PRESSURE NEWS

A quarterly publication brought to you by ABSA, the pressure equipment safety authority.

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INTEGRITY MANAGEMENT SYSTEM - REFRIGERATION PLANTS CONTAINING AMMONIA

Ammonia is widely used as refrigerant due to its high efficiency, low cost and growing restrictions upon the use of chlorofluorocarbon (CFC), hydrochlorofluorocarbon (HCFC) and hydrofluorocarbon (HFC) based refrigerants. Since ammonia is hazardous and can be fatal to people at high concentrations, it is paramount for owners to establish and implement an integrity management system.

To ensure safe and reliable operation of pressure equipment containing ammonia, it must be in compliance with the Safety Codes Act and Regulations.

Owners must implement effective systems for managing the integrity of their pressure equipment throughout its full life cycle: from design, construction and installation, throughout its service life (i.e. operation, maintenance, repairs, alterations, integrity assessments, and decommissioning).

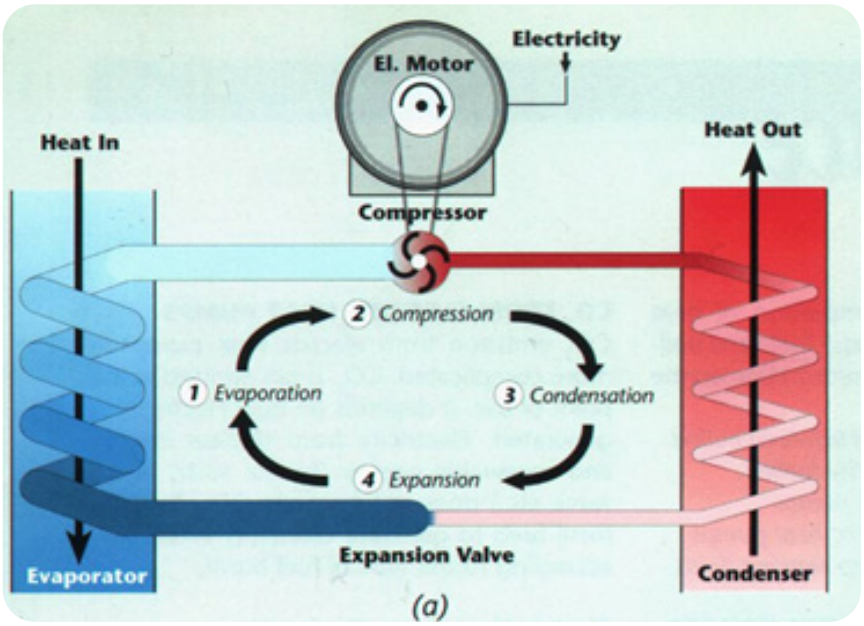
An effective integrity management system will:

(a) reduce plant downtime,
(b) ensure appropriate control of all pressure equipment assets, and
(c) enable inspection (integrity assessment) and other resources to be optimized.

The "AB-538 Integrity Management Requirements for Mechanical Refrigeration Systems Containing Ammonia" addresses the owner's responsibilities under each phase of the refrigeration system's life cycle.

The requirements outlined within the AB-538 are primarily intended for ammonia refrigeration systems installed in recreational facilities (ice rinks, arenas etc.) or food processing/storage plants. In addition, "AB-615 Guidelines for Care and Operation of Mechanical Refrigeration Systems Containing Ammonia" may be used as a guide to assist owners in developing their integrity management system.

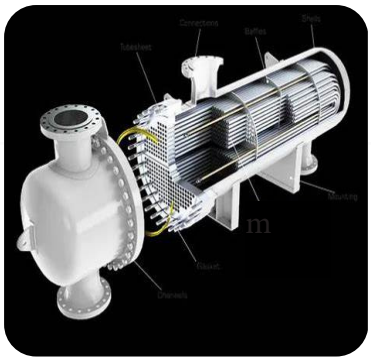
General ammonia refrigeration system.



Basic cycle of refrigeration system.

SIGNIFICANT CHANGE IN ASME BPV CODE, SECTION VIII, DIVISION I

A significant change is scheduled to be published in the 2023 Edition of the ASME Boilers and Pressure Vessels Code, Section VIII, Division 1. The change is part of the ASME Section VIII, Division 1 Reshape project including the move of the UHX tubesheet rules from Section VIII, Division 1 into Section VIII, Division 2. Requirements other than the UHX tubesheet design rules shall be in accordance with Section VIII, Division 1.*

2021 Edition of the ASME Section VIII, Division 1 Part UHX	Proposal for the 2023 Edition of the ASME Section VIII, Division 1 Part UHX
Part UHX includes the following requirements for shell-and-tube heat exchangers: • design • fabrication, and • inspection. ***Note:*** *Part UHX design rules are identical to Section VIII, Division 2 Paragraph 4.18.*	Part UHX will **include the following requirements** for shell-and-tube heat exchangers: • ***only design*** directed to Section VIII, Division 2 Paragraph 4.18, • **fabrication,** and • **inspection.**
	The 2023 Edition of Section XIII, Division 1 will: • **remove** design rules common to Section VIII, Divisions 1 & 2, and • **redirect** to Section VIII, Division 2 Paragraph 4.18 as appropriate.
	In lieu of design rules currently listed in Part UHX, **design requirements** in Section VIII, Division 2 Paragraph 4.18 for shell-and-tube heat exchangers shall be used.
	To help the code users, **Table UHX-1.1 refers to the new locations for all requirements** formerly located in Section VIII, Division 1.

** ABSA is reviewing the changes in the code & will inform industry of modifications during the upcoming ACU Seminar.*

SAVE THE DATE:

ABSA CODE UPDATE SEMINAR

Every year the ABSA Code Update seminar provides participants the opportunity to:

- **learn** about important changes to codes and standards from ABSA's subject matter experts,
- **engage** in discussions with other industry members, and
- **inform** ABSA on how the changes will directly impact them.

In 2023, there will be significant changes that impact users of the code and CSA Z662. This year's seminar will be an informative overview of changes to:

Standard	Section	Year of Edition Update
ASME	Section VIII-1	2023 Edition
ASME	Section VIII-2	2023 Edition
ASME	Section-IX	2023 Edition
CSA	Z662	2023 Edition
ASME	Section I	2023 Edition
ASME	Section IV	2023 Edition
ASME	B31.3	2022 Edition
ASME	B31.1	2022 Edition

Detailed seminar agenda to be released late summer/fall 2023.

Upcoming dates and locations for the seminar are:

- **Edmonton: October 12th, 2023**
- **Calgary: October 19th, 2023**

Early registration for the seminar is now available. The seminar will also be recorded and available online after the seminar for registrants unable to attend in-person.

LET US KNOW WHAT YOU THINK!

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If you are passionately engaged in safety codes and regulations, willing to invest time into your career and value a respectful workplace, apply today!

Current Openings	Location
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Pressure Equipment Field Inspector	Edmonton
Pressure Equipment Field Inspector	Medicine Hat
Pressure Equipment Inspector	Red Deer

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www.absa.ca/jobs

MULTI-JACKBOLT TENSIONING

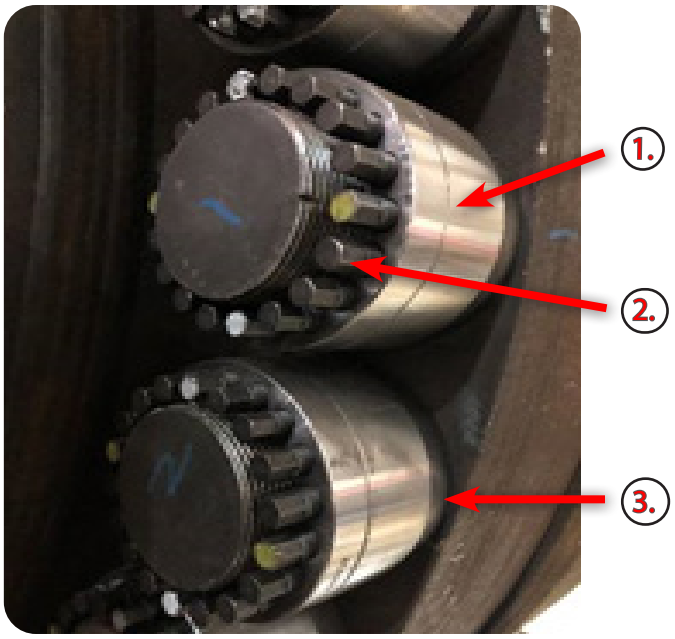
Authorized Inspectors have the opportunity to witness the construction of various types of pressure equipment, including heat exchangers, where bolted joints are commonly used. The purpose of bolted joints is to connect pressure equipment components and provide leak tight joints. There are various methods for bolt tightening (e.g. torque tightening, hydraulic tensioning) that are used by industry. Recently, a unique type of bolting called "multi-jackbolt tensioning" has been introduced. This bolting system involves **safely reducing the installation times and maintenance** of installing large nuts and bolts.

With the development of extremely high strength jackbolts, the number of required bolts can be significantly reduced - thereby, minimizing bolting times. With a larger diameter of a bolt, the force required to apply the proper preload also grows exponentially.

Large tools with cumbersome weights can lead to safety hazards for the worker, especially in tight fitting areas. This design divides the high preload numbers required between smaller jackbolts, making it safer to apply the preload.

Always follow the manufacturer's instructions and recommendations while jackbolting.

1. **Select** the proper size jackbolt for your application.
2. **Clean** the main thread and contact areas.
3. **Apply** appropriate type of anti-seize compound.
4. **Install** the hardened washer followed by the main body barrel and hand tighten only.
5. **Install** the jackbolts and hand tighten.
6. **Tighten** the pre-setting jackbolts only on each nut using the criss-cross method.
7. **Tighten** the pre-set jackbolts on each nut to 50% of the required torque. **Reference** the chart supplied with the product for the jackbolt torque for the nut configuration.
8. **Apply** 100% of the required torque of the pre-set group only on each nut.
9. **Tighten** remaining jackbolts using circular tightening to 100% of the torque required. **Two to three passes are necessary** to have all jackbolts set properly.



Legend for the image above:

1. **Main body**
2. **Jackbolt**
3. **Hardened washer**

In conclusion, there are ***potential benefits*** for workers to use multi-jackbolt tensioning such as,

- *Hands tools only needed,*
- *Higher vibration resistance leading to less leaking of equipment,*
- *Easy inspection with just hand tools,*
- *No galling of the bolting,*
- *Quick assembly/disassembly and reusability.*

INDUSTRY INFORMATIVE: FIELD SITE VS. TEMPORARY LOCATION

Inspectors and Certificate Holders have struggled as to what constitutes a field site. Through the years, field sites have been described in many ASME interpretations as: temporary location, intermediate point (shipping dock or railroad yard), contractor's location, certificate holder's additional location, and other manufacturing facilities.

ASME published the first Conformity Assessment standard (CA-1) in 2013 that is used to centralize and convey Conformity Assessment requirements that were contained in various ASME Codes and Standards. The 2020 Edition of CA-1 has now included definitions for field site and temporary location.

CA-1-2020, Section 1.2 Definitions states:

Field Site

The location of final permanent installation of pressure-retaining equipment. All construction activities may be performed at this site.

Temporary Location

A location under the control of the Certificate Holder other than the location listed on the Certificate of Authorization or Field Site, where Code activities are performed.

If a Certificate Holder chooses to perform work at a temporary location, paragraph 2.5.2 of section 2.5 in the CA-1 standard "Maintaining an ASME Certificate", states:

"The Certificate Holder shall contact ASME regarding the use of a temporary location. The Certificate Holder shall be subject to an on-site audit of the temporary location. ASME acceptance of a temporary location for use by the Certificate Holder shall be through the issuance of a Temporary Location endorsement letter".

These new definitions clarify where a Certificate Holder can perform work under their ASME Certificate when field extension is included.

ABSA ACCIDENT REPORT SUMMARY

Did you know a summary of accident reports is available on the ABSA website?

This summary contains pressure equipment incidents reported to and investigated by ABSA.

This information is provided for awareness of the general nature of pressure equipment accidents and incidents.

The intent is to heighten the awareness so that people work towards eliminating incidents.

For more information, visit **www.absa.ca/accidents**

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