

## CableTorq® Thickeners/Clarifiers



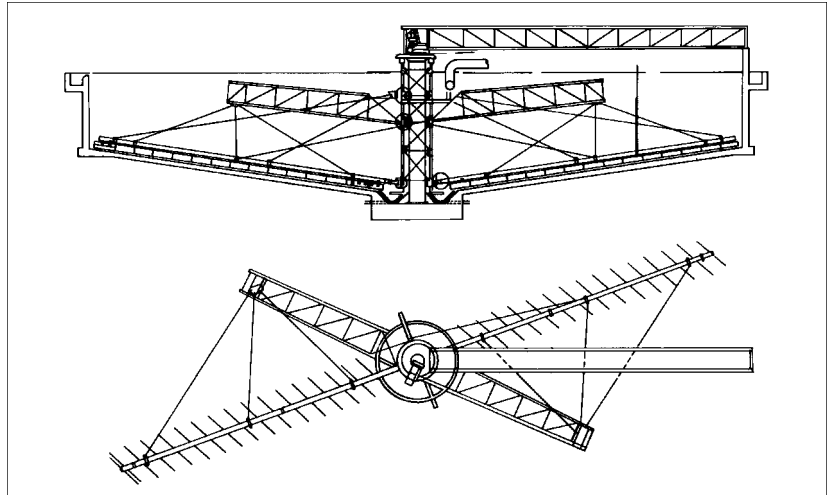
Dorr-Oliver 100 ft. dia. Type "S" CableTorq Thickener

## What it is...

Dorr-Oliver's Eimco CableTorq thickeners and clarifiers have streamlined rake arms, pulled by cables, connected to a torque (or drive) arm that travels above the sludge. The rake arms are attached to a special hinge. The arms thus are able to rise automatically when heavy sludge concentrations occur. But because of the unique hinge, the arms continue to operate in two planes keeping the rake blades in perfect position for most efficient raking and solids removal.

### Result

The CableTorq machine automatically rides out high torque loads and keeps on raking – where conventional thickeners might be forced to shut down or risk damage to the machine.



## How it works...

### The Rake that Avoids Trouble Automatically

The CableTorq thickener does everything a thickener did before, but it literally rises above a lot of the old problems automatically. The dual-axis hinge on the rake arm – the heart of CableTorq machine operation – allows the rake arm to move with a “universal-joint” action whenever an overload is encountered. The rake blades ride up and back in a motion which keeps them parallel with their original raking position at any lift angle. This maintains them at their most efficient raking capacity at all times. This unique benefit can only be achieved by use of an arm hinged with two pins, one in a horizontal axis and one in a vertical axis.

Only the rake blades themselves and the streamlined arm they are mounted on are down in the dense sludge. This cuts resistance to a minimum and makes for a most efficient operation. The CableTorq thickener pulls instead of pushes. Power is supplied through cables that pull the rake arm like a water skier instead of pushing it like a snowplow. The torque arm that tows the rake is high in the liquor, not deep in the dense sludge. That means easier, more economical operation and lower torque and power requirements. In some installations, the torque arm is actually clear of the liquid surface. And because the rake arm itself is towed by the cable harness, it is free to ride up over obstructions instead of digging into them until overload causes a shutdown and possible damage.

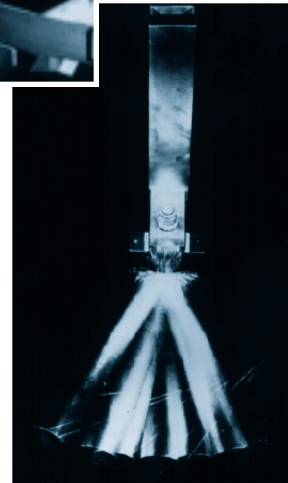
### Result

CableTorq thickeners significantly reduce two major thickening problems: downtime and maintenance costs.

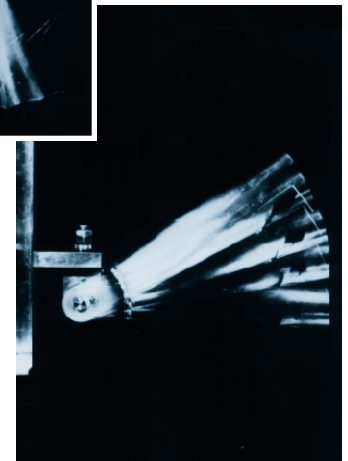


Universal Joint

Horizontal Movement



Vertical Movement



# CableTorq Models

## Type A Clarifier

Available in tank diameters from 40 to 100 ft. with bridge supported drivehead. Equipped with a skimmer and scum trough. Feed is overhead to a deep feedwell. This unit is designed for waste treatment for pulp and paper mills, chemical and food plants and other waste materials.

## Type A Thickener

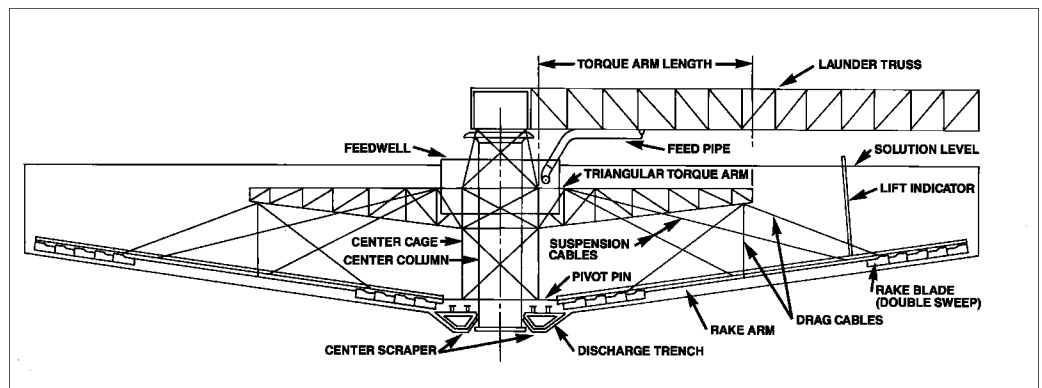
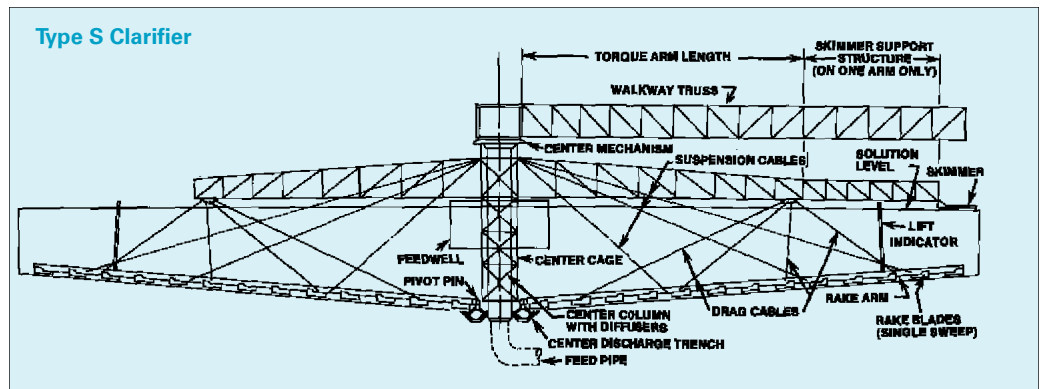
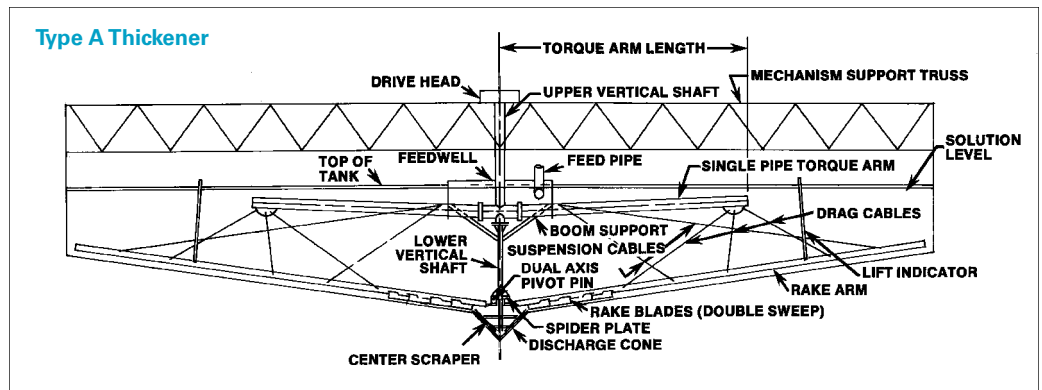
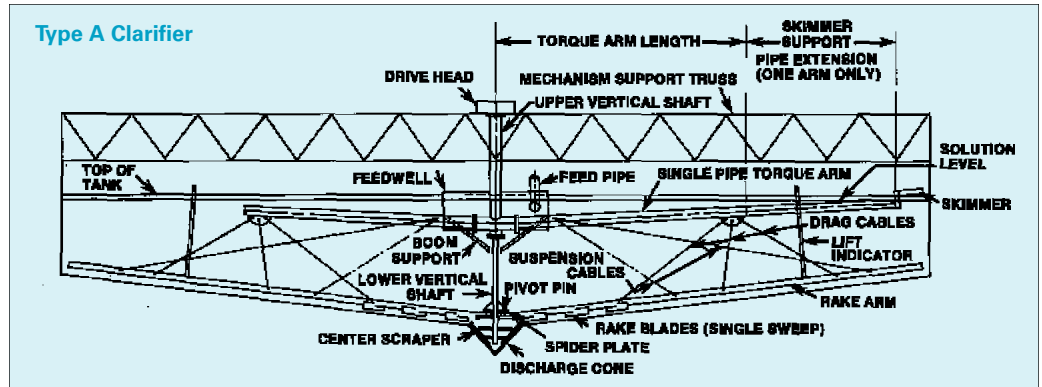
Available in diameters from 40 to 100 ft. – has an overhead feed. Torque arms are of single pipe construction. Rake blades are designed to provide double sweep operation for continuously handling heavy sludge loadings. The drivehead and raking mechanism are supported by a wall to wall bridge across the diameter of the basin. The unit is ideal for thickening industrial wastes, ore concentrates and tailings, flue dust, fly ash and utility stack gas scrubbing.

## Type S Clarifier

Available in diameters from 40 to 270 ft. The unique feature of this design is that the torque-arm is above the feedwell and therefore completely above solution level, a particular advantage when tank contents are corrosive. Maintenance is simplified and cost is greatly reduced in applications calling for corrosion resistance of wetted parts. The influent is siphon-fed up through the center support column. At the top, it emerges peripherally through diffuser ports and is deflected downward by the rotating feedwell. Applications include pulp and paper, chemical and other waste treatment systems.

## Type S Thickener

Available in diameters from 75 ft. to 270 ft. Drivehead is supported on a center pier. Two stub arms in addition to the two rake arms provide extra raking capacity at the tank discharge trench, the area where raking capacity is most critical. Feed is via a radial launder extending to the center feedwell. Type S CableTorq thickeners are now in use on copper concentrates, middlings, alumina red mud, gold and diamond cyanide slimes, and in various tailings operations.



## CableTorq Advantages

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- Requires lower torque capacity because of reduced drag.
- Automatically protects against overload due to lifting action.
- Blades maintain efficient raking angle even when the rake arms are in a lifted position.
- Keeps scraper blades in position in discharge cone or trench when arms are lifted.
- As rakes clear overload, raking arms return smoothly to original position. NO shuddering!
- Minimizes island formation because of the smooth pipe design of the rake arms.
- Allows temporary surges or shock loads in solids handling capacity.
- Torque arms are out of the heavy mud zone and in some installations actually clear the liquid level, minimizing the torque load.
- Pipe design of rake arm minimizes scale formation and reduces dead load on center mechanism.
- Each arm lifts independently for efficient continuous sludge discharge.

## Applications

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- **Alumina - Red Mud**
- **Alumina - Hydrate**
- **Calcium Carbonate**
- **Soda Ash**

Severe scaling characterizes these operations. The CableTorq's streamlined rake arm design minimizes scale formation as well as reduces torque requirements.

- **Pulp & Paper Waste**

The CableTorq rake arms present minimum drag when rotating through settled fiber.

- **FDG Sludges**
- **BOF Dust and Fly Ash**
- **Sand Slimes**
- **Gold – Cyanide Slimes**
- **Mineral Concentrates**
- **Mineral Tailings**
- **Cement**

These solids can thicken rapidly. The CableTorq rake arms react to relieve the overload by changing rake slope. Cone scrapers and blades stay in position. Each arm lifts independently, allowing the clearance of local obstructions. This minimizes unbalanced loads. The result is consistently high underflow density without expensive mechanical lifting devices.



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