SECTION 463373 - LIQUID CHEMICAL DIFFUSERS

Note that this section has only been edited for NYSOGS standardization and has not been technically edited. The designer shall make all technical edits specific to the project for this section.

This Section includes diffusers and injectors for discharging liquid chemicals into an open channel or into a pipe.

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Open-channel liquid chemical diffusers.

Pipeline liquid chemical diffusers.

* + - * 1. Related Requirements:

List other Sections directly related to or affecting Work of this Section. Include Sections specifying information expected to be found in this Section as well as Sections required to describe complete system or assembly requirements.

Section 460553 - Identification for Water and Wastewater Equipment: Nameplates for equipment specified in this Section.

* + - 1. REFERENCE STANDARDS

List reference standards included within text of this Section, with designations, numbers, and complete document titles.

* + - * 1. NSF International:

NSF 61 - Drinking Water System Components - Health Effects.

NSF 372 - Drinking Water System Components - Lead Content.

* + - 1. COORDINATION
				1. Coordinate Work of this Section with [**installation of process piping**] <**\_\_\_\_\_\_\_\_**>.
			2. PREINSTALLATION MEETINGS
				1. Convene minimum [**one week**] <**\_\_\_\_\_\_\_\_**> [**weeks**] prior to commencing Work of this Section.
			3. SUBMITTALS

Only request submittals needed to verify compliance with Project requirements.

* + - * 1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: Submit manufacturer information for system materials and component equipment, including performance characteristics.
				5. Shop Drawings: Indicate system materials and component equipment.
				6. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

Include separate Paragraphs for additional certifications.

* + - * 1. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
				2. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
				3. Manufacturer Reports: Certify that equipment has been installed according to manufacturer instructions.
				4. Qualifications Statement:

Coordinate following Subparagraph with requirements specified in QUALIFICATIONS Article.

Submit qualifications for manufacturer.

* + - 1. CLOSEOUT SUBMITTALS
				1. Project Record Documents: Record actual locations and final orientation of equipment.
			2. QUALITY ASSURANCE

Include this Article to specify compliance with overall reference standards affecting products and installation included in this Section.

* + - * 1. Materials in Contact with Potable Water: Certified to NSF 61 and NSF 372.

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Perform Work according to <**\_\_\_\_\_\_\_\_**> standards.

Include following Paragraph only when cost of acquiring specified standards is justified.

* + - * 1. Maintain <**\_\_\_\_\_\_\_\_**> [**copy**] [**copies**] of each standard affecting Work of this Section on Site.
			1. QUALIFICATIONS

Coordinate following Paragraph with requirements specified in SUBMITTALS Article.

* + - * 1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience.
			1. DELIVERY, STORAGE, AND HANDLING
				1. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
				2. Store materials according to manufacturer instructions.
				3. Protection:

Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.

Provide additional protection according to manufacturer instructions.

* + - 1. EXISTING CONDITIONS
				1. Field Measurements:

Verify field measurements prior to fabrication.

Indicate field measurements on Shop Drawings.

* + - 1. WARRANTY

This Article extends warranty period beyond one year. Extended warranties may increase construction costs and Director’s Representative enforcement responsibilities. Specify warranties with caution.

* + - * 1. Furnish [**five**] <**\_\_\_\_\_\_\_\_**>-year manufacturer's warranty for liquid chemical diffusers.
1. PRODUCTS
	* + 1. OPEN-CHANNEL LIQUID CHEMICAL DIFFUSERS
				1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=12713&mf=04&src=wd):

Designer to provide two manufacturers and approved equivalent for all listed products.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Subparagraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.

Insert descriptive specifications below to identify Project requirements and to eliminate conflicts with products specified above.

* + - * 1. Performance and Design Criteria:

Process Liquid: [**Raw**] [**Treated**] [**water**] [**wastewater**] <**\_\_\_\_\_\_\_\_**>.

Flow Rate:

Injector: <**\_\_\_\_\_\_\_\_**> gpm

Process: <**\_\_\_\_\_\_\_\_**> gpm

Chemical Feed Pipe:

Size: <**\_\_\_\_\_\_\_\_**> [**inch**] [**inches**]

Material: <**\_\_\_\_\_\_\_\_**>.

Process Channel:

Width: <**\_\_\_\_\_\_\_\_**> feet

Depth: <**\_\_\_\_\_\_\_\_**> feet

Submergence: <**\_\_\_\_\_\_\_\_**> feet

* + - * 1. Description:

Flanged, multiple-orifice diffuser for connection to chemical supply piping.

Diameter: [**1 to 6**] [**<\_\_\_\_\_\_\_\_> to <\_\_\_\_\_\_\_\_>**] [**inch**] [**inches**]

Length: [**<\_\_\_\_\_\_\_\_> inches**] [**As indicated on Drawings**] [**As indicated on schedule following END OF SECTION**].

Connection:

Mounted inside Schedule 40 companion flange of same material as diffuser.

Flange Gasket: As recommended by manufacturer.

Terminal Connection:

Furnish blind flange of same material as diffuser.

Flange Gasket: As recommended by manufacturer.

Mounting: Minimum [**two**] <**\_\_\_\_\_\_\_\_**> diffuser diameters from tank walls.

Consult manufacturer or supplier to determine suitable material based on chemical service.

* + - * 1. Materials: [**PVC**] [**CPVC**] [**PTFE**] [**PVDF**] [**Stainless steel**] [**Hastelloy**] <**\_\_\_\_\_\_\_\_**>.
			1. PIPELINE LIQUID CHEMICAL DIFFUSERS
				1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=12714&mf=04&src=wd):

Designer to provide two manufacturers and approved equivalent for all listed products.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Subparagraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.

Insert descriptive specifications below to identify Project requirements and to eliminate conflicts with products specified above.

* + - * 1. Performance and Design Criteria:

Capable of discharging chemical solution across diameter of pipe.

Process Liquid: [**Raw**] [**Treated**] [**water**] [**wastewater**] <**\_\_\_\_\_\_\_\_**>.

Flow Rate:

Injector: <**\_\_\_\_\_\_\_\_**> gpm

Process: <**\_\_\_\_\_\_\_\_**> gpm

Chemical Feed Pipe:

Size: <**\_\_\_\_\_\_\_\_**> [**inch**] [**inches**]

Material: <**\_\_\_\_\_\_\_\_**>.

Process Pipe:

Diameter: <**\_\_\_\_\_\_\_\_**> inches

Wall Thickness: <**\_\_\_\_\_\_\_\_**> inches

[**Maximum**] Operating Pressure: <**\_\_\_\_\_\_\_\_**> psig

* + - * 1. Pipe Sizes 24 Inches and Smaller:

Type: Quill.

Capable of discharging chemical solution to center of pipe.

* + - * 1. Pipe Sizes Larger Than 24 Inches:

Type: Jet.

Capable of discharging chemical solution across diameter of pipe.

Jet Velocity: [**25**] <**\_\_\_\_\_\_\_\_**> fps

Head Loss: [**10**] <**\_\_\_\_\_\_\_\_**> feet

* + - * 1. Mounting: Flange, Class 150.

Consult manufacturer or supplier to determine suitable material based on chemical service.

* + - * 1. Materials: [**PVC**] [**CPVC**] [**PTFE**] [**PVDF**] [**Stainless steel**] [**Hastelloy**] <**\_\_\_\_\_\_\_\_**>.
1. EXECUTION
	* + 1. EXAMINATION
				1. Verify layout, type, material, and orientation of piping connections.
			2. INSTALLATION
				1. Multiple-Orifice Diffusers: Point holes upstream.
				2. According to manufacturer instructions [**and as indicated on Drawings**].

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Installation Standards: Install Work according to <**\_\_\_\_\_\_\_\_**> standards.
			1. FIELD QUALITY CONTROL
				1. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than <**\_\_\_\_\_\_\_\_**> [**days**] [**hours**] on Site for installation, inspection, field testing, and instructing Director’s Representative in operation and maintenance of equipment.
				2. Equipment Acceptance:

Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.

Make final adjustments to equipment under direction of manufacturer's representative.

* + - * 1. Furnish installation certificate from equipment manufacturer's representative attesting that equipment has been properly installed and is ready for startup and testing.
			1. ATTACHMENTS

When relying on separate schedules, tables, illustrations, or forms to specify product requirements, include list of each attachment. Include identical list of attachments in Project Manual table of contents.

Consider including schedule if Project includes more than one liquid chemical diffuser or more than one type of liquid chemical diffuser.

Insert attachments following END OF SECTION. Consider following example when developing Project schedule.

* + - * 1. Liquid Chemical Diffuser Schedule:

LCD-1:

[**Manufacturer: <\_\_\_\_\_\_\_\_>.**]

[**Model: <\_\_\_\_\_\_\_\_>.**]

Location: <**\_\_\_\_\_\_\_\_**>.

Type: <**\_\_\_\_\_\_\_\_**>.

Material: <**\_\_\_\_\_\_\_\_**>.

Chemical: <**\_\_\_\_\_\_\_\_**>.

Size:

Diameter: <**\_\_\_\_\_\_\_\_**>.

Length: <**\_\_\_\_\_\_\_\_**>.

LCD-2:

[**Manufacturer: <\_\_\_\_\_\_\_\_>.**]

[**Model: <\_\_\_\_\_\_\_\_>.**]

Location: <**\_\_\_\_\_\_\_\_**>.

Type: <**\_\_\_\_\_\_\_\_**>.

Material: <**\_\_\_\_\_\_\_\_**>.

Chemical: <**\_\_\_\_\_\_\_\_**>.

Size:

Diameter: <**\_\_\_\_\_\_\_\_**>.

Length: <**\_\_\_\_\_\_\_\_**>.

END OF SECTION 463373