



# SUPRACELL CIRCULAR DAF

## DISSOLVED AIR FLOTATION CLARIFIER



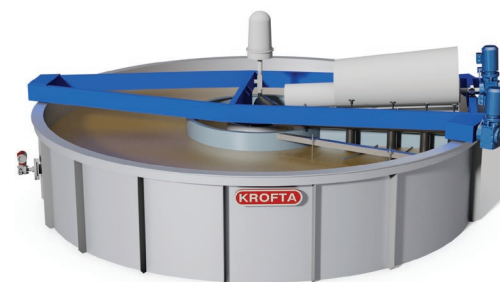
The KROFTA™ Supracell™ is available in 20 standard sizes ranging from 4 to 70 feet in diameter. This wide range of standard sizes cost-effectively processes flows from 35 gpm to 12,000 gpm in a single unit. If space is an issue, units can be easily stacked on top of each other for a smaller footprint. Units are sized based on solids loading, flow rate, recycle requirements, and flotation characteristics. Maximum theoretical loading to the unit is 3.0 to 3.5 gpm/sf. All wetted parts on the Supracell are constructed of 304L stainless steel with 316 stainless steel as an option. On units 15 feet in diameter and under, the entire unit including the carriage assembly is stainless steel. On units larger than 15' in diameter, non-wetted materials such as carriage assemblies and substructures are fabricated in painted mild steel. Stainless steel is available as an upgrade on the larger size units. Typical retention time is 3 - 5 minutes.

### SUPRACELL PROCESS DESCRIPTION



As the rotating carriage travels in one direction, untreated water flows into the unit in the opposite direction. As the two forces oppose each other they equalize, creating 'zero-velocity' within the flotation zone. The fine air bubbles from the ADT can then easily attach and lift suspended solids to the surface where the sludge blanket is formed. The clarified water is then drawn off of the bottom of the tank through the effluent extraction pipes into a common clear well where it is discharged by gravity through the bottom of the unit. Floated sludge is removed by the spiral scoop and deposited out a central sludge well. A portion of the clarified water is recycled to feed the ADT.

### AUTOMATIC LEVEL CONTROL



An automatic level control system (manual weir is optional) constantly monitors level fluctuations and keeps the level in the tank accurate to 1/2" to ensure consistent and precise sludge removal. The automatic level control system consists of a pressure transducer mounted on the tank to monitor level fluctuations, a process control unit, and a level control valve mounted on the effluent line of the tank to modulate flow as needed to maintain the preset level. This arrangement maximizes the % solids of the floated material for more efficient sludge processing downstream of the DAF.

## STANDARD UNITS

SIZE Diameter (Feet)	CAPACITY gpm	CAPACITY m <sup>3</sup> /h
6	65	15
8	156	35
10	272	62
12	396	90
15	546	124
18	796	181
20	1001	227
22	1185	269
24	1391	316
27	1794	407
30	2268	515
33	2637	599
36	3215	730
40	3928	892
44	4732	1075
49	5904	1341
55	7451	1692
62	9548	2169
70	12104	2749

## OPERATIONAL ADVANTAGES

- There is only 18-22 inches of water in the clarifier; therefore the unit has a very low floor loading. Typically, units will weigh ~160 lbs/sf or less.
- The shallow tank design provides for easy operation, tank inspection & cleaning.
- A viewing window is mounted on the side of the tank for observation of the flotation process and facilitates the optimization of chemical dosing (if necessary).
- The shallow, open tank design also allows for utilization of the unit on a wide variety of applications. Heavy oil and grease applications or high solids applications are well suited to the design since there are few obstructions within the tank to accumulate solids.
- A bottom scraper cleans the unit of any sediment debris that is then automatically purged.
- All of the inlet and outlet connections are at the bottom of the unit, allowing the unit to be installed in an elevated position.
- Elevation may eliminate the need for an additional pumping stage when it is necessary to drain the clarified water or floated sludge.
- The spiral scoop mechanism is designed for precise sludge removal by removing only the sludge layer above the clarified water level. This increases floated sludge consistency, benefiting downstream sludge handling equipment by reducing sludge volume and hauling costs.

## THE AIR DISSOLVING TUBE (ADT)



Common to all Krofta DAF technology, the Krofta™ Air Dissolving Tube (ADT) is in operation in thousands of applications around the world. The ADT eliminates the need for large volumes of air and water used by typical pressure vessels, by using air dispersion technology and centrifugal force in place of sheer volume and gravity. Compressed air is released into the ADT across the surface of an air panel. The panel material and design disperses the air across the entire surface of the panel. This allows for faster dissolution of air into the water and hence a retention time of only eight to twelve seconds. The flow pattern within the ADT is a cyclone or vortex which produces a centrifugal force that eliminates undesirable entrained air. A specially designed inlet nozzle is sized specifically for each application and can be easily changed out if the recycle requirements of future waste streams change significantly. In addition, a proprietary bleed-off outlet also assists in eliminating too much air in the tube itself. This ensures that the tube will never air bind or release undissolved air to the DAF. A sized globe valve is used for pressure release, generating 10-70 micron bubbles well suited for DAF operation.