



# Food, Dairy & Beverages Industry

Deliver consistent taste, texture, and quality while maximizing efficiency across your Food & Beverage processes.



## The Challenge: Process "Blind Spots"

In the food and beverage industry, viscosity and density are the definitive indicators of product integrity. Conventional manual sampling creates 'blind spots' critical gaps in data where fluctuations go undetected. Maintaining these variables within tight tolerances in real-time is essential to achieve:

Precise control over texture and viscosity guarantees the exact sensory profile expected by consumers while ensuring a consistent mouthfeel for products ranging from creamy sauces to pourable syrups.

TASTE

Continuous monitoring of density and formulation verifies ingredient concentration and solid content to maintain stable flavor and nutritional profiles across all production runs while ensuring the highest level of manufacturing excellence.

EXCELLENCE

Inline tracking eliminates the variability inherent in manual sampling to ensure that every batch strictly adheres to established quality specifications and fulfills the rigorous technical standards required for global distribution and consumption.

QUALITY

Rheonics sensors enable the automatic adjustment of food formulations before the point of processing or filling, ensuring perfect and consistent material properties from the beginning to the end of every production batch.

FOOD 4.0

## Installation and Integration

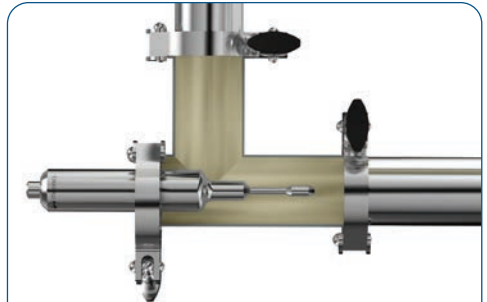
Rheonics provides a complete platform for food industry monitoring and control, transforming process challenges into efficient and sustainable operations. Our advanced sensors offer continuous, real-time viscosity and density measurements, delivering a comprehensive solution that ensures material consistency and proactive quality assurance.



Installation in Tanks



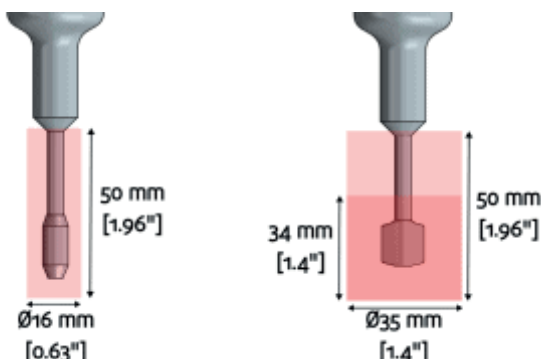
Installation in Pipes



Installation using Rheonics Accessories

## Consideration of the Sensing area

Ensure that the sensing area (red zone below) is always in contact with the fluid and avoid stagnations or dead zones



## Hardware & Installation

Easy and seamless installation thanks to the different Rheonics hygienic accessories



**Hygienic Weldolet (HAW-12G-OTK):**  
for sensors with G 1/2" thread to eliminate dead zones and ensure a flush installation.



**Flow Cells (FET-XXT):**  
Elbow or tee cells with Tri-Clamp connections ("1.5" to "4") for direct, sanitary inline integration.

## Type-SR sensors for Food Industry

Rheonics Type-SR sensors provide the highest precision, real-time viscosity and density(SRD) data, enabling automation of the most challenging food & beverage applications. Our comprehensive solution platform ensures perfect material consistency, transforming reactive measurements into proactive quality assurance.

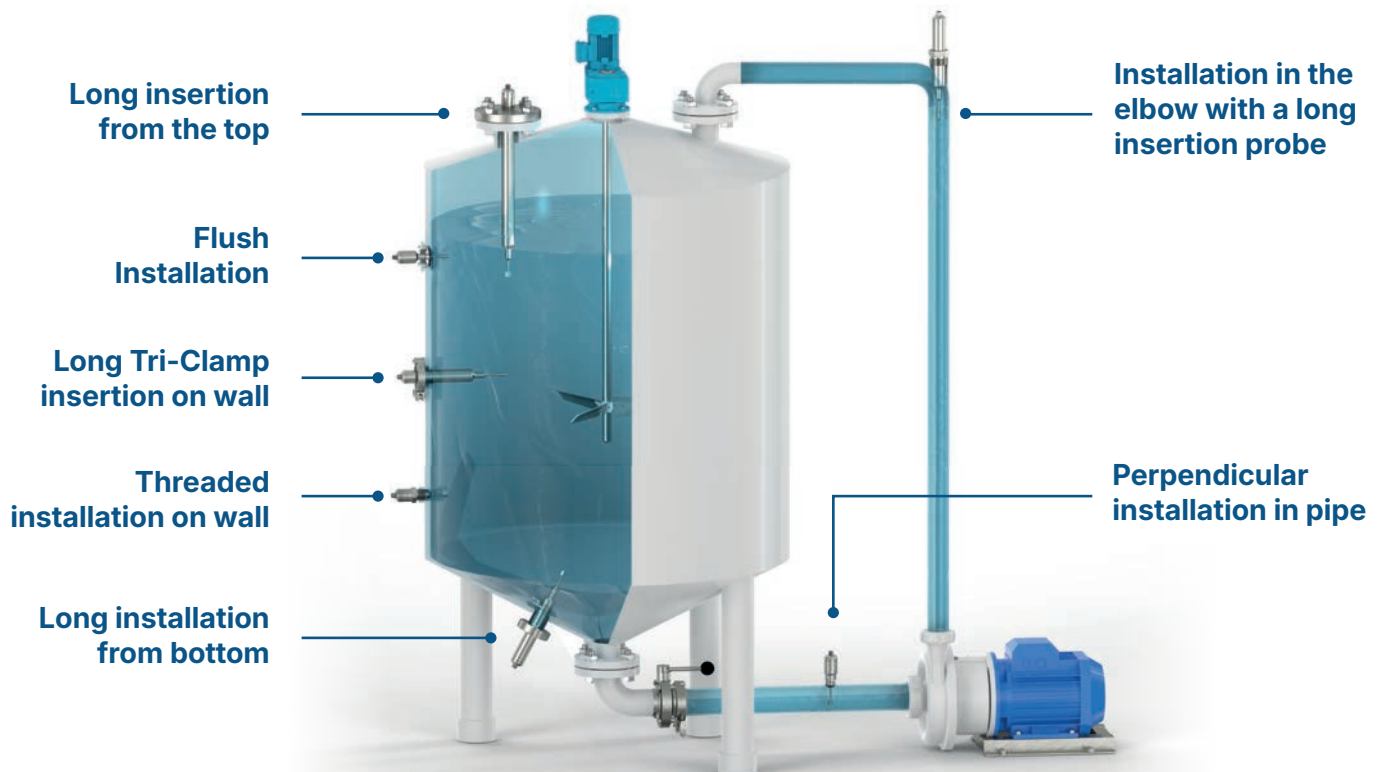
# Type-SR sensors

- **Repeatable fluids** in both Newtonian and non-Newtonian fluids.
- **Hermetically sealed**, available in 316L stainless steel and Hastelloy C22 wetted parts.
- Built in fluid temperature measurement.
- **EHEDG and 3-A** certified and CIP/SIP ready.



## Process connections for Food Industry

Rheonics specialized process connections for the food industry guarantees easy installation and full compliance with the strictest sanitary regulations. These robust mounting solutions enable direct, hygienic integration into production lines, ensuring maximum cleanliness and precise material control.



## Electronics & Communication

Rheonics Sensor Electronics is responsible for collecting and processing viscosity and/or density measurements using a patented algorithm, as well as handling communication protocols. The available variants are:



**SME-TRD**

IP66 enclosures with integrated display



**SME-TR**

IP66 enclosures



**SME-DRM**

35mm DIN rail mount



## Integrated solutions



### CoaguTrack

(Cheese production)

Real-time milk coagulation monitoring and control for cheese cutting optimization.



### InkSight

(Food Packaging processes)

Award winning ink and coating control technology for food packaging excellence.



## Certifications

Designed for critical applications, our probes can be supplied with major international approvals, ranging from hygienic and sanitary certifications (EHEDG, 3-A), to compliance standards (ISO, CE), and explosion protection for hazardous areas (ATEX, IECEx, JPEX, KCs).



## Food Industry Applications

The global food industry is transitioning toward Industry 4.0 architectures to ensure product consistency and safety. Central to this evolution is the implementation of advanced inline sensing technologies that provide real-time data on the physical properties of fluids, particularly complex, non-Newtonian mixtures.



Batter, Breading, Dough & Glaze

### Batter, Breading, Dough & Glaze

From protective shells to flavor finishers, ensuring consistency in coating applications



#### Coating Inconsistency:

Phase separation, inconsistent coating thickness, and texture defects from variable viscosity



#### Realtime Batter Control

Real-time viscosity monitoring ensures proper pickup weight, maintains suspension, and enables automated dosing corrections

**Applications:** French fries clear coat, tempura coating, fish sticks & donut glazing



Emulsions, Sauces & Dressings

### Emulsions, Sauces & Dressings

Maintaining stable mixtures and consistent rheology in complex liquid formulations



#### Emulsion Instability:

Emulsion break, phase separation, and inconsistent particulate distribution affecting quality and shelf life



#### Rheological Insight

Immediate detection of rheological changes allows adaptive process adjustments to maintain stability and homogeneity

**Applications:** Mayonnaise, vinaigrettes, hollandaise, mustard & caesar dressing



Chocolate Processing

### Chocolate Processing

Managing plastic viscosity and yield stress in fat-based chocolate suspensions



#### Texture Vulnerabilities:

Entrapped air and varying moisture make traditional viscometers unreliable, affecting coating thickness and shell quality



#### Sensory Integrity

SRV monitors complex chocolate mixtures with air, tracking texture development during conching and ensuring optimal molding viscosity

**Applications:** Chocolate conching, shell building & praline filling



Dairy Production

### Dairy Production

Protein-led systems where coagulation, fermentation, and atomization drive quality



#### Vat Management Challenge:

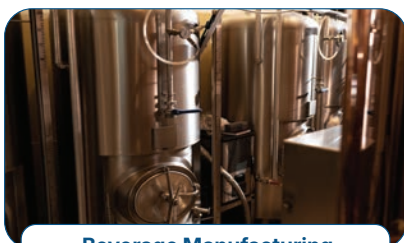
Manual sampling is slow and risky; cutting time affects yield and texture in cheese; inconsistent atomization wastes energy



#### The CoaguTrack Advantage

CoaguTrack provides objective real-time signals for optimal cutting; inline monitoring at pre-atomizer optimizes droplet size

**Applications:** Cheese coagulation & milk powder spray drying



Beverage Manufacturing

### Beverage Manufacturing

Precision management of dissolved solids (Brix/Plato) and carbonation for brand



#### Dosing Variability:

Over-dosing syrup causes giveaway; inconsistent carbonation; slow manual sampling introduces contamination risks



#### Filling line precision

SRD monitors density and Brix instantly for high-speed feedback control; continuous Plato read-outs track fermentation in real-time

**Applications:** Sugar syrup dosing, beer fermentation & carbonation control



Frying Oil Management

### Frying Oil Management

High-temperature monitoring of oil degradation to ensure product safety and shelf-life



#### Oil Degradation Risks:

Oil degradation leads to unpleasant odors and health risks; manual testing is time-consuming and inconsistent



#### Track oil polymerization

Single inline sensor operates up to 300°C, tracking polymerization-induced viscosity changes to detect precise discard point

**Applications:** TPC monitoring, TOTOX tracking & FFA detection



# rheonics

Ready to optimize your production and enhance quality?

**Get in touch, we will love to hear about your applications and help you get real-time process insight!**



<https://rheonics.com/request-for-quotation/srv/>



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