Contents

Introduction

These Safety Instructions are for equipment covered under the Pressure Equipment Directive (PED) 2014/68/EU and the Explosive Atmospheres Directive (ATEX) 2014/34/EU.

These Safety Instructions also contain information for products covered by the EU Directive Battery Directive 2006/66/EC.

Safety Instructions

Please read these safety warnings, cautions, and instructions carefully before using the product.

These instructions cannot cover every installation and situation. Do not install, operate, or maintain this product without being fully trained and qualified in valve, actuator, and accessory installation, operation, and maintenance. To avoid personal injury or property damage, it is important to carefully read, understand, and follow all of the contents of the associated instruction manual, including all safety cautions and warnings. If you have any questions concerning installation, or use of this product, contact your Emerson Process Management sales office before proceeding.

EU Declarations of Conformity

All Products

Specifications

This product was intended for a specific range of service conditions--pressure, pressure drop, process and ambient temperature, temperature variations, process fluid, and possibly other specifications. **Do not expose the product to service conditions or variables other than those for which the product was intended.** If you are not sure what these conditions or variables are, contact your Emerson Process Management sales office for assistance. Provide the product serial number and all other pertinent information that you have available.

Inspection and Maintenance Schedules

All products must be inspected periodically and maintained as needed. The schedule for inspection can only be determined based on the severity of your service conditions. Your installation might also be subject to inspection schedules set by applicable governmental codes and regulations, industry standards, company standards, or plant standards.

In order to avoid increasing dust explosion risk, periodically clean dust deposits from all equipment.

When equipment is installed in a hazardous area location (potentially explosive atmosphere), prevent sparks by proper tool selection and avoiding other types of impact energy. Proper care must be taken to avoid generation of static electricity on the non-conductive external surfaces of the equipment (e.g. rubbing of surfaces, etc.). Control valve surface temperature is dependent upon process operating conditions.

⚠ WARNING

Control valve surface temperature is dependent upon process operating conditions. Personal injury or property damage, caused by fire or explosion, can result if the valve body surface temperature exceeds the acceptable temperature for the hazardous area classification. To avoid an increase of instrumentation and/or accessory surface temperature due to process operating conditions, ensure adequate ventilation, shielding, or insulation of control valve components installed in a potentially hazardous or explosive atmosphere.

Parts Ordering

Whenever ordering parts for older products, always specify the serial number of the product and provide all other pertinent information that you can, such as product size, part material, age of the product, and general service conditions. If you have modified the product since it was originally purchased, include that information with your request.

⚠ WARNING

Use only genuine Fisher replacement parts. Components that are not supplied by Emerson Process Management should not, under any circumstances, be used in any Fisher product. Use of components not supplied by Emerson Process Management may void your warranty, might adversely affect the performance of the product, and could cause personal injury and property damage.

Control Valves

Installation

⚠ WARNING

● Personal injury or equipment damage caused by sudden release of pressure or bursting of parts may result if the valve assembly is installed where service conditions could exceed the limits given in the applicable product literature, the limits on the appropriate nameplates, or the mating pipe flange rating. Use pressure-relieving devices as required by government or relevant industry codes and good engineering practices. If you cannot determine the ratings and limits for this product, contact your Emerson Process Management sales office before proceeding.

● To avoid personal injury, always wear protective gloves, clothing, and eyewear when performing any installation operations.

● If hoisting the valve, use a nylon sling to protect the surfaces. Carefully position the sling to prevent damage to the actuator tubing and any accessories. Also, take care to prevent people from being injured in case the hoist or rigging might slip. Be sure to use adequately sized hoists and chains or slings to handle the valve.

● Personal injury could result from packing leakage. Valve packing was tightened before shipment; however, the packing might require some readjustment to meet specific service conditions.

● Many rotary shaft valves are not necessarily grounded to the pipeline when installed in a flammable, hazardous, oxygen service, or explosive atmospheres. An explosion is possible, due to the discharge of static electricity from the valve components. To avoid personal injury or property damage, make sure that the valve is grounded to the pipeline before placing the control valve assembly into service. Use and maintain alternate shaft-to-body bonding, such as a shaft-to-body bonding strap assembly.

● Rotary shaft valves are designed and intended for installation between flanges. Personal injury or property damage may result from improper installation. To avoid personal injury or property damage caused by the sudden release of pressure or bursting of parts, do not use or install rotary shaft valves (including single lug constructions) for dead-end service.

● When ordered, the valve configuration and construction materials were selected to meet particular pressure, temperature, pressure drop and controlled fluid conditions. Responsibility for the safety of process media and compatibility of valve materials with process media rests solely with the purchaser and end-user. To avoid possible personal injury and because some valve/trim material combinations are limited in their pressure drop and temperature ranges, do not apply any other conditions to the valve without first contacting your Emerson Process Management sales office.

● Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

● If installing into an existing application, also refer to the WARNING in the Maintenance section.

CAUTION

Ensure that the valve and adjacent pipelines are free of foreign material that could damage the valve seating surfaces.

Maintenance

⚠ WARNING

Avoid personal injury or property damage from sudden release of process pressure or bursting of parts. Before performing any maintenance operations:

● Always wear protective gloves, clothing, and eyewear.

● Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.

● Use bypass valves or completely shut off the process to isolate the valve from process pressure.

● Do not remove the actuator from the valve while the valve is still pressurized.

● Relieve process pressure from both sides of the valve. Drain the process media from both sides of the valve.

● Vent the pneumatic actuator loading pressure and relieve any actuator spring pre-compression.

● Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.

● The valve packing box might contain process fluids that are pressurized, *even when the valve has been removed from the pipeline*. Process fluids might spray out under pressure when removing the packing hardware or packing rings, or when loosening the packing box pipe plug. Cautiously remove parts so that fluid escapes slowly and safely.

● Many valve parts that are moving can injure you by pinching, cutting, or shearing. To help prevent such injury, stay clear of any moving part.

● Never apply pressure to a partially assembled valve.

● To avoid personal injury or property damage caused by uncontrolled movement of a valve bonnet, loosen the bonnet by following these instructions: Do not remove a stuck bonnet by pulling on it with equipment that can stretch or store energy in any other manner. The sudden release of stored energy can cause uncontrolled movement of the bonnet. Loosen bonnet nuts approximately 3 mm (0.125 inch). Then loosen the body-to-bonnet gasketed joint by either rocking the bonnet or prying between the bonnet and body. Work the prying tool around the bonnet until the bonnet loosens. If no fluid leaks from the joint, proceed with bonnet removal.

● As you remove parts, such as valve shafts, other parts, such as disks can fall from the valve body. To avoid injury from falling parts, be sure to support parts as you disassemble the valve.

● Personal injury could result from packing leakage. Do not scratch the drive shaft or packing box wall while removing packing parts.

● Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

Control Valve Actuators

These safety instructions are limited to pneumatic actuators which are operating using air or nitrogen (inert gas). If the application requires use of a flammable or hazardous gas, you must contact your Emerson Process Management sales office for assistance.

Installation

⚠ WARNING

To avoid personal injury and property damage caused by bursting of parts and to avoid parts damage, malfunction of control valve, or loss of control of the process caused by excessive pressure, do not exceed the maximum pressures or temperatures for this actuator, as given in the applicable product literature or on the nameplate. Use pressure-limiting or pressure-relieving devices to prevent the actuator pressure from exceeding specified limits. If you cannot determine the limits for this product, contact your Emerson Process Management sales office before proceeding.

- **To avoid personal injury, always wear protective gloves, clothing, and eyewear when performing any installation operations.**
- **If hoisting the actuator, use a nylon sling to protect the surfaces. Carefully position the sling to prevent damage to the actuator tubing and any accessories. Also, take care to prevent people from being injured in case the hoist or rigging might slip. Be sure to use adequately sized hoists and chains or slings to handle the assembly.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**
- **If installing into an existing application, also refer to the WARNING in the Maintenance section.**

Operation

⚠ WARNING

When moving the actuator stem or shaft with loading pressure applied, use caution to keep hands and tools out of the actuator travel path. Personal injury and property damage is possible if something is caught between the actuator stem and other control valve assembly parts.

Maintenance

⚠ WARNING

Avoid personal injury or property damage from sudden release of process pressure or uncontrolled movement of parts. Before performing any maintenance operations:

- **Always wear protective gloves, clothing, and eyewear.**
- **Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.**
- **Do not remove the actuator from the valve while the valve is still pressurized.**
- **Vent any pneumatic pressure from the actuator and relieve any actuator spring pre-compression.**
- **Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.**
- **To avoid personal injury due to the sudden uncontrolled movement of parts, do not loosen the stem connector cap screws when the stem connector has spring force applied to it.**
- **Never apply pressure to a partially assembled actuator unless all pressure-retaining parts have been installed properly.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

Regulators

Installation

⚠ WARNING

- **Personal injury, equipment damage, or leakage due to escaping gas or bursting of pressure-containing parts might result if this regulator is overpressured or is installed where service conditions could exceed the limits for which the regulator was designed, or where conditions exceed any ratings of the adjacent piping or piping connections. To avoid such injury or damage, provide pressure-relieving or**

pressure-limiting devices (as required by the appropriate code, regulation, or standard) to prevent service conditions from exceeding those limits.

- **Additionally, physical damage to a pilot-operated regulator could break the pilot off the main valve, causing personal injury and property damage due to escaping gas. To avoid such injury and damage, install the regulator in a safe location.**
- **To avoid personal injury, always wear protective gloves, clothing, and eyewear when performing any installation operations.**
- **A regulator may vent some gas to the atmosphere in hazardous or flammable gas service. Vented gas might accumulate and cause personal injury, death, or property damage due to fire or explosion. Vent a regulator in hazardous gas service to a remote, safe location away from air intakes or any hazardous location. The vent line or stack opening must be protected against condensation or clogging.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**
- **If installing into an existing application, also refer to the WARNING in the Maintenance section.**

Maintenance

⚠ WARNING

Avoid personal injury or damage to property from sudden or uncontrolled release of pressure, gas, or other process fluid. Before starting to disassemble, isolate the pilot or regulator from all pressure and cautiously release trapped pressure from the pilot or regulator. Use gauges to monitor inlet, loading, and outlet pressures while releasing these pressures.

- **To avoid personal injury, always wear protective gloves, clothing, and eyewear when performing any maintenance operations.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

Relief Valves

Installation

⚠ WARNING

Personal injury, equipment damage, or leakage due to escaping gas or bursting of pressure-containing parts may result if the relief valve or backpressure regulator is installed where its capabilities can be exceeded or where conditions exceed any ratings of the adjacent piping or piping connections. To avoid this, install a relief valve or backpressure regulator where:

- **Service conditions are within unit capabilities,**
- **Service conditions are within applicable codes, regulations, or standards requirements.**

Additionally, physical damage to the relief valve or backpressure regulator could break the pilot off the main valve, causing personal injury and property damage due to escaping gas. To avoid such injury or damage, install the unit in a safe location.

When used in relief valve service, a relief valve and pilot both exhaust gas. In hazardous or flammable gas service, personal injury, death, or property damage may occur due to fire or explosion of vented gas that has accumulated. To prevent such injury or damage, provide piping or tubing to vent the gas to a safe location. The exhaust piping must be designed and installed to guard against excessive flow restriction. This piping must be protected against condensation or anything else that could clog it.

- **To avoid personal injury, always wear protective gloves, clothing, and eyewear when performing any installation operations.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**
- **If installing into an existing application, also refer to the WARNING in the Maintenance section.**

Operation

⚠ WARNING

For safety during shutdown, vent valves are required immediately upstream and downstream of the main valve on a backpressure or bypass installation.

Maintenance

⚠ WARNING

Avoid personal injury or damage to property from sudden or uncontrolled release of pressure, gas, or other process fluid. Before beginning disassembly, carefully release all pressures. Use a gauge to monitor relief (inlet) pressure while releasing it.

- **To avoid personal injury, always wear protective gloves, clothing, and eyewear when performing any maintenance operations.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

Instruments, Switches, and Accessories

Note

Not all instruments are appropriate or approved for use with natural gas as the supply medium. Refer to the appropriate instruction manual for instrument specific information.

Installation

⚠ WARNING

Avoid personal injury or property damage from sudden release of process pressure or bursting of parts. Before mounting the product:

- **Do not install any system component where service conditions could exceed the limits given in the product instruction manual or the limits on the appropriate nameplates. Use pressure-relieving devices as required by government or accepted industry codes and good engineering practice.**
- **Always wear protective gloves, clothing, and eyewear when performing any installation operations.**
- **Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.**
- **Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure from both sides of the valve.**
- **Vent the pneumatic actuator loading pressure and relieve any actuator spring pre-compression.**
- **Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.**

- **The valve packing box might contain process fluids that are pressurized, *even when the valve has been removed from the pipeline.* Process fluids might spray out under pressure when removing the packing hardware or packing rings, or when loosening the packing box pipe plug. Cautiously remove parts so that fluid escapes slowly and safely.**

- **The instrument is capable of supplying full supply pressure to connected equipment. To avoid personal injury and equipment damage, caused by sudden release of process pressure or bursting of parts, make sure the supply pressure never exceeds the maximum safe working pressure of any connected equipment.**

- **To avoid personal injury or property damage resulting from the sudden release of process pressure, use a high-pressure regulator system when operating a controller or transmitter from a high-pressure source.**

- **Severe personal injury or property damage may occur from an uncontrolled process if the instrument air supply is not clean, dry and oil-free. While use and regular maintenance of a filter that removes particles larger than 40 microns will suffice in most applications, check with an Emerson Process Management field office and Industry Instrument air quality standards for use with corrosive gas or if you are unsure about the proper amount or method of air filtration or filter maintenance.**

- **For corrosive media, make sure the tubing and instrument components that contact the corrosive media are of suitable non-corrosive material. The use of unsuitable materials might result in personal injury or property damage due to the uncontrolled release of the corrosive media.**

- **If natural gas, or other flammable or hazardous gas is to be used as the supply pressure medium and preventive measures are not taken, personal injury and property damage could result from fire or explosion of accumulated gas or from contact with hazardous gas. Preventive measures may include, but are not limited to, one or more of the following: remote venting of the unit, re-evaluating the hazardous area classification, ensuring adequate ventilation, and the removal of any ignition sources. The instrument or instrument/actuator assembly does not form a gas-tight seal, and when the assembly is in an enclosed area, a remote vent line, adequate ventilation, and necessary safety measures should be used. Vent line piping should comply with local and regional codes and should be as short as possible with adequate inside diameter and few bends to reduce case pressure buildup. However, a remote vent pipe alone cannot be relied upon to remove all hazardous gas, and leaks may still occur.**

- **For instruments with a hollow liquid level displacer, the displacer might retain process fluid or pressure. Personal injury or property damage due to sudden release of pressure, contact with hazardous fluid, fire, or explosion can be caused by puncturing, heating, or repairing a displacer that is retaining process pressure or fluid. This danger may not be readily apparent when disassembling the sensor or removing the displacer. Before disassembling the sensor or removing the displacer, observe the appropriate warnings provided in the sensor instruction manual.**

- **Personal injury or property damage can result from the discharge of static electricity. Connect a 14 AWG (2.08 mm2) ground strap between the instrument and earth ground when flammable or hazardous gases are present. Refer to national and local codes and standards for grounding requirements.**

- **Personal injury or property damage, caused by fire or explosion from the leakage of flammable or hazardous gas, can result if a suitable conduit seal is not installed. For explosion-proof applications, install the seal no more than 457 mm (18 inches) from the instrument when required by the nameplate. For ATEX applications use the proper cable gland certified to the required category. Equipment must be installed per local and national electric codes.**

- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

- **If installing into an existing application, also refer to the WARNING in the Maintenance section.**

Operation

With instruments, switches, and other accessories that are controlling valves or other final control elements, it is possible to lose control of the final control element when you adjust or calibrate the instrument. If it is necessary to take the instrument out of service for calibration or other adjustments, observe the following warning before proceeding.

⚠ WARNING

Avoid personal injury or equipment damage from uncontrolled process. Provide some temporary means of control for the process before taking the instrument out of service.

Maintenance

⚠ WARNING

Before performing any maintenance operations on an actuator-mounted instrument or accessory:

- **To avoid personal injury, always wear protective gloves, clothing, and eyewear.**
- **Provide some temporary measure of control to the process before taking the instrument out of service.**
- **Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.**
- **Do not remove the actuator from the valve while the valve is still pressurized.**
- **Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure from both sides of the valve.**
- **Vent any pneumatic pressure from the actuator and instrument and relieve any actuator spring pre-compression.**
- **Personal injury or property damage may result from fire or explosion if natural gas is used as the supply medium and appropriate preventive measures are not taken. Preventive measures may include, but are not limited to, one or more of the following: remote venting of the unit, re-evaluating the hazardous area classification, ensuring adequate ventilation, and the removal of any ignition sources.**
- **Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.**
- **The valve packing box might contain process fluids that are pressurized, *even when the valve has been removed from the pipeline.* Process fluids might spray out under pressure when removing the packing hardware or packing rings, or when loosening the packing box pipe plug. Cautiously remove parts so that fluid escapes slowly and safely.**
- **On an explosion-proof instrument, remove electrical power before removing the instrument cover(s) in a hazardous area. Personal injury or property damage may result from fire and explosion if power is applied to the instrument with the cover(s) removed.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

Instruments Mounted on Tank or Cage

⚠ WARNING

For instruments mounted on a tank or displacer cage, release trapped pressure from the tank and lower the liquid level to a point below the connection. This precaution is necessary to avoid personal injury from contact with the process fluid.

Instruments With a Hollow Displacer or Float

⚠ WARNING

For instruments with a hollow liquid level displacer, the displacer might retain process fluid or pressure. Personal injury and property might result from sudden release of this pressure or fluid. Contact with hazardous fluid, fire, or explosion can be caused by puncturing, heating, or repairing a displacer that is retaining process pressure or fluid. A displacer that has been penetrated by process pressure or fluid might contain:

- **pressure as a result of being in a pressurized vessel**
- **liquid that becomes pressurized due to a change in temperature**
- **liquid that is flammable, hazardous or corrosive.**

Handle the displacer with care. Consider the characteristics of the specific process liquid in use. Before removing the displacer, observe the appropriate warnings provided in the sensor instruction manual.

Products Covered by Battery Directive 2006/66/EC

End-users are required to comply with this notice for all batteries bearing the following symbol:

European Directive 2006/66/EC requires that any battery bearing the above symbol on the battery itself and/or its packaging must not be disposed of with unsorted municipal waste. It is your responsibility to dispose of any battery marked with above symbol via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. See the product documentation for specific battery information. For proper recycling, return the battery to a designated collection point. Contact your local Emerson Process Management sales office for additional information.

Non-Fisher (OEM) Instruments, Switches, and Accessories

Installation, Operation, and Maintenance

Refer to the original manufacturer's documentation for Installation, Operation and Maintenance safety information.

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