

ACTIFLO® Duo

Two in one ready-to-use system for wastewater treatment depending on flow rates

Designed to adjust to substantial fluctuations in water flows to be treated, Actiflo® Duo can operate as a Multiflo® format (or conventional lamella clarifier) in times of low flow, such as in dry weather, or as an Actiflo®, i.e. coagulation/flocculation and settling ballasted with microsand in times of high flow, such as in wet weather.

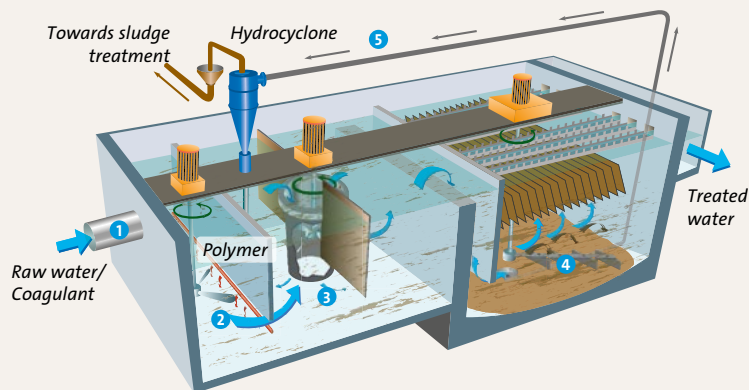
Actiflo Duo offers a unique design and operating system allowing for optimal use of installed equipment with lower operating costs. It equally allows for unprecedented operational flexibility.

Operating Principle

Depending on the operating mode activated, Actiflo Duo has the same operating features as Actiflo or Multiflo (lamella clarification), giving it the advantage of high flexibility in treatment operations.

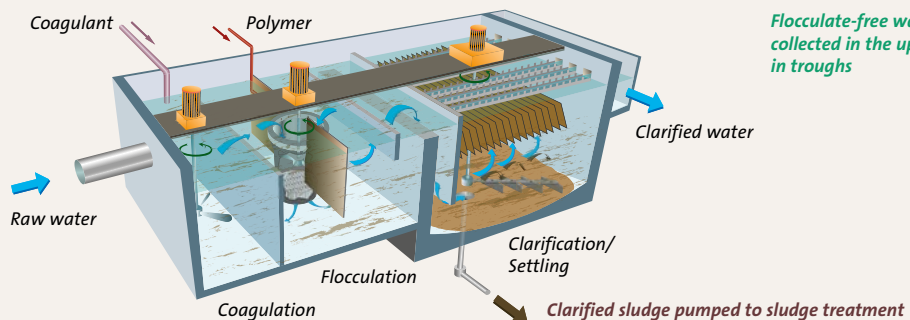
This operational flexibility is especially important in managing excess flows during periods of heavy rainfall.

In high flows, Actiflo Duo operates exactly as Actiflo, with microsand use and mixer speed allowing for ultra high speed and ultra high performance treatment.



- 1 **Chemicals:** a coagulant, such as an iron or aluminium salt, is added to the raw water.
- 2 **Coagulation:** hydroxide flocs are formed during the coagulation phase.
- 3 **Turbomix™ flocculation:** the flocs formed during the coagulation phase are ballasted with microsand with the help of polymer.
- 4 **Clarification:** the ballasted flocs settle quickly thanks to the specific weight of the microsand.
- 5 **Recirculation:** the sludge and micro-sand slurry is pumped to the hydrocyclone where the sludge is separated from the microsand via centrifugal force. The clean microsand is recycled back to the flocculation tank while the sludge is continuously discharged.

In low flows, like during dry weather, the Multiflo (or conventional lamella clarifier) option can be enabled. Mixers then run at low speed while the microsand is stored in the injection and maturation tanks.



Flocculate-free water is collected in the upper section in troughs

Advantages

- Exceptional treatment performance regardless of field of application.
- Operational flexibility
- Optimization of installed equipment at lower operating costs.
- Lower reagent consumption: up to 50% savings compared to conventional processes.
- Lower civil engineering costs thanks to process compactness.
- Easy-to-use process: simply operation demanding little attention from operators.

Comparison of working ranges

Operating procedure	Conventional clarifier	Conventional clarifier with reagents	ACTIFLO®
Chemicals	NO	YES	YES
Microsand location	Inactive at bottom of tanks	Inactive at bottom of tanks	In suspension
Scrapers and pumps	Operate intermittently	Operate intermittently	Operate continuously
Suspended solids removal	>50%	>90%	>90%

Some references

- Illawarra, Sydney, Australia, 2006, 160 000 m³/day, CSO-120m/h treatment
- Hartevann (Bykle), Norway, 2011, 5 800 m³/day, secondary treatment, MBBR-70m/h clarification
- Tranemo, Sweden, 2004, 12 000 m³/day, CSO-89m/h tertiary treatment
- Port Clinton, USA, 2004, 91 000 m³/day, CSO - 88m/h primary and tertiary treatment
- Danang Beach Resort, Vietnam, 2011, 13 000 m³/day, secondary treatment /MBBR - 110m/h clarification



Illawarra, Sydney, Australie