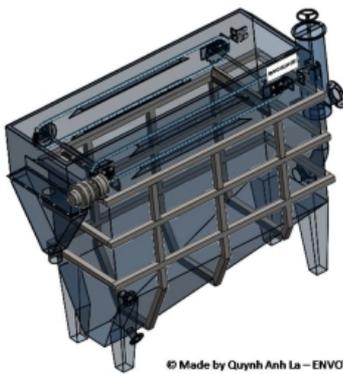


WATER AND WASTEWATER TREATMENT ENGINEERING

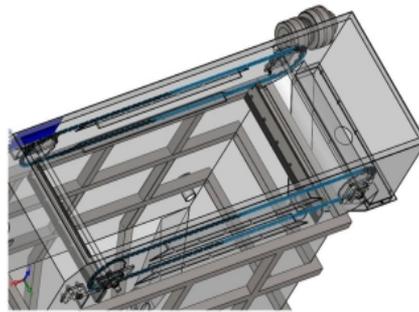
Design and supply of water purification systems, wastewater, primary and drinkable

DISSOLVED AIR FLOTATION UNITS - DAF

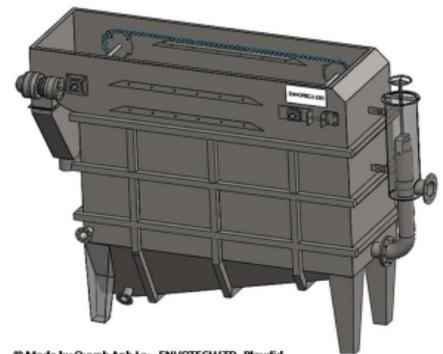
*Design and production of ENVOTECH LTD
 Full CE certification.*



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Efficiency

30% removal efficiency of BOD5/COD
 90% of biological sludge, particles, fats and oils.

Flow

Wide range of capacities (from 1 to 80 m3/hour and more).

Material - Made to last.

Completely built in stainless steel AISI 304 as standard, AISI 316 on request.

Flexibility

Suitable to be personalized for any particular requirement (lamella pack, additional pH-meter, ORP controller, selective electrodes for ionic compounds, chlorine controller and solids detector).

Typical applications of the Dissolved Air Flotation

Suitable to: Dairy - Slaughter houses - Meat processing - Poultry - Brewery - Winery and alcohol manufacture - Canning and meals production - Vegetable processing - Fish processing
 Paper mills - Petrochemical - Cosmetics - Textile manufacture - Mechanical productions with oil and grease pollutions - Oil refinery - Mining

DISSOLVED AIR FLOTATION UNITS - DAF

DESCRIPTION

Flotation is a process to separate suspended or emulsified matters from the liquid phase floating them through the action of a rising gas stream, normally air. The gas can be, either injected, or dissolved under pressure into the water.

In the first case (IAF or induced air flotation), air is simply introduced into the water by a compressor and air diffusers. The air bubbles diameter varies from 1 to 5 millimetres, according to the used diffusers.

In the second case (DAF or dissolved air flotation), air is dissolved under pressure into the water to produce, once pressure is released, air bubbles with a diameter of 20 to 50 microns that saturate the whole liquid mass.

The raising of suspended matters occurs, either for capture and absorption of air bubbles by the solids in suspension, and for adhesion of the bubbles to the solid flocks.

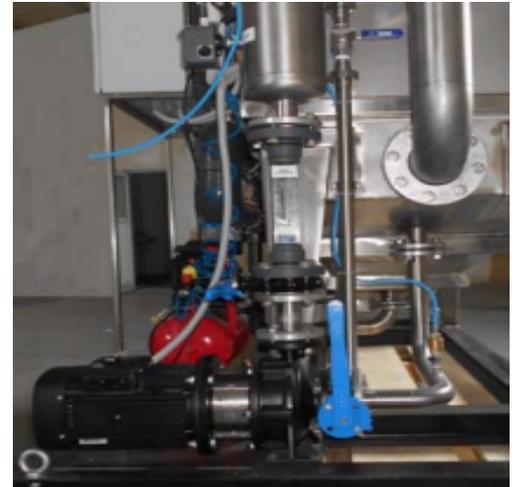
The result is the formation of a light particulate that quickly rises forming a layer on the surface of the clarified water.

The process applied in the purification of wastewater for recovery and re-use, containing oils from mechanical production company in Netherland.



After and before treatment.

Envotech DAF exit treated water from meat processing mixed effluent.



DISSOLVED AIR FLOTATION UNITS - DAF

The pressurising system used in our DAF units (**continuous circulating of the mixture from the group of saturation to the one of dissolution**) allows to obtain over saturated water/air mixtures with low power and low energetic consumption. Moreover, this system allows to introduce air to an independent pressure from the working pressure of the saturation group.

Wastewater to be treated enters a reaction coil particularly shaped to allow a thorough contact and complete mixing with the dosed chemicals.

The dosage of chemicals in the reaction coil is carried out with high reliability systems and high performances metering pumps. The control of the pH is always on-line with industrial instruments of great precision and electrodes of combined type in solution gel.

The water/air mixture is injected after the chemicals dosage in many different points of the reaction coil and flotation tank, to obtain the most uniform possible distribution of its concentration in the fluid mass and an intimate contact with the flocks to be removed.

In this way, already in the reaction coil the flocks produced by the reaction with the dosed chemicals absorb air particles, to advantage of the reliability of the process and of their rising speed.

The flow of the saturated water/air mixture and wastewaters conditioned with the chemicals, is then introduced in the flotation tank through a conical profile ejector to increase in a progressive way the rising speed of the solid flocks stuck to the air bubbles.



DISSOLVED AIR FLOTATION UNITS - DAF

Thus, a thick layer of floated materials grows on the surface of the flotation tank and it is removed by a scraper.

The conveying course of the floated materials to the collection hopper, is built with a curved profile connection, so to facilitate the water-drainage and achieve a high concentration of dry matter into the discharged sludges.

A **specially shaped telescopic valve** collects clear water and allows to control the level into the flotation tank, thus the quantity of sludge to be removed.

The water flow speed is calculated non to disturb the rising of lighter materials and the sedimentation of the heavier. Settled materials are discharged through an automatic valve.

The software controlling and ruling the entire process is of high reliability (written for PLC SIEMENS, but exportable also to other PLC on request) and guarantees always the best conditions and performances of treatment.

A remote control of the operations with a **SCADA interface** is available as option, as well as the transfer of all the working data on a PC with a TCP/IP protocol.

All junctions are sealed with stainless steel cold-shut paste to prevent entering of water condensate into the reinforcement structure and subsequent trickling on the metal surfaces.

These and other constructive particulars, make the DAF units particularly fit for the treatment of industrial wastewaters from industries of the oil, mechanics, galvanic and textiles, refineries, as well as any alimentary industry as dairies, meat processing industries, sweet and chocolate industries, wine, beer and liquors industries.



DISSOLVED AIR FLOTATION UNITS - DAF

The available models cover a great range of capacities (**from 1 to 100 m³/hour and more**) and may be completed with modular units for a complete treatment of wastewaters, such as chemical oxidation, filtration on resins, quartzite and activated coal, units for biological treatment, etc.

All the units are completely built in stainless steel AISI304, other materials on request.

DAF units are supplied ready to be installed, and on request installed, started and tested by our technicians.

All DAF units have **CE** certifications and are supplied with complete use and maintenance handbook.

MODELS AND TECHNICAL CHARACTERISTICS

Model	Flotation tank dimensions, mm			Q, m ³ /h	Useful volume m ³	Mean Ret. Time, min.	Pressurising group, basic single stage centrifugal pump		kW	Empty Mass (Kg)	Full Mass (Kg)
	Length	Width	Height				Model	Pump			
IWT-UT05DAF	1500	750	1500	5	1.4	17	G-5DAF	GNB32-160.1/169	4.5	850	2,300
IWT-UT10DAF	2000	1250	1500	10	3.2	19	G-10DAF	GNB32-160/151	4.5	1,100	4,300
IWT-UT15DAF	3000	1250	1500	15	4.8	19	G-15DAF	GNB32-160/163	5.5	1,550	6,300
IWT-UT20DAF	3500	1500	1500	20	6.0	18	G-20DAF	GNB32-160/163	5.5	1,650	7,650
IWT-UT30DAF	4000	1500	1500	30	8.2	16	G-30DAF	GNB32-200.1/188	5.5	2,200	10,400
IWT-UT45DAF	5000	2000	1500	45	12.7	17	G-40DAF	GNB40-160/158	7.5	2,800	15,500
IWT-UT60DAF	6000	2000	1500	60	16.4	16	G-60DAF	GNB40-160/172	9.5	3,600	20,000
IWT-UT80DAF	8000	2000	1500	80	21.9	16	G-80DAF	GNB50-160/167	13.0	4,650	26,550

Model	Flotation tank dimensions, mm			Q, m ³ /h	Useful volume m ³	Mean Ret. Time, min.	Pressurising group, heavy duty single stage centrifugal pump with retracted impeller		kW	Empty Mass (Kg)	Full Mass (Kg)
	Length	Width	Height				Model	Pump			
IWT-UT05DAF	1500	750	1500	5	1.4	17	G-5DAF	T32-200/1C/RA04	5.5	850	2,300
IWT-UT10DAF	2000	1250	1500	10	3.2	19	G-10DAF	T32-200/1C/RA05	6.5	1,100	4,300
IWT-UT15DAF	3000	1250	1500	15	4.8	19	G-15DAF	T32-200/1C/RA06	7.5	1,550	6,300
IWT-UT20DAF	3500	1500	1500	20	6.0	18	G-20DAF	T32-200/1C/RA06	7.5	1,650	7,650
IWT-UT30DAF	4000	1500	1500	30	8.2	16	G-30DAF	T32-200/1C/RA06	7.5	2,200	10,400
IWT-UT45DAF	5000	2000	1500	45	12.7	17	G-40DAF	T32-200/1C/RA10	12.0	2,800	15,500
IWT-UT60DAF	6000	2000	1500	60	16.4	16	G-60DAF	T32-200/1C/RA15	17.0	3,600	20,000
IWT-UT80DAF	8000	2000	1500	80	21.9	16	G-80DAF	T32-200/1C/RA15	17.0	4,650	26,550

NOTE: For any other need or question, please contact our technical office.

ENVOTECH Ltd. has the right to make changes at any time, even without notice, in order to achieve better performances and quality of its products.