

The Caramilk® Secret



Cadbury Products



Canadians and Chocolate: A Rich History.

Canadians have been enjoying Caramilk bars for more than 30 years. Caramilk was launched in the 1960s and has become Cadbury Trevor Allan's number one brand. Over 1.5 Caramilk bars are sold for every person in Canada.

Cadbury Trebor Allan Inc. is one of Canada's leading manufacturers of chocolate and candy confectionery products with 2500 employees across Canada. It is a subsidiary of **Cadbury Schweppes plc**, a global leader and one of the oldest chocolate makers in the world.

In fact, the **modern chocolate bar** was born from Cadbury's founder, John Cadbury. Today, Cadbury chocolates are sold in over 200 countries.

The Toronto, Ontario facility is especially important to Cadbury Schweppes plc.

Approximately 800 employees work **24 hours per day, seven days per week** to produce **all** of the Cadbury chocolates for North America, Latin America and parts of Asia.

This facility has a **rich history** in chocolate.



Built in 1905 by the Neilson family to produce ice cream, Mr. Neilson expanded operations to manufacture chocolate in the winter months so he could keep his employees working throughout the year.

Secrets. Secrets. Secrets.

Let's get to the **Caramilk Secrets!**



First, the Caramilk bar has a tradition of secrets, such as the caramel recipe, itself, and most importantly, the manufacturing process of how the thick, golden caramel filling goes into each creamy pocket.

However, we are not going to talk about either of those secrets.

Instead, we're going to share a **new Caramilk secret about improving production efficiency and maintaining product quality and consistency** on the Carle 600.

The **Carle 600** is the production line that produces filled chocolate bars such as

- Caramilk,
- Caramilk Dark,
- Caramilk Rolls,
- Cappuccino,
- Cadbury Yogurt, and
- Cerises.

Tempering and Production Challenges.

Like all chocolate, **temperature is critical for flavor and appearance** of the final product. Chocolate is tempered similar to the process used in steel production.

What is tempering?

Essentially, it is the gradual heating and then gradual cooling of the bars. If done properly, the final chocolate bar tastes great and has a shiny finish.

Because the Toronto facility has **so many production lines and so many different chocolates**, John Kang, the Environmental & Utilities Manager, and Ray Kenny, the Chief Operating Engineer, are kept busy adjusting temperature controls in addition to their other job functions.

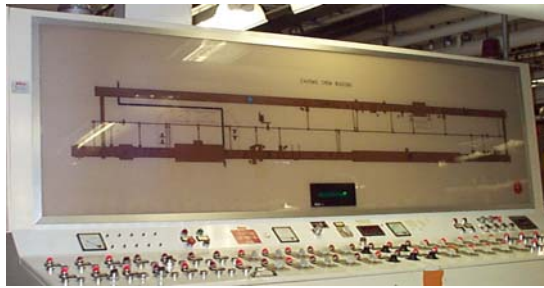
Most of John and Ray's work is done during a **change over** on a production line.

For example, a batch of Caramilk bars has just been made on the Carle 600 and now Cadbury Yogurt bars are on the manufacturing schedule.

Not only do the **ingredients** change, but **temperature** requirements can change.

Downtime between runs is a pure cost. The faster the change over can be completed, the quicker more chocolate can be produced.

Due to **manual adjustment and icing problems** on evaporator coils, the conversion process could take **up to 24 hours** to complete.



The Proposal.



CIMCO Refrigeration has been servicing the plant's refrigeration needs for many years and has been aware of their operational challenges.

Being **customer focused**, CIMCO is always looking for **innovative solutions** to solve operational problems.

As a result, when Ron Matwee of CIMCO, learned of a new motorized valve from Hansen Technologies Corporation, he investigated the product's capabilities further.

After several discussions and obtaining additional information from Hansen's representative, Dave Giza, Ron proposed implementing four **Hansen Sealed Motor Valves** on the Carle 600.

Amazing Results!

Four Hansen Sealed Motor Valves were installed to control temperature. One in the suction line of each of the four cooling coils on the Carle 600 line.

Results have been amazing!



First, **icing problems have been eliminated**, and the **time** required to change over a line to a new bar has been **reduced** to a few hours.

Changing the temperature settings **no longer requires manual labor**.

Now it is completed with the touch of a button on the Carle 600 control panel.

Second, **product quality is better and consistent**.

The Hansen Sealed Motor Valves are **controlling temperature** at each stage of the tempering process **within 0.5°C** of the set points (as you can see from the photo).

And the **chocolate bars** are consistently **shiny** when they reach the packaging area.

The Solution.

So how does the **Hansen Sealed Motor Valve** work? Well, that's another secret. Just kidding!



A **4-20 mA signal** (which is tied directly into the plant computer, monitoring coil outlet temperature) is sent to the microprocessor in the motor of the valve.

As a result of the signal, the **valve either slowly opens or closes automatically**.

It is **ideal** for applications that require precise temperature, level or pressure control. Unlike most pressure regulators and solenoid valves, no pressure drop is required to operate the Sealed Motor Valve.

It is more compact and light weight than other motor operated valves, and has no valve stem seal leakage problems due to its patented design.

It can be used in **refrigeration systems** using ammonia, R22, R134a, glycol, and brines (contact Hansen Technologies for other approved refrigerants).



HANSEN TECHNOLOGIES
CORPORATION

PAGE 3

Hansen offers an extensive line of components for industrial refrigeration systems including sealed motor valves, control valves, shut-off valves, pressure-relief valves, refrigerant pumps, air purgers, defrost controls, and liquid level controls.

6827 High Grove Boulevard
Burr Ridge, IL 60527

Phone: 630-325-1565
Fax: 630-325-1572
Email: info@hantech.com
Website: www.hantech.com

LOOK TO THE LEADER IN INDUSTRIAL REFRIGERATION

Future Plans.

What does the **future** hold for this Cadbury plant?

More and **more great chocolate bars** and **plans to capitalize on this successful** operation and expand into additional production lines.

Finding the time to shut down the production process long enough **for renovation** is now the biggest challenge.

