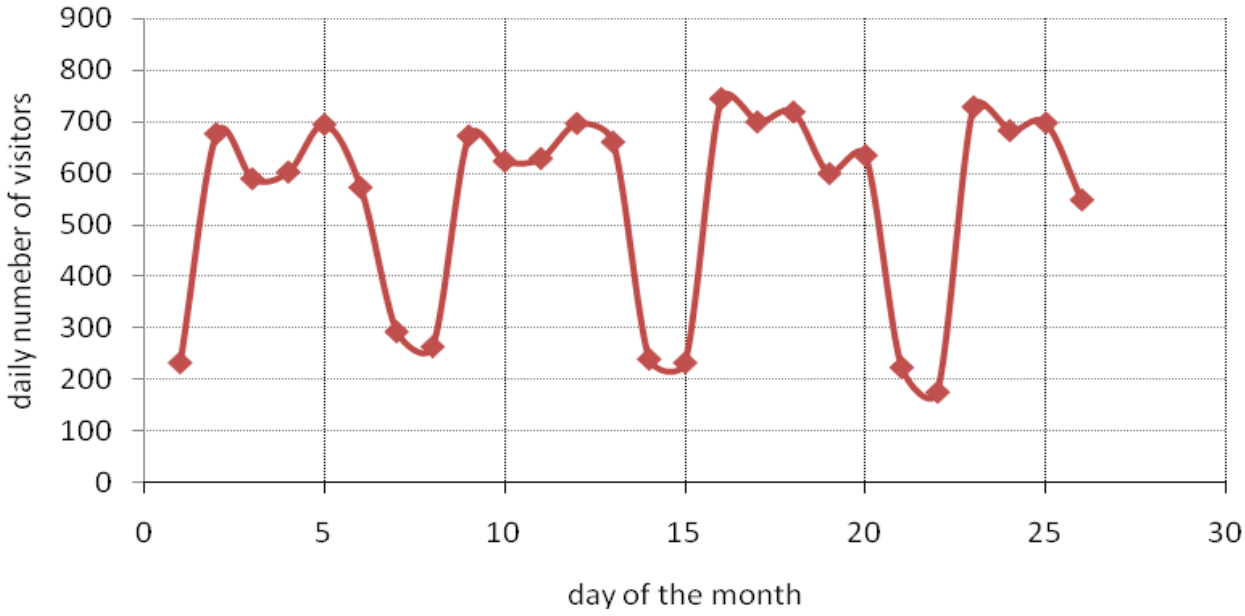
|---|---|
| *Project* | European Project – Call EIE 2011 |
| *Title* | Strategy Biomethane Model for European Regions - BIOMER |
| *Synthesis* | Energy production from wastes and residues can play an important role for Europe with an improvement of waste management and environmental conditions, as recommended by the sustainability criteria of Directive 2009/28/EC. The aim of this proposal is to define a "Strategic Model for Bio-Green Gas Production" across European Regions by using a suitable mix derived by organic urban wastes and residual biomass deriving from the agro-industrial sector as well as from zoo-technical slurries taking in consideration all technological pathways potentially available on the market. In particular, the Biomer project intends to enhance efficient biomethane supply chains integrating current biomass action plans operating at local level. To do so, the project will have to deal with several non-technical issues that currently hinder the deployment of biomethane production and distribution in the EU. In many urbanized European regions it is difficult to develop a bioenergy supply chain only by use of agricultural biomass due to the fragmentation of rural areas and small quantities of biomass available. At the same time, strongly urbanized regions have the problem of wastes management under suitable environmental conditions. Through a suitable mix of biomass residues the aim is to produce a "Model for Biomethane production" (available for grid and directly used for CHP system), which can also enhance a further valorisation of co-products like digestate. The strategic energy model wants to be easily replicable in EU regions characterised by highly urbanized or semi-rural areas with different wastes management solutions. Attention will be paid to dissemination mechanisms both within the consortium and towards targets from regions not directly involved in the initiative. |

| | |
|---|---|
| *Project* | European Project – LIFE+ Environmental Policy and Governance |
| *Title* | Small scale sustainable bioenergy chains for upgraded solid biofuel production and use – BioTOR |
| *Synthesis* | The general aim of the project is to improve the use of solid biofuels, renewable fuels for heat and heat&power generation, by decentralised on-site upgrading of biomass through torrefaction, and further testing of the entire chain at demonstration scale, from feedstock collection to biomass torrefaction and use in heating or heat-and-power plants. This innovative biofuel has advanced characteristics that allow more efficient logistics (transports) and use, thus reducing greenhouse gas emissions, promoting short production chains and ensuring a full compatibility with existing biomass combustion technologies.<br>The strategic aim of the project is to bring added value to local communities and farms with the development of high-quality standardised solid biofuels, improving at the same time the environment and reducing greenhouse gas emissions by the increased amount of biofuel produced as a result of the higher income generated for the farmers, which will become "first converter" of a higher quality and value fuel, and not just biomass collectors. In fact, while the current technological trend in torrefaction is to develop very large plants for transporting overseas huge amount of torrefied biomass to be used in co-firing in coal fired power stations, our goal is to investigate downscaling of the technology to make the process accessible, and technically/economically feasible for EU farmers and forest management companies. This is today a very new approach and unexplored area.<br>The project, accompanied by the development of guide-lines and pre-standards, will generate enough information and experience to consider the incorporation of torrefaction into regional programmes supporting and assistancing farmers, such as the regional Rural Development Programme.<br>The technological aim is therefore to apply the torrefaction process to short production chains and specifically to locally produced chipped wood from forestry residues/wood and dedicated energy crops (either woody or herbaceous), carrying out the process on the field, i.e. on the same site where it has been produced and by the same operators.The wide development in Italy of these supply chains is currently limited by the modest added value for the biomass producers, which is one the barriers targeted by this project.<br>The project will target the local actors through the direct involvement of local producers (forest companies, farmers, etc) and local Authorities. |

## 7. WEBSITE

CTI website (www.cti2000.it) is really important for its informative system. On the website in a restricted area all the documentation about the ISO, CEN and Working Groups studies is available, as well as 41.772 technical documents.
In 2010 the website was visited 30.000 times by users that remained connected for at least half an hour, while if the time of consultation of the documentation is not taken into consideration, the website was object of about 2 million contacts. The hourly distribution of the visits was during office hours and that demonstrates that the users are mostly professionals.
The figures show the access data of the last year with a slight increase mainly after events, conferences and seminars of specific interest organized by CTI.

*Visitors of website on a daily basis in a few typical weeks*



*Reproduction of CTI's home page*

# 8. PUBLICATIONS

## 8.1 CTI Informs

CTI Informs is the monthly publication issued by the Head office and available on the website in a specific area and it is forwarded also to all the Members of the Committee as well as to companies, associations and bodies operating in the field.
This publication, whose contents are both thermo-technical and about energy, is focused on updating the users both on the various activities performed monthly by the Head Office and the Working Groups both at national and international level, and on the news about legislation in the sector, as well as the updating on the standards elaborated by CTI and published by UNI. Also the dates of the technical meetings and the most relevant soon-to-come events are listed.
Specific importance is also given to the results of the research activities, to whom CTI has been more and more focusing since a few years, with particular interest on the works performed for the realization of some specific projects.
Something really up-to-date that has been recently introduced is the publication, every three months, of a special edition of CTI Informs, consisting in the deepening of a specific technical topic chosen among those managed by the Advisory Groups. The GL has therefore to issue the articles to increase the interest of the users about the issues that the specific sector is facing.

## 8.2 The“Thermo-Technical” review

The “Thermo-Technical” review is the monthly publication of the sector. It was printed for the first time in the 40s, and keeps on spreading the thermo-technical culture among the experts. For the publication of the articles it is helped by CTI that provides a significant contribution both technical and scientific. CTI Members furthermore, besides receiving a free copy of the review, have the possibility to consult all the articles starting from number 1 issued in 1983, visiting the section “Publications” on CTI website.

## 8.3 Publications on the website

CTI website has a relevant number of technical, normative and research documents elaborated by the Head Office Team and by the Advisory groups, as well as all the papers of CTI conferences and the main ATI publications. All these documents, available only to the Members, constitute a very rich on-line library of the sector with about 6.938 documents.

| *Topics* | *Contents* | *Period* |
|---|---|---|
| CTI reports | Studies about specific issues carried out by CTI | 1997-2011 |
| CTI technical library | Papers of CTI conferences and other relevant thermo-technical documents | 1999-2011 |
| CTI technical documents | Documents of support to technical standardization elaborated by CTI | 1997-2011 |
| ATI Conferences | Papers of the annual ATI conferences and papers of ATI specific conferences (special series) | 1993 - 2010 |
| The “Thermo-Technical” review | All the articles of the review | 01/1982 – 06/2011 |

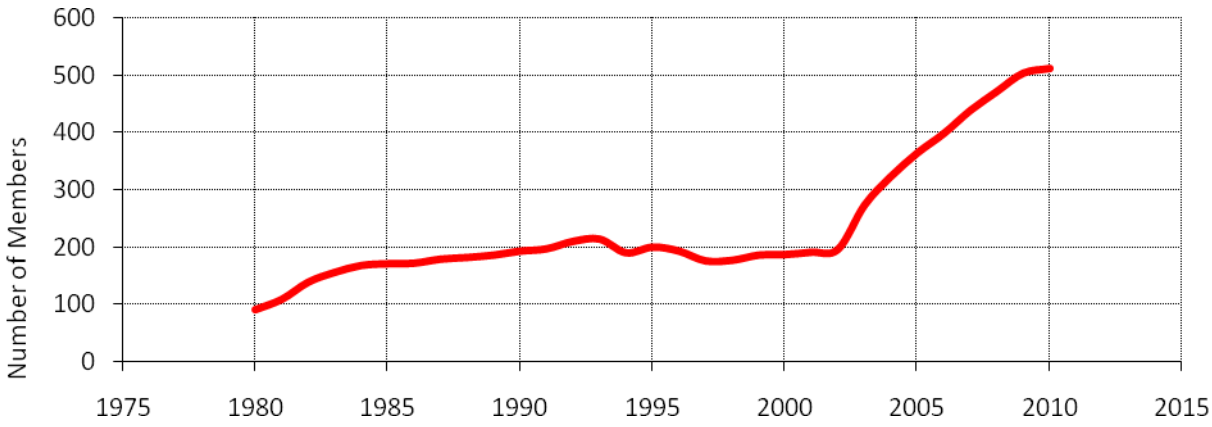
## 9. CTI MEMBERS LISTING

CTI's Members have been subdivided into three categories:

- Honorary Members (n. 9 to 2010/31/12);
- Effective Members – Corporate entities (n. 497 to 2010/31/12);
- Individual Members – Natural persons (n. 5 to 2010/31/12).

CTI is able to keep a good number of Members thanks to its efforts to renew and optimize structure and tasks of the Committee. This has also requested an extension of competences and services offered, as organization of training courses, participation in development projects and conduct of services.

Number of CTI's Members from 1980 to 2010



## 10. STANDARDS PUBLISHED AND ON-GOING PROJECT STANDARDS

### 10.1 General aspects

In 2010 CTI performed a really remarkable standardization activity which will conclude in 2011 and could be synthesized with the following figures:

- International project standards (ISO and CEN) currently under the study phase: 521
- National project standards currently under the study phase: 47
- Standards developed by CTI and published by UNI: 79
- International standards developed with CTI support and published by ISO: 27

### 10.2 National project standards under the study phase:

The project standards under the study phase are 47 and are divided into topics reported in the following table:

| *SC* | *GL* | *Project code* | *Standard code* | *Standard title* |
|---|---|---|---|---|
| 1 | GL 102 | E02019920 | | Prestazioni energetiche degli edifici – Specifiche di calcolo per la verifica dei requisiti energetici degli edifici |
| 1 | GL 102 | E02019930 | | Prestazioni energetiche degli edifici – Metodi per la certificazione energetica degli edifici |
| 1 | GL 102 | E02019340 | UNI 10375 rev | Metodo di calcolo della temperatura interna estiva degli ambienti |
| 2 | GL 203 GGE | E0202C160 | | Gestione dell'energia - Esperti in gestione dell'energia - Linee Guida per la Certificazione |
| 2 | GL 203 GGE | E0202C170 | | Gestione dell'energia - Diagnosi energetiche – Requisiti generali del servizio di diagnosi energetica |
| 2 | GL 203 GGE | E0202Cxxx | | Gestione dell'energia - Diagnosi energetiche – Requisiti particolari del servizio di diagnosi energetica |
| 3 | GL 304 | E0203B442 | UNI TS 11325-2 | Attrezzature a pressione - Messa in servizio ed utilizzazione delle attrezzature e degli insiemi a pressione - Parte 2: Verifiche di calcolo e controlli su componenti in pressione in regime di scorrimento viscoso del materiale |
| 3 | GL 304 | E0203B448 | UNI TS 11325-8 | Attrezzature a pressione - Messa in servizio ed utilizzazione delle attrezzature e degli insiemi a pressione - Parte 8: Pianificazione delle ispezioni su attrezzature a pressione attraverso metodologie basate sulla valutazione del rischio (RBI) |
| 3 | GL 304 | E0203B449 | UNI TS 11325-9 | Attrezzature a pressione - Messa in servizio ed utilizzazione delle attrezzature e degli insiemi a pressione - Parte 9: Fitness for service (FFS) |
| 3 | GL 305/SG 0B | E0203B4445 | UNI TS 11325-5 | Attrezzature a pressione - Messa in servizio ed utilizzazione delle attrezzature e degli insiemi a pressione - Parte 5: Riparazioni e modifiche |
| 3 | GL 305/SG 0B | E0203B444 | UNI TS 11325-4 | Attrezzature a pressione - Messa in servizio ed utilizzazione delle attrezzature e degli insiemi a pressione - Parte 4: Metodi di valutazione di integrità di attrezzature a pressione esercite in regime tale per cui possono essere significativi fenomeni di scorrimento viscoso |
| 3 | GL 305/SG 0B | E0203B446 | UNI TS 11325-6 | Attrezzature a pressione - Messa in servizio ed utilizzazione delle attrezzature e degli insiemi a pressione - Parte 6: Messa in servizio e riqualificazione periodica delle attrezzature e degli insiemi a pressione |
| 4 | GL 405 | E0204B072 | | Cogenerazione - Unità di piccola e micro-cogenerazione alimentate da combustibili liquidi e gassosi - Parte 2: Determinazione del rumore trasmesso in aria tramite il metodo della superficie di inviluppo |
| 4 | GL 405 | E0204A073 | | Cogenerazione - Impianti di piccola cogenerazione alimentati a |

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| | | | | combustibili liquidi e gassosi - Parte 3: Misurazione ex-ante delle prestazioni energetiche |
| 4 | GL 405 | E0204A071 | | Cogenerazione - Unità di piccola e micro-cogenerazione alimentate da combustibili liquidi e gassosi - Parte 1: Determinazione delle emissioni di combusti allo scarico |
| 4 | GL 405 | E0204A060 | | Cogenerazione - Impianti di piccola cogenerazione alimentati a combustibili liquidi e gassosi - Criteri per la valutazione delle emissioni |
| 4 | GL 405 | E0204A074 | | Cogenerazione - Impianti di piccola cogenerazione alimentati a combustibili liquidi e gassosi - Parte 4: Requisiti di installazione e modalità di messa in servizio |
| 4 | GL 405 | E0204A040 | | Cogenerazione - Impianti di piccola cogenerazione alimentati a combustibili liquidi e gassosi - Terminologia, classificazione e requisiti generali |
| 4 | GL 405 | E0204C580 | UNI 7888 rev | Sistemi per processi di cogenerazione - Definizioni e classificazione |
| 5 | GL 501 | E0205A037 | UNI 10339 rev | Impianti aeraulici per la climatizzazione - Classificazione, prescrizioni e requisiti prestazionali per la progettazione e la fornitura |
| 5 | GL 501 | E02059000 | | Ventilazione degli edifici - Requisiti degli impianti di ventilazione e climatizzazione a servizio degli ambienti in cui sia consentito fumare |
| 5 | GL 501 | E02058560 | | Impianti di condizionamento dell'aria e controllo della contaminazione nei reparti operatori: Progettazione, costruzione, messa in funzione e gestione |
| 5 | GL 502 | E0205B430 | | Dispositivi ad irradiazione ultravioletta per il trattamento dell’aria e delle superfici al fine di riduzione degli inquinanti – Generalità, requisiti, classificazione e metodo di prova |
| 6 | GL 601 | E02069984 | prUNI TS 11300-4 | Prestazioni energetiche degli edifici - Parte 4: Utilizzo di energie rinnovabili e di altri metodi di generazione per riscaldamento di ambienti e produzione di acqua calda sanitaria |
| 6 | GL 601 | E0206A774 | UNI 10412-4 | Impianti di riscaldamento ad acqua calda - Prescrizioni di sicurezza - Parte 4: Requisiti specifici per impianti con generatori alimentati da 6combustibili solidi non polverizzati, con caricamento manuale o automatico |
| 6 | GL 602 | E02069602 | UNI 10389-2 | Generatori di calore - Analisi dei prodotti della combustione e misurazione in opera del rendimento di combustione - Parte 2: Generatori di calore a combustibile solido e solido biomassa con alimentazione meccanica o manuale |
| 6 | GL 608 | E0206C020 | | Sistemi geotermici a pompa di calore - Requisiti per il dimensionamento e la progettazione |
| 6 | GL 608 | E0206C030 | | Sistemi geotermici a pompa di calore - Requisiti per l'installazione |
| 6 | GL 608 | E0206C170 | | Impianti geotermici a pompa di calore: aspetti ambientali |
| 6 | GL 608/SG 02 | E0206C520 | | Sistemi geotermici a pompa di calore: Requisiti per la qualificazione delle ditte installatrici che forniscono servizi di perforazione e/o installazione degli impianti geotermici a pompa di calore |
| 6 | GL 608/SG 03 | E0206C530 | | Sistemi geotermici a pompa di calore: Tecnologia DX (a scambio diretto) |
| 6 | GL 609/SG 03 | E0206C540 | | Apparecchi a etanolo/alcol etilico: Requisiti di sicurezza e metodi di prova |
| 6 | GL 609 | E0202B510 | UNI 10683 rev | Generatori di calore alimentati a legna o altri biocombustibili solidi - Requisiti di installazione |
| 6 | GL 609 | E0202C130 | | Linee guida per la misura del particolato emesso da apparecchi a biomassa solida |
| 6 | GLM 611 | E0202B470 | | Camini - Sistemi camino con condotti interni di materia plastica - Scelta e corretto utilizzo in funzione del tipo di applicazione e relativa designazione del prodotto |

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| 6 | GLM 611 | E01XXX | UNI EN 11278 rev | Camini/ canali da fumo/condotti /canne fumarie metallici - Scelta e corretto utilizzo in funzione del tipo di applicazione e relativa designazione del prodotto |
| 7 | GL 703 | E0207B160 | UNI 10616 | Impianti a rischio di incidente rilevante - Sistemi di gestione della sicurezza - Linee guida per l'attuazione della UNI 10617 |
| 8 | GL 803 | E0208B690 | UNI 10200 | Impianti termici centralizzati di climatizzazione invernale - Ripartizione delle spese di climatizzazione invernale |
| 9 | GL 901 | E0209C280 | UNI 9711 | Impianti solari di grandi dimensioni per la produzione di acqua calda per usi igienico – sanitari (ACS) e/o climatizzazione ambienti. Classificazione, requisiti essenziali, regole per la costruzione, l'offerta, l'ordinazione ed il collaudo |
| 9 | GL 902 | E0209C180 | | Biocombustibili solidi - Coprodotti del processo di lavorazione dell'uva per usi energetici - Specifiche e classificazione |
| 9 | GL 903 | E0209xxx | | Linee guida per il riconoscimento della fonte rinnovabile biomassa ai fini del DLGS 387/03 |
| 9 | GL 903 | E0209B460 | | Impianti di co-combustione, incenerimento e co-incenerimento - Determinazione del contenuto di energia biodegradabile in ingresso all'impianto |
| 9 | GL 903 | E0209C071 | UNI 9903-1 rev | Combustibili solidi non minerali ricavati da rifiuti (RDF) - Specifiche, classificazione, termini e definizioni |
| 9 | GL 904 | E0209A420 | UNI 10458 | Impianti per la produzione di gas biologico (biogas). Classificazione, requisiti, regole per la costruzione, l'offerta, l'ordinazione e il collaudo. Revisione UNI 10458 |
| 9 | GL 905 | E0209C190 | | Biocombustibili liquidi - Liquidi/Acidi pirolitici - Specifiche e classificazione |
| 9 | GL 905 | E0209C200 | | Qualificazione degli operatori della filiera per la produzione di biocarburanti e bioliquidi |
| 10 | GL 1003 | E0209C09 | | Criteri di sostenibilità della biomassa solida per applicazioni energetiche |

### 10.3 International project standards under the study phase:

The project standards under the study phase are 521 and are divided into topics reported in the following table:

| *TC* | *Standard code* | *Project title* |
|---|---|---|
| CEN/CLC JWG1 | | Energy audits - Part 1: General |
| CEN/CLC JWG1 | | Energy audits - Part 2: Buildings |
| CEN/CLC JWG1 | | Energy audits - Part 3: Processes |
| CEN/CLC JWG1 | | Energy audits - Part 4: Transportation |
| CEN/CLC JWG2 | | Guarantees of Origin related to energy - Guarantees of Origin for Electricity |
| CEN/CLC JWG2 | | White certificates |
| CEN/CLC JWG3 | prEN 16231 | Energy Efficiency Benchmarking Methodologies |
| CEN/CLC JWG4 | prEN 16212 | Standard on top down and bottom up methods of calculation of energy consumption, energy efficiencies and energy savings. |
| SF EM | | Terminology – Draft technical report from SFEM Working group "Energy management and Energy efficiency - Glossary of terms" |
| CEN/CLC/JTF PE | prEN 45510-2-1 | Guide for procurement of power station equipment - Part 2-1: Electrical equipment - Power transformers |
| CEN/PC 399 | prEN ISO 21789 | Gas turbine applications - Safety |

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|---|---|---|
| CEN/TC 044 | EN ISO 23953-1:2005/prA1 | Refrigerated display cabinets - Part 1: Vocabulary - Amendment 1 (ISO 23953-2:2005/DAM 1:2009) |
| CEN/TC 044 | EN ISO 23953-2:2005/prA1 | Refrigerated display cabinets - Part 2: Classification, requirements and test conditions - Amendment 1 (ISO 23953-2:2005/DAM 1:2009) |
| CEN/TC 047 | prEN 12514-1 | Parts for supply systems for demand appliance with liquid fuels - Part 1: Safety requirements and tests - Terminology, generally requirements |
| CEN/TC 047 | prEN 12514-2 rev | Parts for supply systems for demand appliance with liquid fuels — Part 2: Safety requirements and tests — Feed pumps, control and safety devices, operating vessels |
| CEN/TC 047 | prEN 12514-3 | Parts for supply systems for demand appliance with liquid fuels - Part 3: Safety requirements and tests - Valves and meters |
| CEN/TC 047 | prEN 12514-4 | Parts for supply systems for demand appliance with liquid fuels - Part 4: Safety requirements and tests - Pipe work and components in pipes |
| CEN/TC 047 | EN 267:2009/prA1 | Automatic forced draught burners for liquid fuels |
| CEN/TC 047 | prEN 267 rev | Automatic forced draught burners for liquid fuels |
| CEN/TC 047 | prEN ISO 23553-1 rev | Safety and control devices for oil burners and oil-burning appliances - Particular requirements - Part 1: Shut-off devices for oil burners |
| CEN/TC 054 | EN 13445-3:2009/prA3 | Unfired pressure vessels – Part 3: Design |
| CEN/TC 054 | EN 13445-3:2009/prA4 | Unfired pressure vessels – Part 3: Design |
| CEN/TC 054 | EN 13445-3:2009/prA5 | Unfired pressure vessels – Part 3: Design |
| CEN/TC 054 | EN 13445-5:2009/prA2 | Unfired pressure vessels – Part 5: Inspection and testing |
| CEN/TC 054 | EN 13445-3:2009/prA7 | Unfired pressure vessels - Part 3: Design |
| CEN/TC 054 | EN 13445-3:2002/prA6 | Unfired pressure vessels - Part 3: Design |
| CEN/TC 054 | EN 13445-5:2009/prA4 | Unfired pressure vessels - Part 5: Inspection and testing |
| CEN/TC 054 | prEN 764-2 | Pressure equipment - Part 2: Quantities, symbols and units |
| CEN/TC 054 | prEN 764-4 | Pressure equipment - Part 4: Establishment of technical delivery conditions for metallic materials |
| CEN/TC 054 | prEN 764-5 | Pressure Equipment - Part 5: Compliance and Inspection Documentation of Materials |
| CEN/TC 054 | prCEN/TR 764-6 | Pressure equipment - Part 6: Structure and content of operating instructions |
| CEN/TC 054 | EN 13445-2:2009/prA2 | Unfired pressure vessels - Part 2: Materials |
| CEN/TC 054 | prEN 15776 | Unfired pressure vessels - Additional requirements for the design and fabrication of pressure vessels and parts constructed from cast iron with elongation equal or less than 15% |
| CEN/TC 054 | EN 13445-4:2009/prA1 | Unfired pressure vessels - Part 4: Fabrication |
| CEN/TC 054 | FprCEN/TR 13445-9 | Unfired pressure vessels - Part 9: Conformance of the EN 13445 series to ISO 16528 |
| CEN/TC 054 | EN 13445-5:2009/prA1 | Unfired pressure vessels - Part 5: Inspection and testing |
| CEN/TC 054 | EN 13445-5:2009/prA3 | Unfired pressure vessels - Part 5: Inspection and testing |
| CEN/TC 054 | | Additional Requirements for Pressure Vessels of Nickel and Nickel Alloys |
| CEN/TC 054 | EN 13445-4:2009/prA2 | Unfired pressure vessels - Part 4: Fabrication |
| CEN/TC 054 | EN 13445-3:2009/prA2 | Unfired pressure vessels – Part 3: Design |
| CEN/TC 054 | prEN 764-1 rev | Pressure equipment - Part 1: Terminology - Pressure, temperature, volume, nominal size |

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| CEN/TC 054 | EN 14359: 2006/FprA1 | Gas-loaded accumulators for fluid power applications |
| CEN/TC 054 | EN 13445-3:2009/prA1 | Unfired pressure vessels - Part 3: Design |
| CEN/TC 054 | EN 14359:2006+A1:2010 | Gas-loaded accumulators for fluid power applications |
| CEN/TC 054/ WG 52 | EN 13445-2:2009/prA1 | Unfired pressure vessels - Part 2: Materials |
| CEN/TC 057 | prEN 303-5 rev | Heating boilers - Part 5: Heating boilers for solid fuels, hand and automatically stocked, nominal heat output of up to 500 kW - Terminology, requirements, testing and marking |
| CEN/TC 057 | prEN 303-5 rev | Heating boilers - Part 5: Heating boilers for solid fuels, hand and automatically stocked, nominal heat output of up to 500 kW - Terminology, requirements, testing and marking |
| CEN/TC 088 | prEN 14063-2 | Thermal insulation products for buildings - In-situ formed expanded clay lightweight aggregate products - Part 2: Specification for the installed products |
| CEN/TC 088 | prEN 15101-2 | Thermal insulation products for buildings - In-situ formed loose-fill cellulose products - Part 2: Specification for the installed products |
| CEN/TC 088 | prEN 15101-1 | Thermal insulation products for buildings - In-situ formed loose - fill cellulose products - Part 1: Specification for the products before installation |
| CEN/TC 088 | prEN 14320-2 | Thermal insulating products for building equipment and industrial installations - In-situ formed sprayed rigid polyurethane (PUR) and polyisocianurate (PIR) foam products - Part 2: Specification for the installed insulation products |
| CEN/TC 088 | prEN 14319-2 | Thermal insulating products for building equipment and industrial installations - In-situ formed dispensed rigid polyurethane foam (PUR) products - Part 2: Specification for the installed insulation products |
| CEN/TC 088 | prEN 14318-2 | Thermal insulating products for buildings - In-situ formed dispensed rigid polyurethane PUR) and polyisocyanurate (PIR) foam products - Part 2: Specification for the installed insulation products |
| CEN/TC 088 | prEN 14315-2 | Thermal insulating products for buildings - In-situ formed sprayed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 2: Specification for the installed insulation products |
| CEN/TC 088 | prEN 14320-1 | Thermal insulating products for building equipment and industrial installations - In-situ formed sprayed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 1: Specification for the rigid foam spray system before installation |
| CEN/TC 088 | prEN 14319-1 | Thermal insulating products for building equipment and industrial installations - In-situ formed dispensed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 1: Specification for the rigid foam dispensed system before installation |
| CEN/TC 088 | prEN 14318-1 | Thermal insulating products for buildings - In-situ formed dispensed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 1: Specification for the rigid foam dispensed system before installation |
| CEN/TC 088 | prEN 14315-1 | Thermal insulating products for buildings - In-situ formed sprayed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 1: Specification for the rigid foam spray system before installation |
| CEN/TC 088 | prEN 13162 rev | Thermal insulation products for buildings - Factory made mineral wool (MW) products - Specification |
| CEN/TC 088 | prEN 13163 rev | Thermal insulation products for buildings - Factory made products of expanded polystyrene (EPS) - Specification |
| CEN/TC 088 | prEN 13164 rev | Thermal insulation products for buildings - Factory made products of extruded polystyrene foam (XPS) - Specification |
| CEN/TC 088 | prEN 13165 rev | Thermal insulation products for buildings - Factory made rigid polyurethane foam (PUR) products - Specification |

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| CEN/TC 088 | prEN 13166 rev | Thermal insulation products for buildings - Factory made products of phenolic foam (PF) - Specification |
| CEN/TC 088 | prEN 13167 rev | Thermal insulation products for buildings - Factory made cellular glass (CG) products - Specification |
| CEN/TC 088 | prEN 13168 rev | Thermal insulation products for buildings - Factory made wood wool (WW) products - Specification |
| CEN/TC 088 | prEN 13169 rev | Thermal insulation products for buildings - Factory made products of expanded perlite (EPB) - Specification |
| CEN/TC 088 | prEN 13170 rev | Thermal insulation products for buildings - Factory made products of expanded cork (ICB) - Specification |
| CEN/TC 088 | prEN 13171 rev | Thermal insulating products for buildings - Factory made wood fibre (WF) products - Specification |
| CEN/TC 088 | prEN 16025-1 | Themal and/or sound insulating products in building construction - Bound EPS ballastings - Part 1: Requirements for factory premixed EPS dry plaster |
| CEN/TC 088 | prEN 16025-2 | Themal and/ or sound insulating products in building construction - Bound EPS ballastings - Part 2: Processing of the factory premixed EPS dry plaster |
| CEN/TC 088 | prEN 16069 | Thermal insulation products for buildings - Factory made products of polyethylene foam (PEF) - Specification |
| CEN/TC 088 | prEN 13172 | Thermal insulation products - Evaluation of conformity |
| CEN/TC 088 | prEN 12085 rev | Thermal insulating products for building applications - Determination of linear dimensions of test specimen |
| CEN/TC 088 | prEN 12086 rev | Thermal insulating products for building applications - Determination of water vapour transmission properties |
| CEN/TC 088 | prEN 12087 rev | Thermal insulating products for building applications - Determination of long term water absorption by immersion |
| CEN/TC 088 | prEN 12088 rev | Thermal insulating products for building applications - Determination of long term water absorption by diffusion |
| CEN/TC 088 | prEN 12089 rev | Thermal insulating products for building applications - Determination of bending behaviour |
| CEN/TC 088 | prEN 12090 rev | Thermal insulating products for building applications - Determination of shear behaviour |
| CEN/TC 088 | prEN 12091 rev | Thermal insulating products for building applications - Determination of freeze-thaw resistance |
| CEN/TC 088 | prEN 12430 rev | Thermal insulating products for building applications - Determination of behaviour under point load |
| CEN/TC 088 | prEN 12431 rev | Thermal insulating products for building applications - Determination of thickness for floating floor insulating products |
| CEN/TC 088 | prEN 1602 rev | Thermal insulating products for building applications - Determination of the apparent density |
| CEN/TC 088 | prEN 1603 rev | Thermal insulating products for building applications - Determination of dimensional stability under constant normal laboratory conditions (23 °C/ 50 % relative humidity) |
| CEN/TC 088 | prEN 1604 rev | Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions |
| CEN/TC 088 | prEN 1605 rev | Thermal insulating products for building applications - Determination of deformation under specified compressive load and temperature conditions |
| CEN/TC 088 | prEN 1606 rev | Thermal insulating products for building applications - Determination of compressive |

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| CEN/TC 088 | prEN 1608 rev | Thermal insulating products for building applications - Determination of tensile strength parallel to faces |
| CEN/TC 088 | prEN 1609 rev | Thermal insulating products for building applications - Determination of dimensional short term water absorption by partial immersion |
| CEN/TC 088 | prEN 822 rev | Thermal insulating products for building applications - Determination of length and width |
| CEN/TC 088 | prEN 823 | Thermal insulating products for building applications - Determination of thickness |
| CEN/TC 088 | prEN 824 rev | Thermal insulating products for building applications - Determination of squareness |
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| CEN/TC 088 | prEN 826 rev | Thermal insulating products for building applications - Determination of compression behaviour |
| CEN/TC 088 | prEN13496 rev | Thermal insulation products for building applications - Determination of the mechanical properties of glass fibre meshes |
| CEN/TC 088 | prEN ISO 9229 rev | Thermal insulation - Vocabulary |
| CEN/TC 088 | prEN 13469 rev | Thermal insulating products for building equipment and industrial installations - Determination of water vapour transmission properties of preformed pipe insulation |
| CEN/TC 088 | prEN 13472 rev | Thermal insulating products for building equipment and industrial installations - Determination of short term water absorption by partial immersion of preformed pipe insulation |
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| CEN/TC 088 | prEN 14707 rev | Thermal insulating products for building equipment and industrial installations - Determination of maximum service temperature for preformed pipe insulation |
| CEN/TC 088 | prEN 15732 | Light weight fill and thermal insulation products for civil engineering applications (CEA) - Expanded clay lightweight aggregate products (LWA) |
| CEN/TC 089 | prCEN/TS 15548-1 | Thermal insulation products for building equipment and industrial installations - Determination of thermal resistance by means of the guarded hot plate method - Part 1: Measurements at elevated temperatures from 100 °C to 850 °C |
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| CEN/TC 089 | | Thermal performance of building materials and products - Special methods for the determination of thermal resistance of the matrix of masonry products with thin wall sections - Moist masonry materials |
| CEN/TC 089 | prEN 16012 | Thermal insulation for buildings - Reflective insulation products - Determination of the declared thermal performance |
| CEN/TC 089 | prEN ISO 10077-2 | Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 2: Numerical method for frames (ISO/DIS 10077-2:2009) |
| CEN/TC 089 | prEN ISO 13792 | Thermal performance of buildings - Calculation of internal temperatures of a room in summer without mechanical cooling - Simplified methods |
| CEN/TC 089 | EN ISO 7345:1995/prA1 | Thermal insulation - Physical quantities and definitions (ISO 7345:1987) |
| CEN/TC 089 | prEN ISO 13788 rev | Hygrothermal performance of building components and building elements - Internal surface temperature to avoid critical surface humidity and interstitial condensation - Calculation methods |

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| CEN/TC 089 | prEN ISO 13791 | Thermal performance of buildings - Calculation of internal temperatures of a room in summer without mechanical cooling - General criteria and validation procedures |
| CEN/TC 089 | prEN ISO 12631 | Thermal performance of curtain walling - Calculation of thermal transmittance |
| CEN/TC 089 | prEN ISO 9972 | Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method |
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| CEN/TC 089 | EN ISO 15927-5:2004/prA1 | Hygrothermal performance of buildings - Calculation and presentation of climatic data - Part 5: Data for design heat load for space heating |
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| CEN/TC 113 | prEN 14825 | Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling - Testing and rating at part load conditions |
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| CEN/TC 113 | prEN 14511-4 | Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling - Part 4: Requirements |
| CEN/TC 113 | prEN 15879-2 | Testing and rating of direct exchange ground coupled heat pumps with electrically driven compressors for space heating and/or cooling - Part 2 : Direct condensation heat pump |
| CEN/TC 113 | prEN 12900 rev | Refrigerant compressors - Rating conditions, tolerances and presentation of manufacturer's performance data |
| CEN/TC 113 | prEN 13771-1 rev | Compressors and condensing units for refrigeration - Performance testing and test methods - Part 1: Refrigerant compressors |
| CEN/TC 113 | prEN 1397 rev | Heat exchangers - Hydronic room fan coil units - Test procedures for establishing the performance |
| CEN/TC 113/WG 09 | | Heat exchangers. Hydronic room fan coil units. Acoustic performance |
| CEN/TC 113/WG 10 | FprEN 16147 | Heat pumps with electrically driven compressors - Testing and requirements for marking for domestic hot water units |
| CEN/TC 113/WG 11 | | Testing and rating of direct exchange ground coupled heat pumps with electrically driven compressors for space heating and/or cooling - Part 3: Direct exchange-to-air ground coupled heat pumps and air-to-direct exchange heat pumps. |
| CEN/TC 130 | prEN 1264-1 | Floor heating - Systems and components - Part 1 : Definitions and symbols |
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| CEN/TC 156 | prEN 12599 rev | Ventilation for buildings - Test procedures and measuring methods for handing over installed ventilation and air conditioning systems |
| CEN/TC 156 | prEN 12792 rev | Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 2: Exhaust and supply air terminal devices |
| CEN/TC 156 | prEN 13141-6 rev | Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 6: Exhaust ventilation system packages used in a single dwelling |
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| CEN/TC 156/WG 04 | | Basic data used to produce EN 14240:2004, Ventilation for buildings - Chilled ceilings - Testing and rating AND, EN 14518:2005, Ventilation for buildings - Chilled beams - Testing and rating of passive chlled beams |
| CEN/TC 156/WG 04 | prEN 1751 rev | Ventilation for buildings - Air terminal devices - Aerodynamic testing of damper and valves |
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| CEN/TC 270 | FprEN 12601 rev | Reciprocating Internal Combustion Engine driven Generating Sets - Safety |
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| CEN/TC 343 | prEN 15442 | Solid recovered fuels - Methods for sampling |
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| CEN/TC 343 | prEN 15402 | Solid recovered fuels - Determination of the content of volatile matter |
| CEN/TC 343 | prEN 15403 | Solid recovered fuels - Determination of ash content |
| CEN/TC 343 | prEN 15414-3 | Solid recovered fuels - Determination of moisture content using the oven dry method - Part 3: Moisture in general analysis sample |
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| CEN/TC 343 | prEN 15408 | Solid recovered fuels - Methods for the determination of sulphur (S), chlorine (Cl), fluorine (F) and bromine (Br) content |
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| CEN/TC 343 | prEN 15411 | Solid recovered fuels - Methods for the determination of the content of trace elements (As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mo, Mn, Ni, Pb, Sb, Se, Tl, V and Zn) |

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| CEN/TC 383 | prEN 16214-4 | Sustainably produced biomass for energy applications - Part 4: Environmental issues |
| CEN/TC 383 | prEN 16214-5 | Sustainably produced biomass for energy applications - Part 5: Economic and social aspects |
| CEN/TC 383 | prEN 16214-6 | Sustainably produced biomass for energy applications - Part 6: Conformity assessment |
| CEN/TC 383 | prEN 16214-7 | Sustainably produced biomass for energy applications - Part 7: Indirect effects |
| CEN/TC 383 | | Sustainably produced biomass for energy applications - RED-related criteria and indicators - Part x Calculation of the GHG emission balance associated with sustainable biofuels and bioliquids using a lifecycle approach |
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| ISO/TC 205 | ISO/CD 11855-3 | Building environment design - Radiant heating and cooling system - Part 3: Design and dimensioning |
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| ISO/TC 205 | ISO/CD 11855-3 | Building environment design - Radiant heating and cooling system - Part 3: Design and dimensioning |
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| ISO/TC 244 | ISO/CD 13577-2 | Industrial furnaces and associated processing equipment - Safety - Part 2: Combustion and fuel handling systems |
| ISO/TC 244 | ISO/NP 13574 | Industrial furnaces and associated thermal processing equipment -- Vocabulary |
| ISO/TC 244 | ISO/CD 13577-1 | Industrial furnace and associated processing equipement - Safety - Part 1: General requirements |
| ISO/TC 244 | ISO/CD 13578 | Industrial furnaces and associated thermal processing equipment - Safety requirements for combustion and fuel handling systems |
| ISO/TC 70 | ISO/CD 15031-1 | Road vehicles - Communication between vehicle and external equipment for emissions-related diagnostics - Part 1: General information |
| ISO/TC 70 | ISO/DIS 15031-2 | Road vehicles - Communication between vehicle and external equipment for emissions-related diagnostics - Part 2: Terms, definitions, abbreviations and acronyms |
| ISO/TC 70 | ISO/NP 15031-4 | Road vehicles - Communication between vehicle and external equipment for emissions-related diagnostics - Part 4: External test equipment |
| ISO/TC 70 | ISO/DIS 15031-5 | Road vehicles - Communication between vehicle and external equipment for emissions-related diagnostics - Part 5: Emissions-related diagnostic services |
| ISO/TC 70 | ISO/DIS 15031-6 | Road vehicles - Communication between vehicle and external equipment for emissions-related diagnostics - Part 6: Diagnostic trouble code definitions |
| ISO/TC 70 | ISO/AWI 15619 | Measurement procedure for exhaust silencers of internal combustion engines |
| ISO/TC 70/SC 7 | ISO 4548-6 | Methods of test for full-flow lubricating oil filters for internal combustion engines - Part 6: Static burst pressure test (Revision of ISO 4548-6:1985, ISO 4548-6:1985/Cor 1:1990) |
| ISO/TC 70/SC 7 | ISO/CD 4548-5 | Methods of test for full-flow lubricating oil filters for internal combustion engines - Part 5: Cold start simulation and hydraulic pulse durability test |
| ISO/TC 70/SC 7 | ISO/CD 4548-7 | Methods of test for full-flow lubricating oil filters for internal combustion engines -- Part 7: Vibration fatigue test (Revision of ISO 4548-7:1990) |
| ISO/TC 70/SC 8 | ISO/NP 8178-1 | Reciprocating internal combustion engines - Exhaust emission measurement - Part 1: Test-bed measurement of gaseous and particulate exhaust emissions |

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| ISO/TC 70/SC 8 | ISO/AWI 8178-9 | Reciprocating internal combustion engines - Exhaust emission measurement - Part 9: Test cycles and test procedures for test bed measurement of exhaust gas smoke emissions from compression ignition engines operating under transient conditions |
| ISO/TC 70/SC 8 | ISO/NP 8178-11 | Reciprocating internal combustion engines - Exhaust emission measurement - Part 11: Test-bed measurement of gaseous and particulate exhaust emissions from engines used in nonroad mobile machinery under transient test conditions |

## 10.4 Standards published by UNI

National and international standards developed by CTI and published by UNI in 2010 are 79, while international standards developed with CTI support and published by ISO are 27, according to the following tables:

| *SC* | *GL* | *TC CEN* | *Standard code* | *Standard title* |
|---|---|---|---|---|
| 1 | 101 | CEN/TC 088 | UNI EN 14064-1:2010 | Isolanti termici per l'edilizia - Prodotti sfusi di lana minerale (MW) realizzati in sito - Parte 1: Specifiche per i prodotti sfusi prima dell'installazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14064-2:2010 | Isolanti termici per l'edilizia - Prodotti sfusi di lana minerale (MW) realizzati in sito - Parte 2: Specifiche per i prodotti installati |
| 1 | 101 | CEN/TC 088 | UNI EN 14303:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di lana minerale (MW) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14304:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di espanso elastomerico flessibile (FEF) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14305:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di vetro cellulare (CG) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14306:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di silicato di calcio (CS) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14307:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di polistirene espanso estruso (XPS) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14308:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di poliuretano espanso rigido (PUR) e di poliisocianurato espanso (PIR) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14309:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di polistirene espanso (EPS) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14313:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di polietilene espanso (PEF) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 14314:2010 | Isolanti termici per gli impianti degli edifici e per le installazioni industriali - Prodotti di resine fenoliche espanse (PF) ottenuti in fabbrica – Specificazione |
| 1 | 101 | CEN/TC 088 | UNI EN 15599-1:2010 | Isolanti termici per gli impianti degli edifici e le installazioni industriali - Isolamento termico realizzato in sito con prodotti di perlite espansa (EP) - Parte 1: Specifiche per i prodotti legati e sfusi prima della messa in opera |
| 1 | 101 | CEN/TC 088 | UNI EN 15599-2:2010 | Isolanti termici per gli impianti degli edifici e le installazioni industriali - Isolamento termico realizzato in sito con prodotti di perlite espansa (EP) - Parte 2: Specifiche per i prodotti messi in opera |
| 1 | 101 | CEN/TC 088 | UNI EN | Isolanti termici per gli impianti degli edifici e le installazioni |

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| | | | 15600-1:2010 | industriali - Isolamento termico realizzato in sito con prodotti di vermiculite espansa (EV) - Parte 1: Specifiche per i prodotti legati e sfusi prima della messa in opera |
| 1 | 101 | CEN/TC 088 | UNI EN 15600-2:2010 | Isolanti termici per gli impianti degli edifici e le installazioni industriali - Isolamento termico realizzato in sito con prodotti di vermiculite espansa (EV) - Parte 2: Specifiche per i prodotti messi in opera |
| 1 | 101 | CEN/TC 088 | UNI CEN/TR 15985:2010 | Isolanti termici - Prodotti di polistirene espanso (EPS) ottenuti in fabbrica - Certificazione volontaria delle materie prime |
| 1 | 102 | | EC 1-2010 UNI/TS 11300-1:2008 | Prestazioni energetiche degli edifici - Parte 1: Determinazione del fabbisogno di energia termica dell'edificio per la climatizzazione estiva ed invernale |
| 1 | 102 | CEN/TC 089 | EC 1-2010 UNI EN 13363-1:2008 | Dispositivi di protezione solare in combinazione con vetrate - Calcolo della trasmittanza solare e luminosa - Parte 1: Metodo semplificato |
| 1 | 102 | CEN/TC 089 | EC 1-2010 UNI EN ISO 10077-1:2007 | Prestazione termica di finestre, porte e chiusure oscuranti - Calcolo della trasmittanza termica - Parte 1: Generalità |
| 1 | 102 | CEN/TC 089 | EC 1-2010 UNI EN ISO 10077-2:2004 | Prestazione termica di finestre, porte e chiusure - Calcolo della trasmittanza termica - Metodo numerico per i telai |
| 1 | 102 | CEN/TC 089 | EC 1-2010 UNI EN ISO 10456:2008 | Materiali e prodotti per edilizia - Proprietà igrometriche - Valori tabulati di progetto e procedimenti per la determinazione dei valori termici dichiarati e di progetto |
| 1 | 102 | CEN/TC 089 | UNI EN ISO 12567-1:2010 | Isolamento termico di finestre e porte - Determinazione della trasmittanza termica con il metodo della camera calda - Parte 1: Finestre e porte complete |
| 2 | 203 GGE | | UNI CEI 11352:2010 | Gestione dell'energia - Società che forniscono servizi energetici (ESCO) - Requisiti generali e lista di controllo per la verifica dei requisiti |
| 2 | 203 GGE | CEN/CLC JWG 3 | UNI CEI EN 15900:2010 | Servizi di efficienza energetica - Definizioni e requisiti |
| 3 | 303 | CEN/TC 054 | UNI CEN/CR 13445-7:2010 | Recipienti a pressione non esposti a fiamma - Parte 7: Guida all'utilizzo delle procedure di conformità |
| 3 | 303 | CEN/TC 054 | EC 1-2010 UNI EN 13445-1:2009-12 | Recipienti a pressione non esposti a fiamma - Parte 1: Generalità |
| 3 | 303 | CEN/TC 054 | EC 1-2010 UNI EN 13445-2:2009 | Recipienti a pressione non esposti a fiamma - Parte 2: Materiali |
| 3 | 303 | CEN/TC 054 | EC 1-2010 UNI EN 13445-3:2009 | Recipienti a pressione non esposti a fiamma - Parte 3: Progettazione |
| 3 | 303 | CEN/TC 054 | EC 1-2010 UNI EN 13445-4:2009 | Recipienti a pressione non esposti a fiamma - Parte 4: Costruzione |
| 3 | 303 | CEN/TC 054 | EC 1-2010 UNI EN 13445-5:2009 | Recipienti a pressione non esposti a fiamma - Parte 5: Controllo e prove |
| 3 | 303 | CEN/TC 054 | EC 1-2010 UNI EN 13445-6:2009 | Recipienti a pressione non esposti a fiamma - Parte 6: Requisiti per la progettazione e la costruzione di recipienti a pressione e parti in pressione realizzati in ghisa sferoidale |
| 3 | 303 | CEN/TC 054 | EC 1-2010 UNI EN 13445-8:2009 | Recipienti a pressione non esposti a fiamma - Parte 8: Requisiti aggiuntivi per i recipienti a pressione di alluminio e leghe di alluminio |
| 3 | 305/SG 01 | | EC 1-2010 UNI EN ISO 4126-7:2007 | Dispositivi di sicurezza per la protezione contro le sovrappressioni - Parte 7: Dati comuni |
| 3 | 305/SG 0A | | UNI/TS 11325-3:2010 | Attrezzature a pressione - Messa in servizio ed utilizzazione delle attrezzature e degli insiemi a pressione - Parte 3: Sorveglianza dei generatori di vapore e/o acqua surriscaldata |
| 4 | 403 | CEN/TC 232 | UNI EN 1012-1:2010 | Compressori e pompe per vuoto - Requisiti di sicurezza - Parte 1: Compressori ad aria |

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| 5 | 501 | CEN/TC 156 | UNI EN 15650:2010 | Ventilazione degli edifici - Serrande tagliafuoco |
| 5 | 501 | CEN/TC 156 | UNI EN 15727:2010 | Ventilazione degli edifici - Condotte e componenti delle reti di condotte, classificazione della tenuta e prove |
| 5 | 501 | CEN/TC 156 | UNI EN ISO 13351:2010 | Ventilatori – Dimensioni |
| 5 | 501 | CEN/TC 156 | UNI EN 13141-2:2010 | Ventilazione degli edifici - Verifica della prestazione di componenti/ prodotti per la ventilazione degli alloggi - Parte 2: Bocchette per l'estrazione e l'immissione dell'aria |
| 5 | 502 | CEN/TC 195 | UNI EN 1822-1:2010 | Filtri per l'aria ad alta efficienza (EPA, HEPA e ULPA) - Parte 1: Classificazione, prove di prestazione, marcatura |
| 5 | 502 | CEN/TC 195 | UNI EN 1822-2:2010 | Filtri per l'aria ad alta efficienza (EPA, HEPA e ULPA) - Parte 2: Produzione di aerosol, apparecchiature di misura, statistica del conteggio delle particelle |
| 5 | 502 | CEN/TC 195 | UNI EN 1822-3:2010 | Filtri per l'aria ad alta efficienza (EPA, HEPA e ULPA) - Parte 3: Prove sul foglio piano di materiale filtrante |
| 5 | 502 | CEN/TC 195 | UNI EN 1822-4:2010 | Filtri per l'aria ad alta efficienza (EPA, HEPA e ULPA) - Parte 4: Determinazione di perdite in elementi filtranti (metodo a scansione) |
| 5 | 502 | CEN/TC 195 | UNI EN 1822-5:2010 | Filtri per l'aria ad alta efficienza (EPA, HEPA e ULPA) - Parte 5: Determinazione dell'efficienza di elementi filtranti |
| 5 | 502 | CEN/TC 195 | EC 1-2010 UNI EN 14799:2008 | Filtri dell'aria per la ventilazione generale - Terminologia |
| 5 | 502 | CEN/TC 195 | UNI EN 15805:2010 | Filtri per la rimozione di particelle in aria di ventilazione - Dimensioni normalizzate |
| 5 | 503 | CEN/TC 113 | EC 1-2010 UNI EN 14511-3:2008 | Condizionatori, refrigeratori di liquido e pompe di calore con compressore elettrico per il riscaldamento e il raffrescamento degli ambienti - Parte 3: Metodi di prova |
| 5 | 506 | | UNI/TS 11300-3:2010 | Prestazioni energetiche degli edifici - Parte 3: Determinazione del fabbisogno di energia primaria e dei rendimenti per la climatizzazione estiva |
| 6 | 601 | | EC 1-2010 UNI/TS 11300-2:2008 | Prestazioni energetiche degli edifici - Parte 2: Determinazione del fabbisogno di energia primaria e dei rendimenti per la climatizzazione invernale e per la produzione di acqua calda sanitaria |
| 6 | 604 | CEN/TC 047 | UNI EN 267:2010 | Bruciatori automatici per combustibili liquidi ad aria soffiata |
| 6 | 606 | CEN/TC 247 | UNI EN 14908-6:2010 | Comunicazione aperta dei dati per l'automazione, la regolazione e la gestione tecnica degli edifici - Protocollo di rete per gli edifici - Parte 6: Applicazione degli elementi |
| 6 | 606 | CEN/TC 247 | UNI EN ISO 16484-1:2010 | Automazione degli edifici e sistemi di controllo (BACS) - Parte 1: Specifiche e attuazione del progetto |
| 6 | 609 | CEN/TC 057 | EC 1-2010 UNI EN 15034:2007 | Caldaie per riscaldamento - Caldaie a condensazione per oli combustibili |
| 6 | 609 | CEN/TC 295 | UNI EN 15821:2010 | Sauna a più fuochi alimentati da ciocchi di legna naturale - Requisiti e metodi di prova |
| 6 | 610 | CEN/TC 297 | EC 1-2010 UNI EN 13084-7:2006 | Camini strutturalmente indipendenti - Parte 7: Specifiche di prodotto applicabili ad elementi cilindrici di acciaio da utilizzare per camini di acciaio a parete singola e per pareti interne di acciaio |
| 6 | 610 | CEN/TC 166 | UNI EN 1857:2010 | Camini - Componenti - Condotti fumari di calcestruzzo |
| 6 | 610 | CEN/TC 166 | UNI EN 15287-1:2010 | Camini - Progettazione, installazione e messa in servizio dei camini - Parte 1: Camini per apparecchi di riscaldamento a tenuta non stagna |
| 8 | 803 | | UNI/TR 11388:2010 | Sistemi di ripartizione delle spese di climatizzazione invernale utilizzante valvole di corpo scaldante e totalizzatore dei tempi di |

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| 9 | 901 | CEN/TC 312 | UNI CEN/TS 12977-1:2010 | Impianti solari termici e loro componenti - Impianti assemblati su specifica - Parte 1: Requisiti generali per collettori solari ad acqua e sistemi combinati |
| 9 | 901 | CEN/TC 312 | UNI CEN/TS 12977-2:2010 | Impianti solari termici e loro componenti - Impianti assemblati su specifica - Parte 2: Metodi di prova per collettori solari ad acqua e sistemi combinati |
| 9 | 901 | CEN/TC 312 | UNI CEN/TS 12977-4:2010 | Impianti solari termici e loro componenti - Impianti assemblati su specifica - Parte 4: Metodi di prova per le prestazioni di accumuli solari combinati |
| 9 | 901 | CEN/TC 312 | UNI CEN/TS 12977-5:2010 | Impianti solari termici e loro componenti - Impianti assemblati su specifica - Parte 5: Metodi di prova per le prestazioni dei sistemi di regolazione |
| 9 | 902 | CEN/TC 335 | UNI EN 14774-2:2010 | Biocombustibili solidi - Determinazione dell'umidità - Metodo di essiccazione in stufa - Parte 2: Umidità totale - Metodo semplificato |
| 9 | 902 | CEN/TC 335 | UNI EN 14775:2010 | Biocombustibili solidi - Determinazione del contenuto di ceneri |
| 9 | 902 | CEN/TC 335 | UNI EN 14918:2010 | Biocombustibili solidi - Determinazione del potere calorifico |
| 9 | 902 | CEN/TC 335 | UNI EN 14961-1:2010 | Biocombustibili solidi - Specifiche e classificazione del combustibile - Parte 1: Requisiti generali |
| 9 | 902 | CEN/TC 335 | UNI EN 15103:2010 | Biocombustibili solidi - Determinazione della massa volumica apparente |
| 9 | 902 | CEN/TC 335 | UNI EN 15148:2010 | Biocombustibili solidi - Determinazione del contenuto di sostanze volatili |
| 9 | 902 | CEN/TC 335 | UNI EN 15210-1:2010 | Biocombustibili solidi - Determinazione della durabilità meccanica di pellet e di bricchette - Parte 1: Pellet |
| 9 | 902 | CEN/TC 335 | UNI EN 14588:2010 | Biocombustibili solidi - Terminologia, definizioni e descrizioni |
| 9 | 903 | CEN/TC 343 | UNI CEN/TS 15401:2010 | Combustibili solidi secondari - Metodi per la determinazione della massa volumica apparente |
| 9 | 903 | CEN/TC 343 | UNI CEN/TS 15412:2010 | Combustibili solidi secondari - Metodi per la determinazione dell'alluminio metallico |
| 9 | 903 | CEN/TC 343 | UNI CEN/TS 15414-1:2010 | Combustibili solidi secondari - Determinazione del contenuto di umidità mediante metodo di essiccazione in stufa - Parte 1: Determinazione dell'umidità totale attraverso un metodo di riferimento |
| 9 | 903 | CEN/TC 343 | UNI CEN/TS 15414-2:2010 | Combustibili solidi secondari - Determinazione del contenuto di umidità mediante metodo di essiccazione in stufa - Parte 2: Determinazione dell'umidità totale attraverso un metodo semplificato |
| 9 | 903 | | EC 1-2010 UNI 9903-5:1992 | Combustibili solidi non minerali ricavati da rifiuti (RDF) - Determinazione del potere calorifico del combustibile. |
| 9 | 903 | CEN/TC 343 | UNI CEN/TR 15404:2010 | Combustibili solidi secondari - Metodi per la determinazione del comportamento termico delle ceneri a temperature caratteristiche |
| 9 | 903 | CEN/TC 343 | UNI CEN/TS 15405:2010 | Combustibili solidi secondari - Determinazione della massa volumica di pellet e brichette |
| 9 | 903 | CEN/TC 343 | UNI CEN/TS 15406:2010 | Combustibili solidi secondari - Determinazione delle proprietà ponte di materiale alla rinfusa |
| 9 | 903 | CEN/TC 343 | UNI CEN/TS 15639:2010 | Combustibili solidi secondari - Determinazione della durabilità meccanica dei pellet |

| *SC* | *GL* | *TC ISO* | *Standard code* | *Standard title* |
|---|---|---|---|---|
| 1 | 101 | ISO/TC 163 | ISO 8301:1991/Amd 1:2010 | Thermal insulation — Determination of steady-state thermal resistance and related properties — Heat flow meter apparatus |

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| | | | | Amendment 1 |
| 1 | 101 | ISO/TC 163/SC 3 | ISO 8143:2010 | Thermal insulation products for building equipment and industrial installations -- Calcium silicate products |
| 1 | 102 | ISO/TC 163/SC 1 | ISO 12344:2010 | Thermal insulating products for building applications - Determination of bending behaviour |
| 1 | 102 | ISO/TC 163/ SC 1 | ISO 12567-1:2010 | Thermal performance of windows and doors - Determination of thermal transmittance by the hot-box method - Part 1: Complete windows and doors (Revision of ISO 12567-1:2000) |
| 1 | 102 | ISO/TC 163/ SC 1 | ISO 12968:2010 | Thermal insulation products for building applications — Determination of the pull-off resistance of external thermal insulation composite systems (ETICS) (foam block test) |
| 1 | 102 | ISO/TC 163/ SC 1 | ISO 29803:2010 | Thermal insulation products for building applications — Determination of the resistance to impact of external thermal insulation composite systems (ETICS) |
| 2 | 206 | ISO/TC 197 | ISO 16110-2:2010 | Hydrogen generators using fuel processing technologies — Part 2: Test methods for performance |
| 2 | 206 | ISO/TC 197 | ISO 26142:2010 | Hydrogen detection apparatus - Stationary applications |
| 3 | 305/SG 01 | ISO/TC 185 | ISO 4126-10:2010 | Safety devices for protection against excessive pressure -- Part 10: Sizing of safety valves and connected inlet and outlet lines for gas/liquid two-phase flow |
| 4 | 403 | ISO/TC 118/ SC 3 | ISO 11148-3:2010 | Hand-held non-electric power tools - Safety requirements - Part 3: Drills and tappers |
| 4 | 403 | ISO/TC 118/ SC 3 | ISO 11148-4:2010 | Hand-held non-electric power tools - Safety requirements - Part 4: Nonrotary percussive power tools |
| 4 | 403 | ISO/TC 118/ SC 3 | ISO 11148-6:2010 | Hand-held non-electric power tools - Safety requirements - Part 6: Assembly power tools for threaded fasteners |
| 4 | 403 | ISO/TC 118/ SC 3 | ISO 28927-4:2010 | Hand-held portable power tools -- Test methods for evaluation of vibration emission -- Part 4: Straight grinders |
| 4 | 401 | ISO/TC 192 | ISO 26382:2010 | Cogeneration systems - Technical declarations for planning, evaluation and procurement |
| 4 | 406 | ISO/TC 70 | ISO 7967-2:2010 | Reciprocating internal combustion engines -- Vocabulary of components and systems -- Part 2: Main running gear |
| 4 | 406 | ISO/TC 70 | ISO 7967-3:2010 | Reciprocating internal combustion engines -- Vocabulary of components and systems -- Part 3: Valves, camshaft drives and actuating mechanisms |
| 4 | 406 | ISO/TC 70 | ISO 7967-5:2010 | Reciprocating internal combustion engines - Vocabulary of components and systems - Part 5: Cooling systems |
| 4 | 406 | ISO/TC 70 | ISO 7967-9:2010 | Reciprocating internal combustion engines - Vocabulary of components and systems - Part 9: Control and monitoring systems |
| 4 | 403 | ISO/TC 118/ SC 4 | ISO 8573-1:2010 | Compressed air - Part 1: Contaminants and purity classes |
| 5 | 502 | ISO/TC 117 | ISO 12759:2010 | Fans - Efficiency classification for fans |
| 5 | 502 | ISO/TC 117 | ISO 13349:2010 | Fans - Vocabulary and definitions of categories |
| 5 | 502 | ISO/TC 117 | ISO 14694:2003/Amd 1:2010 | Industrial fans — Specifications for balance quality and vibration levels (AMENDMENT 1) |
| 5 | 503 | ISO/TC 086/SC 6 | ISO 5151:2010 | Non-ducted air conditioners and heat pumps -- Testing and rating for performance |
| 5-6 | 501-601 | ISO/TC 205 | ISO 16484-5:2010 | Building automation and control systems - Part 5: Data communication protocol |
| 5-6 | 501-601 | ISO/TC 205 | ISO 16484-1:2010 | Building automation and control systems (BACS) — Part 1: Project specification and implementation |

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| 6 | 604 | ISO/TC 109 | ISO 22967:2010 | Automatic forced draught burners for gaseous fuels |
| 6 | 604 | ISO/TC 109 | ISO 22968:2010 | Forced draught oil burners - Definitions, requirements, testing and markings |