

Fab Tech Wastewater Solutions

Horizontal Flocculator Equipment Specification

PART 1 - GENERAL

1.1 SCOPE: This section covers the horizontal flocculation units. This specification covers the Fabtech Paddle Wheel type flocculator. Flocculators shall be numbered as follows:

<u>Flocculator Tank</u>	<u>Flocculator Equipment Number</u>
1	FT15XX-01
2	FT15XX-02
3	FT15XX-03

1.2 GENERAL: Flocculator equipment covered by this specification shall be manufactured and installed in direct accordance to all drawings, specifications and engineering data. All data will be under the recommendation of Fab Tech Wastewater Solutions unless exceptions are declared by the Engineer.

Each unit shall be installed complete with all mounting hardware and supports. Drive units will also be provided if included in the original scope.

1.2.1 DRIVE LIMITATIONS: (REMOVE IF NO DRIVES PROVIDED)

Fab Tech Wastewater Solutions shall coordinate the drive assembly components including motors and reducers to assure correct operation of the flocculator equipment. Fab Tech Wastewater Solutions shall ensure no drive components exceed their designated torque limits, thermal specifications and electrical parameters.

1.2.2 NAME PLATES: Name plates shall be provided. The name plates shall be numbered in a manner in accordance to the manufacturers' drawings to designate equipment number. The location of name plates shall be declared by the engineer.

1.3 SUBMITTALS

1.3.1 DRAWINGS AND DATA: Complete manufacturing, assembly and arrangement drawings shall be submitted for approval in accordance with the scope of work. Drawings and data shall include the following information:

Flocculators

Number and length of paddle assemblies and paddle displacement area.

Shaft diameters

Shaft bearings

Stuffing boxes

Shop painting

Anchor bolt location and specification

Gear Reducers (REMOVE IF NO DRIVES PROVIDED)

Motors (REMOVE IF NO DRIVES PROVIDED)

PART 2 - PRODUCTS

2.1 SERVICE CONDITIONS: Flocculation equipment shall be designed, arranged and constructed for installation and operation in the specified flocculation basin drawings. Paddle shafts shall extend through stuffing boxes in the drive pit wall and shall be driven by means of a sprocket and drive chain system connected to the drive unit. One drive will power each row of paddles.

The installation alignment and requirements for the shafts, bearings and supports shall be determined by Fabtech Waste Water Solutions and incorporated in the drawings.

All modifications or alterations done to structural concrete prior to installation must be completed and then communicated to Fab Tech Wastewater Solutions.

2.2 PERFORMANCE REQUIREMENTS: The flocculation equipment provided shall be capable of uniformly mixing the tank contents in a manner that allows for the formation of floc of the

suitable composition for sedimentation. The flocculation equipment shall be designed for continuous operation.

2.3 DESIGNATION: The flocculation equipment shall be designed following these basic requirements:

Name Designation

FT15XX-0X

FT15XX-0X

FT15XX-0X

Where X coordinates with Fab Tech arrangement drawings

Outside diameter of paddle assemblies: XX Feet

Number of paddle rows: XX

Number of paddles assemblies per basin: XX

Number of bearing per basin: XX

Bearing spacing: XX

2.4 MATERIALS:

Steel plate and shapes: 304L stainless

Shafts: 304L stainless

Bearings: Per attached bearing spec

2.5 DRIVE SPEC (REMOVE SECTION 2.5 & RENAME SECTION 2.6 TO 2.5 IF NO DRIVES PROVIDED MATCH FOLLOWING SECTION NUMBERS TO FIT SERIES)

2.5.1 DRIVE ASSEMBLIES: Each drive assembly shall be selected and installed to provide infinitely variable paddle speeds and shall consist of motor and reducer. A chain drive shall be used between the drive sprocket and paddle shaft sprocket. Each flocculation unit shall be serviced by separate drive assemblies.

Drives assemblies shall be suited for 24 hour operation under normal conditions. All gear reducers shall be double or triple reduction style and shall bear a AGMA service mark.

2.5.2: DRIVE CHAINS AND SPROCKETS: Each drive chain shall be steel roller chain of the type recommended by Fab Tech Wastewater Solutions and accepted by the engineer.

A chain tensioner assembly designed to control tension of the drive chain to withstand the required loads shall be provided for each drive chain.

All sprockets shall be semi steel with hardened teeth and rims. All sprockets shall be split design for ease of removal.

2.6 PADDLE ASSEMBLY COMPONENTS (RENAME 2.5 IF DRIVE SPEC REMOVED)

2.6.1 STUFFING BOXES: The drive end of each paddle shaft shall extend through the drive pit wall and be made watertight by the stuffing box and packing material specified by Fab Tech Wastewater Solutions.

2.6.2 SHAFTS: Torque tube or solid shaft shall be used for the XX INCH diameter shaft. The shaft shall be shop assembled and specified for field installation.

Compression couplings shall be provided for connecting all sections of continuous solid shafting. (If couplings provided)

Each shaft shall be machined and aligned that it will be straight and in rotational balance throughout its entire length. Shafting shall be furnished in sections in accordance to scope and drawings.

2.6.3 PADDLE ASSEMBLIES: All paddle blades shall be of the same size. Paddle blades shall be bolted and fastened by steel angle arms. Paddle arms shall be bolted to hubs keyed to the flocculator shaft. Each paddle assembly shall be designed and arranged in accordance to Fab Tech Wastewater Solutions drawings.

Paddles shall be manufactured from Polyester resin fiberglass.

2.6.4 BEARINGS: See attached bearing manufacturers' specification

2.6.5 JOINTS: All welded joints shall be sealed water tight.

2.6.6 EDGE GRINDING: Sharp projections of cut or sheared edges shall be ground to adhere to proper paint adherence.

PART 3 EXECUTION

3.1: INSTALLATION Installation shall be in accordance with the flocculator specification and drawings provided by Fab Tech Wastewater Solutions.

3.2 INSTALLATION CHECK: Equipment shall be installed by and experienced and authorized Fab Tech Wastewater representative. Fab Tech Wastewater Solutions shall visit the site, install and adjust flocculator equipment as necessary to complete the installation. Equipment will be deemed complete upon approval by the engineer.

All costs for installation and inspection will be included in the price of contract.