SECTION 464126 - FLOATING MECHANICAL MIXERS

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 floating-type mechanical mixers and accessories for wastewater treatment facility aeration chambers, ponds, or lagoons.

Floating mechanical mixers are often used in anoxic basins for denitrification and phosphorus reduction as the mixer mixes and uniformly blends the basin top to bottom. Floating mechanical mixers are also used in sequencing batch reactors and aerobic digesters.

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes: Floating mechanical mixers.
          2. 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. National Electrical Manufacturers Association:

NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

* + - 1. COORDINATION
         1. Coordinate Work of this Section with Work of other Sections.
         2. Convene minimum [**one week**] [**<\_\_\_\_\_\_\_\_> weeks**] prior to commencing Work of this Section.
      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's product information for system materials and component equipment.

Submit electrical characteristics and connection requirements.

Submit installation requirements and other details.

* + - * 1. Shop Drawings:

Indicate size and configuration of mixer assembly, mountings, weights, and accessory connections.

Indicate system materials and component equipment.

* + - * 1. Manufacturer's Certificate: Certify that [**products**] <**\_\_\_\_\_\_\_\_**> meet or exceed [**specified requirements**] <**\_\_\_\_\_\_\_\_**>.

Certify that installation is completed according to manufacturer's instructions.

Include separate Paragraphs for additional certifications.

* + - * 1. Manufacturer's Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
        2. Source Quality-Control Submittals: Indicate results of [**shop**] [**factory**] tests and inspections.
        3. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
        4. Manufacturer Reports:

Certify that [**equipment has been installed according to manufacturer's instructions**] <**\_\_\_\_\_\_\_\_**>.

Indicate activities on Site, adverse findings, and recommendations.

* + - * 1. Qualifications Statements:

Coordinate following Subparagraphs with the requirements specified in QUALIFICATIONS Article.

Submit qualifications for manufacturer and installer.

Submit manufacturer's approval of installer.

* + - 1. CLOSEOUT SUBMITTALS
         1. Project Record Documents: Record actual locations of installed mixers and components.
      2. MAINTENANCE MATERIAL SUBMITTALS
         1. Spare Parts:

Furnish [**one set**] [**two sets**] of manufacturer's recommended spare parts.

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

Furnish [**two**] <**\_\_\_\_\_\_\_\_**> of <**\_\_\_\_\_\_\_\_**>.

* + - * 1. Tools: Furnish special [**wrenches**] <**\_\_\_\_\_\_\_\_**> and other devices required for Director’s Representative to maintain equipment.
      1. QUALITY ASSURANCE

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

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 the Work of this Section on Site.
      1. QUALIFICATIONS

Coordinate following Paragraphs with the requirements specified in SUBMITTALS Article.

* + - * 1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience.
        2. Installer: Company specializing in performing Work of this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience [**and approved by manufacturer**].
      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's 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's 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 Owner enforcement responsibilities. Specify warranties with caution.

* + - * 1. Furnish [**five**] <**\_\_\_\_\_\_\_\_**>-year manufacturer's warranty for floating mechanical mixers.

1. PRODUCTS
   * + 1. FLOATING MECHANICAL MIXERS
          1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=11973&mf=04&src=wd):

DESIGNER TO PROVIDE TWO MANUFACTURER’S 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:

Speed: [**1,200**] <**\_\_\_\_\_\_\_\_**> rpm.

Size:

Top-of-Motor to Bottom-of-[**Propeller**] [**Impeller**]: <**\_\_\_\_\_\_\_\_**> inches

Float Diameter: [**64**] [**84**] <**\_\_\_\_\_\_\_\_**> inches

Propeller: Anti-fouling and non-cavitating.

* + - * 1. Float:

Configuration: [**One piece**] <**\_\_\_\_\_\_\_\_**>.

Material: [**Fiberglass-reinforced plastic (FRP), resistant to ultraviolet exposure**] [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Fill:

Material: Closed-cell polyurethane foam.

Injection applied.

Density: [**2.5**] <**\_\_\_\_\_\_\_\_**> pcf

* + - * 1. Propeller:

Number of Blades: [**Two**] <**\_\_\_\_\_\_\_\_**>.

Pitch- and hydraulically-balanced.

Material: [**Type 316 stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Shaft:

One piece.

Diameter: [**1-1/2**] [**2**] <**\_\_\_\_\_\_\_\_**> inches

Keyed to motor shaft, removable.

* + - * 1. Discharge Volute Assembly: [**Type 304 stainless steel**] <**\_\_\_\_\_\_\_\_**>.
        2. Operation:

Electrical Characteristics:

[**3**] [**50**] [**75**] <**\_\_\_\_\_\_\_\_**> hp

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

<**\_\_\_\_\_\_\_\_**> RLA.

Voltage: <**\_\_\_\_\_\_\_\_**> V, [**single**] [**three**] phase, 60 Hz.

Maximum [**Fuse Size**] [**Circuit Breaker Size**] [**Overcurrent Protection**]: <**\_\_\_\_\_\_\_\_**> A.

Minimum Circuit Ampacity: <**\_\_\_\_\_\_\_\_**>.

Minimum Power Factor: [**1.15**] <**\_\_\_\_\_\_\_\_**> at rated load.

Motor:

Type: Totally enclosed, fan cooled (TEFC).

Rating: Severe chemical duty.

Base: Vertical only.

Hardware, Condensate Drains, and Grease Fittings: Cadmium-plated.

Control Panel:

Factory mounted.

NEMA 250 [**Type 1**] [**Type 4**] <**\_\_\_\_\_\_\_\_**>.

Furnish single-point power connection and grounding lug.

Controls: <**\_\_\_\_\_\_\_\_**>.

Disconnect Switch: Factory-mounted in control panel.

Operation Sequences: <**\_\_\_\_\_\_\_\_**>.

* + - 1. ACCESSORIES
         1. Furnish internal gussets at stress points.
         2. Mooring Cable:

Material: [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Size: [**3/8**] [**1/2**] <**\_\_\_\_\_\_\_\_**> inch

* + - * 1. Discharge Volute Extension: [**Type 304 stainless steel**] <**\_\_\_\_\_\_\_\_**>.
      1. SOURCE QUALITY CONTROL
         1. Provide shop inspection and testing of completed assembly.

Include one or both of following Paragraphs to require Director's inspection or witnessing of test at factory.

* + - * 1. Director’s Inspection: Make completed clarifier equipment available for inspection at manufacturer's factory prior to packaging for shipment. Notify Director’s Representative at least [**seven**] <**\_\_\_\_\_\_\_\_**> days before inspection is allowed.
        2. Director’s Witnessing: Allow witnessing of factory inspections and test at manufacturer's test facility. Notify Director’s Representative at least [**seven**] <**\_\_\_\_\_\_\_\_**> days before inspections and tests are scheduled.

Include following Paragraph if reliance on fabricator's approved quality-control program is sufficient for Project requirements.

* + - * 1. Certificate of Compliance: If fabricator is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.

Specified shop tests are not required for Work performed by approved fabricator.

1. EXECUTION
   * + 1. EXAMINATION
          1. Verify that facilities are ready to receive floating mechanical mixers.
       2. INSTALLATION
          1. Install according to manufacturer's instructions.

\*\*\*\*\*\* [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. Wet Startup: Run equipment with wastewater and verify proper alignment and operation.
         2. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than <**\_\_\_\_\_\_\_\_**> days on Site for installation, inspection, startup, field testing, and instructing Director’s Representative in maintenance of equipment.
         3. 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. DEMONSTRATION
         1. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Director’s Representative

END OF SECTION 464126