OVIVO

MUNICIPAL WATEWATER
CLARIFIER

OPERATING FLEXIBILITY OF PRE-ENGINEERED SIMPLICITY

- Suction header designed with hydraulic computer model
- Computational design model tested in laboratory
- Well balanced mechanism with second arm
- Additional raking with second arm

Low maintenance requirements & rapid installation! Call us at 1.855.GO.OVIVO to learn more!

SUCTION HEADER CLARIFIER

HDG

SS

NOT JUST ANOTHER CLARIFIER

Suction sludge removal systems provide fast efficient solids withdrawal for activated sludge flow sheets requiring a steady return of fresh, active biomass. Ovivo's suction header design provides operational simplicity with well-engineered components.

The suction header clarifier (C3D) features a fabricated header tube connected to a manifold at the base of the column. The header is designed with a tapered cross-section and carefully sized and positioned intake orifices so that collection rates at each orifice are proportional to the unequal areas swept by the corresponding sections of header. The header comes in hot dip galvanized (HDG) steel or stainless steel (SS).

The result is a pre-engineered system which allows for uniform withdrawal rate across the entire basin floor at a given flow.

The design of the header is based on a hydraulic computer model supported by full scale laboratory tests. Based on its superior design method, Ovivo can design and guarantee its suction header clarifier with the best hydraulic characteristics. Laboratory test data confirming flow uniformity in our designed headers is available on request.

Because precise balancing of flow along the header often dictates small orifice diameter, the unitube design is most successfully employed where plant influent is effectively and thoroughly screened and solids settling characteristics are normal.

OVIVO'S SUCTION CLARIFIERS INCLUDE:

- Ovivo drive
- Influent center column
- Energy dissipating inlet (EDI), either conventional scoop design or EquaFlo 360™ design
- Flocculation feedwell
- Two arms
- Sludge collection header(s)
- Scum skimming system

STRONG SUPPORT

UNLIKE OUR COMPETITORS SINGLE TUBE HEADER MECHANISMS, ALL SIZES OF THE C3D ARE SUPPORTED FROM A STRUCTURAL STEEL CAGE AND TRUSS ARM ASSEMBLY, ASSURING ADEQUATE SUPPORT FOR ALL TURNING LOADS AND STRESSES.

This design provides an opposite arm with rake blades and stainless steel adjustable squeegees. This second arm allows for additional raking of clarifier floor improving sludge withdrawal. It also assures the perfect balance of the clarifier necessary to keep an uniform load of the drive bearing.

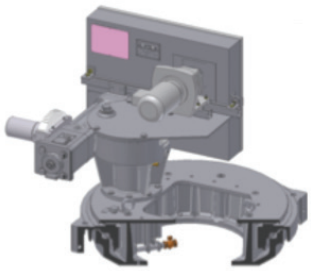
The C3D is equipped with a scum skimmer system. Ovivo offers a standard scum box with skimmer blades supported by rake arms or an enhancing skimming design with a full trough skimmer (FTS) and two cantilevered skimming blades.

SCUM BOX SKIMMING SYSTEM

FULL TROUGH SKIMMER (FTS) SYSTEM

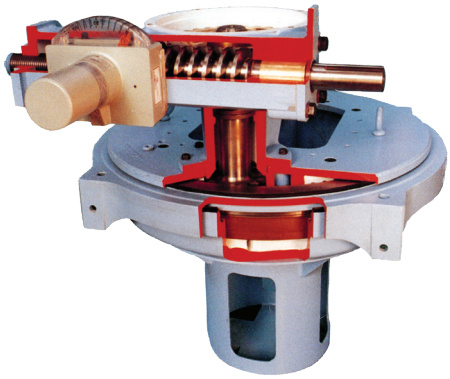
DRIVE UNITS

OVIVO PROVIDES STRONG, HIGHLY RELIABLE DRIVE MECHANISMS. THE STRENGTH OF OUR DRIVES IS DUE TO THEIR DESIGN, THE MATERIALS USED, FULL OIL BATH LUBRICATION AND THE PROPER ALIGNMENT OF THEIR COMPONENTS.



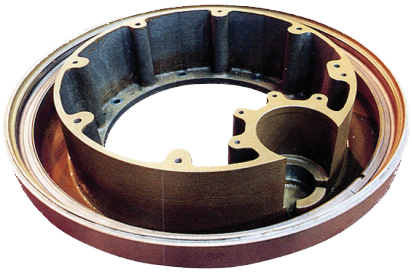
DRIVE

- Cast iron housing
- Oil lubrication
- Deep oil reservoir
- Strip liner bearings
- Worm gear reducer
- Single pinion
- Solid one piece main gear
- Meets latest AGMA standards

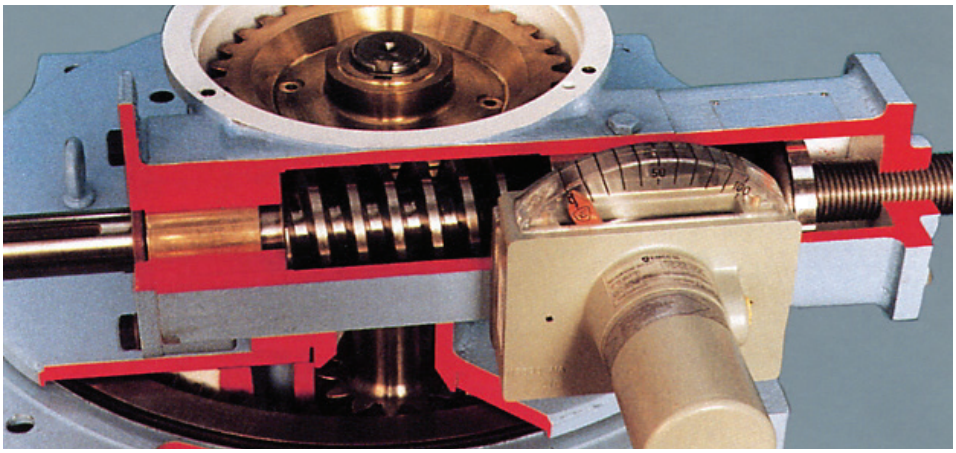


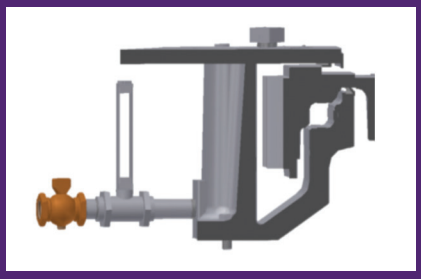
CAST IRON

Our drives are built in cast iron per ASTM A48 Class 40A. Cast iron offers:



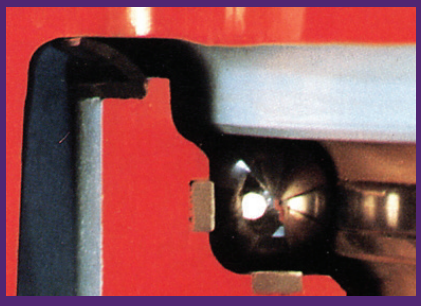
- Excellent corrosion protection. Cast iron has a natural resistance to corrosion and will not rust
- Resistance to heavy loads. Complex ross sections with a high degree of structural rigidity are more precisely formed than fabricated plates. Sections are easily varied to provide massive support in high load areas.
- Full inner and outer walls form a deep 'U' cross section, offering exceptional rigidity and an ample oil reservoir.
- Extra bulk under the main bearing, pinion bearing and intermediate reducer mounting surfaces ensures proper alignment under peak loads.





OIL LUBRICATION

Ovivo drive design includes a deep oil reservoir with full side wall. This design offers many advantages. The full sidewall avoids the possibility of oil leaking and provides good weather protection for the gear. The deep oil reservoir minimizes heat buildup, provides an area for condensate to accumulate well away from the main gear and bearings and allows complete immersion in the lubricant. The drain is located away from the main pinion gear at the lowest point to allow extraction of contaminants.

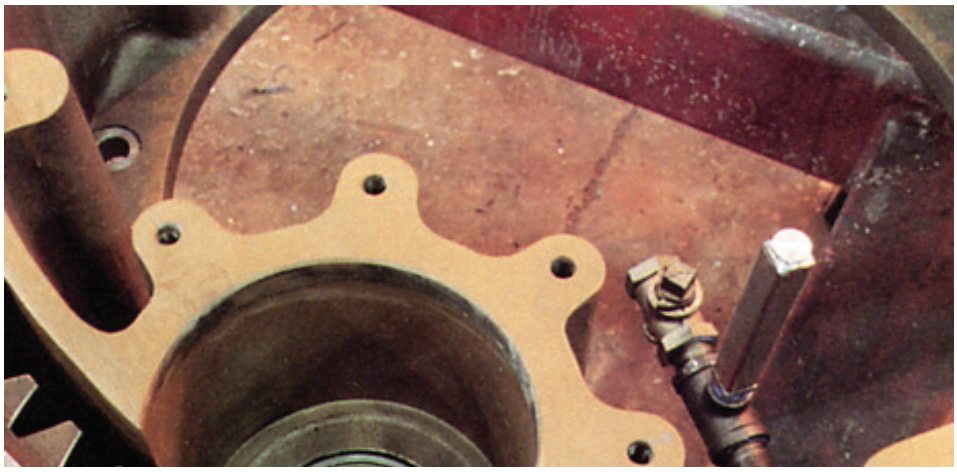


STRIP LINER BEARINGS

Ovivo drives use strip liner bearings and the largest chrome alloy bearing balls on the market. The strip liners are specially designed for wastewater treatment applications. These high quality strips are manufactured in AISI E4140, vacuum degassed and carbon deoxidized steel and offer high strength (43-46 Rc hardness).

QUALITY COMPONENTS

EWT drives are equipped with bearings, worms and pinion mounted on a precisely machined surface. In every drive a high quality solid pinion maintains alignment and gives better resistance to bending and deflection under loads. Mating parts are machined to precise tolerances to assure precise fit and alignment. Every drive part is fully restrained (top and bottom) with no overhung loads. Main bearings are fully restrained into base.

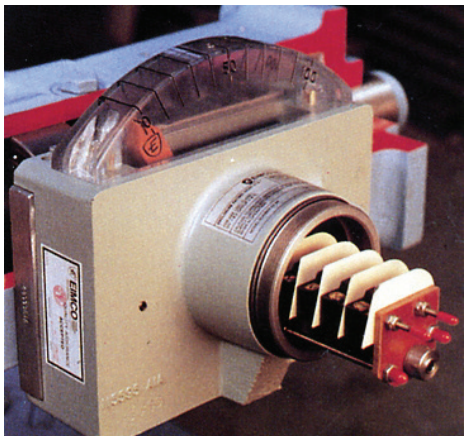


AGMA STANDARDS

Worm gear reducer, single solid pinion, single solid worm / worm shaft and main gear all meet the latest AGMA (American Gear Manufacturers' Association) standards.

DRIVE CONTROL

Each drive is equipped with an overload control device activated by thrust from the worm shaft. This drive control includes a clear plastic enclosure and a weatherproof enclosure of epoxy coated aluminum construction with electro-mechanical switches.



DRIVE COMPONENTS MATERIAL

Main gear housing	Cast iron ASTM A48
Worm gear housing	Cast iron ASTM A48
Main gear	Ductile iron ASTM-A536 class 80-55-06
Worm gear	Cast alloy bronze
Worm	Alloy Steel AISI 4140/42H
Pinion	Alloy steel 4150 (26-33 Rc)
Strip liners	Steel AISI E4140
Bearing ball	Chrome alloy steel
Control enclosure	Cast aluminium

EQUAFLO 360™ ENERGY DISPERSING INLET

The EquaFlo 360 Energy Dissipating Inlet (EDI) for clarifiers differs substantially from conventional practice by using the entire EDI circumference to discharge flow rather than just a few openings in the EDI shell. The quiescent tangential flow that results provides a uniform velocity profile and promotes flocculation within the feedwell.

EDIS: USES

The influent discharges from the center column at relatively high energy levels must be dissipated to reduce the influent velocity in feedwell and provide a uniform distribution in the clarification zone.

EXISTING EDIS

Scoop design, baffled design or TEE outlets design dissipate energy but produce flow streams. Flow streams cause turbulences and preferential jets in the feedwell resulting in reduced clarifier performance. These designs are also associated with deep feedwells to reduce the possibility of short circuiting under the feedwell.

THE EQUAFLO 360™

With its extended inner rim and evenly spaced tangentially oriented vanes along the entire 360 degrees of the EDI circumference and, the new EquaFlo 360 offers the following advantages:

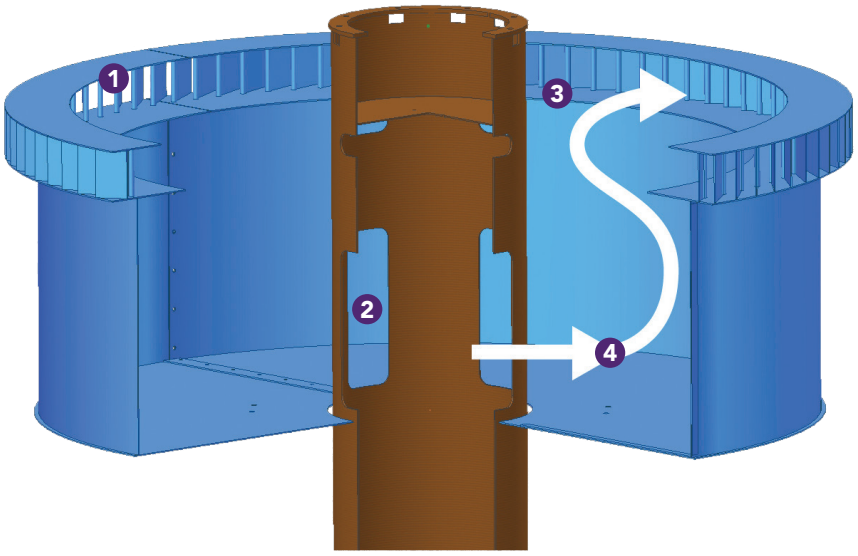
- Eliminates the distributing effects of the discrete flow streams jetting into the feedwell from the EDI
- Produces uniform flow into the feedwell around its full 360 degree circumference
- Achieves a controlled tangential flow velocity which promotes flocculation in the feedwell
- Minimizes the depth of the inlet discharge into the feedwell so the feedwell can have a minimum depth in the clarifier to avoid scouring of the sludge blanket on the clarifier floor
- Creates a tapered velocity profile for the flow that enters the clarification zone
- Increases the active clarification volume and retention efficiency of the clarifier through the use of a tangential discharge from the feedwell.

FEATURES & BENEFITS

- Discharge on full 360
- Evenly spaced tangentially orientated vanes
- Extended inner rim
- Double set of influent ports on influent column
- No stream jetting
- Enhanced flocculation
- Shallower feedwell
- No sludge scouring

EQUAFLO 360™ ENERGY DISPERSING INLET

1. The EquaFlo 360™ EDI discharge is ringed with evenly spaced tangentially orientated vanes along the entire 360 degree of the EDI circumference.
2. The influent column discharge ports are set below the EDI vanes, providing immediate containment and baffling of the influent via the EDI floor and cylindrical shell.
3. The lower rim of the vane support ring extends back towards the column, forming a lip that provides additional flow baffling and energy dispersion.
4. Flow leaving the column ports encounters the EDI wall, then must travel around the lower support ring prior to quiescently discharging into the feedwell trough tangentially orientated vanes.



FULL TROUGH SKIMMER (FTS)

THE FULL TROUGH SKIMMER (FTS) MECHANISM IS A PERFORMANCE ENHANCING SKIMMING DESIGN THAT HAS BEEN EFFECTIVELY PROVEN AND RETROFITTED INTO MANY EXISTING CLARIFIERS.

This mechanism covers the entire annular space between feedwell and scum baffles and can eliminate scum quickly and effectively, at a rate faster that that of the standard scum box and skimmer design. This innovative design incorporates a radial approach ramp and an automatic flush valve. The (FTS) is an effective device that will enhance the overall performance of any clarifier of 110' in diameter or smaller.

KEY FEATURES & BENEFITS

- Heavy duty skimmer arms
- Increased removal rate decreases odor
- Prevents surface scum carry-over into effluent stream
- Effective removal of heavy surface scum loads in one pass
- Can be retrofitted into existing bridge and column mounted clarifiers and thickeners
- Flush valve assembly mounted at the feedwell end automatically rinses out the scum trough
- Heavy duty skimmer arms do not have pivots, hinges or springs that wear out and break
- Can be customized to fit any manufacturer's mechanism
- Eliminates the need to direct scum to the tank periphery with a hose or spray system
- Radial design enables the full length of the skimmer wiper to make simultaneous and continuous contact with the entire ramp at each revolution of the skimmer arm

SERVICES

As well as a complete range of process equipment, Ovivo is your source for everything necessary to meet the total needs of a project, from inception to start-up and beyond.

FLOWSHEET CAPABILITIES

Ovivo 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

Ovivo can take the hassle out of project management and coordinating independent contractors, who might not be familiar with all the details necessary for the installation of your thickener or clarifier. Our experienced tankage and erection crews can save you time and money by doing all the field work to deliver you a trouble-free machine.

UPGRADES AND RETROFITS

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

SERVICING

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

ovivo®connect℠

Ovivo® Connect℠ portal is an innovative and intuitive application that allows our customers to use 'SmartTags' installed on our equipment (or a web URL) to access a personalized customer zone. Access your equipment documentation, find contract references, track service logs, manage spare parts, and plan your next maintenance to get the most out of your equipment.

NEED **ACCESS** TO YOUR **O&M MANUAL**?
NEED **SPARE PARTS**?
WANT THE **LATEST TIPS AND NEWS** ON YOUR ASSET?

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1.855.GO.OVIVO

info@ovivowater.com
ovivowater.com