

Actiflo[®] 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 m³/d to 43 000 m³/d.



Advantages

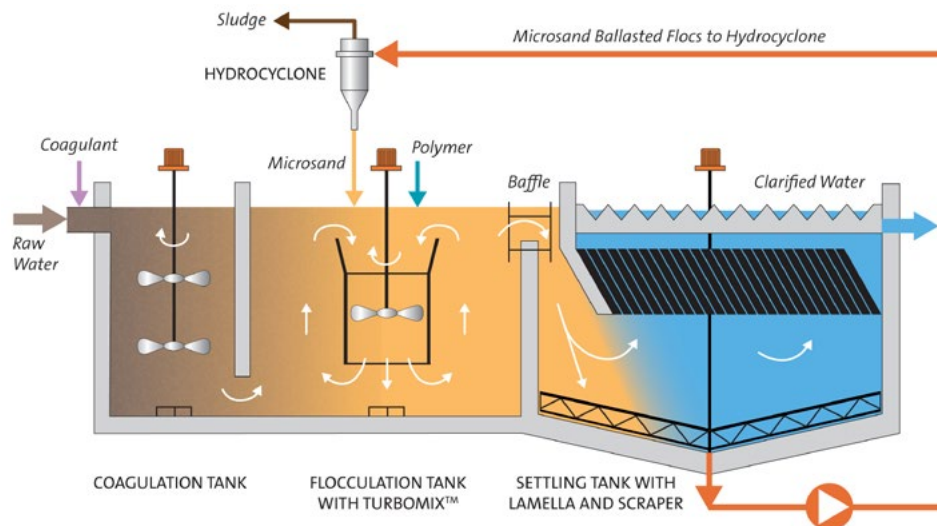
- ◆ **Fully standardized, short lead times, quick installation and commissioning**
- ◆ **Small footprint:** suited for restricted areas and retrofit projects.
- ◆ **Exceptional treatment performance:** regardless of the field of application.
- ◆ **Operational stability:** no impact on treatment efficiency 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 Feed Flowrate ⁽¹⁾ | m ³ /h | 21 | 25 | 38 | 50 | 75 | 100 | 156 | 178 |
| | US gpm | 92 | 110 | 167 | 220 | 330 | 440 | 686 | 783 |
| Max Feed Flowrate | m ³ /h | 104 | 221 | 369 | 414 | 629 | 995 | 1259 | 1441 |
| | US gpm | 458 | 972 | 1624 | 1822 | 2768 | 4378 | 5540 | 6340 |

(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 |
|---------------------------------------|------|---------|---------|---------|---------|---------|---------|---------|---------|
| Total Installed Length ⁽²⁾ | m | 4.4 | 6.5 | 7.7 | 9.5 | 11.2 | 12.5 | 14 | 15 |
| | ft | 14.4 | 21.3 | 25.3 | 31.2 | 36.7 | 41 | 45.9 | 49.2 |
| Total Installed Width ⁽²⁾ | m | 3 | 3.2 | 3.5 | 3.6 | 4.2 | 4.9 | 5.4 | 5.5 |
| | ft | 9.8 | 10.5 | 11.5 | 11.8 | 13.8 | 16.1 | 17.7 | 18 |
| Total Installed Height ⁽²⁾ | m | 5.4 | 5.7 | 6.1 | 6 | 7 | 7 | 7.5 | 7.5 |
| | ft | 17.7 | 18.7 | 20 | 19.7 | 23 | 23 | 24.6 | 24.6 |
| Clearance Height | m | 6.4 | 6.7 | 7.1 | 7 | 8 | 8 | 8.5 | 8.5 |
| | ft | 21 | 22 | 23.3 | 23 | 26.2 | 26.2 | 27.9 | 27.9 |
| Empty 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 ⁽³⁾ | mg/l | 1500 |
| Max inlet Turbidity ⁽³⁾ | NTU | 1000 |
| Max inlet particle size | mm | 2 |

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

Materials

| | |
|---------------------------------------|---------------------|
| Tank ⁽⁵⁾ | Coated Carbon steel |
| Internal components ⁽⁵⁾ | SS304L |
| Recirculation pipework ⁽⁵⁾ | HDPE |

(5): Other materials available on request

Environmental conditions

| Parameter | Unit | Value |
|--|------|-------|
| Minimum ambient temperature ⁽⁴⁾ | °C | 5 |
| | °F | 41 |
| Maximum water temperature ⁽⁴⁾ | °C | 35 |
| | °F | 95 |
| Max inlet TSS ⁽⁴⁾ | % | 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 ⁽⁶⁾ | 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 m³/hr

New fully automatic HMI and controller

- ◆ Built-in ethernet port and Hubgrade Ready **Hubgrade**
Powered by Veolia
- ◆ 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



Hubgrade Powered by Veolia MEETING CUSTOMER CHALLENGES IN THE WATER INDUSTRY

Hubgrade, the digital service designed by Veolia, is the combination of digital tools and the expertise of Veolia employees at the service of operational and environmental efficiency. Its specificity: capitalizing on human competency and digital power to process data in order to provide our customers with a continuous supply of optimized solutions adapted to their priorities. At Veolia Water Technologies, Hubgrade enables our customers to consider and implement operational solutions in line with day-to-day concerns encountered by the operators and managers. With Hubgrade, Veolia Water Technologies addresses the water optimization needs of municipalities and industries to respond to customer's challenges on the whole water cycle.



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 m³/h, 2014)
- **ThyssenKrupp**
Calvert, Alabama, USA (2,300 m³/h, 2009)
- **Addiseo**
France, surface water treatment for process water (42 m³/hr, 2013)

● Nanning Langdong

China, treatment of the backwash water from a tertiary filtration plant (35,000 m³/d)

Municipal

- **Potawatomi**
Wisconsin, US (24 m³/hr- 2015), tertiary treatment (Phosphorus to 0,075 mg/l)
- **Holliston**
Massachusetts, US (125 m³/hr- 2013), treats ground water for the production of drinking water

Resourcing the world

Your local contact



Veolia Water Technologies

To find your local contacts visit

<http://veoliawatertechnologies.com/en/about-us/multi-local-presence>