



AIS/BABA Waiver Request Form

Provide the following information in this form and attach any relevant supporting documentation.

1. Legal name of borrower or prospective borrower and WIFIA Loan ID (if available):

City of Boise, Idaho, WIFIA ID: N21113ID

2. WIFIA Project name:

West Boise Water Renewal Facility Program

- a. Is the WIFIA Project co-funded by another federal program?

☐ Yes ☒ No

- b. If so, specify (e.g., SRF, BOR Title XVI, EPA Community Grants):

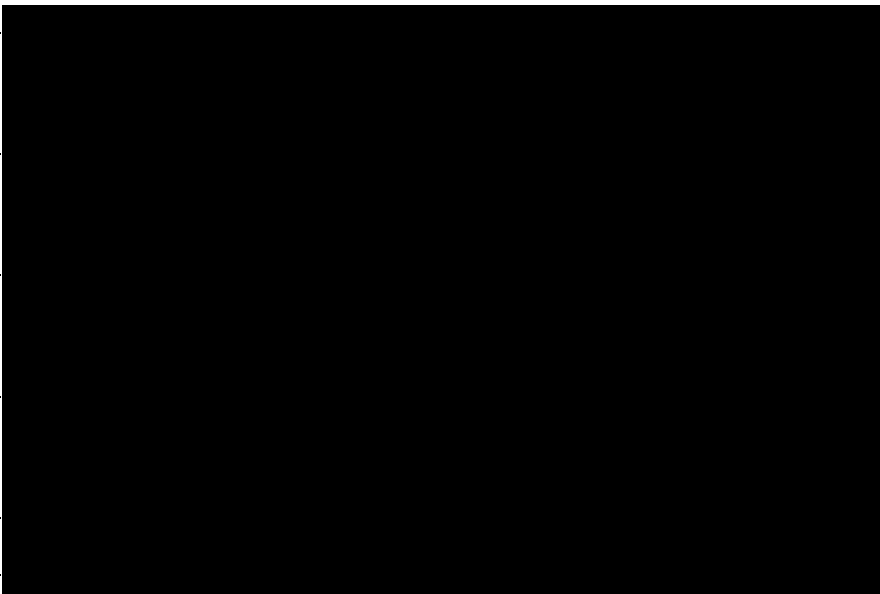
NOTE:

This waiver submission may include references to proprietary items and brand name products. These references have been retained to provide context for the waiver submission. EPA does not evaluate a waiver based on a proprietary item but reviews the performance-based specifications for the project/products. As such, any references to brand or proprietary items are reviewed on an "or equal" basis by EPA.

Items and pages may have been intentionally redacted or excluded by the EPA. Contact WIFIAWaiver@epa.gov for more information if necessary.

9a. Complete the following table to provide information about the product(s) for which the waiver is being requested. **For each product listed, attach a copy of the relevant technical specifications of the product to this form.**

Product Name	Brief Description (type and size)
Egger Iris Diaphragm Control Valve	4"
Egger Iris Diaphragm Control Valve	6"
Egger Iris Diaphragm Control Valve	8"



9b: Describe the efforts made to source compliant products. Were AIS-compliant products identified, and if so, are there circumstances around the project that prevent their use (e.g. lead times, performance standards, quantity thresholds)? Include a list of manufacturers or suppliers contacted and responses received as an attachment.

The E.O.R. specified only one approved manufacturer of the Iris style diaphragm control valves on the low-pressure air system for the secondary expansion project at the West Boise Water Renewal Facility and that was to be Egger "or equal." However, no other approved manufacturers were listed under the specification section, "40 05 52 - Miscellaneous Valves" that covers the Iris valve.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Iris® diaphragm control valve

Energy saving valve for the precise and economical control at low loss of pressure of liquids and gases that can be either clean or contain particles.

Applications

- Air for aeration treatment plants
- Gases
- Municipal and industrial water
- Slurries and suspensions
- Paper pulp
- Pellets with diameters up to 0,5 mm
- Sugar suspensions
- Drinking water

Features

- Highly precise control of the flow rate through concentric Iris® diaphragms (similar to a camera diaphragm)
- Energy-saving control valve due to its free centric passage
- Maintenance free



Facts & Figures

Nominal dimensions: DN 25–400 mm
1 – 16"

Pressure: up to 10 bar
150 psi

Temperature: up to 220°C
428°F

Materials:

- Casing: GG, 1.4409, 1.4588
- Segments: Bz hard chrome-plated, 1.4404, 1.4529
- Special materials on request

Manual operation



Electric operation



Pneumatic operation



Advantages

Energy-saving flow control

Due to its special design with six centrally closing segments, Iris® diaphragm control valves enable a highly energy efficient flow control with low pressure losses.

High flow capacity Cv (Kv)

Its flow-optimized design, as well as the completely retracted segments in the casing when fully open provide a very high flow capacity Cv (Kv).

Turbulence-less flow control

Due to centric flow guidance without fixed components or restricting sections, Iris® diaphragm control valves regulate with stability and accurately with little turbulence.

Regulation accuracy

The unique design allows for an economic and stable regulation with a reliable, hysteresis-free control characteristic over the whole range.

Robust construction

The robust construction is designed for control applications with high frequency of adjustment and is also suitable for the most demanding fluids.

Industrial series

The industrial series BSH for higher system and differential pressures is available from DN 65 up to DN 300. It fulfills the requirements of the Technical Guidelines on Air Quality Control (TA-Luft) and can be equipped with various monitoring systems.

Applications

Iris® diaphragm control valves are characterized by flow which is always centered. The passage can be varied continuously, similar to a camera aperture. Thus, constant flow rates may be reproduced in any position. The ideal control characteristic according to DIN EN 60534 and its low pressure losses make the Iris® diaphragm control valve a reference to an energy-saving valve in many industries. Here is a small selection of typical applications.

Aeration in a wastewater treatment plant

Used to regulate the aeration, this valve has been proven thousands of times at wastewater treatment plants. Due to the enormous energy saving, Iris® diaphragm control valves recover cost rapidly in wastewater treatment plants. In combination with an ABB Sensyflow® mass flow meter, cascade regulation with slave loop according to ATW can be assured.



Liquids and gases in chemistry and industry

In chemistry and industry, the BSH design is used for higher system and differential pressures. It is prepared for various monitoring systems and exists as all Iris® diaphragm control valves also in Atex design. The industrial design BSH fulfills the requirements of the Technical Guidelines on Air Quality Control (TA-Luft).



Viscous fluids / Centrifuge feed

Centrifuges such as in the sugar industry or wastewater technology, can be fed accurately by Iris® diaphragm control valves.



Sludge, wastewater and fiber

Even slurries, solid containing liquids and fibrous products can be regulated precisely. The Iris® diaphragm control valves avoids clogging due to its completely open circular-shaped passage.



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Headquarter

Emile Egger & Cie SA
Route de Neuchâtel 36
2088 Cressier NE (Switzerland)
Phone +41 (0)32 758 71 11
Fax +41 (0)32 757 22 90
info@eggerpumps.com

Offices and representatives countries

Belgium	Italy	USA
China	Netherland	
Germany	Austria	
France	Sweden	
Great Britain	Spain	
India	Switzerland	



Further information can be found on:
www.eggerpumps.com

SECTION 40 05 52
MISCELLANEOUS VALVES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Air release valves.
 - 2. Flap valves.
 - 3. Iris valves.
 - 4. Solenoid valves.
 - 5. Spray nozzles.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Section 01 61 03 - Equipment - Basic Requirements.
 - 2. Section 40 05 51 - Valves - Basic Requirements.

1.2 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. American Society of Mechanical Engineers (ASME):
 - a. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
 - 2. American Society for Testing and Materials International (ASTM):
 - a. A126-04, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - 3. American Water Works Association (AWWA):
 - a. C512, Standard for Air-Release, Air-Vacuum, and Combination Air Valves for Waterworks Service.
 - b. C550, Standard for Protective Interior Coatings for Valves and Hydrants.
 - 4. Canadian Standards Association (CSA).
 - 5. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. See Specification Section 40 05 51.
- B. Contract Closeout Information:
 - 1. Operation and Maintenance Data:
 - a. See Specification Section 01 78 23 for requirements for the mechanics, administration, and the content of Operation and Maintenance Manual submittals.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable Articles below are acceptable.

2.2 AIR RELEASE VALVES

- A. General: Comply with AWWA C512.
- B. Wastewater Service:
 - 1. Air Release Valve:
 - a. Acceptable manufacturers:

- 1) VAG GA Industries, Figure 925 or 927.
- 2) DeZurik APCO S-400.
- 3) A.R.I. Flow Control.
- 4) Approved Equal.
- b. Materials:
 - 1) Body and cover: Cast iron or semi-steel.
 - 2) Float and linkage: Stainless steel.
 - 3) Seat: Viton or Buna-N.
- c. Design requirements:
 - 1) Working pressure: 10 psi.
 - 2) Release 10 scfm at 10 psi differential at 75 psi rating.
 - 3) Inlet 2 inches NPT, outlet 1 inch NPT.
 - 4) Provide low durometer seat for operation below 20 psi.
 - 5) Flush accessories:
 - a) Inlet shut-off valve.
 - b) Blow-off valve.
 - c) Clear water inlet valve.
 - d) Hose and quick disconnect coupling.
 - 6) Provide isolation valve, type as shown on the Drawings.

2.3 FLAP VALVES

- A. Manufacturers:
 1. Troy Valve.
 2. M&H Valve Co.
 3. Or approved equal.
- B. Materials:
 1. Body and flap cover: Cast iron.
 2. Seat: Bronze.
 3. Disc ring: Bronze.
 4. Hardware and hinge: Stainless steel.
- C. Design Requirements:
 1. Valve shall be constructed with a 10-degree offset from vertical.

2.4 SOLENOID VALVES (1 INCH AND SMALLER)

- A. General Service (Air - Water):
 1. Acceptable manufacturer:
 - a. ASCO.
 2. Materials:
 - a. Body: Type 304 stainless steel.
 - b. Seat: Buna-N.
 - c. Insulation: Class F.
 3. Design requirements:
 - a. 110 VAC.
 - b. Two-way, normally closed.
 - c. Enclosure: Compatible with area classifications indicated on Drawings.
 - d. Working pressure, air and water: 150 psiG.
 4. Accessories:
 - a. Provide strainer on supply.
 - b. In applications where pipe material is specified as materials besides stainless steel, provide Type 304 stainless steel threaded nipple with dielectric union at inlet and outlet of each solenoid valve for dissimilar metal protection.

2.5 MULTI-SEGMENT AIR FLOW CONTROL VALVES (8 IN AND SMALLER)

- A. Iris Valves:

1. Acceptable manufacturers:
 - a. Egger
 - b. Approved Equal.
2. Materials:
 - a. Valve Body: 316 Stainless Steel, AISI SCS14A
 - b. Valve Disc Segments: Stainless Steel AISI Type 316L
 - 1) Provide segments with rounded edges and self-cleaning characteristic.
 - c. Elastomers: FPM
 - d. Hardware: 316 Stainless Steel
3. Design Requirements:
 - a. Pressure Rating: 150 psi (10 bar)
 - b. Temperature Rating: 300 deg F (149 deg C)
 - c. Body Type: Flanged, ANSI Class 150
 - d. Actuator: Electric; continuous movement duty
 - 1) Electric actuator shall include handwheel for manual valve operation.
 - 2) Valve supplier shall provide actuator as part of the valve package.
 - 3) See Specification 40 05 51 for Valve actuator requirements
 - e. Minimum Control Range Turndown: 10:1
 - f. Minimum Required Pressure Drop for Control: 0.15 psi (10 mbar)
 - g. Hysteresis-free performance
 - h. Valve shall hold position in the event of a power failure.
 - i. Grease-free, maintenance-free spindle drive.
 - 1) Material: brass housing and PEEK inlet.
4. Design Flowrates:

Aeration Basin 7 – Aerobic Zone 1

 - a. 6-inch Iris Valve:
 - 1) Static Head: 17 ft
 - 2) Minimum Flowrate: 1200 scfm.
 - 3) Maximum Flowrate: 1900 scfm.
 - 4) Maximum operating pressure upstream of valve: 7.5 psi.
 - 5) Maximum cleaning cycle (air bumping) pressure upstream of valve: 9.1 psi.
 - a) Upstream pressure assumes 0.20 psig of pressure drop for control.
 - 6) Valve must be capable of achieving minimum and maximum flowrates at maximum upstream operating pressure.

Aeration Basin 7 – Aerobic Zone 2

 - b. 8-inch Iris Valve:
 - 1) Static Head: 16.5 ft
 - 2) Minimum Flowrate: 950 scfm.
 - 3) Maximum Flowrate: 2550 scfm.
 - 4) Maximum operating pressure upstream of valve: 7.5 psi.
 - 5) Maximum cleaning cycle (air bumping) pressure upstream of valve: 8.9 psi
 - a) Upstream pressure assumes 0.18 psig of pressure drop for control.
 - 6) Valve must be capable of achieving minimum and maximum flowrates at maximum operating pressure.

Aeration Basin 7 – Aerobic Zone 3

 - c. 6-inch Iris Valve:
 - 1) Static Head: 16.5 ft
 - 2) Minimum Flowrate: 400 scfm.
 - 3) Maximum Flowrate: 1350 scfm.
 - 4) Maximum operating pressure upstream of valve: 7.6 psi.
 - 5) Maximum cleaning cycle (air bumping) upstream of valve: 8.9 psi
 - a) Upstream pressure assumes 0.18 psig of pressure drop for control.
 - 6) Valve must be capable of achieving minimum and maximum flowrates at maximum operating pressure.

Aeration Basin 7 – Aerobic Zone 4

- d. 4-inch Iris Valve:
 - 1) Static Head: 16.5 ft
 - 2) Minimum Flowrate: 350 scfm.
 - 3) Maximum Flowrate: 700 scfm.
 - 4) Maximum operating pressure upstream of valve: 7.7 psi.
 - 5) Maximum cleaning cycle (air bumping) upstream of valve: 9.1 psi
 - a) Upstream pressure assumes 0.22 psig of pressure drop for control.
 - 6) Valve must be capable of achieving minimum and maximum flowrates at maximum operating pressure.
- 5. Valve Schedule:
 - a) Refer to Specification Section 40 05 51 for the Valve Schedule.

2.6 SPRAY NOZZLES

- A. Manufacturers:
 - 1. BETE.
 - 2. Spraying Systems Co.
- B. Materials:
 - 1. Stainless steel, Type 316.
- C. Design Conditions:
 - 1. W3 Spray Nozzle:
 - a. Nozzle type: One piece fan nozzle.
 - b. Application: Surface foam movement.
 - c. Design condition: 4 gpm at 40 psi per nozzle.
 - d. Size: 1/4 inches.
 - e. Equivalent orifice diameter: 0.152 inches.
- D. Accessories:
 - 1. Provide split-eyelet connectors to secure nozzle to NPW pipe.
 - a. Materials:
 - 1) Gasket: Buna-N.
 - 2) Clamp, Connector Body, Body Strap, Screws: Stainless Steel, Type 304.

2.7 ACCESSORIES

- A. Furnish any accessories required to provide a completely operable valve.

2.8 FABRICATION

- A. Completely shop assemble unit including any interconnecting piping, speed control valves, control isolation valves and electrical components.
- B. Provide internal epoxy coating suitable for potable water for all iron body valves in accordance with AWWA C550.
- C. Exterior coating shall be the same as the W3 piping.

2.9 SOURCE QUALITY CONTROL

- A. Shop hydrostatically test to piping system test pressure.

2.10 MAINTENANCE MATERIALS

- A. Provide one set of any special tools or wrenches required for operation or maintenance for each type valve.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: See Specification Section 01 61 03 and Specification Section 40 05 51.

3.2 ACCEPTANCE TESTING - MULTI-SEGMENT (IRIS) AIR FLOW CONTROL VALVES

- A. Acceptance Testing for Air Flow Control Valves: Shall consist of the repeatability and response tests described below:
1. Repeatability Test:
 - a. Contractor shall demonstrate that valve allows a significantly similar flowrate in different instances when opened by the same amount, given the same conditions of flow and pressure upstream of the valve.
 - b. Testing procedure shall be performed as following:
 - 1) Valve is at X% open and flowrate is measured downstream.
 - 2) Valve is then closed to 30% for 1-minute
 - 3) Valve is opened back to X% open and flowrate is measured again.
 - c. The two flowrate measurements shall not present a variation greater than 1% to be considered significantly similar and approved for repeatability.
 - 1) Contractor is responsible for retesting and all modifications necessary so that valves achieve the target repeatability performance.
 - d. Testing shall be performed for three (3) different conditions of valve opening, where X% is equal to 90%, 75% and 55%.
 2. Response Test:
 - a. Contractor shall demonstrate valve's stable control range by confirming that an increase in valve opening is proportionally correlated to an increase in allowed flowrate.
 - b. Testing procedure shall be performed as following:
 - 1) Valve is open to 10% and flowrate is measured downstream.
 - 2) Valve opening is increased by 5% and flowrate is measured again.
 - 3) Previous step is repeated until valve is at 95% open.
 - 4) Flowrate variations are logged for each valve opening increase of 5%.
 - c. Valve control is considered stable, and Response Test is acceptable when each valve opening increase of 5% results in flowrate increase of no less than 2.5% and no greater than 10%, for measured flowrates between the minimum and maximum design flowrates.
 - 1) Contractor is responsible for retesting and all modifications necessary so that valves achieve the target response performance.
 - d. Testing shall be performed in one (1) condition of upstream pressure, 7.75 psi or as approved by Engineer, per new aeration basins blowers' performance. Contractor to coordinate blower operation with Project Representative and Plant staff.
- B. Air Release Valves:
1. Pipe exhaust to a suitable disposal point.
 2. Where exhausted to a trapped floor drain, terminate exhaust line 6 inches minimum above floor.

3.3 FIELD QUALITY CONTROL

- A. Clean, inspect, and operate valve to ensure all parts are operable and valve seats properly.
- B. Check and adjust valves and accessories in accordance with manufacturer's instructions and place into operation.

END OF SECTION