



Figure 13.12 The Aasted temperer.

The Aasted temperer operates in the following manner. Chocolate is gently metered through the machine. Aasted, recognising the fact that inadvertent accidents can happen, have fitted a heat-jacketed relief valve to protect the pump and temperer from high-pressure damage (pumps can break down at 14 bar; 200 psi). The chocolate rises up through the control zones, of which there are three in current models, although older ones may have more. The cooling controls in the first zone strikes seed and initiates crystal growth, allowing the remaining zones to be adjusted to give the best conditions. The chocolate leaves the temperer, after being reheated to the user required temperature.

*Sollich:* Sollich are the company who have probably made the most ingenious varieties of tempering machines, ranging from very short residence times, through to present-day systems. These include single-stream, double-stream and multi-stream systems. “Streams” are blends of previously seeded masse, or may represent the new untempered feed into the tempering worm. Sollich have manufactured a range of combined temperer/enrobers (see Chapter 14). Their separate or outboard temperers include the Solltemper MST-V and the current popular MSV Turbo.

With the Solltemper MST-V (Figure 13.13) Sollich have developed a plate type heat exchanger for tempering chocolate, which claims to have more residence time, “microcrystalline growth” and thermo-cyclic conditioning, through the use of special scrapers. For this machine a residence time of 5 min is needed to create seed (Figure 13.8). This temperer has proved to combine well with enrobing machines to produce a good temper. The enrobing temperature is, however, lower than could be achieved with a longer residence time in the enrober tank.

In the MST-V temperer, metered chocolate is fed in the base of the machine and rises through heat-exchange plate elements, which are divided to create three cooling zones and which have spring-loaded scraper blades in order to provide efficient heat exchange. The required “strike seed” temperatures occur in the later stages of the cooling cycle. A further zone reheats as necessary and extends the residence time period. The chocolate now passes through to the user plant. It is also claimed that water at 16.6 °C (62 °F) can be used effectively as the cooling medium.

This model has been largely superseded by the Sollich tempering machine designated the MSV Turbo. This machine has a stacked plate design like the MST-V. Major changes have taken place however in the method of scraping the cooling plates and water circulating systems. The previous spring loaded scrapers have been replaced by a semi-scroll cruciform design (Figure 13.14). Water cooling and circulation is now improved and is continuous. This is achieved by a circulating pump passing water through redesigned cooling or heating zones. A modulating control valve system for precise temperature control admits heating or cooling water. An automatic capacity control system adjusts the cooling surface area as required, when variations of flow rate or incoming chocolate temperature occur. This ensures an almost uniform degree of temper at all times.