

# Actiflo<sup>®</sup> Pack ACP2

High Performance Packaged Clarifiers

*WATER TECHNOLOGIES*

## Looking for optimum modular high rate clarification?

Clarification is a key process step in most water treatment plants used for the production of drinking water, industrial process water, for wastewater treatment and reuse. The Actiflo® process is suitable for all these applications.

The key target of clarification is to produce water free from suspended solids and other contaminants. The Actiflo consistently displays higher efficiency than all other clarification processes.

In many plants, a recurrent challenge with clarification is to be able to handle fluctuating flows and contaminants concentrations. The Actiflo process has shown consistent and unparalleled results even in cases of very high fluctuations.

**Veolia Water Technologies, an expert in water treatment solutions, has developed and patented Actiflo which is today recognized as the most universal and the highest performing clarification process in the market.**

In order to stay on the cutting edge, Veolia Water Technologies has extensively standardized the Actiflo in a range of package plant to comply with various Customers' expectations:

- Systems that can be delivered, installed and commissioned very quickly
- High level of local services based on a reliable, efficient and modular solutions
- Cost effective products

## Applications

The Actiflo Pack ACP2 range covers all municipal and industrial treatment applications and all types of water.

- Surface and ground water treatment
- Very high or very low turbidity water and wastewater
- Primary, secondary and tertiary clarification of wastewater
- Treatment of biofilter backwash water and trickling filter effluents
- Stormwater and combined sewer overflow treatment, reverting to effluent polishing during dry weather
- Industrial process water treatment
- Pre-treatment to membrane and ion exchange systems
- Industrial wastewater treatment in all market segments, including leachate and run-off water
- Recycling/Reuse
- Industrial effluents retrofitting



## Actiflo Pack ACP2

### The best package range of microsand enhanced clarifiers

Based on Actiflo's high rate, compact, microsand ballasted clarification patented process by Veolia Water Technologies, the Actiflo Pack ACP 2 units are **fully standardized** clarifier package plants.

The Actiflo Pack ACP2 units have the same operating characteristics and advantages: fast, high performance treatment and great operational flexibility. Standardized and pre-assembled, Actiflo Pack ACP2 units provide the clients with the most competitive and advanced technologies with minimal engineering costs and **extremely short delivery and commissioning times.**

Numerous standard options and alternatives are proposed to enhance performances and monitoring.

**Integrating the continuous innovation carried out by Veolia Water Technologies, the Actiflo Pack ACP2 range now includes eight models suitable for flow rates from 300 m<sup>3</sup>/d to 43 000 m<sup>3</sup>/d.**



## Advantages

- ◆ **Fully standardized, short lead times, quick installation and commissioning**
- ◆ **Small footprint:** suited for restricted areas and retrofit projects.
- ◆ **Exceptional treatment performance:** regardless of the field of application.
- ◆ **Operational stability:** no impact on treatment efficiency during sudden flow or raw water quality fluctuations.
- ◆ **Quick response to treatment adjustments.**
- ◆ **Higher degree of operational flexibility:** Full automation and remote monitoring.

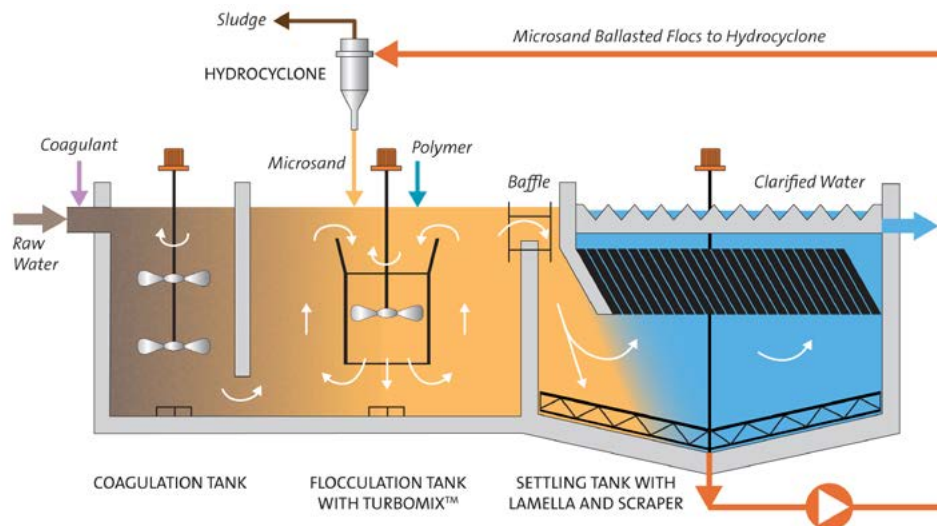


# Actiflo Pack ACP2 – All of Actiflo's efficiency in fully

## Operating principle

Actiflo Pack uses microsand which enhances the formation of robust flocs and acts as ballast, significantly increasing their settling velocities. The unique characteristics of the resulting microsand ballasted flocs allow for clarifier designs with very short hydraulic residence times, high rise rates and extremely compact system footprints that are 4 to 8 times smaller than lamella or dissolved air flotation (DAF) clarifiers and up to 50 times smaller than conventional clarification systems of similar capacity.

Also, the microsand buffers the effect of raw water flow or load variations, making the process very user friendly and easy to operate. A flexible process where easy and frequent shutdowns and restarts are possible, depending on water needs, Actiflo Pack achieves better treatment performance than existing clarification process on the market, displaying consistent and up to > 99% removal efficiencies of turbidity, suspended solids and associated pollutants.



## Services

Local aftermarket service and support teams offer preventative and corrective maintenance programs to ensure the long-term, efficient operation of installed plants.



Technical audits



Lab and bench-scale tests



Pilot tests



Service contracts

# standardized package range

## Key figures and Performances

### System Performances

Model	Unit	ACP2-15	ACP2-30	ACP2-40	ACP2-45	ACP2-55	ACP2-60	ACP2-70	ACP2-75
Min flow rate <sup>(1)</sup>	m <sup>3</sup> /hr	21	42	63	83	125	167	260	297
	US gpm	92	183	275	367	550	734	1147	1307
Max flow rate <sup>(1)</sup>	m <sup>3</sup> /hr	125	250	375	500	750	1 000	1 563	1 781
	US gpm	550	1 101	1 651	2 201	3 302	4 403	6 879	7 842

(1): Selection of models must be done according to inlet water characteristics and treatment requirements

### Dimensions

Model	Unit	ACP2-15	ACP2-30	ACP2-40	ACP2-45	ACP2-55	ACP2-60	ACP2-70	ACP2-75
Length <sup>(2)</sup>	m	4,2	5,8	6,9	8,6	10,1	11,4	13,5	14,4
	ft	13,8	19,0	22,6	28,2	33,1	37,4	44,3	47,2
Width <sup>(2)</sup>	m	3,1	3,3	3,7	3,8	4,4	5,1	5,6	5,8
	ft	10,2	10,8	12,1	12,5	14,4	16,7	18,4	19,0
Height <sup>(2)</sup>	m	4,9	5,1	5,4	5,5	5,6	5,9	6,4	6,4
	ft	16,1	16,7	17,7	18,0	18,4	19,4	21,0	21,0
Clearance Height	m	5,9	6,1	6,4	6,5	6,6	6,9	7,4	7,4
	ft	19,4	20,0	21,0	21,3	21,6	22,6	24,3	24,3
Empty Tank Weight	kg	4 000	7 000	8 100	9 100	11 500	15 500	18 200	21 700
	lb	8 800	15 400	17 820	20 020	25 300	34 100	40 040	47 740
Operating Weight	kg	26 000	37 500	53 000	64 000	90 000	122 000	180 000	200 000
	lb	57 200	82 500	116 600	140 800	198 000	268 400	396 000	440 000

(2): Including recirculation line(s), ladder and embedded control panel

### Feed water requirements

Parameter	Unit	Value
Minimum water temperature	°C	2
	°F	35
Maximum water temperature	°C	40
	°F	104
Max inlet TSS <sup>(3)</sup>	ppm	5 000
Max inlet Turbidity <sup>(3)</sup>	NTU	2 000
Max inlet particle size	mm	2

(3): For some applications, max acceptable inlet TSS or turbidity could be lower to warranty performances

### Materials

Tank <sup>(5)</sup>	Coated Carbon steel
Internal components <sup>(5)</sup>	SS304L
Recirculation pipework <sup>(5)</sup>	HDPE

(5): Other materials available on request

### Environmental conditions

Parameter	Unit	Value
Minimum ambient temperature	°C	1
	°F	34
Maximum water temperature	°C	40
	°F	104
Max inlet TSS <sup>(3)</sup>	%	90

(4): Standard design can be modified on request to be suitable for other environmental conditions

### Power requirements

Version	ISO (Spain)	ISO (China)	ASME (US)	ASME (Canada)
Voltage <sup>(6)</sup>	400 V	400 V	460 V	575 V
Frequency	50 Hz	50 Hz	60 Hz	60 Hz
Phases	3	3	3	3

(6): Other voltages available on request

## Hydrex

For even greater performance and safety, Actiflo Pack can be offered with the Hydrex™ range of additives, coagulants and polymers and with Actisand™ microsand developed by Veolia. Hydrex 3,000, 6,000 & 9,000 water treatment chemicals from Veolia Water Technologies are recommended for optimized plant operation.

## Always at the forefront of innovation


With 25 years of operational experience and more than 1,800 Actiflo references around the world, Veolia Water Technologies continuously innovates and optimizes its Actiflo ranges performance excellence. Turbomix® Evolution, its latest patented innovation integrated in Actiflo Pack ACP2, enhances the collective efficiency and retention times of the process.

# Actiflo Pack ACP2

## Features & Benefits

Over 900 Actiflo package plants with  
and average capacity of 290 m<sup>3</sup>/hr

### New fully automatic HMI and controller

- ◆ Built-in ethernet port and Vision™ Ready 
- ◆ Touch screen HMI
- ◆ PLC control system and message display
- ◆ Simplified monitoring and operation

### High treatment efficiency

- ◆ Turbidity and TSS removal up to > 99%; treats all water and wastewater sources
- ◆ Extremely quick start-up time: Reaches treatment efficiency within a few minutes
- ◆ Process stability: Microsand buffers the effect of raw water flow or load variations, making the process very user friendly and easy to operate
- ◆ Efficient in cold water applications: Suitable for use also in Nordic regions



### Delivering smarter management

To support the customers and make their water management easier and always more efficient, Veolia Water Technologies has included Vision in the Actiflo Pack ACP2 range.

Vision™ is a new private and secure internet portal for remote monitoring, offering numerous functionalities including a personalized dashboard, to facilitate the customer's account activity.



### Lower operating costs

- Optimal chemical use
- Turbomix Evolution: higher treatment velocity

### Skid mounted, Pre-commissioned

- Minimal civil requirements with short lead times and fast commissioning
- Minimal start-up time
- Small footprint, saving on plant space
- Fully standardized design: complete documentation readily available
- Numerous standard options and alternatives to enhance performances and monitoring

## References Actiflo Pack ACP2

### Industrial

- **DeBeers Diamond Mine**  
Snap Lake, NT, Canada (420 m<sup>3</sup>/h, 2014)
- **ThyssenKrupp**  
Calvert, Alabama, USA (2,300 m<sup>3</sup>/h, 2009)
- **Addiseo**  
France, surface water treatment for process water (42 m<sup>3</sup>/hr, 2013)

### ● Nanning Langdong

China, treatment of the backwash water from a tertiary filtration plant (35,000 m<sup>3</sup>/d)

### Municipal

- **Potawatomi**  
Wisconsin, US (24 m<sup>3</sup>/hr- 2015), tertiary treatment (Phosphorus to 0,075 mg/l)
- **Holliston**  
Massachusetts, US (125 m<sup>3</sup>/hr- 2013), treats ground water for the production of drinking water

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