



FILTRAFLO™ TGV

Ultimate rapid gravity filtration
tailored for large filtration plants

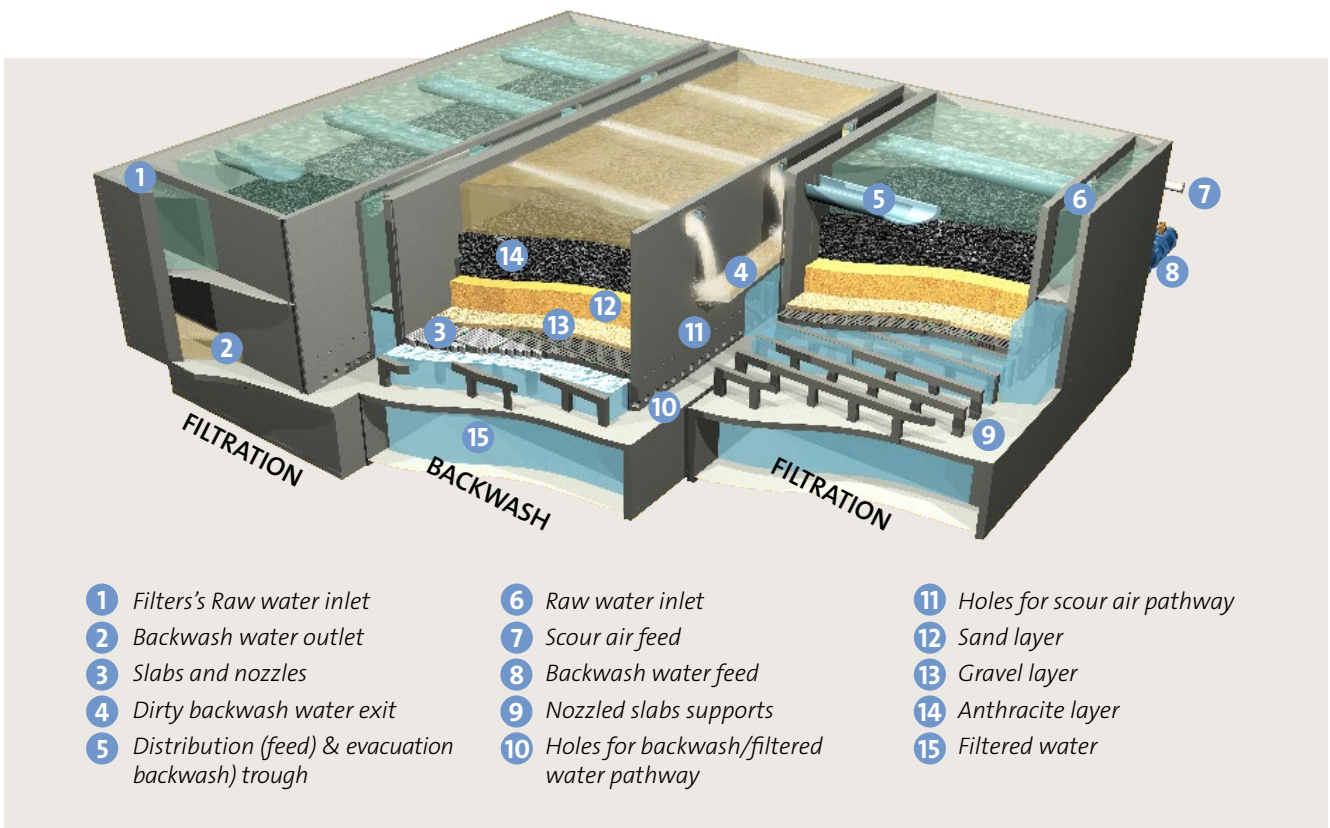
WATER TECHNOLOGIES

Filtraflo TGV

High speed filtration

After the clarification phase, filtration is the key treatment step in water treatment plants for the removal of suspended solids. Veolia Water Technologies has especially developed the high rate filtration system Filtraflo TGV for this treatment step.

Filtraflo TGV filters employ the familiar basic principle of rapid gravitational filtration of settled water through a granular media. The filtering bed is composed of single, dual or triple media layers. Filtraflo TGV is actually the most advanced and the most compact gravity filtration system within the VWT' filtration technology portfolio.



Operating process

The high rate Filtraflo TGV filters combine a deep sand bed (2.0 m) with a coarse filter sand (effective size 1.35 mm). The principle of Filtraflo TGV is to increase the depth and the grain size of the media, this allows the suspended solids to penetrate deeper into the filter bed, thus allowing a "volume filtration" rather than a "surface filtration".

As a consequence, high rate Filtraflo™ TGV filters can retain a larger amounts of suspended solids than conventional filters.

Optimized backwashing

Unlike conventional filters with mainly superficial clogging, the backwashing of high rate filters must be engineered to remove deeply imbedded particles distributed throughout the sand bed. To achieve such action, backwashing velocity needs to be much higher than the filtration rate.

The backwashing of the Filtraflo TGV filters includes isolation of filters, air scour, combined air and water backwash and final rinse. The first two stages are to expand and stir the filter bed to remove the bulk of the accumulated solids.

The final rinsing step by water alone allows to flush the remaining particles out of the filter.

Applications

Filtraflo TGV is recommended for drinking water, process water production and for tertiary wastewater polishing.

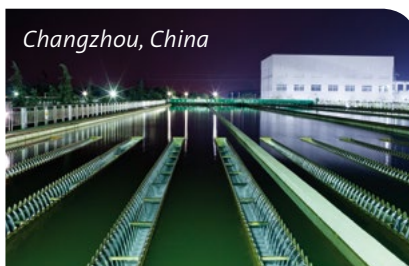
- Removal of suspended solids, iron & manganese
- Adsorption of micro-pollutants (pesticides, detergents, organic-chloride compounds,...) when using Granular Activated Carbon media
- PH & alkalinity adjustment when used for remineralization

Perfect combination of Actiflo®/Multiflo™

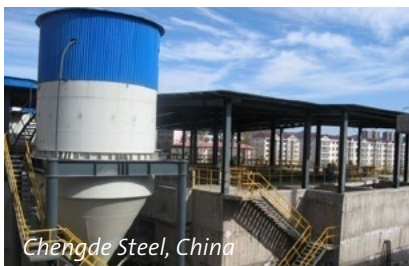
The unique combination of VWT's Actiflo or Multiflo settlers and Filtraflo TGV filters results in the ideal compact solutions, by significantly reducing the footprint of water treatment plants with a limited available area, and efficiently producing high quality of treated water.



Abu Dhabi, UAE



Changzhou, China



Chengde Steel, China



Baoji, China



Jinhai, China



Oset-Oslo, Norway

Advantages

- **High media level, high water level above media: deep filter**
 - media height: 1.5m up to 2m
 - high water level (above the media): 1.2m up to 1.4m
- **Excellent filtered water quality**
 - using mono-media: 0.1 to 0.2NTU, 24h filtration cycles
 - with chemicals on dual-media: < 0.3NTU, 40h filtration cycles
- **Very high filtration rate: 15 - 20m/h**
- **Optimum performance guarantee with regular backwashing**

Selected references

Drinking water plants

- > Chengdu No.6-Plant B DWTP, China
460,000 m³/d (Multiflo + Filtraflo TGV)
- > Baoji DWTP, China
90,000 m³/d (Multiflo + Filtraflo TGV)
- > Huachipa - Lima DWTP, Peru
432,000 m³/d (Multiflo + Filtraflo TGV)
- > Shanghai Pudong Linjiang DWTP, China
200,000 m³/d (Actiflo + Filtraflo TGV)
- > Shanghai Pudong Jinhai DWTP, China
400,000 m³/d (Multiflo + Filtraflo TGV)
- > Changzhou DWTP, China
400,000 m³/d (Multiflo + Filtraflo TGV)
- > Oset-Oslo DWTP, Norway
390,000 m³/d (Actiflo + Filtraflo TGV)
- > Kanhan DWTP, India
240,000 m³/d (Multiflo + Filtraflo TGV)
- > Hau Giang DWTP, Vietnam
100,000 m³/d (Multiflo + Filtraflo TGV)
- > Yantai Fushan DWTP, China
200,000 m³/d (Multiflo + Filtraflo TGV)

Municipal wastewater polishing

- > Abu Dhabi Wathba WWTPs, UAE
415,200 m³/d, tertiary filtration
- > Allahamah Al Ain WWTPs, UAE
233,300 m³/d, tertiary filtration

Process water plants

- > Celulose Riograndense, Brazil
140,000 m³/d (Actiflo + Filtraflo TGV)
- > Fibria, Horizonte 2, Brazil
185,000 m³/d (Actiflo + Filtraflo TGV)

Industrial wastewater polishing

- > Chengde Steel, China
100,000 m³/d (MBBR + Multiflo + Filtraflo TGV)
- > Nyukoyu WWTP - Yanshan Integrated Refinery Complex, China
24,000 m³/d + 12,000 m³/d (Actiflo Carb + Filtraflo TGV)

Resourcing the world

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