AquaDaf ®/AquaPack®
Clarifier
High-Rate
Dissolved Air Flotation

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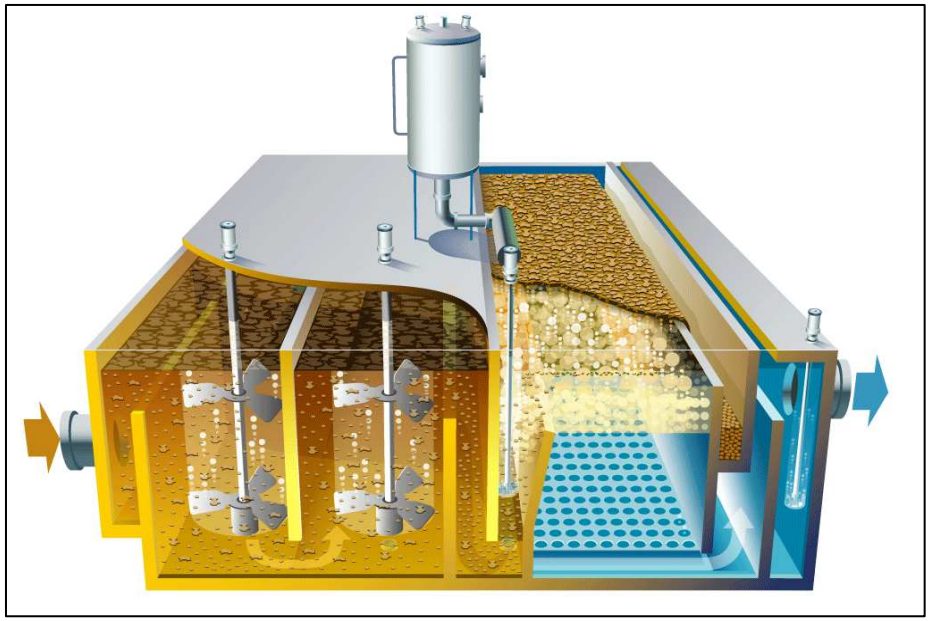
DAF Process Overview

High-Rate Dissolved Air Flotation

The AquaDaf® = concrete design / AquaPak® = metallic design is a dissolved air flotation clarifier. Highly effective for treatment of a range of raw water characteristics including troublesome waters exhibiting low turbidity, high TOC, color & algae.



Features:

- **Simple process**
- **Retrofit with ease**
- **Small footprint**
- **No polymer required**

DAF Process Overview
Applications

- **Clarification (low turbidity/TSS) – up too 200 NTU**
- **High TOC, color waters**
- **Low density solids**
- **Algae removal**
- **Cold waters**
- **Membrane filtration pretreatment**
- **Desalination pretreatment**
- **Tertiary Phosphorous Removal (w/ filters)**

Operating Principles

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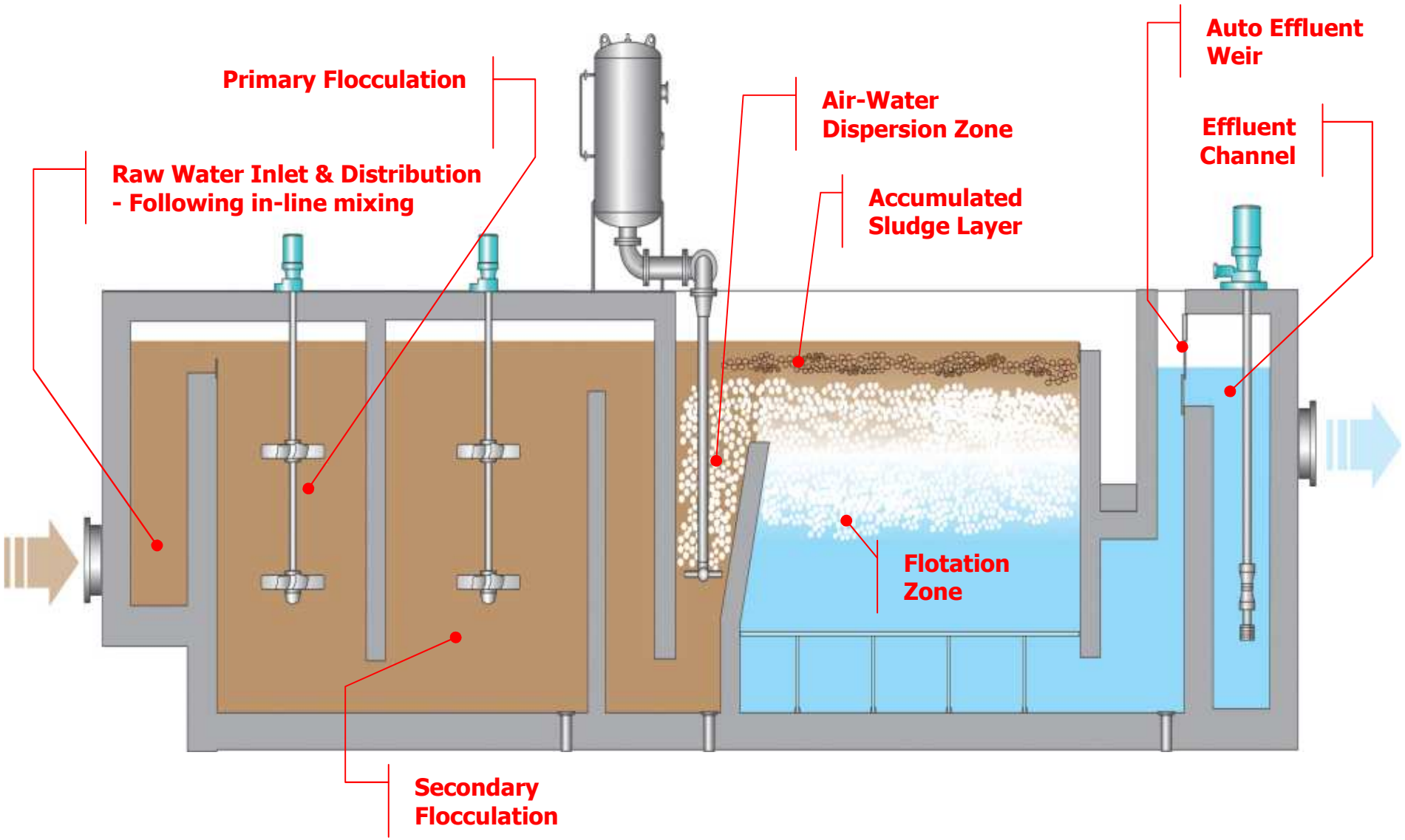
HEADWORKS | BIOLOGICAL | SEPARATIONS | MEMBRANES | OXIDATION-DISINFECTION | BIOSOLIDS | INDUSTRIAL SYSTEMS

DAF Process Overview

High-Rate Dissolved Air Flotation – Internal



AquaDAF Process Overview

Recycle Stream:

- Recycle flow: 8-10% of throughput
- Operating Pressure: 70-90 psi
- Unpacked Saturator Vessel
- Injection: Proprietary nozzles

Micro-Bubble Production:

- Air Blanket: Milky appearance
- Solids adhere to bubbles and float to surface
- Continuous production of air blanket

AquaDAF Process Overview

Sludge Removal Options

Hydraulic:

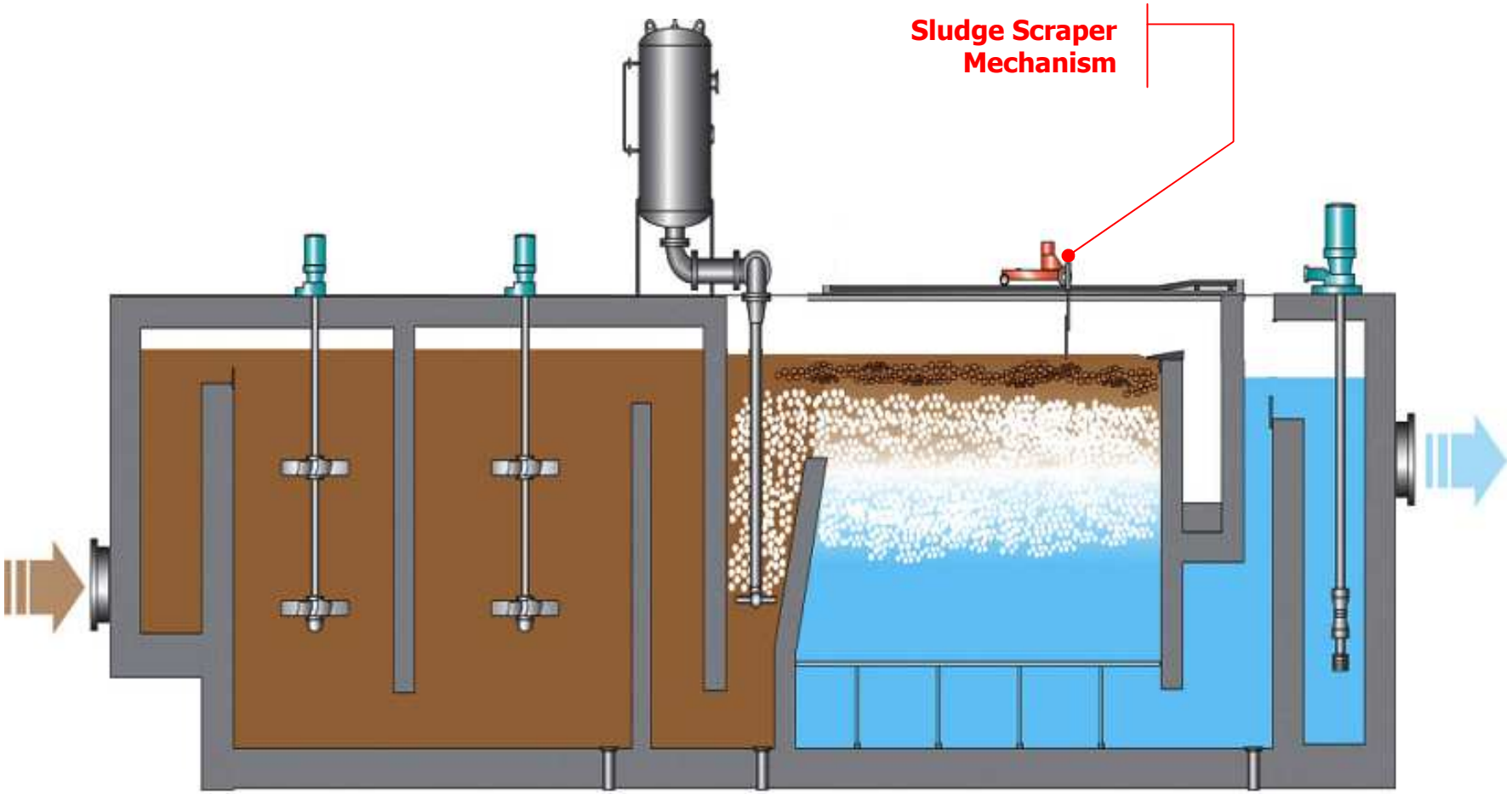
- Flood DAF basin with automatic effluent weir
- Sludge wash line around periphery of DAF basin
- Simple, less mechanical approach
- Water loss: **0.75 to 1.5%**
- Solids concentration: **< 0.3 to 0.5%**

Mechanical Scraper:

- Mechanical scraper mechanism
- Mechanical, thickening approach
- Water loss: **< 0.5%**
- Solids concentration: **2-4%**

AquaDAF Process Overview

Mechanical Scraper Mechanism



Process Advantages

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AquaDAF® Advantages

- **Proven technology for 30+ years**
- **Conventional DAF process at unconventional rates**
- **Optimization of conventional equipment to increase efficiency**
- **High rates up to 30m/h = small footprint = low installed costs**
- **Ability to expand capacity without new basins**
- **Perfect process to efficiently remove low density particles, algae…**
- **Perfect process for membrane pretreatment**
- **Perfect process for desalination plant pretreatment**

AquaPak : Package AquaDAF

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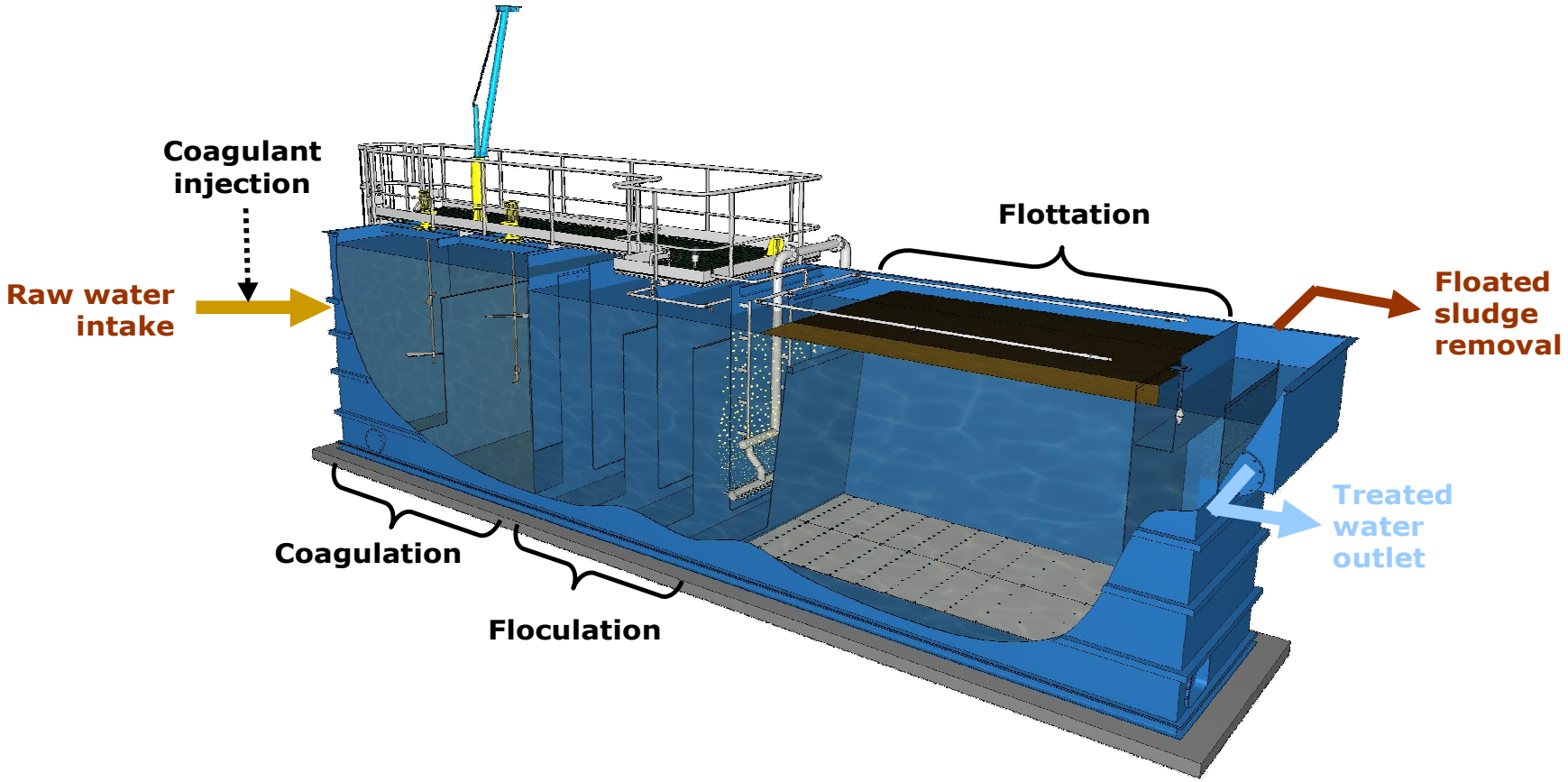
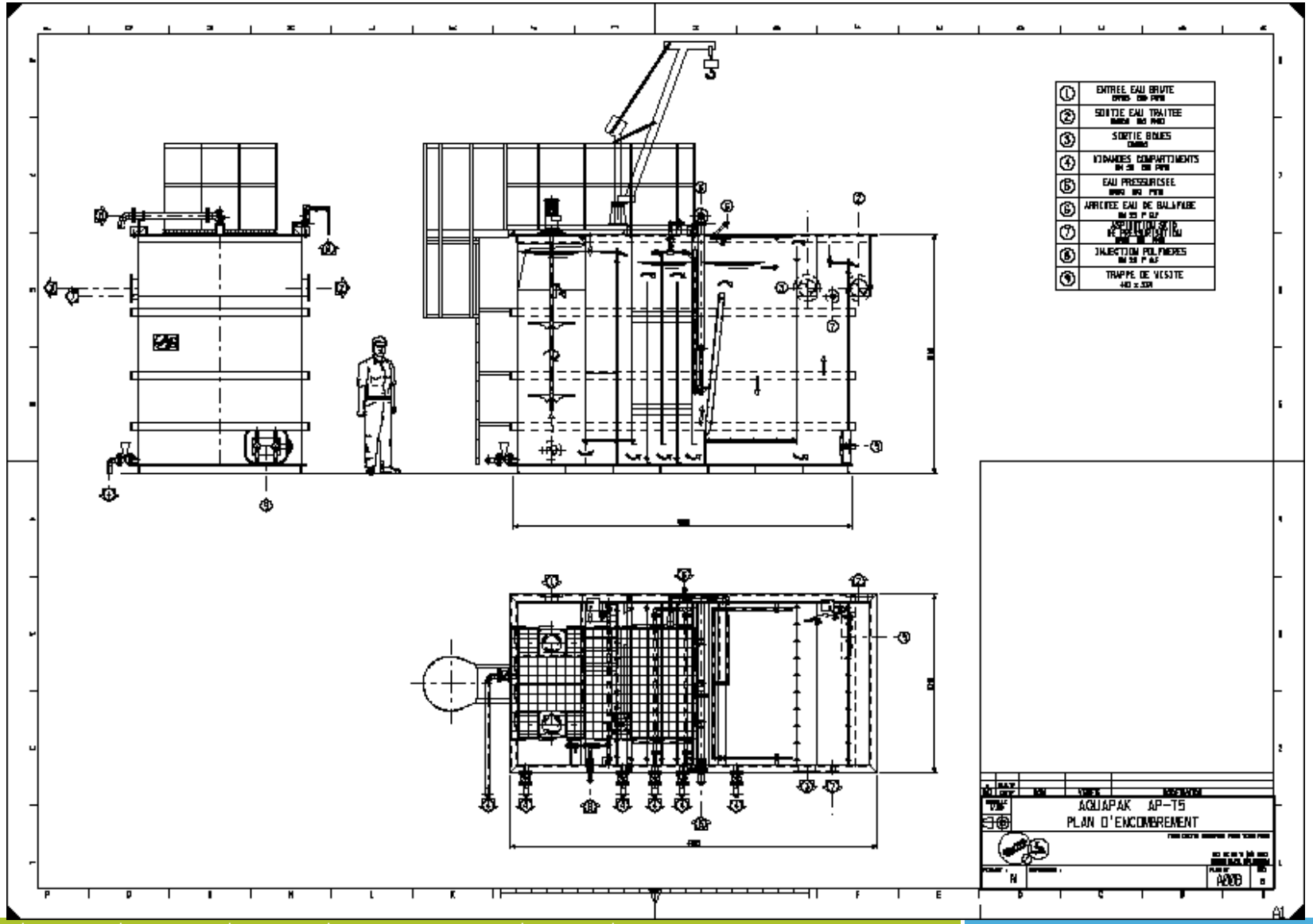
Aquapack, metallic design



AquaPack design



AquaPak Range of application

- **Seven (7) standard model sizes**
- **Capacity: from 25 to 250 m3/H**
- **Hydraulic & mechanical sludge removal**
- **Possibility do double or triple the flow by parallel combination of equipment**

		AP-25	AP-50	AP-75	AP-100	AP-150	AP-200	AP-250
Flow rate	m^3/h	25	50	75	100	150	200	250
Length	m	3.72	3.98	4.40	5.55	7.64	11.39	12.74
Width	m	1.26	2.31	2.31	2.31	2.31	2.31	2.31
Heigth	m	3.10	3.10	3.10	3.10	3.18	3.37	3.59

Performances of Aquadaf/Aquapak

Turbidity ≤ 5 NTU

Algae removal ≥ 90%

Floated sludge between 2% and 4%

Water losses ≤ 1%

Photo Gallery

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Metallic basin

Floated Solids

Recent AquaDAF Successes

Plant Name	Country	Application	Total Capacity (M3/H)	Start-Up Year
Amesbury WTP	USA	DW Clarification	1250.0	2011
Berea Municipal Utilities WTP	USA	DW Clarification	1200.0	2009
Haworth WTP	USA	DW Clarification	33000.0	2009
Claresholm WTP	Canada	Membrane Pretreatment	475.0	2009
Hudson WWTP	USA	Tertiary Phosphorous Removal	1050.0	2009
Monistrol WTP	France	DW Clarification	700.0	2009
Wetaskwin WTP	Canada	DW Clarification	700.0	2008
Barcelona WTP	Spain	Desal Clarification	20000.0	2008
Hameenlina WWTP	Finland	Tertiary WW	2500.0	2008
La Segarra WTP	Spain	DW Clarification	1000.0	2008
Scottsdale Water Campus	USA	Membrane Pretreatment	4000.0	2008
White Tanks Regional WTP	USA	DW Clarification	3150.0	2008
Seneca WTP (Phase II)	USA	DW Clarification	1000.0	2008
Jekaterinburg WTP	Russia	DW Clarification	7000.0	2007
UAE WTP	United Arab Emirates	Desal Clarification	11000.0	2007
Qingzhen	China	DW Clarification	4250.0	2007
Brasov WTP	Romania	DW Clarification	7000.0	2006
Macao Coloane	China	DW Clarification	1300.0	2006
Ville de Contrecoeur WTP	Canada	DW Clarification	500.0	2006
Lac Etchemin WTP	Canada	DW Clarification	100.0	2006
Monte Novo WTP	Portugal	DW Clarification	1100.0	2006
Turku, Finland	Finland	DW Clarification	3150.0	2006
Minera Escondida	Chile	Desal Clarification	3850.0	2006
Apremont WTP	France	DW Clarification	3500.0	2005
Macao MSR2 WTP	China	DW Clarification	2500.0	2005
Utti WTP	Finland	DW Clarification	850.0	2005
Seneca WTP (Phase I)	USA	DW Clarification	950.0	2005
Saint Brieuc WTP	France	DW Clarification	1000.0	2005
SSJID WTP	USA	Membrane Pretreatment	7250.0	2004
Lake Deforest WTP	USA	DW Clarification	3150.0	2003
Town of Tampere WTP	Finland	DW Clarification	3000.0	2000