**Optimize your mixing energy**

**Mixing**

**A key point in flocculation**

In water treatment, sludge dewatering represents one of the most expensive stages. The present trend is clearly a reduction in sludge volume by increasing the dry solids content and this, whatever the sludge final destination.

In line with this trend, SNF has developed a wide range of flocculants with much higher molecular weight and structure level leading to higher polymer solution viscosity. Simultaneously, the sludge to be dewatered has reached higher dry solids content to minimize the investment on dewatering equipment with as a result an higher viscosity.

Those two parameters lead to a much higher demand in mixing energy.

Floc properties are controlled by the flocculant type, the mixing conditions and the shearing applied on the flocs after their formation.

As the influence of mechanical shear stress on the dewatering properties is well known and to optimize it, SNF has designed a new in-line dynamic mixer with a uniquely designed polymer injection quill, the FLOMIX.

**FLOMIX**

**A new in-line variable-speed dynamic mixer**

This FLOMIX unit is compact and very easy to install usually between the sludge pump and the dewatering equipment. FLOMIX provides a primary addition before the existing flocculant injection point.

By adjusting the rotation speed with a variable speed drive, FLOMIX unit will optimize the mixing energy brought to the sludge-polymer solution system leading to higher performances on dryness, polymer consumption and filtrate. The optimal mixing speed is function of the dry content of the sludge and the concentration of the polymer solution. FLOMIX covers a wide range of speed so can adapt to almost any configuration (pipe diameter, flows and viscosities).

**Main features**

- Speed from 150 to 1500 rpm
- Stainless steel 316L material for body and impeller
- Several dimensions available from DN 50 to DN 300, larger sizes on demand
- Power supply: 400/460 V – 50/60 Hz – 4 to 15 kW (according to model)
- Specifically designed injection quill for efficient polymer addition in the sludge by 8 injection points all along the diametre of the pipe
- Pressure rating up to 16 barg

**Advantages**

- 10 to 20% reduction in dosage and even more if limiting the overdosage due to a lack of mixing.
- Higher drainage speed leading to a higher dried-sludge output and saving energy
- Higher dryness reducing fuel and disposal costs
- Improved filtrate quality providing lower SS back to the water treatment line (or stage).
- Plug and play concept – Easy set up
- Reduction in fresh water used for post dilution.

**FLOMIX vs. Static mixer**

With FLOMIX you can adjust the shearing in function of the sludge and polymer flows, the sludge and polymer solution concentrations leading to the optimal shearing applied on your system which is impossible with a static mixer. Another drawback of the static mixer could be the pressure drop and even the plugging of the pipe.
Applications

- Industrial water and waste water treatment
- Paper industry
- Oil sands
- Dredging

The FLOMIX is most effective where the sludge is difficult to dewater and requests structured polymer and high dosages. It can be installed on different dewatering equipment such as gravity belt, drum thickener, belt filter press, centrifuges, frame filter press....

Setup

The FLOMIX system setup is quite simple.
- Installation of the FLOMIX between the sludge pump and the dewatering equipment or the drying zone.
- Injection of the polymer by using the existing metering pumps, without significant modifications of the system. For a better performance, polymer injection shall be done just upstream of the FLOMIX’s impeller; therefore an injection quill is part of the FLOMIX system.

High manufacturing quality standards
Low pressure drop
Easy access for maintenance in place
Adjustable speed
Efficient polymer injection