L70 Sealing of Flanged Joints

Integrate the leak-tightness factor as of the design stage by using the appropriate procedures, knowing the properties of the seals and by applying the appropriate design analysis method.

OBJECTIVES
Upon completion of the training, the participants will be able to carry out the following:
• describe the behaviour of a flanged joint fitted with a seal;
• specify the leak-tightness solutions (flat seals for flanged joints) based on the conditions of use;
• define standard practice for factoring leak-tightness into the design of flanged joints

PRE-REQUISITES
None.

PEDAGOGICAL MEANS
Theory and laboratory demonstrations.

WHO SHOULD ATTEND
Engineers and technicians from Design departments, manufacturers and suppliers of seals, Quality departments, designers of pressurized equipment, project owners.

RECOMMENDED FURTHER TRAINING
L67 - Designing joints with sealing flanges in accordance with EN 1591

COURSE OUTLINE
• Theory of leak-tightness
  o Units.
  o Conversion.
  o Orders of magnitude.
• Flanged joints:
  o Parameters that affect sealing.
• Handling and checking the tightening process:
  o Tightening procedures.
  o Tools.
  o Accuracy and dispersion of tightening.
• Seals:
  o Description of the main categories of seals.
• Placing and replacing a seal.
• Leak measurement techniques.
• Characterisation of flat seals:
  o Standards.
  o Customer procedures.
• Calculations for flanged joints:
  o Analytical calculation principle based on the Taylor Forge method (Codap®, Codeti®, EN 13445, EN 13480, ASME, PD5500, etc.).
  o Principle of design analysis based on the method EN 1591 and presentation of the Cetim 1591 software.
  o Principle of design analysis of finished elements.
• Laboratory demonstration on flanged joints (tightening and leak-tightness measurement).

TRAINER
This course will be conducted by Mr. Hubert LEJEUNE, engineer specialising in the field and providing consultancy services and technical assistance to businesses.
Hubert LEJEUNE
Graduate from Ecole Centrale Marseille in 1997

Experience in the field of bolted flange joints and standardization:

Member of CENTC74 WG8: Gaskets and WG10: Calculation methods since 2005.

• Member of CENTC74 WG8: Gaskets and WG10: Calculation methods since 2005.
  o WG10: writing of CEN TR EN1591-5 for full face gaskets + active participation to the writing all the standards of the WG
  o WG8: writing of prCEN TR EN1591-2: gasket parameters + active participation to the writing all the standards of the WG
• Convenor of the joint working group (CENTC74/54/69/267/269) for the definition of a common approach on bolted flange calculation, which lead to the publication of EN1591-1:2013 revision (from 2007 to 2013)
• Engineer in the sealing technologies Lab of Cetim since 2002
  o Gasket testing: definition of test procedures for gasket characterization and qualification for gasket manufacturers and end-users in the field of Oil&gas, Nuclear and chemical industry
  o Bolted flange connection calculation
    • Writing of a commercialized software for EN1591-1 named CAP1591
    • Several studies around EN1591 for the Pressure Vessel and Piping committee of Cetim including comparison with Finite Elements Analysis
    • Writing of the relevant part of French codes for Pressure vessel and for industrial piping CODAP® and CODETI® concerning the use of EN1591-1
    • Member of the working group for the revision of the bolted flange connection chapter in French nuclear code RCC-M®
    • Training for industry on bolted flange joints and EN1591 calculation method
• Activity with ASME:
  o Member of the ASME PVP Computer Technology and Bolted Joints Technical Committee (several paper presented in the ASME PVP conference – see below) since 2005
  o Panelist in the international liaison sessions of ASME PVP since 2012
• Cetim lead expert for bolted flange joints since 2014

Publications

• ASME PVP 2008: DEVELOPMENT OF A NEW METHOD FOR “FULL FACE” GASKETED BOLTED FLANGE CONNECTIONS BASED ON EUROPEAN STANDARD EN1591 (PVP2008-61184)
• ASME PVP2009: Update of the tabulated "m and y" values in the new revisions of French Codes CODAP® AND CODETI® -Development of a testing procedure to determine "m and y" values for several tightness classes (PVP2009-77246)
• ASME PVP2011: Investigation on different tightening sequences on several bolted flange types, dimensions and their associated gasket types.(PVP2011-57525)
• ASMEPVP2014: Calculation method for metal to metal contact type flanged joint using CEN TS1591-3: Comparison with other methods (PVP2014-28167)
• ASME PVP2017: Introduction of gasket testing protocols in the new RCC-M® F7000 revision proposal (PVP2017 - 65701)
• ASME PVP2017: Experimental and numerical investigations of exfoliated graphite seals (PVP2017-65390)
• ESOPE 2013 (European symposium on pressure equipment): BOLTED FLANGE CALCULATION: APPLICATION OF THE XP CEN TS 1591-3 AND COMPARISON WITH FINITE ELEMENTS METHOD
• ASME PVP2018: Flange gasket behavior characterization for service in arctic environment (PVP2018 84284)
REGISTRATION FORM

To register for the course, please complete this form and email to training@matcor.asia

Course Name: L70 Sealing of Flanged Joints
Course Date: 24th Apr 2019 to 25th Apr 2019 (Wed to Thu) Closing Date: 8th Mar 2019
Venue: 3 Seletar Aerospace Link, Singapore 797550
Time: 8.30 am to 5.30 pm each day
Course Fee: SGD 1,200.00 per person (exclude GST), before any approved funding or grants
Early Bird: 10% Discount! Registration must reach us by 15th Feb 2019, Friday OR
Group Discounts: SGD 1,080.00 per person (exclude GST), minimum 3 participants from the same company

Company Name:
Company Address:
Contact Person: Date:
Contact Details: Tel: Email:

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Payment Details:
- Registration form and course fees are to reach MATCOR before the closing date.
- Registration will only be confirmed upon full payment.
- All cheques should be made payable to “MATCOR Technology & Services Pte Ltd” Or
- Overseas participants are to pay in Singapore Dollar bank draft ONLY. If payment is by TELEGRAPHIC TRANSFER, please add S$70.00 for administrative and bank charges.

For further information, please contact Ms. Irene Lim or Ms. Lynn Tan at +6567788285 or email us at training@matcor.asia

Cancellation & Refund:
- Any cancellation made after closing date – no refund, but delegate substitution is allowed.
- Any cancellation made before closing date – full refund.
- MATCOR reserves the right to cancel or reschedule the course, only if deemed necessary.

Organised by:

Subject to Terms and Conditions