SECTION 407143 - VARIABLE AREA FLOW METERS

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 specifies rotameters, which are a type of variable area flow meter.

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes: Rotameters.
			2. REFERENCE STANDARDS

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

* + - * 1. American Water Works Association:

AWWA M33 - Flowmeters in Water Supply.

* + - * 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 [**piping Work**] <**\_\_\_\_\_\_\_\_**>.
			2. 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 connection requirements.
				5. Shop Drawings:

Indicate system materials and component equipment.

Submit installation requirements and other details.

* + - * 1. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

Include separate Paragraphs for additional certifications.

* + - * 1. Source Quality-Control Submittals: Indicate results of [**shop**] [**factory**] tests and inspections.
				2. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
				3. 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 and accessories.
			2. QUALITY ASSURANCE

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

* + - * 1. Ensure that materials of construction of wetted parts are compatible with process liquid.
				2. 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 equipment 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. WARRANTY

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

* + - * 1. Furnish [**five**] <**\_\_\_\_\_\_\_\_**>-year manufacturer's warranty for rotameters.
1. PRODUCTS
	* + 1. ROTAMETERS
				1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=12540&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. Description:

Scale: Zero to 10 markings.

Accuracy: Plus or minus 5 percent of full scale.

Maximum Operating Temperature: 250 degrees F

Maximum Operating Pressure: 100 psig

* + - * 1. Performance and Design Criteria:

Design: According to AWWA M33.

Flow Rate Range: <**\_\_\_\_\_\_\_\_**> to <**\_\_\_\_\_\_\_\_**> gpm

* + - * 1. Materials:

Tube Shield: [**Polycarbonate plastic**] <**\_\_\_\_\_\_\_\_**>.

Flow Tubes: [**PTFE**] <**\_\_\_\_\_\_\_\_**>.

Floats: [**PTFE**] <**\_\_\_\_\_\_\_\_**>.

Wetted Parts: [**PTFE**] <**\_\_\_\_\_\_\_\_**>.

End Fittings: [**PTFE**] <**\_\_\_\_\_\_\_\_**>.

Guide Rods: [**PTFE**] <**\_\_\_\_\_\_\_\_**>.

* + - 1. SOURCE QUALITY CONTROL
				1. Provide shop inspection and testing of completed assembly.
1. EXECUTION
	* + 1. EXAMINATION
				1. Verify that items provided by other Sections of Work are ready to receive Work of this Section.
			2. INSTALLATION
				1. Coordinate location and orientation of flow meter with final equipment installations.
				2. Ensure that instruments are located to be easily accessible for maintenance.

\*\*\*\*\*\* [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. Testing: Test and calibrate flow meter to demonstrate that it meets specified accuracy requirements.
			2. DEMONSTRATION
				1. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Director’s Representative.
			3. 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.

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

* + - * 1. Flow Meters Schedule:

FE-463:

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

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

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

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

Size: <**\_\_\_\_\_\_\_\_**>.

Flow Rate Range: <**\_\_\_\_\_\_\_\_**> to <**\_\_\_\_\_\_\_\_**>.

Output Signal: <**\_\_\_\_\_\_\_\_**>.

Process Fluid: <**\_\_\_\_\_\_\_\_**>.

FE-464:

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

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

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

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

Size: <**\_\_\_\_\_\_\_\_**>.

Flow Rate Range: <**\_\_\_\_\_\_\_\_**> to <**\_\_\_\_\_\_\_\_**>.

Output Signal: <**\_\_\_\_\_\_\_\_**>.

Process Fluid: <**\_\_\_\_\_\_\_\_**>.

END OF SECTION 407143