



*Reliability through Experience*

## DE SMET Prescalder



# The Prescaler, 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.

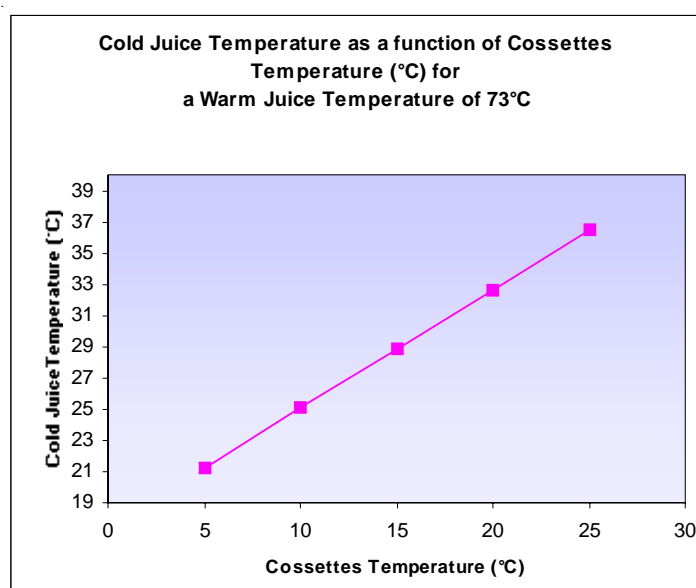
The operating principle of the PRESCALDER is a mere thermal exchange between the diffusion juice and the cossettes followed by a recovery of the calories contained in the waste waters by the cold draft juice of the PRESCALDER.

## BENEFITS

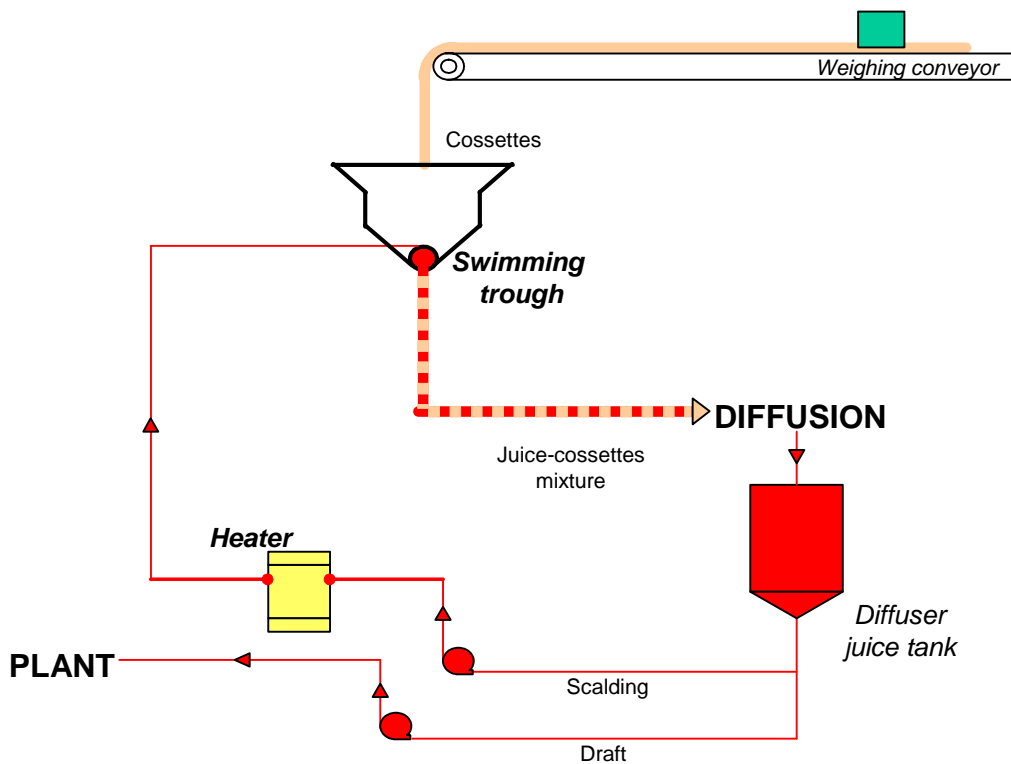
- **High cossettes temperatures** at the outlet of the PRESCALDER meaning easier scalding and ensuring optimal diffusion temperature to prevent infection.
- **High purity of draft juice** filtered by the thick layer of fresh cossettes on the PRESCALDER.
- **Low consumption of steam at diffuser level** 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*

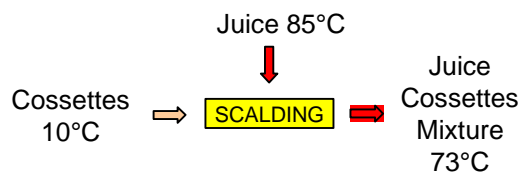


**Scalding**

**Calories required for conventional scalding without PRESCALDER**

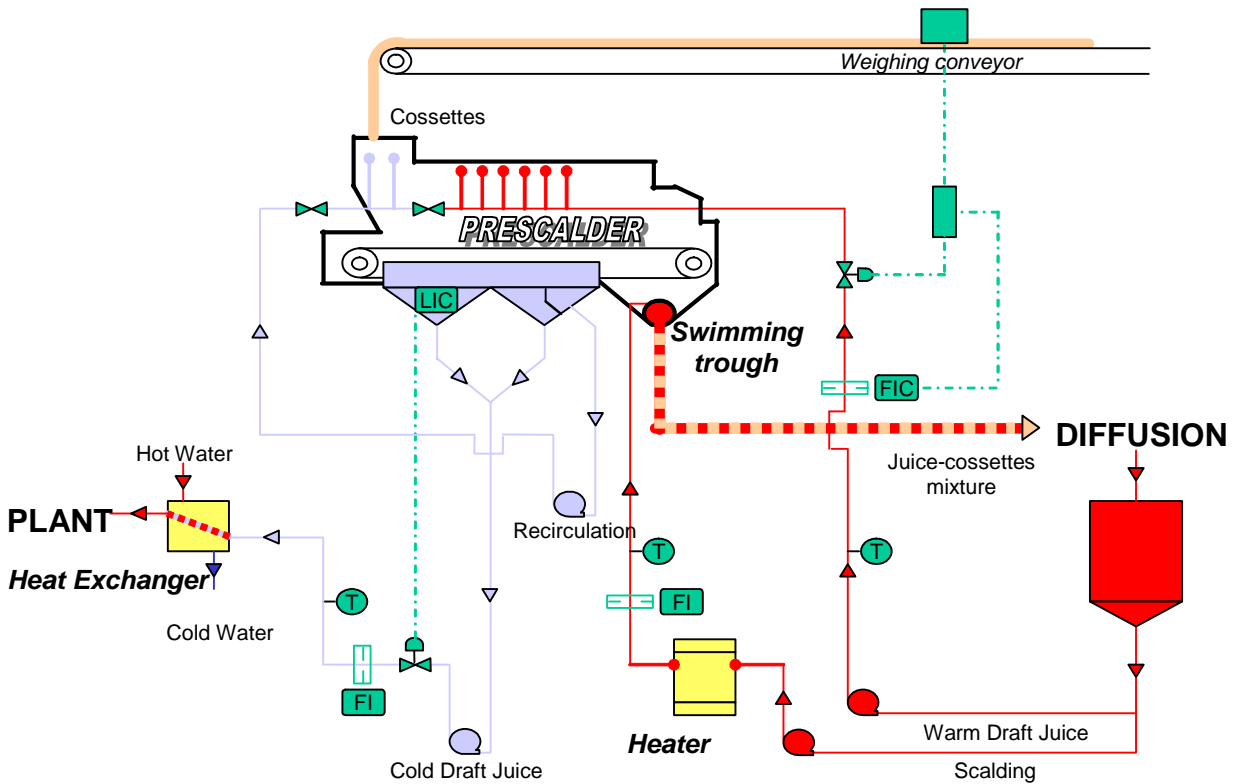
For Cossettes :  $1,000 \text{ kg} \times 0.84 \times (73-10) = 52,900 \text{ kcal}$

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**

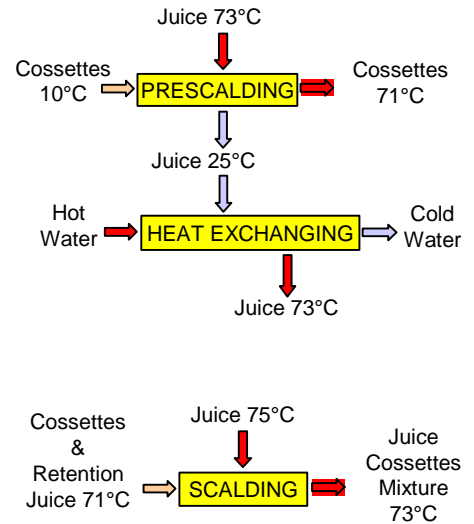
**Calories required for Scalding**

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 PRESCALERS HAVE BEEN SUPPLIED  
TO THE FOLLOWING SUGAR FACTORIES :**

1981	Sucrierie de Maizy-Hautes-Rives	France	4.000 tbd
1983	Sucrierie 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	Sucrierie d'Abbeville	France	9.000 tbd
1986	Brigg Sugar Factory	United Kingdom	4.800 tbd
1989	Sucrierie de Nangis	France	7.000 tbd
1990	Sucrierie de Brugelette	Belgium	8.000 tbd
1997	York Sugar Factory	United Kingdom	10.000 tbd
1997	Sucrierie de Souppes-sur-Loing	France	9.000 tbd
1998	Sucrierie de Bucy-le-Long	France	7.200 tbd
1998	Sucrierie de Vic-sur-Aisne	France	7.000 tbd
1999	Sucrierie de Longchamps	Belgium	9.000 tbd
2003	Sucrierie de Longchamps	Belgium	9.000 tbd
2003	Raffinerie de Tirlemont	Belgium	13.000 tbd



**DE SMET ENGINEERS & CONTRACTORS** has been created in 1990 by the De Smet Group with the intention to have an organisation totally dedicated to large projects, extending its expertise to process auxiliaries, site construction activities and project management.

**Oils & Fats** as well as **Sugar** have been the core of **DE SMET ENGINEERS & CONTRACTORS'** field of activity. Diversification however has taken place, based on a worldwide competence in project management acquired over the years.

**DE SMET ENGINEERS & CONTRACTORS** is not only equipment supplier, but also plant supplier and contract manager. It has developed the **Full Responsibility Concept**, based on a comprehensive range of multi-disciplinary resources.

From the initial study to vocational training, **DE SMET ENGINEERS & CONTRACTORS** has the ability and skill to **successfully complete large turnkey projects, even on a greenfield site**, all within the contractual budget and delivery time, whether on its own or in association with other companies.



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