



Reliability through Experience

DE SMET
ENGINEERS & CONTRACTORS

DE SMET Prescalder



The Prescalder, from the workshop to your site



THE PRESCALDER

First designed and very successfully installed in 1981, the DE SMET PRESCALDER has revealed substantial advantages in many respects.

The operating principle of the PRESCALDER is a mere thermal exchange between the diffusion juice and the cossettes followed by a recovery of the calories contained in the waste waters by the cold draft juice of the PRESCALDER.

BENEFITS

- **High cossettes temperatures** at the outlet of the PRESCALDER meaning easier scalding and ensuring optimal diffusion temperature to prevent infection.
- **High purity of draft juice** filtered by the thick layer of fresh cossettes on the PRESCALDER.
- **Low consumption of steam at diffuser level** meaning lower consumption of energy at plant level.
- **Low temperature water disposal** as required by the environmental considerations.
- **Recovery of calories otherwise lost.**

PERFORMANCES

Length Cossettes (m/100g)	Temperature (C°)		Draft Weight (% kg)	Temperature Cold Juice (°C)	Delta T Cossettes Juice (C°)	Temperature Warm Cossettes (C°)
	Cold Cossettes	Diffusion Juice				
12	10	73	120	25	15	71

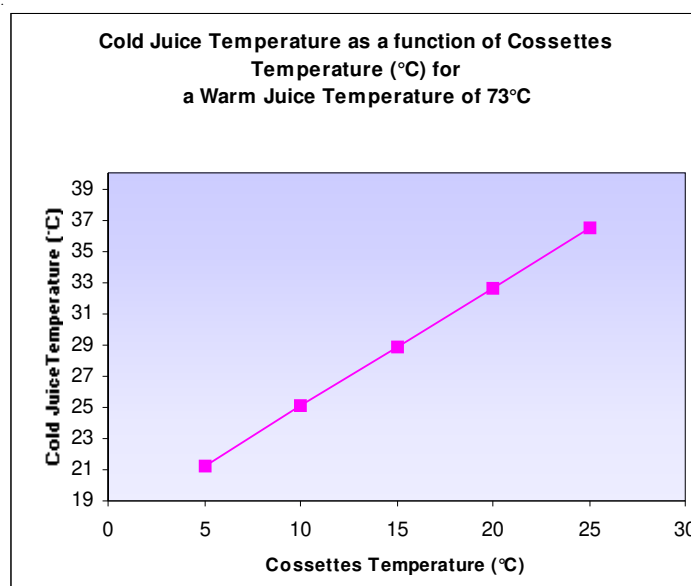
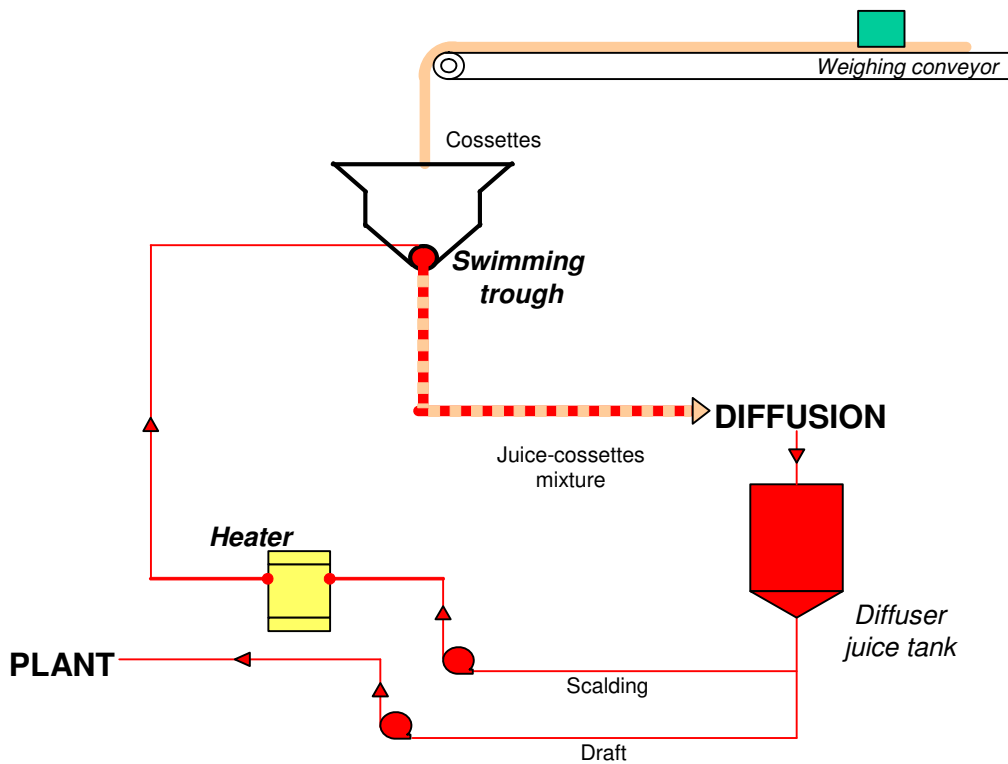


DIAGRAM WITHOUT PRESCALDER

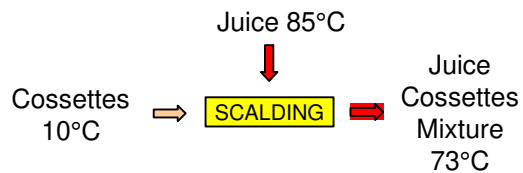


Scalding

Calories required for conventional scalding without PRESCALDER

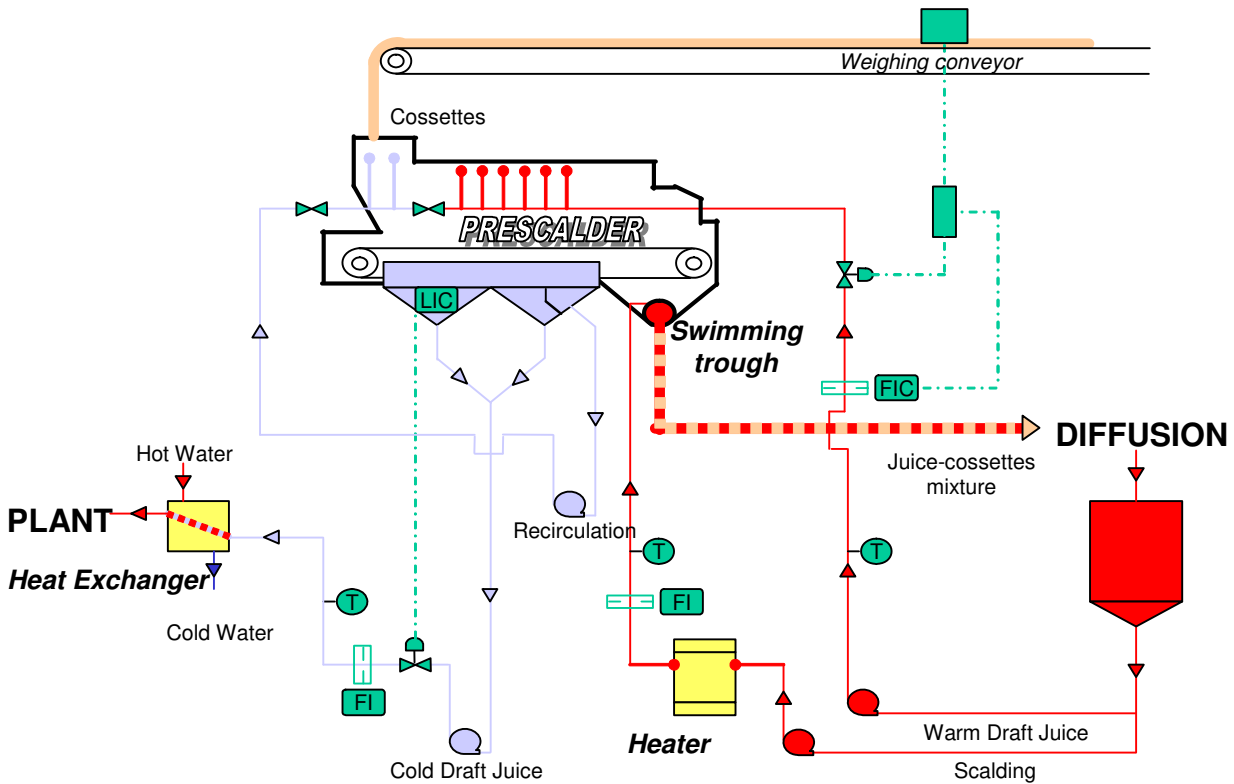
For Cossettes : $1,000 \text{ kg} \times 0.84 \times (73-10) = 52,900 \text{ kcal}$

For Juice : $5,000 \text{ kg} \times 0.89 \times (85-73) = 52,900 \text{ kcal}$



Calculation for 1,000 kg of beets

**DIAGRAM WITH STANDARD
DE SMET PRESCALDER**



Prescalding

Calories required for Prescalding

For Cossettes : $1,000 \text{ kg} \times 0.84 \times (71-10) = 51,250 \text{ kcal}$
 Calories recovered : $1,200 \text{ kg} \times 0.89 \times (73-25) = 51,250 \text{ kcal}$

Scalding

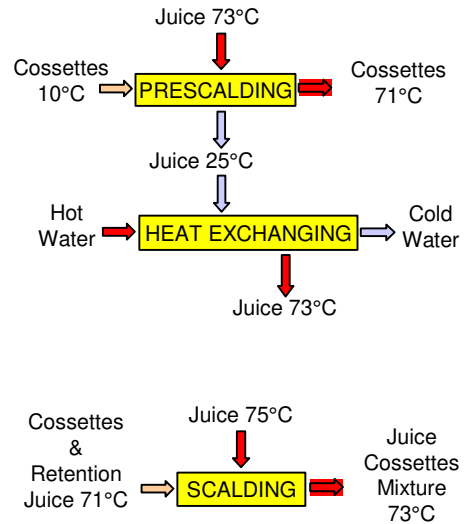
Calories required for Scalding

For Retention Juice : $130 \text{ kg} \times 0.89 \times (73-71) = 230 \text{ kcal}$
 For Cossettes : $1,000 \text{ kg} \times 0.84 \times (73-71) = 1,680 \text{ kcal}$

Total calories required

Prescalding and Scalding : $51,250 + 1,680 + 230 = 53,160 \text{ kcal}$
 Calories from Scalding Juice : $53,160 - 51,250 = 1,910 \text{ kcal}$ instead of $52,900 \text{ kcal}$ without PRESCALDER
 Weight of Scalding Juice required : $X = 1,910 / 0.89 \times (75-73) \sim 1,200 \text{ kg}$

Calculation for 1,000 kg of beets, Draft : 120% weight



FEATURES

- Same conveyor belt concept as the DE SMET diffuser itself with a 1,8 to 2 meter thick layer of cossettes.
- Total amount of draft juice drawn off for maximum recovery.
- Internal circulation of draft juice ensuring a cooled juice temperature of 25°C.
- Residence time of 4 minutes for cossettes and 80 seconds for juice, to prevent infection.
- The casing and the juice hopper of our new type of PRESCALDER are completely manufactured in corrosion – proof 3CR12 steel.
- All the juice distributors are in stainless steel.
- The choice is open between corrosion – proof 3CR12 or stainless steel execution.
- The modern driving mechanism is equipped with a frequency variator for precise control of the linear speed.
- The feed hopper is large enough to play as a buffer to ensure even distribution of the cossettes on the belt.
- At the outlet, a discharge regulator ensures smooth discharge to the swimming trough.
- The comparatively compact size of our PRESCALDER makes it easy to install in front of any type of diffuser.
- The PRESCALDER is conveniently placed between the beet slicers and the diffuser, which does not require any adjustment. Moreover, fresh cossettes can be fed by a belt operating on the same axis or at right angles to the PRESCALDER.



SERVICES

- Our range of PRESCALDERS runs from 3,000 to 16,000 TPD of sugar beets.
- We manufacture your PRESCALDER, we transport it, we erect it or help you erect it, we start it up and we follow your requirements through our specialized after sales service.
- Whenever possible, we offer local construction for some parts of our PRESCALDER to reduce the final cost and boost your industrial environment.





**DE SMET PRESCALDERS HAVE BEEN SUPPLIED
TO THE FOLLOWING SUGAR FACTORIES:**

1981	Sucrerie de Maizy-Hautes-Rives	France	4.000 tbd
1983	Sucrerie de Donstiennes	Belgium	4.000 tbd
1983	Raffinerie de Tirlemont	Belgium	7.000 tbd
1984	King's Lynn Sugar Factory	United Kingdom	5.800 tbd
1985	Sucrerie d'Abbeville	France	9.000 tbd
1986	Brigg Sugar Factory	United Kingdom	4.800 tbd
1989	Sucrerie de Nangis	France	7.000 tbd
1990	Sucrerie de Brugelette	Belgium	8.000 tbd
1997	York Sugar Factory	United Kingdom	10.000 tbd
1997	Sucrerie de Souppes-sur-Loing	France	9.000 tbd
1998	Sucrerie de Bucy-le-Long	France	7.200 tbd
1998	Sucrerie de Vic-sur-Aisne	France	7.000 tbd
1999	Sucrerie de Longchamps	Belgium	9.000 tbd
2003	Sucrerie de Longchamps	Belgium	9.000 tbd
2003	Raffinerie de Tirlemont	Belgium	13.000 tbd
2003	Râperie de Longchamps	Belgium	9.000 tbd
2005	Orafti (Südzucker)	Chile	4.000 tbd



DE SMET ENGINEERS & CONTRACTORS is a privately held limited liability company incorporated in Belgium in 1989. It has an established reputation as a general contractor, specializing in the agro-industrial field where it is a fully-integrated world class provider of engineering, procurement and construction services.

It brings a compelling business offering that combines excellence in execution, safety, cost containment, experience and reliability with particular care towards energy saving and sustainability.

Sugar as well as **Oils & Fats** have been the core of **DE SMET ENGINEERS & CONTRACTORS**'s fields of activity. A major diversification towards the **Biofuels**, **Biochemicals** and **Agrochemical** industries has now taken place, based on its specific competence in agro-industrial engineering and project management acquired over the years.

DE SMET ENGINEERS & CONTRACTORS provides the industry with general contracting services from project management (**EPCM - Engineering, Procurement and Construction Management** or "For and on Behalf" operations) to full turnkey construction (**EPC - Engineering, Procurement and Construction**) allowing industrial operators to concentrate on their production commitments.

From conceptual study to vocational training, **DE SMET ENGINEERS & CONTRACTORS** has the ability and skill to **successfully complete large turnkey projects on brown- or greenfields**, all within the pre-established budget and delivery time, in a variety of geographical environment.



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