RULES
FOR THE CLASSIFICATION OF SHIPS

Part 8 – PIPING
January 2025

Amendments No. 3
July 2026

CROATIAN REGISTER OF SHIPPING

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By the decision of the General Committee of Croatian Register of Shipping,

Amendments No. 3 to the
RULES FOR THE CLASSIFICATION OF SHIPS
Part 8 – PIPING

have been adopted on 30th June 2026 and shall enter into force on 1st July 2026

GENERAL TERMS AND CONDITIONS

(March 2022)

Article 1
GENERAL

1.1 CROATIAN REGISTER OF SHIPPING (hereinafter: the *Register*) shall at all times remain an independent contractor and neither the *Register* nor any of its officers, surveyors, auditors, inspectors, agents, appointers, officers or managers shall act as an employee, servant or agent of any other party in the performance of the Services rendered by the *Register*.

1.2 The *Register* acts as a service provider. The Services provided by the *Register* cannot be construed as a commitment by the *Register* to achieve any result or as a warranty.

1.3 The provision of Services is subject to these General Terms and Conditions. No other terms and conditions shall apply, either expressly or by implication, unless expressly agreed in writing between the Parties.

1.4 These General Terms and Conditions shall be incorporated into, or referred to in any Contract and shall prevail over and exclude any other terms and conditions that the Client may wish to impose.

Any amendments to and/or deviations from these General Terms and Conditions, as well as any additional terms and conditions of the Client, shall be binding or valid only if set forth in writing and duly signed by the authorised representatives of both Parties.

1.5 The invalidity of one or more provisions of these General Terms and Conditions shall not affect the remaining provisions.

1.6 The Client acknowledges that the latest version of these General terms and Conditions and the latest version of applicable Rules apply to the Services provided by the *Register*.

1.7 Definitions in these General Terms and Conditions take precedence over other definitions that may appear in other documents issued by the *Register*.

1.8 The Client should at all times be aware of the provisions of these General Terms and Conditions, as they may be further amended, with their latest up to date version available on the web site of the *Register*.

Article 2
DEFINITIONS

2.1 **Certificate** means either a class certificate or statutory certificate, statement, attestation, statement of compliance, and a report following the Services provided by the *Register*.

2.2 **Certification** means the activity of certification in application of international and national standards and international industry practice provided by the *Register*.

Certification is an appraisement given by the *Register* to the Client and cannot be construed as an implied or express warranty of safety, fitness for purpose, seaworthiness of the vessel or its value for sale, insurance or chartering.

The purpose of Certification is to provide classification and statutory services and assistance to the maritime industry, Flag State Administrations, and regulatory authorities relating to maritime safety and pollution prevention.

2.3 **Classification** includes all activities and Services provided by the *Register* in accordance with the Rules. Classification may or may not be accompanied by the issuance of a Certificate of class with reference to the Rules.

Certificate of class is valid only if issued by the *Register*.

However, Certificate of class should not be construed as a guarantee of the safety, fitness for purpose or seaworthiness of the vessel. It is merely an attestation that the vessel complies with the Rules developed and published by the *Register*.

In addition, the *Register* is not a guarantee of the safety of life or property at sea or the seaworthiness of a vessel because, although the classification of a vessel is based on the assumption that the vessel will be properly loaded, operated, and maintained by competent and qualified personnel, the *Register* has no control over how a vessel is operated and maintained between the periodic surveys it conducts.

2.4 **Statutory certification** means certification made by the *Register* on behalf of the Flag State Administrations when and to the extent that the *Register* has been authorised to do so by the respective Flag State.

Statutory certification and services include the assessment of vessels registered by the Flag State and/or ship management companies to determine whether such ships/companies comply with the applicable requirements of international conventions, codes and national legislation, and the issuance of, or assistance in the issuance of, the appropriate certificates and documents.

Statutory certification includes, but is not limited to, certification, survey, and issuance of statutory certificates on behalf of the Flag State.

In cases where the *Register* acts on behalf of Flag State Administrations, the *Register* shall follow guidance issued by IMO (Resolutions, Circulars, etc.) or by IACS through Unified Interpretations (UI), unless otherwise directed by the Flag State.

2.5 **Client** means the shipowner, company, shipyard and/or party requesting Services or taking ownership of a classed vessel. In cases where shipowners have authorized another party to operate the vessel on their behalf, that party shall be considered as the company.

In addition to the above the Client means the person and/or entity that has requested Services from the *Register* and that has entered into a Contract or an agreement for Services with the *Register*.

2.6 **Parties** means the *Register* and Client together.

2.7 **Party** means the *Register* or the Client.

2.8 **Contract** means the contract in the form of a written agreement between the Client and the *Register* requesting Services, including these General Terms and Conditions and the Rules.

The provisions related to the Contract in these General Terms and Conditions shall apply even if there is no written agreement between the Client and the *Register*.

The Client may request the *Register* in writing to make a change to the contracted Services. However, the *Register* shall not be obligated to accept or execute any such change until a written agreement has been signed with the Client regarding the compensation and the possible impact of the change on the schedule as an addendum to the originally contracted Services.

2.9 **Services** shall mean the services specified in 2.2. 2.3 and 2.4, but also other services related to certification, classification and statutory certification, such as, but not limited to: ISM Code certification, ISPS Code, MLC 2006 certification, fuel oil consumption reporting, IHM certification, approval of manufacturers and service providers, certification of materials and products, training activities, conformity assessment, and any other relevant activities such as third party inspections, testing, shore and shipboard trials.

The Services provided by the *Register* are performed on a random basis and in no case include a full inspection of all items.

The *Register* shall provide the Services in accordance with related Contract(s), the provisions of these General Terms and Conditions, Rules, the international and national standards, the international conventions, the EU Regulations, the Flag State requirements and the industry practices applicable to the particular Service and always assuming that the Client is aware of these standards and the industry practices.

When providing Services, the *Register* does not guarantee the accuracy of the information or advice provided.

In providing Services, the *Register* does not assess compliance with standards other than the Rules, international and national standards, international conventions, EU regulations, Flag State requirements and industry practice, to the extent agreed in writing or specified in the Contract.

2.10 The ***Register*** means the Croatian Register of Shipping, an entity organized and existing under Croatian law, which, according to the Law on the Croatian Register of Shipping (Official Gazette No. 1996/81, 2013/76 and 2020/62) and the Charter of the *Register*, is an independent, not-for-profit, but public welfare oriented, public foundation that performs tasks:

- classification of sea-going ships,
- statutory certification of sea-going ships on behalf of the Flag State Administrations,
- classification of inland navigation vessels,
- statutory certification of inland navigation vessels,
- statutory certification of recreational crafts,
- certification of materials and products,
- conformity assessment of recreational crafts,
- conformity assessment of marine equipment,
- conformity assessment of pressure vessels,
- certification/registration of quality management systems.

2.11 **Vessel** means a ship, vessel, unit or offshore structure of any kind, whether or not connected to the shore or sea/river bed, located at sea or in inland waters and intended for transportation or special operations on the water, as decided by the *Register*.

2.12 **Rules** means the Rules for the classification, guidelines, instructions, or other documented evidence of the *Register* related to the Services provided.

The competent interpretation of the requirements specified in the Rules or other regulations published by the *Register* shall be the exclusive responsibility of the *Register's* Head Office, notwithstanding any possible different interpretations by other parties.

In cases where the Rules do not contain detailed requirements, the specific approval by the *Register* shall be based on the principles of the Rules and shall ensure a safety standard equivalent to that of the Rules.

Article 3
RESPONSIBILITIES

3.1 It is the Client's responsibility to ensure that all surveys required for vessel's class maintenance are conducted in a timely manner and in accordance with the Rules.

3.2 The *Register* may suspend or withdraw the vessel's existing Certificate of class in the event of serious deficiencies and replace it with a new Certificate of class with a shortened period of validity during which the deficiencies are to be rectified.

In addition, the *Register* shall suspend or withdraw a vessel's Certificate of class if the deficiencies are of such a magnitude as to endanger the class of the vessel, its safety and integrity, the safety of the crew, passengers, or the marine environment, and shall require that the vessel is to be inspected at the first port of call where the necessary repairs are to be carried out.

3.3 The Client should inform the *Register*:

(i) in the event of a change in the intended use of a vessel, a conversion and alteration of the hull, machinery installations and other equipment affecting the Class of the vessel assigned by the *Register*. Conversions and alterations must be made under the supervision of the *Register* and must comply with the requirements of the Rules and/or additional requirements of the *Register*,

(ii) in cases where the vessel has been damaged to such an extent that the Class of the vessel is likely to be affected and the safety and integrity of the vessel is likely to be compromised. In such cases, the vessel must be surveyed at the first port of call or as further directed by the *Register*. The survey shall be to the extent deemed necessary by the *Register*, by taking into account the extent of the damage.

(iii) in cases where class-related deficiencies and/or defects are found as a result of a Flag State inspection or Port State Control. Should the Client fail to notify the *Register* of the detention of the vessel by Port State Authorities due to class related deficiencies, the *Register* reserves the right to suspend or withdraw the Certificate of class.

3.4 The *Register* shall have full control over Certificates issued and may suspend or withdraw a Certificate at any time in its sole discretion if the Client fails to comply with the following requirements set forth in the *Rules for the Classification of Ships, Part 1 - General Requirements, Chapter 1 - General Information*, as applicable:

(i) para. 5.3 - *Maintenance of the validity of Certificate of Class*,
(ii) para. 5.4 - *Period of Validity*,
(iii) para. 5.5 - *Extension of the Period of Validity*,
(iv) para. 5.6 - *Suspension and Reinstatement of Class in the Case of Overdue Surveys*, and
(v) para. 5.7 - *Withdrawal of Class*.

3.5 The *Register* may suspend or withdraw a Certificate at any time in its sole discretion if the Client fails to comply with the following requirements set forth in the *Rules for the Classification of Inland Navigation Vessels, Part 1 - Classification and Surveys, Chapter I - Principles of Classification*, as applicable:

(i) para. 2.8 - *Maintenance of the Validity of the Certificate of Class*,
(ii) para. 2.9 - *Extension of validity of the Certificate of Class*,

and following requirements set forth in the *Rules for the Classification of Inland Navigation Vessels, Part 1 - Classification and Surveys, Chapter II - Classification*, as applicable:

(iii) para. 2.1 – *Suspension of Class*,
(iv) para. 2.2 – *Withdrawal of Class*.

3.6 In addition to clauses 3.2, 3.4 and 3.5 of this Article, the *Register* reserves the right to terminate the Services and related Contract in the event of a breach of the provisions of these General Terms and Conditions.

3.7 If the Client fails to provide the *Register* with the required access or information at the agreed times or fails to prepare for the Service in a timely manner, the *Register* may suspend the provision of the Service until it receives the Client's instructions for access and/or the required information.

The *Register* shall not be liable for the consequences of such suspension, and the Client shall be responsible for the *Register's* additional fees and other unnecessary costs and expenses incurred by the *Register*.

3.8 The Client is obliged to perform timely payments of the invoices for provided Services. However, the *Register* may retain or withhold any Service or Certificate to the Client in the case of outstanding payments, whether mutually related or not, arising out of the entire business relationship with the Client.

Article 4
HEALTH, SAFETY AND ENVIRONMENT

4.1 Both the *Register* and the Client shall apply reasonable standards to promote safety, health, and environmental protection and to provide a safe working environment for their personnel.

4.2 The Client shall provide the *Register* with all access and information necessary for the safe and efficient performance of the requested Services as required by the Rules.

4.3 During the survey, personnel of the *Register* should have secure access to all work that directly or indirectly affects the Service.

4.4 The *Register* has the right to refuse to conduct an activity or visit an area or site if the *Register* in its sole discretion, believes that relevant risks are unacceptable or are not adequately addressed, contained, or otherwise mitigated. Such a decision shall suspend the obligations of both Parties under the Contract without incurring any liability or penalty until the Parties agree on how to proceed.

Article 5
THIRD PARTIES AND SUBCONTRACTORS

5.1 Each specific Contract, including any Certificates issued, relates specifically to the Client, and no rights, obligations, interests, claims, benefits or Certificates issued shall extend to any third party without the prior written consent of the *Register*.

5.2 The Client shall not be entitled to grant any right to use the Certificates to any third party without the prior written consent of the *Register*.

5.3 The Client shall not without *Register's* consent, cede, assign, transfer, subcontract or deal in any manner with all or any of its rights or obligations under any Service and related Contract.

5.4 With regard to third party rights to access information and Certificates under confidentiality clause reference is to be made to Article 9.

Article 6
TAXES

6.1 Each Party shall be responsible for and shall bear all taxes, duties or similar governmental charges levied or imposed on any activity of that Party.

6.2 Prices, fees, rates, or remuneration are exclusive of any form of sales tax, value added tax, administrative fees and services tax and/or other similar taxes, including any surcharges. If any such indirect tax is or becomes applicable to the Services provided under the Contract, the Client shall be responsible for the payment of such indirect taxes.

Article 7
PAYMENT OF INVOICES

7.1 The provision of Services by the *Register*, whether complete or not, shall include payment of fees thirty (30) days after issuance of the invoice for the portion of the Services performed.

7.2 In the event that the Client fails to meet the requirements for payment in accordance with the instalments and terms of payment contained herein, the *Register* reserves the right to charge the Client with the interest rate in accordance with the applicable laws of the Republic of Croatia.

7.3 If the Client disputes an invoice or part of an invoice, the Client shall notify *Register* thereof in writing without undue delay. If no notification is received by the due date, Client shall be deemed to have accepted the invoice in full. If only part of an invoice is disputed, the undisputed amount must be paid by the due date.

Consequently, no disputes arising between the *Register* and the Client shall interfere with prompt payment of invoices by the Client. Any rights of lien or retention in favour of the Client or otherwise, are hereby excluded.

7.4 In the event of cancellation of all or part of the Services prior to their final completion, the Client shall pay all costs incurred by the *Register* on pro-rata basis for the portion of the Services provided to date. In such event, the *Register* will not claim the Client for loss of profit or reduced income. All reasonable costs directly attributable to the early termination and all amounts due to the *Register* at that time shall become immediately due and payable.

7.5 In the event of termination of the Service and related Contract, the *Register* shall be entitled to retain any payments, deposits or prepayments of fees made by the Client prior to the date of termination up to the amount to which the *Register* is entitled.

Article 8
TERMINATION

8.1 The Parties shall have the right to terminate the Services and the related Contract(s) by written notice to the other Party, and without prejudice to Article 7, in the following cases:

(i) if the other Party commits a material breach of these General Terms and Conditions and/or the Contract and fails to rectify such breach in accordance with clause 8.4 of this Article,
(ii) if the other Party becomes insolvent, is unable to pay its debts as they become due, or becomes subject to bankruptcy proceedings, administration, receivership, dissolution, liquidation, winding up or otherwise ceases to carry on its business; or
(iii) for convenience, after giving the other Party thirty (30) days' prior written notice of termination.

8.2 The Classification issued for the relevant vessel and the Certificates previously issued shall remain valid until the effective date of termination or, in the event of such termination, immediately, subject to compliance with Article 3 and Article 7.

8.3 If, in the reasonable opinion of the *Register*, the Client breaches or is suspected of breaching Article 14 or Article 15, the *Register* shall have the right to terminate the Service and related Contract with immediate effect.

8.4 Notwithstanding the provisions of clause 8.1 of this Article, the Party intending to terminate Services for non-compliance or breach of the provisions of these General Terms and Conditions shall notify the other Party of the non-compliance or violation of the provisions of these General Terms and Conditions and set a reasonable deadline of 15 (fifteen) days for the other Party to remedy the breaches of the provisions of these General Terms and Conditions.

If the Party fails to remedy the breaches of the provisions of these General Terms and Conditions within the aforementioned period, the other Party shall have the right to terminate Services without further notice.

8.5 Termination of the Service and related Contract pursuant to the provisions of these General Terms and Conditions shall not give either Party the right to claim any additional compensation, indemnity or reimbursement from the other Party as a result of such termination, but such termination shall not affect any rights or remedies available to a Party at the time the termination becomes effective or any obligations or liabilities incurred by a Party.

Article 9
CONFIDENTIALITY

9.1 The Parties agree to keep confidential all facts, data, information, etc. related to the other Party's business that they have learned in the course of providing Services. Such information and data shall not be disclosed by the Parties to any third party and shall not be used or misused to the detriment of the other Party.

9.2 The *Register* will keep confidential any data, plans or other technical information received from the Client and will not disclose it to any third party outside the *Register*, unless authorised by the Client. This obligation shall continue to apply after termination of the Services. This obligation shall not apply to any data, plans or other technical information that was in the possession of the *Register* prior to being disclosed to the *Register* by or on behalf of the Client, or that becomes publicly available through no fault of the *Register*, or is otherwise provided to the *Register* by an independent source that is under no obligation of confidentiality to the *Register*.

9.3 Certificates issued by the *Register* to the Client as a result of the Services provided shall not be covered by the confidentiality Article.

Notwithstanding the foregoing, the Client shall be entitled to disclose any data to its affiliates involved in the transactions related to the Services or the Client's core activities.

9.4 Notwithstanding clause 9.1 and clause 9.2 of this Article, the *Register* shall have the right to disclose the Confidential Information to the following parties if required by regulations of:

(i) authorised representatives of the Flag State Administration,
(ii) authorised audit teams (i.e., accreditation body or EC auditors),
(iii) the International Association of Classification Societies (IACS),
(iv) a court of competent jurisdiction, government agency, or other relevant public authority, in accordance with applicable law, court order, or other public regulation.

9.5 The Client acknowledges that the *Register* is required to provide access to information to the EU Commission or any person acting on its behalf in accordance with applicable EU requirements and that the Client shall give the EU Commission with unrestricted access to the vessels for the purpose of inspection.

9.6 The obligations in this Article shall survive the conclusion of the Service or the termination of related Contract and shall continue for as long as the relevant information remains confidential.

Article 10
INTELLECTUAL PROPERTY

10.1 Each Party shall be the sole owner of all rights to its Intellectual Property created before or after the effective date of these General Terms and Conditions, whether or not associated with any Contract between the Parties.

10.2 The Intellectual Property developed by the *Register* for the provision of the Services, including but not limited to drawings, calculations and reports, shall remain the exclusive property of the *Register*.

Article 11
PROFESSIONAL ETHICS

11.1 Each of the Parties warrants that, with respect to the matters contemplated herein, neither it nor its affiliates has made or will make, directly or indirectly, any offer, payment, gift or authorization of money to any government official or employee, political party, public official or candidate for the benefit or advantage thereof.

11.2 In providing the Services, the *Register* shall strictly adhere to the requirements of its Code of Ethics relating to business activities.

Article 12
FORCE MAJEURE

12.1 For the purposes of these General Terms and Conditions, the term "Force Majeure" includes any event that directly or indirectly prevents the Parties from fulfilling their obligations due to events beyond their control, such as: strikes, wars, riots, piracy, civil commotion, malicious damage, pandemic, compliance with laws or government orders, rules, regulations or directives, sanctions and embargoes, accidents, defects of plants or machinery, seizures, fires, floods, storms and the like.

12.2 If either Party is prevented or delayed from performing its obligations by Force Majeure, such Party shall promptly notify the other Party in writing of the circumstances of the Force Majeure and its influence and, after such notification, shall not be liable for performance of any obligations prevented by the influence of the Force Majeure during its duration. Upon termination of the influence of the Force Majeure, the same Party should proceed with the planned activities in order to fulfil its obligations.

12.3 If one of the Parties is prevented by Force Majeure in its activities and fulfilment of its obligations and this event lasts continuously for three (3) months, the other Party shall be entitled to terminate the Service and related Contract without liability.

12.4 Neither of the Parties shall be liable for non-compliance with these General Terms and Conditions due to Force Majeure. If one of the Parties is prevented from fulfilling its obligations under these General Terms and Conditions due to Force Majeure, it shall immediately notify the other Party in writing within a reasonable period of time, stating the reasons for the Force Majeure and providing relevant evidence, if any.

Article 13
INDEMNIFICATIONS

13.1 Each Party shall indemnify the other Party against all claims arising out of the performance of the Services in respect of bodily injury, illness or death of any of its employees or other representatives and in respect of loss of or damage to the Party's property.

This provision shall apply whether or not the damage is caused or contributed to by the negligence of the other Party. Both Parties are obliged to take out separate insurances for these liabilities.

13.2 The Client shall indemnify the *Register* from and against all claims arising from the Client's violation of the provisions of these General Terms and Conditions and from the misuse of the Certificates issued by the *Register*.

13.3 The Client shall indemnify the *Register* against any financial responsibility or amounts arising from non-payment, late payment or payment of withholding taxes to the non-relevant tax authority or any other relevant governmental body.

13.4 Each Party shall notify the other Party without undue delay as soon as it becomes aware of any incident that could give rise to a claim against the other Party in respect of the Service provided and related Contract.

Article 14
ANTI-CORRUPTION

14.1 Each Party agrees that in performing its obligations under any Service, it will ensure that its affiliates, employees and/or agents, subsidiaries, subcontractors, consultants, and any other persons providing Services will:

(i) comply with all applicable anti-bribery and anti-corruption laws (collectively, Anti-Bribery Laws) and, in particular, do not, directly or indirectly, offer, promise, grant, authorise the payment of, or confer any financial or other benefit on any public or government official:
- to a public or governmental official to obtain or retain business with the intent to influence such official in his or her capacity as an official, if such official is not permitted or required by written law to be influenced by the offer, promise or gift; or
- to another person with the intent to induce or reward the improper performance of a function or activity or for any other illegal purpose,

(ii) maintain adequate systems and procedures designed to prevent activities, practises, or conduct in connection with services that would constitute an offence under an anticorruption law; and
(iii) take reasonable steps to prevent similar acts by customers, contractors, subcontractors, agents and other third parties, persons under its control or influence.

14.2 Any failure by a Party to comply with or ensure compliance with its obligations under this Article shall, notwithstanding anything to the contrary in these General Terms and Conditions, be deemed a breach of these General Terms and Conditions which shall entitle the other Party to suspend and/or terminate the Services by notice in writing with immediate effect without further liability to the other Party except for any liability which may have arisen prior to the date of termination or suspension (as the case may be).

14.3 If a Party elects to suspend the provision of Services under these General Terms and Conditions pursuant to this Article, it shall have the sole and absolute discretion to determine:

(i) when it will resume performance (if at all); and
(ii) extend the period for performance of its obligations under the Services in its sole discretion.

Article 15
SANCTIONS

15.1 Each Party shall conduct all activities in compliance with all laws, statutes, rules, economic and trade sanctions (including, but not limited to, U.S. sanctions and EU sanctions) and regulations applicable to such Party, including, but not limited to: child labour, forced labour, collective bargaining, discrimination, abuse, working hours and minimum wages, anti-bribery, anti-corruption, copyright and trademark protection, personal data protection.

15.2 Each Party hereby represents and warrants that it is not or will not be subject to any economic or trade sanctions ("Sanctions") imposed by the United States of America, the European Union, the United Kingdom, any EU Member State, or the United Nations with respect to any country and/or by any sanction giver with respect to any company/individual.

15.3 Each Party represents and warrants that it will strictly comply with all Sanctions.

15.4 Nothing in these General Terms and Conditions shall be construed as causing or obligating either Party to act or refrain from acting in a manner inconsistent with, punishable by, or prohibited by any Sanctions.

15.5 Neither Party shall be obligated to perform any obligation arising under these Terms and Conditions (including, without limitation, the obligation to):

(i) perform, deliver, accept, sell, purchase, pay or receive any funds to, from or through any person or entity; or
(ii) engage in any other action whatsoever,

if doing so violates or is inconsistent with sanctions and/or recommendations of international (intergovernmental) organisations to combat the financing of terrorism and other criminal activities and/or money laundering or exposes such Party to investigation or penalties.

15.6 In the event that a Party breaches any Sanctions or the Party's Business and/or Transactions arising out of or in connection with these General Terms and Conditions breach any Sanctions or otherwise violate the recommendations of one or more international (intergovernmental) organisations for combating the financing of terrorism and other criminal activities and/or money laundering, the other Party shall be entitled to terminate these General Terms and Conditions by written notice with immediate effect without incurring any liability to the other Party, except for liabilities (if any) incurred prior to the date of termination.

Article 16
LIABILITY

16.1 The *Register* is not, and cannot be considered as, an underwriter, consulting engineer, naval architect, shipbuilder, shipowner, or ship management company, nor can it assume the obligations and responsibilities associated with such functions, although the *Register's* experience may enable it to respond to inquiries about matters not covered by its Rules, policies, instructions, or other documented evidence.

16.2 The practices and procedures of the *Register* shall be selected by the *Register* in its sole and absolute discretion based on its experience and knowledge and in accordance with generally accepted professional standards in the relevant field of classification societies.

16.3 Nothing herein contained shall release any designer, naval architect or engineer, shipbuilder or manufacturer, shipyard, vendor, supplier, contractor or subcontractor, repairer or owner, from any information, report, certificate or similar document issued in connection with the provision of Services by the *Register*, operator, manager or other person or entity from any express or implied warranty or other contractual obligation or responsibility, or from any negligent act, error or omission of any kind whatsoever, nor shall they create any right, claim or benefit for any third party.

16.4 The *Register* shall exercise due care in the selection or appointment of its surveyors and all other employees whose presence and work is necessary for the provision of the Services.

16.5 If any person or entity using the Services of the *Register* suffers any loss, damage or expense that is or is shown to have been caused by a negligent act, omission or error of the *Register's* officers, surveyors, auditors, inspectors, agents, appointers, officers or managers, or those purporting to act in the name of and on behalf of the *Register*, or a negligent inaccuracy, advice, report or evidence given by or in the name of or/and on behalf of the *Register*, then the liability of the *Register* is limited in respect of any direct or indirect claim shall be limited to an amount not exceeding five times the fee charged or to be charged by the *Register* for the relevant Service.

16.6 Any liability for consequential damages is expressly excluded.

For purposes of this clause, consequential damages include, without limitation:

(i) indirect or consequential damages,
(ii) loss and/or delay of production, loss of products, loss of use, loss of bargain, loss of revenue, loss of profit or anticipated profit, loss of business and business interruption, in each case directly or indirectly.

16.7 The Parties are not entitled to assign the performance of obligations under these General Terms and Conditions or parts thereof to third parties without the prior written consent of the other Party.

16.8 If during the term of the Contract, there is a transfer of function due to change of status (merger, acquisition, division, etc.), all obligations and rights under these General Terms and Conditions and associated Contract will be transferred to the legal successor of the Party concerned.

Article 17
GOVERNING LAW AND RESOLVING OF DISPUTES

17.1 These General Terms and Conditions and any dispute or claim between the Parties arising from or in connection with it, or the Services provided hereunder, will be governed and interpreted in accordance with the English law.

17.2 The Parties shall use their reasonable efforts to resolve any claim or dispute arising in relation to rendered Service by negotiations within a reasonable time.

17.3 Should the Parties fail to resolve any claim or dispute by negotiations, the dispute shall be exclusively subject to the jurisdiction of the Permanent Arbitration Court with the Croatian Chamber of Economy in Zagreb, Republic of Croatia.

17.4 The Parties agree to keep the any arbitration proceedings confidential.

17.5 Notwithstanding the above, any claim not presented within three (3) months of the completion of the particular Services, or within three (3) months of from the date when the events which are relied on were first discovered by the Client, shall be deemed waived and absolutely time barred.

17.6 Any objections against the line adopted by any of the *Register's* servants in fulfilling their duties or against the conclusions reached are to be raised to the *Register* by the Party as soon as possible.

If the Party is not satisfied with the final conclusions and interpretations by the *Register* the arbitration lays upon the Commission for appeal for Classification and Statutory certification of ships, which is to be formed according to the Regulation 39 of the Charter of the *Register*.

INTRODUCTORY NOTES

These amendments shall be read together with the requirements in the Rules for the Classification of Ships, Part 8 – Piping, edition Januray 2025, as last amended by Amendments No. 2 edition January 2026.

Table 1 contains review of amendments, where items changed or added in relating to previous edition are given, with short description of each modification or addition. All major changes throughout the text are shaded.

This part of the Rules includes the requirements of the following international Organisations:

International Maritime Organization (IMO)

Conventions:	International Convention for the Safety of Life at Sea, 1974 (SOLAS 74) and all subsequent and applicable amendments adopted up to MSC 106 Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS PROT 1988) International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) and all subsequent and applicable amendments adopted up to MEPC 80 Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto

International Association of Classification Societies (IACS)

Unified Requirements (UR):	E18 (rev.2, June 2025), F2 (1999), F8 (1989), F15 (rev.7, Sep 2023), F16 (2000), F21 (1974), F22 (1974), F24 (1998), F26 (2000), F33 (1981), F35 (2005), F39 (1999), F41 (1993), F44 (rev.3, corr.1, Mar 2025), M11 (1972), M24 (rev.2, Aug 2023), M57 (1993), M61 (rev.3, Feb 2024), M64 (2004), M65 (2004), M75 (Jan 2021), M84 (Feb 2024), P1 (rev.6, June 2025), P2.1 (rev.3, Oct 2023), P2.2 (rev.5, Oct 2023), P2.3 (Nov 2001), P2.4 (1974), P2.5 (Nov 2001), P2.6 (1987), P2.7 (rev.3, Oct 2023), P2.7.3 (rev.3, Oct 2023), P2.7.4 (rev.11, Oct 2023), P2.8 (Nov 2001), P2.9 (rev.3, Oct 2023), P2.10 (Nov 12001), P2.11 (rev.6, Oct 2023), P2.12 (rev. 3, Feb 2021), P2.13 (rev.1, Jan 2021), P3 (rev.5, Apr 2021), P4 (rev.8, Sep 2024)
Unified Interpretations (UI):	SC56, SC58, SC99 (2005), SC111 (1995), SC118, SC123 (rev.5, July 2023), SC140 (1998), SC179 (rev.3, Feb 2021), SC184 (2005), SC 232 (2009), SC 240 (Corr.1 Sept 2011), SC 243 (2012), SC251 (2011), SC 255 (Cor.1 2013), SC 306 (Nov 2024), MPC87 (Jan 2007), LL10 (2008), LL11 (2008), LL36 (2008), LL49 (2008), LL52 (2008), LL58 (2008)
Recommendations (Rec.):	Rec. 100 (2008), Rec. 188 (May 2025)

TABLE 1 – REVIEW OF AMENDMENTS

This review comprises amendments in relation to the Rules for the Classification of Ships, Part 8 – Piping, edition January 2025, as last amended by Amendments No. 2 edition January 2026.

ITEM	*DESCRIPTION OF THE AMENDMENTS*
SECTION 1 - GENERAL	
Head 1.1 APPLICATION	Item 1.1.1 has been amended in order to align with IACS UR P1 (rev.6, June 2025).
Head 1.3 PIPELINES	Item 1.3.4 and sub-item 1.3.7.2 have been amended in order to align with IACS UR P1 (rev.6, June 2025).
SECTION 7 – VENTILATION SYSTEM	
Head 7.10 VENTILATION OF ACCUMULATOR BATTERY ROOMS AND BOXES	Item 7.10.5 has been amended in order to align with IACS UR E18 (rev.2, June 2025).

1 GENERAL

■ **Head 1.1 APPLICATION,** item 1.1.1 has been amended and should read as follows:

1.1.1 Unless otherwise specified, the requirements of subject Part of the Rules for the classification of ships (hereafter called: the Rules) of the *CROATIAN REGISTER OF SHIPPING* (hereinafter referred to as: the *Register*) apply to the piping systems as follows:

.1 General requirements in Section 1 and 17 shall apply to piping systems made of carbon, carbon-manganese, alloy steels or non-ferrous material normally installed on board ships for services condsidered in Table 1.2.2, as applicable.
These requirements cover the following services: air, vapour, gas (excluding that mentioned in 1.1.1.4), water, lubricating oil, fuel oil, hydraulic fluid systems, thermal fluid systems, toxic gas and liquids, cargo oil and tank cleaning piping and open-ended lines such as drains, overflows, vents and boiler escape pipes.
They do not include pipes forming integral part of boiler.

.2 Specific requirements for particular piping systems are given in Sections 2 to 16.

Except for requirement of 1.3.4.3, the requirements of this Part do not apply to the following piping systems:

.3 Chemical cargo piping systems of ships subject to the IBC Code and shipboard hydrocarbon/chemical process piping systems.

.4 Gas cargo/fuel and process piping systems of ships, subject to the IGC Code and gas fuel piping systems of ships subject to the IGF Code.

.5 Piping systems for other low flashpoint fuels defined in SOLAS II-1/2.29.

The requirements for the systems that were not mentioned in this Part are set out in the relevant Parts of the Rules.

■ **Head 1.3 PIPELINES,** item 1.3.4 and sub-item 1.3.7.2 have been amended and should read as follows:

1.3.4 Pipe wall thickness

1.3.4.1 The following requirements apply to pipes where the ratio of outside to inside diameter does not exceed the value 1.7. Wall thickness of metal pipes exposed to internal pressure shall not be less than determined by the formula (see also 1.3.4.3):

$$s = s_o + b + c \quad \text{[mm]}, \quad (1.3.4.1\text{-}1)$$

where: $s_o = \dfrac{d \cdot p}{2 \cdot \sigma_d \cdot \varphi + p}$ [mm],

d – outside diameter, [mm];

p – design pressure, [MPa] (i.e., maximum working pressure and it is not to be less than the highest set pressure of any safety valve or relief valve). For pipes containing fuel oil, the design pressure is to be taken in accordance with table 1.3.4.1-4. In special cases, other than those specified by these Rules, the design pressure shall be submitted to special consideration and decision by the *Register*.

φ – weld strength coefficient; $\varphi = 1$ for seamless pipes and for approved welded pipes, which are considered equal to seamless pipes, if the quality of the welded seam is equal to the quality of basic material.
For all other welded pipes, value of strength coefficient shall be specially considered by the *Register* depending upon the service and the welding procedure.

b – allowance for bending, [mm];
Value of this allowance shall be determined in such a way that stresses in the bend due to the internal pressure do not exceed permissible stresses.
Where a precise value of thickness reduction at bending is not available, the allowance may be determined by formula:

$$b = \frac{1}{2.5} \cdot \frac{d}{R} \cdot s_o \quad \text{[mm]}, \quad (1.3.4.1\text{-}2)$$

where:

R – radius of pipe bend, [mm];

c – corrosion allowance, [mm], to be taken:
– for carbon steel pipes, in Table 1.3.4.1-1;
– for non-ferrous metal pipes, in Table 1.3.4.1-2.

Table 1.3.4.1-1
Corrosion allowance c, for carbon steel pipes

Working medium	c [mm]
1	2
Superheated steam	0.3
Saturated steam	0.8
Heating coils for water, fuel oil and cargo oil tanks	2.0
Feed water in opened circuit systems	1.5
Feed water in closed circuit systems	0.5
Blowing off the boilers	1.5
Compressed air	1.0
Hydraulic oil	0.3
Lubricating oil	0.3
Fuel oil	1.0
Cargo oil	2.0
Refrigerating media	0.3
Fresh water	0.8
Sea water	3.0
Notes: 1. For pipes passing through tanks an additional corrosion allowance is to be considered according to the figures given in the Table, and depending on the external medium, in order to account for the external corrosion. 2. The corrosion allowance may be reduced where pipes and any integral pipe joints are protected against corrosion by means of coating, lining, etc. 3. In the case of use of special alloy steel with sufficient corrosion resistance, the corrosion allowance may be reduced to zero.	

Table 1.3.4.1-2
Corrosion allowance c, for non-ferrous metal pipes

Pipe material	c [mm]
1	2
Copper, brass, aluminium brass, copper-tin and similar alloys, except alloys containing lead	0.8
Copper-nickel alloys (with nickel content ≥ 10%)	0.5
Note: When pipes made of special alloys with sufficient corrosion resistance are used, the corrosion allowance c can be reduced to zero.	

σ_d – permissible stress, [N/mm^2].
For carbon and alloy steel pipes σ_d shall be taken equal to minimum of the following values:

$$\frac{R_m}{2.7}, \quad \frac{R_{e\ell/t}}{1.6 \text{ up to } 1.8}, \quad \frac{R_{m/t100000}}{1.6 \text{ up to } 1.8}, \quad \frac{R_{p\ell/t100000}}{1.0},$$

where:

R_m – tensile strength, [N/mm^2] at room temperature, i.e. 20°C;
$R_{el/t}$ – lower yield stress or yield stress at 0.2% elongation at design temperature, [N/mm^2]. The values of lower yield stress or yield stress at 0.2% elongation given by national and international standards for steel pipes may be adopted;
$R_{m/t100000}$ – average stress to produce rupture in 100,000 hours at design temperature, [N/mm^2];
$R_{pl/t100000}$ – average stress to produce creep of 1% in 100,000 hours at design temperature, [N/mm^2].

The values in the range between 1.6 and 1.8 are to be chosen at the discretion of the *Register*. A reduction of strength limit values shall be specially considered by the *Register*.

Design temperature, t, to which permissible stresses are determined, is the maximum temperature of media inside the pipe. In special cases, the design temperature shall be specially considered by the *Register*.

The value of $R_{plt/100000}$ may be used at discretion of the *Register* on the basis of its reliability, and if deemed necessary.

Permissible stresses for pipes of high-alloy steels shall be separately considered by the *Register*.

For copper and copper alloy pipes, the permissible stress σ_d shall be determined in accordance with Table 1.3.4.1-3, depending upon design temperature.

In the case of pipes with negative manufacturing thickness tolerance, wall thickness, s_1, shall be determined by formula:

$$s_1 = \frac{s}{1 - \frac{|a|}{100}} \text{ [mm]} \quad (1.3.4.1\text{-}3)$$

where:

s – wall thickness calculated by formula (1.3.4.1-1)

a – negative tolerance of pipe thickness, per cent. In the case of a positive tolerance, a is to be zero (0).

Table 1.3.4.1-3

Permissible stress limits for copper and copper alloys pipes, σ_d [N/mm^2]

Pipe material	Heat treatment	Min. tensile strength [N/mm^2]	Medium design temperature, [°C]										
			50	75	100	125	150	175	200	225	250	275	300
Copper	annealed	215	41	41	40	40	34	27.5	18.5	–	–	–	–
Aluminium brass	"	325	78	78	78	78	78	51	24.5	–	–	–	–
Copper-nickel alloy 95/5 and 95/10	"	275	68	68	67	65.5	64	62	59	56	52	48	44
Copper-nickel alloy 70/30	"	365	81	79	77	73	73	71	69	67	65.5	64	62

Notes:
1. Intermediate values shall be determined by linear interpolation.
2. For materials which are not included in the Table permissible stresses shall be separately considered by the *Register*.

Table 1.3.4.1-4

Definition of the design pressure for fuel oil systems

Working temperature / Working pressure	T ≤ 60°C	T > 60°C
P ≤ 0,7 MPa	0,3 MPa or max. working pressure, whichever is the greater	0,3 MPa or max. working pressure, whichever is the greater
P > 0,7 MPa	max. working pressure	1,4 MPa or max. working pressure, whichever is the greater

1.3.4.2 Steam pipes with an outside diameter of 80 mm and over conveying superheated steam at a temperature of 350°C and over shall be calculated for stresses caused by thermal expansions, and their flanged joints, for strength and tightness.

Calculation of stresses in steam piping caused by thermal expansion should comply with the requirements of 13.6.

1.3.4.3 The wall thickness of steel, copper and copper alloy pipes shall not, in any case, be taken less than indicated in Table 1.3.4.3. For pipes subject to the Protocol of 1988 relating to the International Convention on Load Lines, 1966, see also 5.1.8, 7.1 and 16.3.

Table 1.3.4.3

Minimum permissible wall thickness pipes, (mm)

Pipes										
Nominal size	Outside diameter	Steel							Copper	Copper alloys
		A	B	C	D	E	F	Austenitic stainless steel		
1	2	3	4	5	6	7	8	9	10	11
	8.0	1.0	–	–	–	–	–	–	–	–
	8.0	1.2	–	–	–	–	–	–	1.0	0.8

Table 1.3.4.3 - continued
Minimum permissible wall thickness of pipes, (mm)

Pipes										
Nominal size	Outside diameter	Steel							Copper	Copper alloys
		A	B	C	D	E	F	Austenitic stainless steel		
1	2	3	4	5	6	7	8	9	10	11
6	10.2	1.6	–	–	–	–	–	1.0	1.0	0.8
	12.0	1.6	–	–	–	–	–	1.0	1.2	1.0
8	13.5	1.8	–	–	–	–	–	1.0	1.2	1.0
	16.0	1.8	–	–	–	–	–	1.0	1.2	1.0
10	17.2	1.8	–	–	–	–	–	1.0	1.2	1.0
	19.3	1.8	–	–	–	–	–	1.0	1.2	1.0
	20.0	2.0	–	–	–	–	–	1.0	1.2	1.0
15	21.3	2.0	–	3.2	–	3.2	2.6	1.6	1.2	1.0
	25.0	2.0	–	3.2	–	3.2	2.6	1.6	1.5	1.2
20	26.9	2.0	–	3.2	–	3.2	2.6	1.6	1.5	1.2
	30.0	2.0	–	3.2	–	4.0	3.2	1.6	1.5	1.2
25	33.7	2.0	–	3.2	–	4.0	3.2	1.6	1.5	1.2
	38.0	2.0	4.5	3.6	6.3	4.0	3.2	1.6	1.5	1.2
32	42.4	2.0	4.5	3.6	6.3	4.0	3.2	1.6	1.5	1.2
	44.5	2.0	4.5	3.6	6.3	4.0	3.2	1.6	1.5	1.2
40	48.3	2.3	4.5	3.6	6.3	4.0	3.2	1.6	2.0	1.5
	51.0	2.3	4.5	4.0	6.3	4.5	3.6	1.6	2.0	1.5
	54.0	2.3	4.5	4.0	6.3	4.5	3.6	1.6	2.0	1.5
	57.0	2.3	4.5	4.0	6.3	4.5	3.6	1.6	2.0	1.5
50	60.3	2.3	4.5	4.0	6.3	4.5	3.6	2.0	2.0	1.5
	63.5	2.3	4.5	4.0	6.3	5.0	3.6	2.0	2.0	1.5
	70.0	2.6	4.5	4.0	6.3	5.0	3.6	2.0	2.0	1.5
65	76.1	2.6	4.5	4.5	6.3	5.0	3.6	2.0	2.0	1.5
	82.5	2.6	4.5	4.5	6.3	5.6	4.0	2.0	2.0	1.5
80	88.9	2.9	4.5	4.5	7.1	5.6	4.0	2.0	2.5	2.0
90	101.6	2.9	4.5	4.5	7.1	6.3	4.0	2.0	2.5	2.0
	108.0	2.9	4.5	4.5	7.1	7.1	4.5	2.0	2.5	2.0
100	114.3	3.2	4.5	4.5	8.0	7.1	4.5	2.3	2.5	2.0
	127.0	3.2	4.5	4.5	8.0	8.0	4.5	2.3	2.5	2.0
	133.0	3.6	4.5	4.5	8.0	8.0	5.0	2.3	3.0	2.5
125	139.7	3.6	4.5	4.5	8.0	8.0	5.0	2.3	3.0	2.5
	152.4	4.0	4.5	4.5	8.8	8.8	5.6	2.3	3.0	2.5
	159.0	4.0	4.5	4.5	8.8	8.8	5.6	2.3	3.0	2.5
150	168.3	4.0	4.5	4.5	8.8	8.8	5.6	2.3	3.0	2.5
	177.8	4.5	5.0	5.0	8.8	–	–	2.3	3.0	2.5
175	193.7	4.5	5.4	5.4	8.8	–	–	2.3	3.5	3.0
200	219.1	4.5	5.9	5.9	8.8	–	–	2.6	3.5	3.0
225	244.6	5.0	6.3	6.3	8.8	–	–	2.6	3.5	3.0
	267.0	5.0	6.3	6.6	8.8	–	–	2.6	3.5	3.0
250	273.0	5.0	6.3	6.3	8.8	–	–	2.9	4.0	3.5
	298.5	5.6	6.3	6.3	8.8	–	–	2.9	4.0	3.5
300	323.9	5.6	6.3	6.3	8.8	–	–	3.6	4.0	3.5
350	355.6	5.6	6.3	6.3	8.8	–	–	3.6	4.0	3.5
	368.0	5.6	6.3	6.3	8.8	–	–	3.6	4.0	3.5
400	406.4	6.3	6.3	6.3	8.8	–	–	3.6	4.0	3.5
	419.0	6.3	6.3	6.3	8.8	–	–	4.0	4.0	3.5
450	457.2	6.3	6.3	6.3	8.8	–	–	4.0	4.0	3.5
	508.0	–	–	–	–	–	–	4.0	4.5	4.0

Notes of Table 1.3.4.3:

Columns **A, B, C** and **D** in the table apply to the following services:

A Pipes in general.
B Vent, overflow and sounding pipes for integral tanks.
C Bilge, ballast and sea water pipes.
D Bilge, ballast, vent, overflow and sounding pipes passing through fuel tanks;
Bilge, vent, overflow, sounding and fuel pipes passing through ballast tanks.
E Piping of CO_2 fire extinguishing system - from cylinders to discharge valves.
F Piping of CO2 fire extinguishing system - From discharge valves to discharge nozzles.

Notes:

1. The nominal sizes, pipe diameters and wall thickness given in the table are many of the common sizes based on international standards. Diameter and thickness according to other national or international standards may be accepted.
2. Where pipes and any integral pipe joints are protected against corrosion by means of coating, lining etc. at the discretion of the *Register*, the thickness may be reduced by not more than 1 mm.
3. For sounding pipes, except those for flammable cargoes, the minimum wall thicknesses in column B is intended to apply only to the part outside the tank.
4. The minimum thicknesses listed in this table are the nominal wall thickness. No allowance needs to be made for negative tolerance or for reduction in thickness due to bending.
5. For threaded pipes, where allowed, the minimum wall thickness is to be measured at the bottom of the thread.
6. The minimum wall thickness for bilge lines and ballast lines through deep tanks will be subject to special consideration by the *Register*. The minimum wall thickness for ballast lines through oil cargo tanks is not to be less than that specified by 4.2.2.
7. The minimum wall thickness for pipes larger than 450 mm nominal size is to be in accordance with a national or international standard and in any case not less than the minimum wall thickness of the appropriate column indicated for 450 mm pipe size.
8. The minimum internal diameter for bilge, sounding, venting and overflow pipes shall be:
Bilge 50 mm bore Sounding 32 mm bore Venting and overflow 50 mm bore.
9. Exhaust gas pipe minimum wall thickness will be subject to special consideration by the *Register*.
10. The minimum wall thickness for cargo oil lines will be subject to special consideration by the *Register*.
11. For austenitic stainless steel diameters and thickness according to national or international standards may be accepted.
12. Columns E and F – Pipes are to be galvanized at least inside, except those fitted in the engine room where galvanizing may not be required at the discretion of the *Register*. For threaded pipes, where allowed, the minimum wall thickness is to be measured at the bottom of the thread. The external diameters and thickness have been selected from ISO 4200:1991 for smooth welded and seamless steel pipes. Diameter and thickness according to other national or international standards may be accepted. For larger diameters the minimum wall thickness will be subject to special consideration by the *Register*. In general the minimum thickness is the nominal wall thickness and no allowance need be made for negative tolerance or reduction in thickness due to bending.
13. The external diameters and the thicknesses for copper and copper alloy pipes have been selected from ISO Standards. Diameter and thickness according to other national or international standards may be accepted.

1.3.7.2 Flange connections

.1 The dimensions and configuration of flanges and bolts are to be chosen in accordance with recognized standards. Gaskets are to be suitable for the media being conveyed under design pressure and temperature conditions and their dimensions and configuration are to be in accordance with recognised standards.
For non-standard flanges the dimensions of flanges and bolts are to be subject to special consideration*.

Note: * For special applications, when the temperature, the pressure and the size of the flange have values above certain limits, to be fixed, the complete calculation of bolts and flanges is to be carried out.

.2 Examples of flange attachments are shown in 1.3.7.2-2. However, other types of flange attachments may be considered by *Register* in each particular case.

.3 Flange attachments are to be in accordance with national or international standards that are applicable to the piping system and are to recognized the boundary fluids, design pressure and temperature conditions, external or cyclic loading and location, as shown in table 1.3.7.2-3.

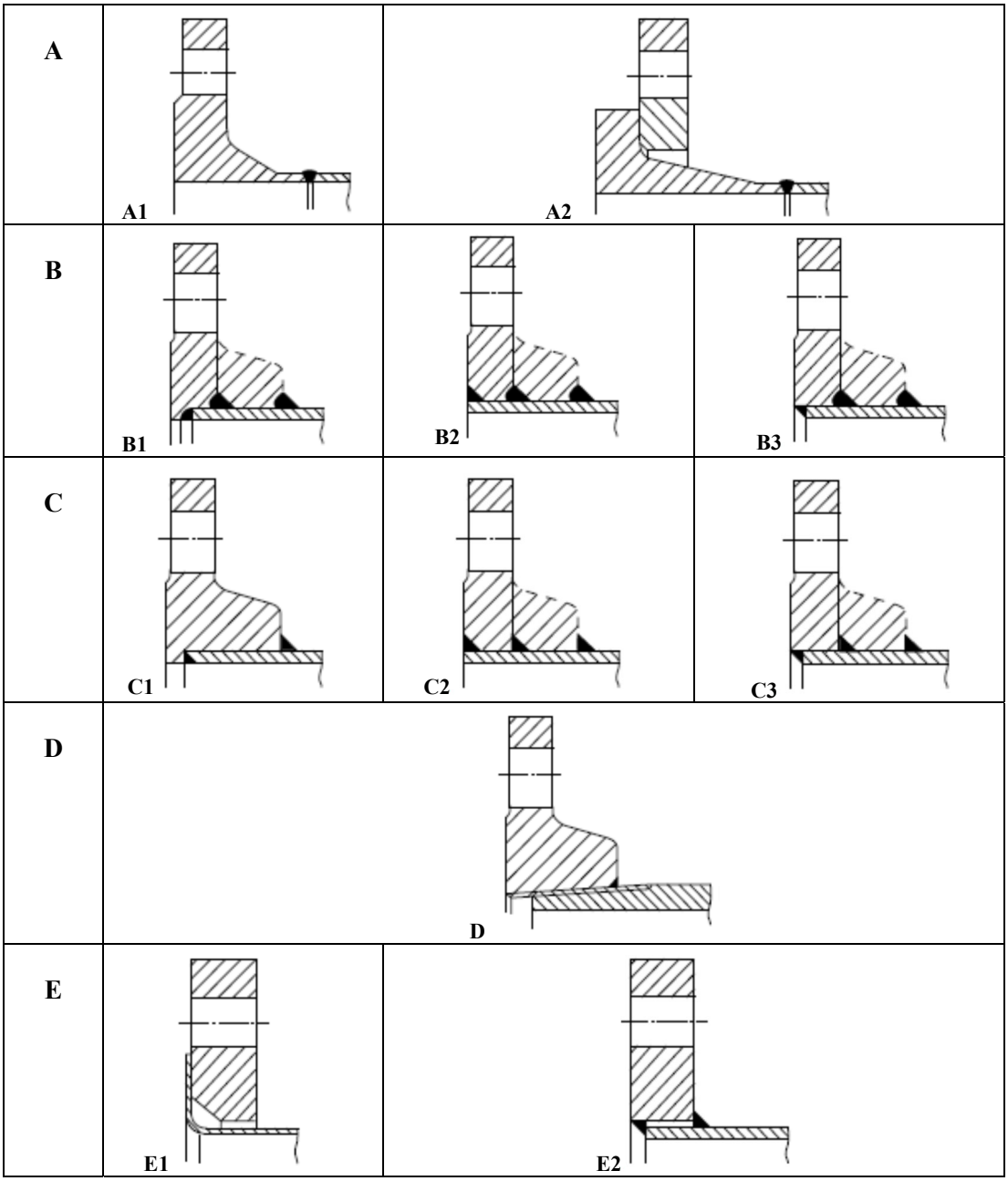

Fig. 1.3.7.2-2
Examples of flange attachments

NOTE: For type D, the pipe and flange are to be screwed with a tapered thread and the diameter of the screw portion of the pipe over the thread is not to be appreciably less than the outside diameter of the unthreaded pipe. For certain types of thread, after the flange has been screw hard home, the pipe is to be expanded into the flange.

Table 1.3.7.2-3
Application of flange connections depending upon the class of piping and kind of fluids

Class of piping	Toxic media		Steam		Lubrication and fuel oil	Other media	
	p [MPa]	Flange type	t [°C]	Flange type	Flange type	t [°C]	Flange type
I	> 1	A	> 400	A	A - B	> 400	A
	≤ 1	A - B	≤ 400	A - B[1)]		≤ 400	A - B
	any	A - B					

Table 1.3.7.2-3 - continued
Application of flange connections depending upon the class of piping and kind of fluids

Class of piping	Toxic media		Steam		Lubrication and fuel oil	Other media	
	p [MPa]	Flange type	t [°C]	Flange type	Flange type	t [°C]	Flange type
II	–	A - B - C	> 250 ≤ 250	A - B - C A - B - C - D	A - B - C[3)]	> 250 ≤ 250	A - B - C A - B - C - D - E
III	–	–	–	A - B - C - D	A - B - C - E	–	A - B - C - D - E[2)]

Notes:
1. Type B for outside diameter not more than 150 mm, only.
2. Type E for water pipes and open ended lines, only.
3. Type C for oil pipes with t < 100°C and p < 1,6 MPa, only.

7 VENTILATION SYSTEM

■ **Head 7.10 VENTILATION OF ACCUMULATOR BATTERY ROOMS AND BOXES,** item 7.10.5 has been amended and should read as follows:

7.10.5 The rate of air flow Q, for the ventilation of an accumulator battery room or box, with batterries having a charging power higher than 2kW, shall be not less than that determined as follows:

a) Vented type batteries*

$$Q = 0{,}11\ I \cdot n\ [\mathrm{m^3/h}] \qquad (7.10.5)$$

where:
I – maximum charging current during gas emission, but not less than 0,25 of maximum current of the charging device, in A;
n – number of battery cells.

b) Valve-regulated sealed type batteries*

The ventilation rate for accumulator battery room or box containing valve-regulated sealed type batteries may be reduced to 25 per cent of that given in a).

Alternatively, other industrial standards may be utilized to calculate ventilation rate, for example, section 7.2 and 7.3 of IEC 62485-2:2010, or section CC.2 of Annex CC to IEC 62040-1:2017, as appropriate.

Note: * A vented type battery is one in which the cells have a cover provided with an opening through which products of electrolysis and evaporation are allowed to escape freely from the cells to atmosphere.
A valve-regulated sealed type battery is one in which cells are closed but have an arrangement (valve) which allows the escape of gas if the internal pressure exceeds a predetermined value.

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