



SPIDFLOW[®] Filter

**The Two-in-One Solution for High Rate
Flotation and Media Filtration**

All water applications

WATER TECHNOLOGIES



Spidflow Filter is the perfect solution for pretreatment of seawater desalination by reverse osmosis.

Spidflow Filter is also perfectly suitable for drinking water production from surface water, process water production or waste water treatment.

The solution for improved RO membrane protection

RO membranes are highly sensitive to variations in water quality and become fouled if algae, suspended solids, soluble organic molecules and hydrocarbons in feed water are not removed adequately.

An effective raw water pre-treatment system upstream of an RO system is therefore essential to prevent the risk of membrane clogging and to ensure durability.

In order to deal with the most challenging waters and feed the RO membranes with consistently good water quality, Veolia Water Technologies developed and patented Spidflow Filter.

This unique and compact solution combines into one structure the advantages of two proven pre-treatment processes: high rate Dissolved Air Flotation (Spidflow) and high rate Multimedia Granular Filtration (Filtraflo TGV).

Spidflow[®] Filter, combining the advantages of Spidflow[®] and Filtraflo[®] TGV

Spidflow Filter benefits from all of the best features of these two technologies and presents many advantages compared to other pre-treatment solutions (i.e DAF+DMF or DAF+UF) such as:

— Lower Footprint

- **Compact design** with a very limited footprint (at least **25% gain** compared to conventional design).
- **No thickening required:** high concentration floated sludge avoiding an additional thickening stage in sludge treatment.
- **Modularity:** can be installed in plants of all sizes, it is the obvious choice for extending existing capacity.

— Higher Availability

- **A fast reacting solution** to variations in raw water quality, enhanced by optimized hydraulics and Veolia's exclusive white water injection nozzles.
- **Reduced frequency of backwashes** thanks to an optimized filtration operation management.
- **Ensures plant's full production capacity** at all times.

— Better Performance of SWRO membranes

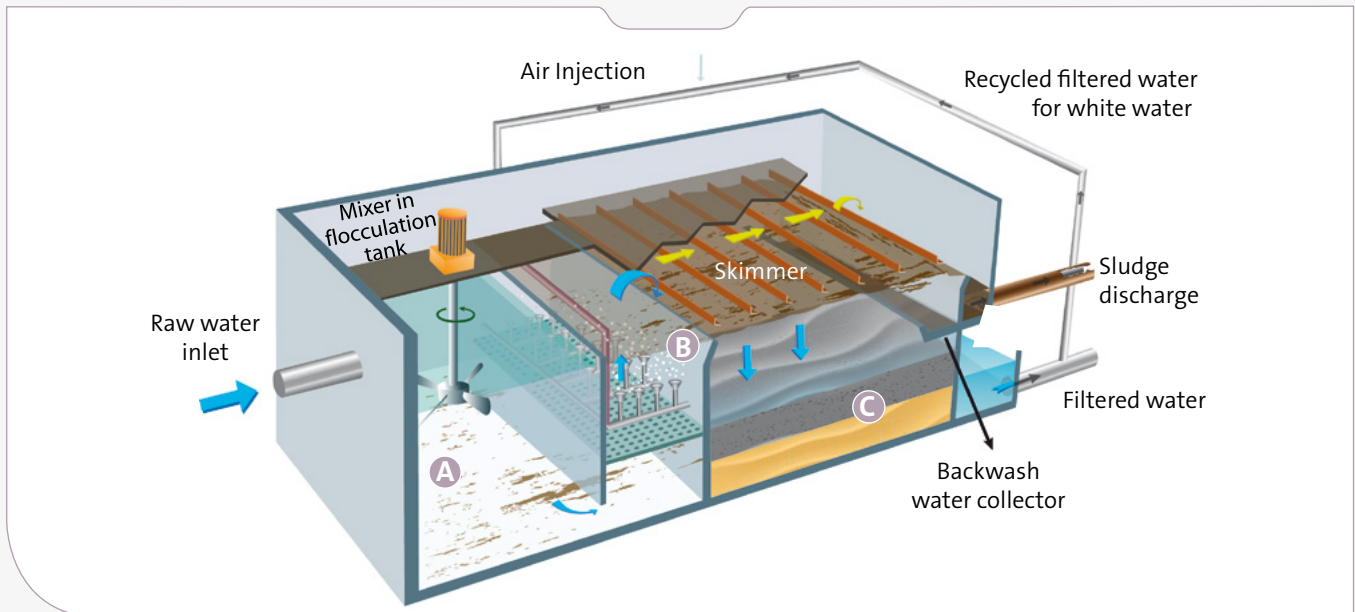
- **Eliminates fouling and biofouling agents:** Spidflow Filter is the ideal pretreatment solution to remove low density suspended solids, algae, oils and hydrocarbons as well as soluble organic compounds which are detrimental to SWRO membranes.

— Lower Capital & operational costs

- **Compact design** leading to lower equipment and construction cost.
- **Energy-efficient design.**
- **Optimisation of chemicals consumption.**
- **Increases membrane life duration** compared to UF pre-treatment.
- Reduces the amount of chemicals needed for RO membranes cleaning.

Spidflow Filter

Operating principle



A Flocculation phase:

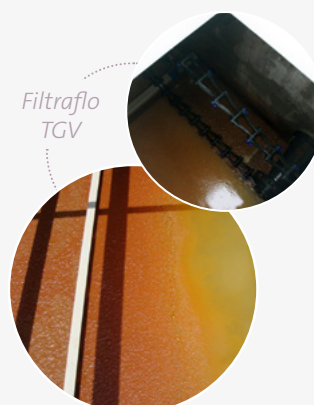
- *Turbomix technology to reduce the footprint of the flocculation tank if required*

B Dissolved Air Flotation: Flocs are carried up to the watersurface by very fine and calibrated air bubbles, result of extensive R&D work. Flocs are then removed by skimming:

- *Deals successfully with raw water quality upsets (turbidity peaks, algal blooms or hydrocarbon contamination, organic matter)*
- *Guarantees consistent seawater quality to feed the subsequent filtration step*
- *Very efficient Veolia Water Technologies' skimming process: minimizes pre-treatment water losses & lowers disposal volume with highly concentrated sludge production*

C High rate Multimedia Gravity Filtration:

- *Removes smallest particles*
- *Allows biological activity in the media depth which degrades biofouling molecules – **Significant advantage compared to MF/UF process** (only mechanical filtration barrier) **which does not remove dissolved nutrients***
- *Provides long filtration cycles through constant feed water quality, even in the most challenging conditions*



References

Veolia Water Technologies' expertise on Spidflow and Filtraflo TGV has been proven over many years, with more than **15** Spidflow units & **30** Filtraflo TGV units installed and operating successfully worldwide.

Spidflow Filter is the unique re-engineered combination of these two best-seller processes. Long term performance has been assessed during extensive operation in challenging raw water conditions in different locations of the Gulf region. As a technology partner for Masdar (Abu Dhabi Future Energy Company), Veolia developed an innovative, low energy desalination plant in the UAE, incorporating Spidflow Filter, with performances consistently beyond expectations.

Resourcing the world

Veolia Water Technologies

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