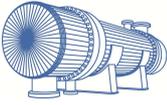


Newsletter October 2013

Europe and the European Standardization System: Lights and Shadows

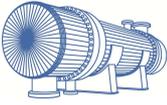
When **some European countries decided to withdraw their national currency and to replace it with the Euro**, they certainly decided to **give up much of their national sovereignty**. Well, at that time the economy was doing well, it was certainly a big advantage for everybody to use a single very stable currency, which could be borrowed at very low interest rates: so, **at the beginning of the Euro Era everybody was happy**. But then the economic situation worsened: **some banks and financial organizations thought they had found the way to exploit this stability in order to make money without creating wealth**. As a result of this basic mistake, they started having **serious financial problems**, problems that were **quickly transferred to the industries**, thus undermining their ability to create new wealth. Also **the single national European governments, particularly the ones with a consistent sovereign debt, realized that waiving their ability to print money was causing a raise in the interest rates they were obliged to pay on their debt**: and these additional costs had of course to be charged on their citizens and their industries, thus **increasing the differences among the countries** of the European Union. With the further problem that there is no guarantee for these countries that they will even find a buyer for their bonds; in other words, there is the risk that they are going bankrupt, which in the case of a country is called a **default**. It's hard to imagine the meaning of this: **no money to pay pensioners, public employees, policemen, soldiers, no money to buy medical services and medicines**, not even the money to pay goods coming from abroad, even from the other partners of the Single Currency Area. This phenomenon, of course, risks to be turned into **a kind of cancer that sooner or later will infect all the countries in the world**: a lot of companies will go bankrupt, workers and employees will lose their jobs, not only in the Single Currency area, not only in Europe, but also in those countries for which Europe is an important export market... **unless somebody will realize that a single currency has a meaning only if behind it there is also a single country**, or at least a real federation of countries determined **to help each other**. Failure to understand this will simply mean that in Europe **the "spread" between the interest rates will generate a spread between the economies** of the different European countries, and this at the end will cause problems everywhere in Europe. **Only the mutual help among all the partners of the European Union will be able to solve the problem**: what would have happened in the former DDR if western Germans had not paid the cost of supporting their eastern fellows? And what would have happened in Italy if the northern Italians would have refused to support their southern fellows? The cost of this lack of support would have been probably much higher than the cost of the support itself. But in order to share this behavior **British, French, Germans, Italians, Spaniards etc. must first understand that Europe is now only a very small piece of a globalized world** where new strong economic powers have made their appearance. Therefore **the only way in which we can survive** and save the historical background of our civilization is **to start behaving as Europeans**, that is as **citizens of a single country, ready to help each other for the sake of assuring a common future to everybody**.

Is this pure philosophy? May be. However it has to be recognized that **the European institutions do not seem to have been designed in order to support this idea**. What is remarkable is the **incredible level of bureaucracy** that one has to face each time he has something to do with these institutions. Let's take for example **CEN, the European Standardization Committee**. Standards are important for the industry: **to use the same standards is of a big economic advantage not only for the European industry, but certainly for all the European citizens**. Unfortunately Europeans do not speak all the same language, as, for example, Americans,



although nowadays most of them speak or at least understand English. Well, some European politicians feel so proud of their national languages, that they will never be willing to follow **the example of India** (where the problem of **more than 40 different languages** – in the European Union we have only 20! – has been solved with **the use of the English language in all the official documents**). Therefore, first problem: **which language has to be used in the preparation of the standards?** The CEN constitution provides the use of **three Official languages: English, French and German**. Have you got an idea about the **cost of the translations?** And about the problems caused by the **different interpretations of the original text** (generally in English) when translated into the other two languages? Many years ago, when I started my work as Convenor of WG“Design” of CEN TC54, in our meetings at BSI in London **there were two nice ladies charged of the consecutive translations** of each intervention into the other 2 languages: apart from the **unavoidable misinterpretations** (despite their experience and good will, those two ladies had probably no idea about the **mysterious objects concealed behind funny names like flanges, shells and tubesheets**), the need for a consecutive double translation involved the need of multiplying at least by three the duration of the meetings. After several years **it was finally decided to eliminate the consecutive translations** and start using, at least as spoken language for the meetings, the English language only, like it was made in the Working Groups from the beginning. But **having solved the problem of languages** (at least for the purpose of understanding each other in the technical discussions), **the overall bureaucratic spirit of CEN asked for a compensation**. Therefore the rules became more and more stringent. Of course it is easily understandable that **all the standards are to be made with the same style, using the same size and type of characters, and using the same word processors and graphic programs**: a little bit less understandable is the fact that, in order to do any kind of work on a specific subject, you have **first of all to open a Work Item** and then fix **binding target dates** (with severe punishments if you do not respect them) for the presentation and the **approval at the TC level**, for the **Public Inquiry** and for the **Formal Vote**. In order to start the Public Inquiry you have of course to make the translations of the original English text into German and French, hoping that the translators will be able to do their work correctly, without introducing into the text unwanted modifications. But what is really a Public Inquiry? Easy, it is **an occasion in which all the people who never took part at the preparation of the standard will start asking funny questions, that you are obliged to answer if you want to arrive at its approval**. In fact **all the modifications proposed during the Public Inquiry, unless you are willing to accept them, should receive a written answer in which you must explain the reasons for rejection**. The only problem is that, dealing with standards for design and calculation of something, you will surely find **a lot of people ready to ask questions and propose modifications**, but **very few people ready to test the standard** by using it for a **sample calculation**: so that **the majority of mistakes (sometimes not merely misprints) will be discovered when the standard will come into force**. Therefore the Formal Vote (like the name itself says) is a mere formality: the vote is generally given by people who have never used the standard, and therefore can only make an evaluation on the basis of their familiarity with the methods used.

Taking into account the difficulties involved in the above procedures, **you will probably think that the experts working for the preparation of the standards are earning a lot of money**. Well, you are wrong. In the majority of cases they are **volunteers**, who have their own job at home, and **can dedicate to standardization only remnants of their time**. Moreover, in order to have the great honor to be a standardizer **you have (or your organization has) to pay**: in fact CEN is the federation of the various European national standard organizations, you are not allowed to work in the CEN TCs or WGs if you do not pay a fee to your nominating standard organization; unless, of course, you are an employee of this organization.



Well, some time ago this was not completely true: **at the beginning of our work on the new harmonized standard EN 13445**, there was an **agreement between CEN and the European Commission**: on the basis of this agreement **the experts working for the harmonized standards** of the Pressure Equipment Directive **did receive money for their services**. But **after about 10 years**, for reasons that it would be very long to explain, **this financial support** (although in theory it could still be required today by the CEN members) **was terminated** in the worst possible way, that is withdrawing the payment of the experts for the work they had already done, and asking back the money which was already given to them (I have already told this very sad story in another newsletter, so I will not repeat it now).

Well, **this is not exactly the way of making standards used elsewhere in the world**. This summer I was in Paris for the **Pressure Vessel and Piping conference organized by ASME**, the American Society of Mechanical Engineers. At the end of the Conference, after the Official Conference Lunch, there was a **distribution of prizes and honors to the people working in the ASME Committees** for the development of the ASME standards. The experts who worked many years for such Committees received a **medal**, a **certification**, and a **check** (500\$, 1000\$ or even more, depending on the years they had spent in such committees). But **the nicest thing was not the money** (in any case not enough to be considered as a payment for their services): it was **being called on stage to receive an award from the President**, while all present applauded. And it was really a pleasure to see **all these people coming back to their tables with a big smile depicted on their faces**, and with a feeling that **there was somebody in the world who could appreciate their work**: maybe **a usual feeling among actors, singers, doctors, saints, poets and painters, certainly not among the experts of Pressure Equipment standards**. By the way, I do not know how many experts of CEN have ever received at least a letter from the CEN management saying **"Thank you good man, so go ahead"**. Well, although I am not in the CEN management, this is exactly the message that I would like to send to all the friends of my WG. I know that it is neither a medal, nor a certification, and certainly it is not a check, but it is probably the maximum reward that they will receive from CEN for the work they are doing.

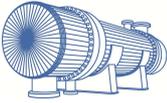
*Dr. Fernando Lidonnici
Convenor of WG53/CEN TC54*

Masterclass - Pressure Vessel and Heat Exchanger Design Using EN 13445.3 in Comparison with the Main International Standards - Affligem (Belgium), 23rd and 24th October 2013

(Reprinted from Sirris web site)

*Sirris, Agoria and the Belgian Welding Institute (BIL/IBS) are organising a thorough **interactive training session** on the **European standard EN 13445** 'Unfired pressure vessels', subject to the European PED directive. Two European experts on the subject, Fernando Lidonnici (Sant'Ambrogio Servizi Industriali) and Piet Verbesselt (LVDV), will provide an overview of and insight into the standard and teach people how to use it in practice, with focus on the advantages and disadvantages of its use compared to other common standards.*

Unfired pressure vessels that are placed on the market in Europe must meet the European directive 97/23/EG, the Pressure Equipment Directive (PED). Europe has one of the most advanced standards, guaranteeing automatic conformity with this directive: the EN 13445. This standard contains **state-of-the-art methods on designing and manufacturing pressure vessels**.



In collaboration with the Italian Sant'Ambrogio Servizi Industriali and the Belgian LVDV, Sirris, BIL/IBS and Agoria are organising a two-day masterclass on EN13445 for the first time. This masterclass is a must for anyone active in the pressure vessels sector: users, producers, control authorities and engineering companies.

PROGRAMME

You can expect an interactive tour through the **comparison of Codes of Good practice and EN13445**, illustrated using design cases that are of economic value as compared to other common standards (such as ASME VIII div 1 and div2, AD-2000, CODAP). The focus will be on design, but also on materials, manufacturing and inspection items which may trigger final deliverable costs of unfired pressure vessels, either in single unit or serial production.

- general principles of Design By Formula (1/2 day)
- vessel calculations for pressure (1/2 day)
- heat exchanger mechanical design (1/2 day)
- materials, fabrication and inspection (1/2 day)
- comparison casted (according to EN13445-6) and welded (EN13445-3) pressure vessels

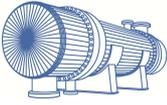
Further information on course fees and registration at the following link:

<http://www.sirris.be/agendaItem.aspx?id=16702>

What's being cooked up?

We are working to integrate in our new software platform **NextGen** (containing already **ASME Section VIII division 1 and 2**) also the software according to **EN 13445.3**. All our licensees of the "classic" version of this software may require a **Beta version** of the new software (which for the time being is limited to Pressure Vessels only). Those who are also licensees of the ASME programs will have the possibility, in a vessel which was graphically created and calculated in accordance with **ASME, to change the design code from ASME VIII division 1 or division 2 to EN 13445.3 and vice versa**. We are now working to complete the package with the **calculation of supports** and with the **heat exchangers**; in a few weeks a Beta version of the entire package will be available.

Dealing with change of construction standard, some clarifications about the **problem of material specifications** are needed: we will try to explain in detail how the software works. First of all, **the change of the calculation code involves also a change in the Material data base**; in fact ASME Section VIII (either in its division 1 or in its division 2) allows only the use of material specifications contained in **Section II part D of the ASME Code**: except for a few exceptions, these are only ASME (SA and SB) materials, for which the tables show directly the nominal design (allowable) stresses. **On the contrary, there is no official Data Base containing the material specifications (and the relevant nominal design stresses) according to EN 13445.3**: therefore, either for EN or for ASME materials (also ASME materials can be used in EN 13445.3, with a procedure called **PMA = "Particular Material Appraisal"**), it is necessary to **find the nominal design stresses on the basis of the mechanical characteristics listed in the reference specification** (tensile strength and elastic limit at room and design temperature, creep characteristics at higher temperatures). **If now we want to verify according to division 1 or to division 2 a vessel which was originally graphically constructed and calculated to EN 13445.3 using EN materials**, it is first of all necessary to **replace the original EN materials with equivalent ASME materials**: this must of course be made leaving to the user the choice of



the ASME material specifications to be used for the replacement. However **also the opposite case (that is the transition from ASME to EN) is somewhat problematic**: in fact, even if in this case (thanks to the PMA) you are not obliged to replace the ASME material specification, **the nominal design stresses cannot be the same of the ASME Code**, but shall be determined on the basis of the mechanical characteristics listed in the original ASME specifications and in the relevant tables of Section II part D (however also a **written guarantee of the material fabricator** will be necessary, because the **ASME tables only give recommended values to be used in design, not to be guaranteed by the material fabricator, as required, on the contrary, by the Pressure Equipment Directive** – and this is exactly the meaning of the **PMA**). A further problem is tied to the **differences between the type of characteristics given in the specifications of American materials and those of the European materials**: when American specifications report elastic limits, **they always make reference to 0,2% of residual strain after unloading**, while EN 13445.3 requires (for austenitic stainless steels) the 1% elastic limit (of course using the 0,2% values reported in the ASME specifications is conservative, however this is a kind of problem that has to be documented in the calculation reports). Moreover, **ASME Section II part D doesn't report creep values**: it is however possible to **determine the creep values from the nominal design stresses in the creep range**, because the temperature range in which the nominal design stresses are based on creep properties is clearly indicated (in this temperature range **the nominal design stresses are written in italics**). Knowing the safety factor used by the ASME code in the creep range it is possible to find the creep property (but only for a lifetime of 100.000 hours). Therefore **the use of ASME material specifications, even if supported by a PMA, doesn't give the possibility, provided by EN 13445.3, to base the design in the creep range on longer lifetimes** (which is possible using EN materials, because almost all EN materials have creep values for both 100.000 and 200.000 hours).

Either in the "classic" version of EN 13445.3 or in the NextGen version , we have provided the possibility to check nozzle flanges using the relevant rating tables of the EN standard flanges, like in the ASME software for the rating tables of the ASME flanges.

We are also proud to announce that in the past month of September **Sant'Ambrogio has obtained from the notified body TÜV Italia the ISO 9001 qualification**, both for the software production and for the calculation of Pressure Vessels and Heat Exchangers. The qualification is based on a **computer program which manages all the job documents** (calculation reports, customer's specifications, drawings, e-mails, etc.). The program, located on our internal server, allows also **control and approval of all the calculation reports**. In this way we eliminate the need of replacing superseded paper documents: in fact the only valid copy of any document is the one located on the server. There is also a **procedure for the management of software modifications**, to be used either to correct mistakes when they are discovered, or to propose improvements of the software: the procedure is based on "**opening reports**" to be sent through the internet. It's up to the Software Coordinator, to accept or reject the opening report and to assign to specific programmers the work to be done with the relevant delivery dates. At the end of the work a "**closing report**" will be issued by the Software Coordinator.

We welcome our new licensees:

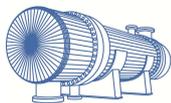
ANTONIO MERLONI Cylinders Spa – Matelica (Macerata) - **ITALY**

ASCO POMPE Srl – Rozzano (Milano) - **ITALY**

ATC SEAL SUPPORT SYSTEMS S.L. - Torrejon de Ardoz (Madrid) - **SPAIN**

ATLAS COPCO Energas GmbH – Köln - **GERMANY**

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