



Pre-treatment and treatment of **water** 2016

Oil and grease
separators



Stormwater
treatment units



Dry-docks units



Sludge traps



Options



Demonstration of our involvement in sailing sports: The Class 40 Techneau sailing boat has participated in the famous transatlantic solo race "Route du Rhum 2010".

Techneau a competence centre at your service



Located in Normandy, on an industrial site of 8 hectares, Techneau has developed internally all skills for design, development, manufacture and commercialization of its products.

Acknowledged industrial expertise

In 1991 the Techneau adventure began focusing on the creation and development of innovative products destined for the water pre-treatment, pumping, and flow regulation sector.

In 1998, Techneau created the Plasteau company in order to jointly develop the production of rotomoulded polyethylene hollow tanks.

Specialized in the production of on-piece hollow bodies of large volume dedicated to the management and reclamation of rain water for the industry sector and local communities, Plasteau is equipped with 4 machines **able to produce spheres of up to dia. 3.5 m.**

The industrial boiler manufacturer, Chaudreau, was created in 2001. This allowed Techneau to industrialize its production tool, while keeping flexibility on customization.

Chaudreau has been continuing its development to become within 12 years a major and well-known actor in the production of:

- moulds for plastic and polyester industries,
- hydraulic equipment (penstocks and flow controllers),
- units for water pre-treatment and treatment,
- floor equipment (manhole covers, stainless steel siphons and gutters)

The production site represents 4500 m², it is equipped with 13 overhead cranes and is composed of:

- 1 plasma cutting bench of 2 x 4 m
- 1 CNC nibbler
- 4 half cranes
- 1 welding column & boom manipulator
- 1 stainless steel treatment unit



Industrial boiler making

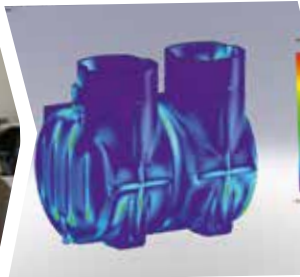


Bi-component coating application unit

A Research & Development department Inventing tomorrow's products...

Our Research and Development department is composed of 15 technicians and engineers in charge of **studying your needs and anticipating tomorrow's products.**

The Quality unit tests and validates each product before releasing it to the market.



Sales Department
for mainland France

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Sales Department
for EXPORT

Tel.: +33 2 33 56 66 43

A Sales Department as close as possible to your expectations...

12 area managers together with 7 sedentary technical salesmen are available to study and propose the most relevant technical solutions for your projects and jobsites.

With **more than 25,000 technical offers per year**, Techneau remains close to its initial commitment: guarantee you a precise **customized study within a 24 to 48 hours** deadline.

A large stock at your disposal for an even more efficient responsiveness...

70 references, representing more than 350 units, are always on stock ready to be dispatched on the very same day as your order.



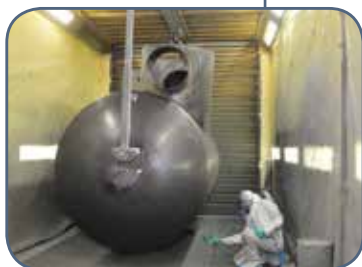
Polyester workshop



Rain water treatment

Techneau, a multi-material competence

Steel



Wide and deep range of fully adaptable products



GRP (polyester)

Designed **corrosive** and **salty environment**



Specific installation constraints for every material

Steel, stainless steel, polyester or polyethylene, the material for a separator is defined on the basis of its installation constraints. Below are **our recommendations** for the choice of the material according to installation requirements

| Installation | Recommended material* | | | |
|---|-----------------------|---------------|-----------|-----------------|
| | Polyethylene | Painted steel | Polyester | Stainless steel |
| Green areas | • | | • | |
| Groundwater table | | • | • | • |
| Roads 15 to 250 kN | • | | • | |
| Road 400 kN | | • | • | |
| Above-ground installation | | • | • | • |
| Installation in saline environment | | | • | • |
| Corrosive effluent Ph <3 | • | | • | • |

*Techneau water treatment apparatuses are made (according to catalogue numbers) of:

- recyclable **rotomoulded polyethylene**
- **galvanized boiled steel** S235JR peened SA 2,5, painted / with internal / external bi-component coating based on polyamid adduct/epoxy resins,
- **polyester**, by orthogonal filament winding
- **stainless steel** 304L (only for grease separators and mini separators of NS between 0,75 and 15 l/s)



Rainwater treatment

Innovation at the service of water



neau

Polyethylene

Mono-bloc pieces for outstanding **price/performance** ratio



Stainless steel

Perfect for **corrosive effluents** from **food processing industry** and **catering**.



According to its advantages

Each material has its own characteristics, which must be taken into consideration before making a decision

| Criteria | Recommended material* | | | |
|-----------------------------------|-----------------------|---------------|-----------|-----------------|
| | Polyethylene | Painted steel | Polyester | Stainless steel |
| Handling | 😊😊😊 | 😊😊 | 😊 | 😊😊 |
| Storage | 😊😊😊 | 😊 | 😊😊 | 😊😊😊 |
| Installation easiness | 😊😊😊 | 😊😊 | 😊😊😊 | 😊😊😊 |
| Mechanical resistance | 😊😊 | 😊😊😊 | 😊😊😊 | 😊😊😊 |
| Maintenance | 😊😊😊 | 😊😊 | 😊😊😊 | 😊😊😊 |
| Corrosion resistance | 😊😊😊 | 😊😊 | 😊😊😊 | 😊😊😊 |
| Availability | 😊😊😊 | 😊😊😊 | 😊 | 😊 |
| Custom-tailored production | | 😊😊😊 | 😊😊😊 | 😊😊😊 |

😊😊😊 : highly adapted 😊😊 : adapted 😊 : poorly adapted



Techneau, water engineering department

A variety of services



A polyester workshop



A polyethylene workshop



Boiler workshop



A sales department to provide you with information or guide you in choosing your product



Logistic solutions tailored to your needs

A 4 hectares storage area



Your sales advisors

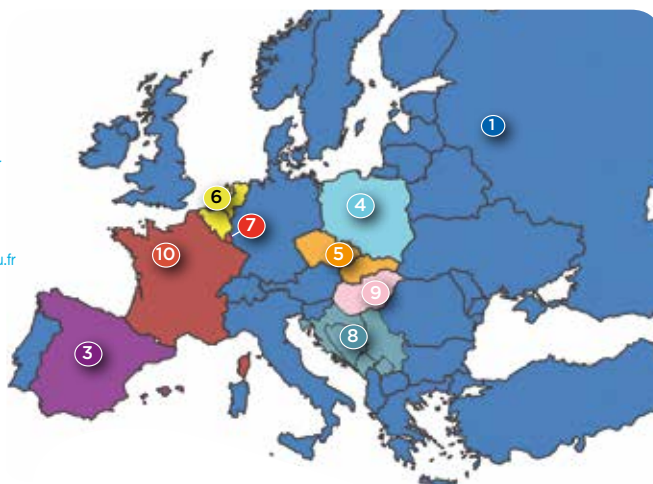
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- Information on quality: discover our 9001 certificate and environmental measures

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in one single click www.techneau.com

Dedicated marketing tools



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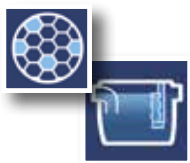


Our subsidiaries in Poland,
Czech Republic and Spain
are attentive to your needs.



www.techneau.com

2016 edition



Rainwater treatment: Oil separators or stormwater treatment units: the challenges of treatment

We must now deal with different types of pollution and pollutants requiring adapted material for treating stormwater the best way.

1 | Few job site references...

Logistics centres



GRP storm water treatment units 80 l/s (HL = 2m/h)
Town of Poitiers (FR-86)



Steel storm water treatment unit Goodman
site in Douai (FR-59)



Rectangular steel separators before
shipment in our facility

Urban and suburban transport networks



Steel oil separator 200 l/s in Toulouse ring (FR-31)



Steel oil separator 600 l/s - Peugeot Factory in Etupes (FR-25)



Steel oil separator in scrapping
yard Pamplona (Spain)

Commercial premises

Industrial sites



GRP oil separators inner harbour - Réunion Island (FR-97)



GRP oil separator 135 l/s Karlovy Vary ring
(Czech Republic)



GRP oil separator 560 l/s in Gran Canarias Airport -
Islas Canarias (Spain)

Business areas



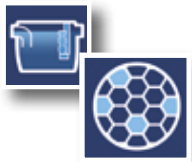
Storm water treatment unit for steel complex
Corrugados Getafe (Spain)



Tailor made GRP oil separator for Slovakian motorway
(Slovak Republic)



Tailor made steel oil separator - Nuclear
plant EPR Flamanville (FR-50)



Stormwater treatment:

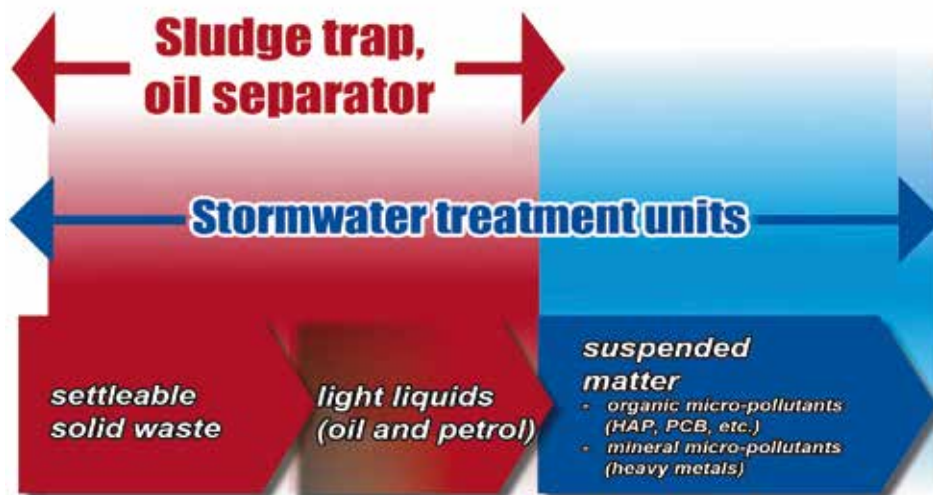
Technical equipment for specific applications

The illustration below presents our two main product families:

Sludge traps and oil separators

Stormwater treatment units

2 | Treatment ranges of products



3 | Uses

This equipment can be used on the following sites:



Petrol station
Washing area
Covered car park
Hydrocarbon storage area
Technical area polluted with hydrocarbons

or



Uncovered car park
Commercial area
Industrial park
Urban area
Logistic area
Road, highway
Port area **(1)**.

(1) The stormwater treatment unit can be developed on specific projects such as dry-docks for boats. Its configuration will change because the requested efficiency treatment is different than the one from jobsites above. The products will be identified under following description: Treatment units of dry-docks.



2016 Range



Treatment of dry-docks units

Regulations _____ p. 52

Operation and manufacturing _____ p. 53

Product sizes and installation _____ p. 54

**Treatment of dry-docks units
from 6 to 75 l/s** _____ p. 55



Treatment of dry-docks Regulations

Wastewater

Polyester

HL 2 m/h
Size 6 to 75 L/s

1 - Regulations

Besides the Water legislation (from France, 3 January 1192) applicable to dry-docks, we can decide to apply section 6 of the Environment Code and particularly article L.216-6, which states:

"The act of tipping, discharging or allowing any substance or substances whatsoever whose actions or reactions lead, even temporarily, to harmful effects on health or damage to flora or fauna, or significant changes to the normal water supply or limitations to the use of bathing areas, to flow into surface, underground or sea water within territorial waters, directly or indirectly, is punishable by two years' imprisonment and a fine of 75,000 euros".

In addition, the Maritime Ports Code, through articles R.322-1 and R.353-4 of volume III of the Maritime Ports Code (Decree 93-726 dated 29 March 1993), stating:

"No-one may cause harm to the good condition of ports and harbours, as much in their depth and cleanliness as in their installations". "Offences involving non-compliance with sites specified for the disposal of residues and waste are punishable".

Finally, it is important to state that sediments from port dredging may not be discharged at sea if they are contaminated by heavy metals. They must be treated on land.

Techneau has therefore developed a treatment unit for dry-docks that stops macro-waste and micro-pollutants contained in run-off water. Numerous references are available and optimum results have been obtained, as shown by the following results:

Example of a UTC with hydraulic loading of 2 m/h, installed on the Granville (Manche) dry-dock:

| | Concentration of pollutant load | | Overall efficiency |
|------|---------------------------------|------------------|--------------------|
| | At inlet (mg/L) | At outlet (mg/L) | |
| MES | 620 | 9 | 98,53 |
| DB05 | 100 | 8,8 | 91,20 |
| DCO | 480 | 53,2 | 88,92 |

| | Heavy metals | | Overall efficiency |
|------|-----------------|------------------|--------------------|
| | At inlet (mg/L) | At outlet (mg/L) | |
| MES | 16,63 | 0,59 | 96,43 |
| DB05 | 0,85 | < 0,25 | > 70 |
| DCO | 5,11 | 0,54 | 89,50 |

Analyses carried out by the Manche Regional Analytical Laboratory

2 - Applications

The UTC2 has been developed to treat effluents coming from dry-docks and boat land-storage parks.

These effluents (run-off water + process water) are characterised by the presence of dust and toxic pollutants from boat maintenance operations (cleaning, rubbing down, painting, draining, etc.).



Treatment of dry-docks Operation and manufacturing

Wastewater

Polyester

HL 2 m/h
Size 6 to 75 L/s

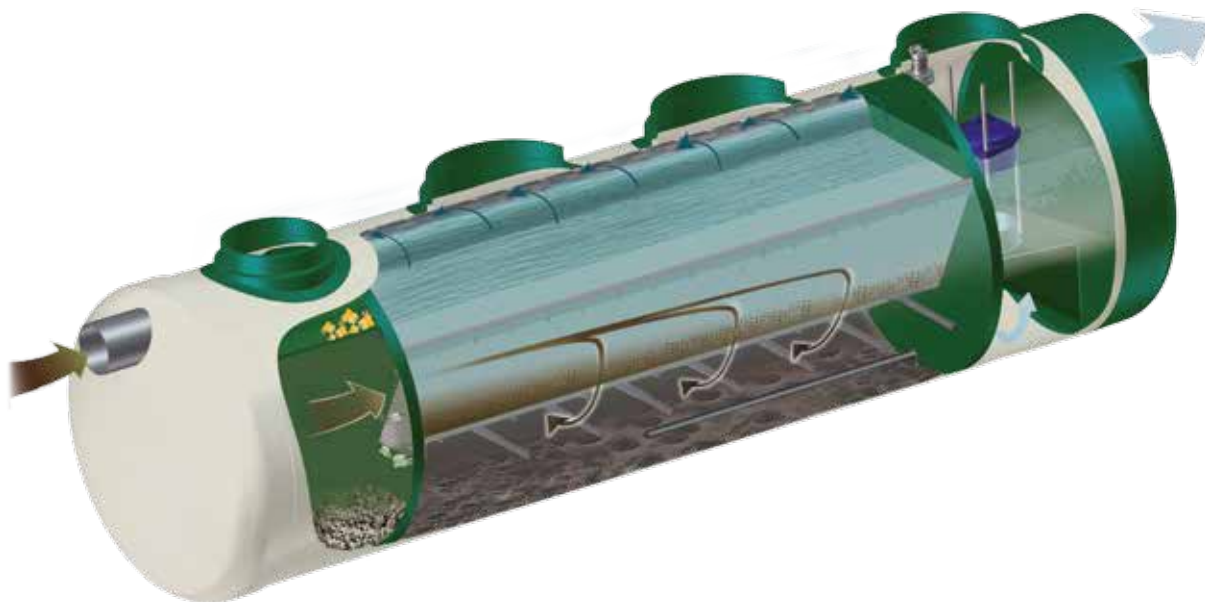
3 - Operating principle

These pollutants, encountered in large quantities, are always mainly linked with Suspended Matter (S.M.). By trapping S.M. and lightweight liquids discharged accidentally, UTC2 contributes to water quality in the port.

Specific sizing arising from a study of rainfall data with Météo France:

- 95% of the ten-year volume of run-off is treated with a Hydraulic Loading (HL) ≤ 2 m/h
- Exceptional excess flows (5% of run-off are accepted by the system). Treatment is then carried out with a Hydraulic Loading ≤ 4.5 m/h.
- **More than 80% reduction of the pollutant load associated with S.M.**
- **Simplified installation without waste weir or by-pass.**
- **No discharge of untreated waters into the receiving environment.**

Optimised hydraulic operation by means of the overflow channel, providing uniform distribution of flow in the entire filter:



4 - Manufacturing

UTC2 Treatment Units for dry-docks comprise:

- a glass-fibre reinforced polyester tank manufactured by fibre winding and contact moulding, providing high mechanical strength,
- an automatic closure device in the event of large spills of lightweight liquids (hydrocarbons), avoiding any resuspension into the receiving environment,
- corrosion-resistant materials suitable for the saline environment,
- large storage capacity (> 10 m³/ha) for sand and sludges, offering spaced drainage,
- a removable, recycled PVC AlvéEau tubular cluster, inclined at 60°, specially developed by Techneau,
- 3 to 4 manholes (depending on part number) for easy access,
- a sludge drainage column for simplified maintenance.



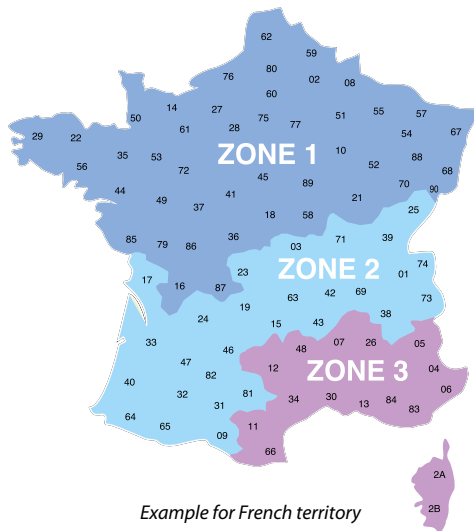
Treatment of dry-docks

Product sizes and installation

Wastewater

Polyester

HL 2 m/h
Size 6 to 75 l/s



Example for French territory

5 - Advantages

A gravity operating adapted in case of exceptional rainy weather: **maximum autonomy**.
No "consumable" to change periodically: **operating costs reduced**.

6 - Installation

UTC2 can be buried deeply or in a submersible area.

7 - Sizing

The sizing of UTC2 depends on the local pluviometry and the geographic area.

$$Q_{10} = y \times I \times A$$

Q_{10} : Ten-year peak flow rate (litres / second)

Q_T : Treated flow rate (litres / second)

ψ : Run-off coefficient (according to the surface: 0.9 for concrete or asphalt)

I : Pluviometric intensity (litres/second/hectare).

For France, according to 3 geographic areas (ten-year flow rate):

ZONE 1 : 300 l/s/ha - **ZONE 2** : 400 l/s/ha - **ZONE 3** : 500 l/s/ha

A : Uncover surface (hectares)

E.g: for France, choose in the table below the suitable model according to the surface of the dry-docks and to the geographic area (3 different zones for France).

| ZONE 1 | ZONE 2 | ZONE 3 | Ref. range UTC 2 |
|-------------------------------|-------------------------------|-------------------------------|---------------------|
| $Q_{10} = 270 \text{ l/s/ha}$ | $Q_{10} = 360 \text{ l/s/ha}$ | $Q_{10} = 450 \text{ l/s/ha}$ | |
| < 505 m ² | < 379 m ² | < 303 m ² | UTC2AAG2P |
| < 842 m ² | < 631 m ² | < 505 m ² | UTC2ABA2P |
| < 1263 m ² | < 947 m ² | < 758 m ² | UTC2ABF3P |
| < 1684 m ² | < 1263 m ² | < 1010 m ² | UTC2ACA3P |
| < 2104 m ² | < 1578 m ² | < 1263 m ² | UTC2ACF3P |
| < 2525 m ² | < 1894 m ² | < 1515 m ² | UTC2ADA3P |
| < 2946 m ² | < 2210 m ² | < 1768 m ² | UTC2ADF3P |
| < 3367 m ² | < 2525 m ² | < 2020 m ² | UTC2AEA3P |
| < 3788 m ² | < 2841 m ² | < 2273 m ² | UTC2AEF4P |
| < 4630 m ² | < 3472 m ² | < 2778 m ² | UTC2AFA4P |
| < 5471 m ² | < 4104 m ² | < 3283 m ² | UTC2AGF4P |
| < 6313 m ² | < 4735 m ² | < 3788 m ² | UTC2AHF4P |

Nota: Q_{10} = ten-year flow.



Treatment units for dry-docks

Wastewater

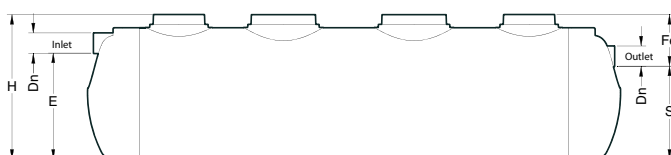
Polyester

HL 2 m/h
Size 6 to 75 l/s

- Fibreglass-reinforced polyester **tank**. Produced by filament winding.
- Coating **perfectly adapted to treat very aggressive waters**.
- Interior or exterior installation. Resistant to immersion in seawater.

- **Internal components** in PVC and Stainless Steel.
- **Surface to treat** till 6300 m².
- **Emptying column**.
- **Tubular cluster**.

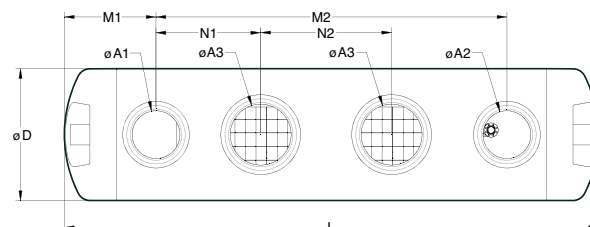
15 YEARS WARRANTY
CORROSION-PROOF
HIGH MECHANICAL
RESISTANCE



Dimension characteristics



Alvéeau® removable tubular cluster in PVC with inclination 60° to settle suspended matter.



| Ref. range UTC2 | ø D | H | L | E | S | Dn | øA1 | øA2 | øA3 | M1 | M2 | N1 | N2 | Weight | Qty of manholes |
|-----------------|------|------|------|------|------|-----|-----|-----|------|------|------|------|------|--------|-----------------|
| UTC2AAG2P | 1600 | 1816 | 4700 | 1217 | 1117 | 200 | 730 | 730 | 730 | 1200 | 2300 | 1150 | - | 548 | 3 |
| UTC2ABA2P | 1600 | 1816 | 4870 | 1217 | 1117 | 200 | 730 | 730 | 730 | 1200 | 2470 | 1235 | - | 609 | 3 |
| UTC2ABF3P | 1600 | 1816 | 5830 | 1217 | 1117 | 315 | 730 | 730 | 730 | 1200 | 3430 | 1150 | 1150 | 745 | 4 |
| UTC2ACA3P | 1600 | 1816 | 6474 | 1217 | 1117 | 315 | 730 | 730 | 730 | 1200 | 4074 | 1358 | 1358 | 830 | 4 |
| UTC2ACF3P | 2000 | 2216 | 6430 | 1627 | 1427 | 315 | 730 | 930 | 930 | 1400 | 3530 | 1765 | - | 996 | 3 |
| UTC2ADA3P | 2000 | 2216 | 7074 | 1627 | 1427 | 315 | 730 | 930 | 930 | 1400 | 4174 | 1390 | 1390 | 1113 | 4 |
| UTC2ADF3P | 2000 | 2216 | 7714 | 1627 | 1427 | 315 | 730 | 930 | 930 | 1400 | 4814 | 1605 | 1605 | 1228 | 4 |
| UTC2AEA3P | 2000 | 2216 | 8038 | 1627 | 1427 | 315 | 730 | 930 | 930 | 1400 | 5138 | 1713 | 1713 | 1287 | 4 |
| UTC2AEF4P | 2400 | 2640 | 7170 | 1980 | 1730 | 400 | 730 | 930 | 1130 | 1335 | 4315 | 2215 | - | 1950 | 3 |
| UTC2AFF4P | 2400 | 2640 | 7814 | 1980 | 1730 | 400 | 730 | 930 | 1130 | 1335 | 4959 | 2509 | - | 2175 | 3 |
| UTC2AGF4P | 2400 | 2640 | 8458 | 1980 | 1730 | 400 | 730 | 930 | 1130 | 1335 | 5603 | 1798 | 2015 | 2347 | 4 |
| UTC2AHF4P | 2400 | 2640 | 9102 | 1980 | 1730 | 400 | 730 | 930 | 1130 | 1335 | 6147 | 2002 | 2050 | 2780 | 4 |

Hydraulic characteristics

| Ref. range UTC2 | Sludge trap chamber | | Suspended matters decantation chamber | | | | | | |
|-----------------|---------------------------|--------------------|---------------------------------------|----------------------------------|------|------------------------|----------------------|-------------|------------|
| | Nominal flow of treatment | Peak flow accepted | Storage vol. of sand | Hydraulic load m ³ /h | | Storage vol. of sludge | Light liquid storage | Useful vol. | Total vol. |
| | Q 1year [l/s] | Q 10 [l/s] | litres | Q 1year | Q 10 | litres | litres | litres | litres |
| UTC2AAG2P | 6 | 14 | 1608 | 1,9 | 4,4 | 347 | 500 | 6595 | 8847 |
| UTC2ABA2P | 10 | 23 | 1608 | 1,9 | 4,4 | 578 | 500 | 6865 | 9209 |
| UTC2ABF3P | 15 | 34 | 1608 | 1,8 | 4,1 | 1059 | 500 | 8313 | 11151 |
| UTC2ACA3P | 20 | 45 | 1608 | 1,9 | 4,4 | 1290 | 500 | 9278 | 12446 |
| UTC2ACF3P | 25 | 57 | 2991 | 2,0 | 4,4 | 1517 | 800 | 14235 | 18648 |
| UTC2ADA3P | 30 | 68 | 2991 | 1,9 | 4,3 | 1836 | 800 | 15779 | 20672 |
| UTC2ADF3P | 35 | 80 | 2991 | 1,8 | 4,1 | 2155 | 800 | 17324 | 22695 |
| UTC2AEA3P | 40 | 91 | 2991 | 1,9 | 4,4 | 2315 | 800 | 18096 | 23706 |
| UTC2AEF4P | 45 | 102 | 4252 | 1,9 | 4,4 | 2501 | 1200 | 23357 | 30265 |
| UTC2AFF4P | 55 | 125 | 4252 | 2,0 | 4,4 | 2922 | 1200 | 25605 | 33178 |
| UTC2AGF4P | 65 | 148 | 4252 | 2,0 | 4,5 | 3343 | 1200 | 27854 | 36092 |
| UTC2AHF4P | 75 | 170 | 4252 | 2,0 | 4,5 | 3764 | 1200 | 30695 | 39774 |

For upper sizes, please ask our design office.

Dimensions are given in mm, weight in kg, volume in litres.

Our commitment to water sports



is also

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