OVIVO
Bringing water to life

Component Clarifiers & Thickeners

Bridge-Supported Mechanisms for Tank Diameters to 50 Feet

A GLV COMPANY

Specify Your Own Thickener or Clarifier

Custom Performance at a Pre-Engineered Price

Eimco Water Technologies component clarifier and thickener mechanisms have been developed as a means of meeting a broad range of water and wastewater treatment requirements at a price substantially below that of custom engineered equipment. These standardized, bridge-supported mechanisms are available for basins from 20 to 50 feet in diameter, and are offered with a number of options and accessories. A larger series of column-supported mechanisms is available for basins up to 100 feet in diameter.

How the Component Plan Works

Our component plan allows you to assemble a clarifier or thickener from a menu of pre-engineered, job-tested stock components, many of which were originally developed for use in custom mechanisms. This brochure provides a menu of standard components and accessories along with a step-by-step guide to the specification process. Beginning with a discussion of basin sizing parameters and proceeding through a description of each major component, our component plan will assist you in selecting a mechanism that will efficiently and cost-effectively satisfy your requirements.

BST thickener with basin cover constructed beneath mechanism support bridge

Benefits of the Component Plan

Competitive Price

Specifying Eimco Water Tecchnologies component mechanisms means you get a proven clarifier or thickener for substantially less than the cost of a custom design.

Reliability

Over fifty years of experience in the design and manufacturing of sedimentation systems allows us to produce mechanisms that are characteristically trouble-free in both installation and operation.

Service

Should mechanical or process problems arise, an experienced service force is available to assist in their analysis and resolution. Continuity and availability of service are important considerations when selecting an equipment supplier.

Rapid Delivery

With standardized designs and stock components, lead times are kept to a minimum. Delivery and start-up can be substantially expedited.

Sizing a Component Clarifier

Clarifiers are sized to provide a specified hydraulic overflow per square foot of effective clarification area (total basin area less feedwell area). Eimco Water Technologies standard values are 800 GPD/ft^2 for primary service and 400 GPD/ft^2 for secondary applications, but design practice varies widely. Consult local standards for appropriate overflow rates.

Begin by dividing the average daily flow (in GPD) by the specified overflow rate (in GPT/ft^2). This will yield a required effective clarification area for which a corresponding basin diameter may be selected from Table 1.

Sizing a Component Thickener

Our wastewater thickeners are sized to provide an optimum floor loading rate for a specific influent mixture of primary and secondary sludge. Table 2 lists typical loading rates for different influent profiles. To calculate the required thickening area, divide the total daily solids load in pounds, by the rate from Table 2 which most closely approximates your influent. The result will be a required thickening area for which a corresponding basin diameter may be selected from Table 1.

Sidewater Depth Selection

Normal depth is 10 to 12 feet, based on a detention time of 6 hours. Sidewater depths are available from 8 feet up, as required.

Feedwell Sizing

Component clarifier feedwells are usually sized at 25% of the basin diameter. Thickener feedwells should be sized for a liquid velocity of 4 ft. per minute.

Floor Slope

Standard floor slopes are 1:12 for clarifiers and 2.75:12 for thickeners.

Launders

Inboard and outboard arrangements are available and either may be utilized.

Tank Construction

Standard designs are available for concrete or steel tankage.

Table 1 Basin Diameter Selection

BST Thickener effective Thickening Area Sq.Fl	BSC Clarifier Effective Clafification Area Sq.Ft	Tank Diameter Feet
314	285	20
380	350	22
452	400	24
490	440	25
530	480	26
615	565	28
706	657	30
962	912	35
1258	1179	40
1590	1515	45
1963	1852	50

Table 2 Thickener Floor Loading

Percent Waste Activated Sludge in Thickener Feed	Floor Loading Lbs/F1^2/Day	Typical % Solids Underflow
0%	22	10
25%	15	6
35/50%	10	5
75%	6	3
100%	4	2

Component Selection

Drives

Eimco Water Technologies component clarifiers and thickeners are equipped with worm and gear drive mechanisms which are designed, fabricated, machined and assembled with strict compliance to guidelines established by the AGMA (American Gear Manufacturers Association). Worm gears of centrifugally cast bronze alloy are individually matched with hardened steel alloy worms. The drive is completely enclosed in rigid base designed to preserve accurate gear alignment under all design loads and moments. Oil bath lubrication ensures maximum service life for all gears and bearings.

Overload protection is provided by an advanced drive control mechanism consisting of a torque indicator activated by worm-shaft thrust and a set of micro-switches. At predetermined torque levels, the drive control first initiates an audible alarm, then shuts off power to the drive motor. The drive control prevents damage due to over-torqueing and replaces less reliable shear pins. Manual or motorized rake lifts are available for thickeners subject to heavy loading.

Five drive sizes are available with torque ratings ranging up to 80,000 foot pounds. For sizing assistance, please contact your local Eimco Water Technologies sales representative. Worldwide contact information can be found at www.glv.com.

Walkway, Drive Platform and Handrail

Access to the drive is by a 36" wide walkway to the drive platform, which measures 7'2" x 7'4". Both platform and walkway are surrounded with a 42" high, double-row handrails made of 1-1/4" diameter steel pipe and which include a 4" toeplate. Available options are listed in the Equipment Summary Table on page 6.

Feedwell Diameter

Clarifier and thickener feedwells are fabricated from 3/16" and 1/4" steel plate with adequate angle stiffeners. Available diameters are 3 ft and 4 ft through 16 ft, in 2 ft increments. Available depths are 4'1" or 5'1".

Surface Preparation

Drive units are shop cleaned and primed. No paint option is available on the drive unit. Steel components may be cleaned and shop primed to the customer's specifications.

Anchor Bolts

Galvanized steel anchor bolts are standard on all mechanism sizes with available options in either steel or stainless steel.

Skimmers

When skimming is desired, a standard skimmer and scum box will be supplied to remove floating solids from the liquid surface. The rotating skimmer arm allows the hinged scraper to travel up and over the ramped scum box, pushing collected solids into the discharge trough. All skimmer components are constructed of corrosion-resistant materials to ensure long service life.

Optional full-radius skimmers are available which consist of two full-radius skimming arms and one full-radius trough extending from the fixed scum baffle to the rotating feedwell.

Alarm and Pushbutton Station

An alarm horn may be purchased for use with the torque drive control, to sound when torque exceeds a preset level. The horn is supplied with a reset button and contacts for a remote or external signal light. A magnetic across-the-line starter for remote mounting and a separate start-stop pushbutton are also available.

Weirs and Baffles

We supply 9" x 1/4" V-notched weirs and 12" x 1/4" baffles. Both are manufactured of FRP and anchored with 304 stainless steel cinch anchors. Material options are available at additional cost.

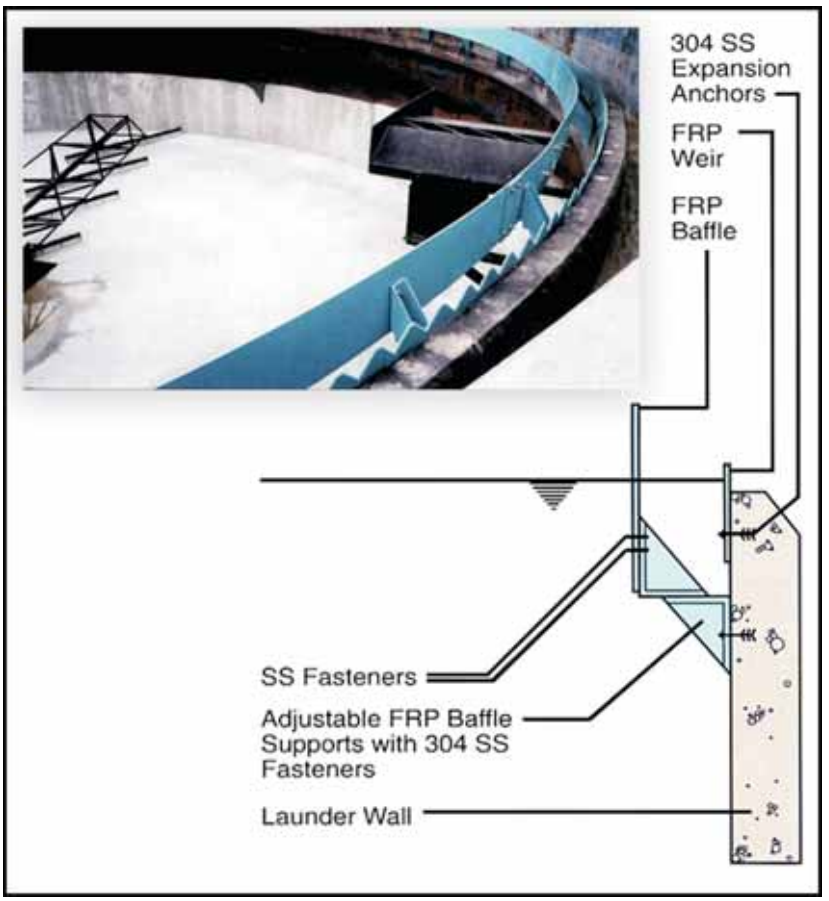
Influent Pipe

Standard steel pipe with flange and dispersion tee in sizes as shown in the Equipment Summary Table are available.

Squeegees and Pickets

Rake blade squeegees are supplied in 20 gauge 304 stainless steel. Pickets may be supplied in 2" x 2" x 1/4" steel angle, attached to the rake arm chord members to facilitate sludge thickening.

Optional full radius skimmer and trough (Inset) Standard skimmer and scum box



Equipment Summary Table

Components and Accessories Standards and Options

Standard Components include the drive assembly, walkway, platform, center shaft, rake arms with blades and squeegees, feedwell and cone scraper.

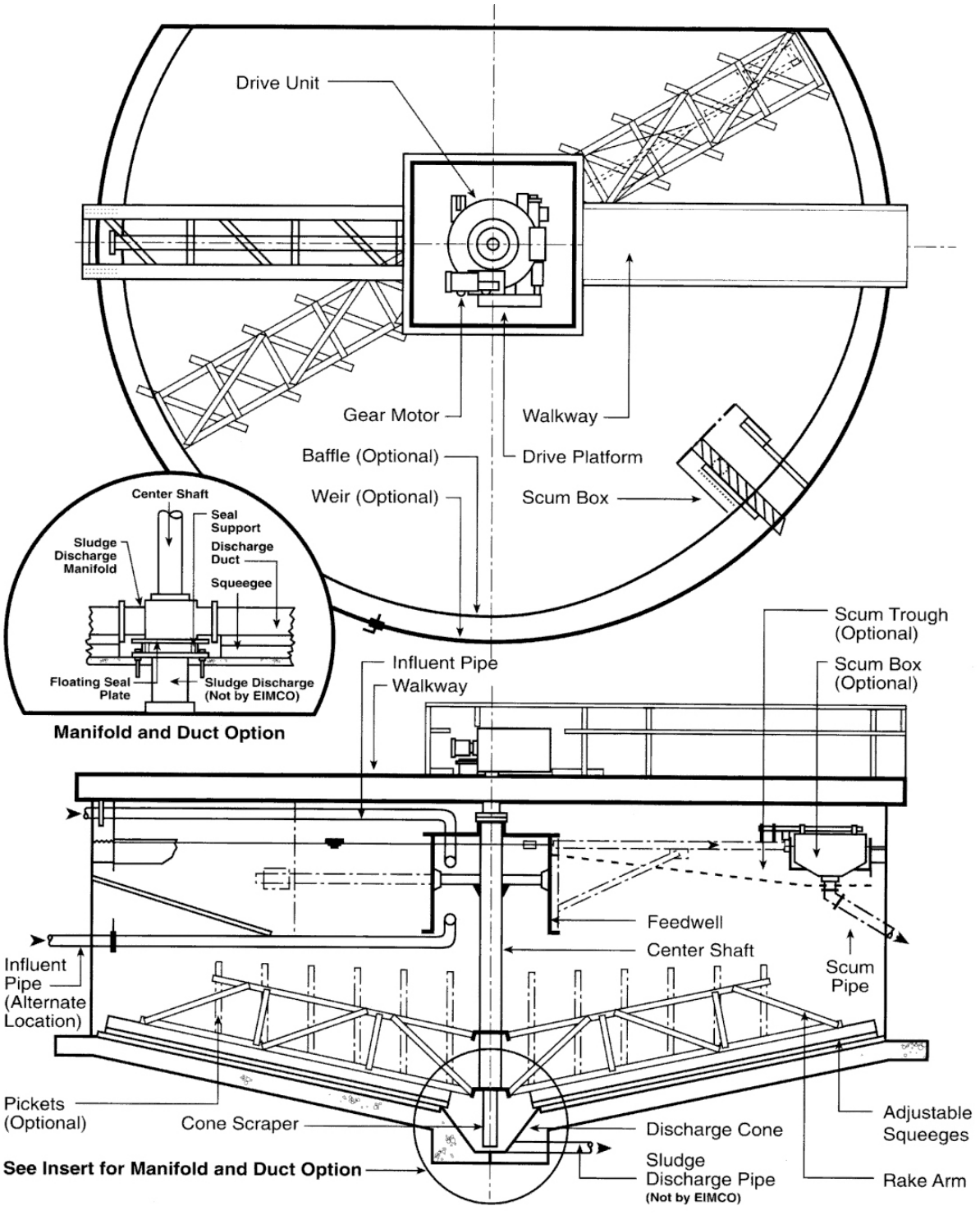
Accessory Items include the skimmer assembly (complete with counterbalance), full-radius skimmer, pickets, influent pipe, weir and baffle, alarm horn, pushbutton and starter.

Please consult your local sales representative for assistance in drive mechanisms selection. Drives are available with torque duty ratings to 80,000 foot pounds. For a complete listing of worldwide office locations, please visit www.glv.com.

Options to standard components and accessories are available for feedwell diameter, influent piping (top or bottom feed), feedwell depth, and materials of construction for walkway surfaces, platforms, handrails, weirs and baffles.

Component	Standard	Optional
1. Walkway	1" x 3/16" welded grating	3/16", 1/4" or 3/8" checkered steel aluminum or galvanized floor plate Grating in steel, aluminum, galvanized or FRP
Platform	1/4" checkered steel floor plate, 7'2" x 7'4"	3/16" aluminum or galvanized, 1/4" galvanized, 3/8" aluminum
Handrail	1 1/4" diameter steel, two-rail with 4" toeplate	1 1/4" galvanized, 1 1/2" galvanized or aluminum, two or three rail
2. Feedwell	Material: 3/16" steel plate Diameter: 3' or 4' - 16' in 2' increments Depth: 4'1"	Material: 1/4" steel plate, corrugated or plate FRP Diameter: 4' - 16' in 2' increments Depth: 5'1"
3. Anchor Bolts	Galvanized steel	Steel or stainless steel
4. Surface preparation and paint (steel)	Shop primer as required	Specify
5. Accessories		
a. Skimmer & Scum Box	Not supplied	Scum box widths: 2',3',4',5'
b. Full Trough Skimming	Not supplied	Full box from wall to well with 2 skimmer arms
c. Alarm Horn & Starter Pushbutton Station	Not supplied	Supplied
d. Weirs	Not supplied	9" x 1/4" FRP
Baffle	Not supplied	12" x 1/4" FRP
e. Influent Pipe w/support	Not supplied	4" to 16"
f. Squeegees	20 gauge stainless steel	Not supplied
Pickets	Not supplied	2" x 2" x 1/4" angle
g. Manifold and Duct for Secondary Clarifier Only (Rapid Sludge Return)	Not supplied	Designed for flows as required

General Arrangement Drawing



Capabilities

In addition to providing a complete line of process equipment, Eimco Water Technologies is your source for everything necessary to meet the total needs of a project from inception to start-up and beyond.

Flowsheet Capabilities

Our engineers can help you with the design of your total flowsheet, ensuring that all your equipment will work together for optimal performance and ease of operation.

Tankage and Erection

We take the stress out of coordinating an independent contractor who may not be familiar with all the details necessary to install your thickener or clarifier. Our experienced construction crews can save you money and stress by doing all your field work and turning over to you a trouble-free machine.

Upgrades and Retrofits

Sedimentation technology is constantly advancing. Let us show you how you can incorporate state-of-the-art design improvements into your existing equipment. Many upgrades can pay for themselves in a matter of months and help increase capacity as well as improve performance.

Service

Our staff of skilled mechanical and process engineers can keep your equipment in top condition and help you avoid costly unscheduled interruptions.

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