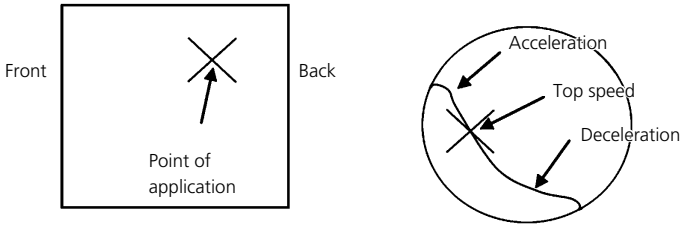

Figure 16.2 Point of addition of chocolate into a manual pan.

time will be required for smoothing. However, if the temperature in the product bed goes up too far for too long, then the outcome will be twofold, depending on the type of coating being used. A low-fat, high-viscosity chocolate coating will become too soft and will start to deform. Deformation is recognised by the coating being pinched and squeezed towards the narrow end of the centrepieces and, even worse, the layers may peel off. With a high-fat coating, the opposite happens: thin layers of coating will start to melt off the tips and start to adhere on the flat side of the centres (where there is less friction and pressure), causing the centre to be exposed at the tips. With drip feeding or ladle application, an additional defect can happen. Chocolate which is too warm and applied in a thick stream will melt the nearby coating layers where they are in contact with the fresh chocolate and bare spots will develop. This can be avoided by letting the product bed cool and solidify from time to time. Intermittent cooling is well worth carrying out as a better product and shorter engrossing times can be obtained, provided that not too much heat has to be removed through a thick layer of chocolate. The smoothing process can begin when about 80% of the total chocolate has been applied to the centre. Weight gain can easily be determined by weighing 10 or 20 average sized sweets throughout the process. Large panning systems often have the advantage of load-cells fitted under the drum or under the chocolate feed tanks. Load-cells under the drum are not recommended, due to the difficulty of reading an unstable signal caused by the rotating drum and shifting of the product.

16.3.4.3 Smoothing process

The smoothing process is critical in order to obtain a good polished product. The product should be checked for appearance shortly before the final layers of the coating are applied to the centres. The product should be cooled in order to avoid overheating of the inner layers once the smoothing process begins. The air is then turned off and the product is allowed to continue to tumble for a while. Manual pans with lids should be covered to expedite the warming process. The ridges, if any, developed during the rapid engrossing will start to warm up and the coating will begin to move into any cracks. The remainder of the chocolate should then be added to prevent the natural ridges on the centres becoming exposed (e.g. the tips of almonds). Care must be taken at all times not to overheat the product bed.

The sweets will now develop an unruffled and even surface. As soon the product appears smooth, cool the bed one last time. The product can then be carefully removed from the pan and stored overnight. The chocolate will then have time to crystallise properly before the polishing begins. In large operations, overnight storage is often omitted for scheduling reasons and the polishing step then has to begin immediately after the product has cooled and properly set.

16.3.4.4 Pearling

Pearling is a type of product appearance now not often seen but is none the less very attractive in assortments. The pearled sweet is covered with ridges and cracks. The polishing process will then only highlight the crests, giving the chocolate piece a very contrasting surface, even more so in the case of dark coatings. The pearling begins immediately after the formation of the base coat. Coating is continuously sprayed or dribbled onto the product bed. At the same time, cold air, possibly at a relative high pressure, is blown onto the product. This will not allow the coating to spread but will start to build ridges and bumps. It is important to have coating continuously entering the pan so that the crests do not smooth out, but not at such a rate that the product bed starts to warm up. The chocolate viscosity can control the fineness and distribution of the ridges. A thin low-yield value coating will give a small grained appearance, whereas high-viscosity coatings produce relative large ridges. Once the product has reached its final weight, the polishing process can begin.

16.3.5 Polishing and sealing

Polishing and sealing makes a product look attractive. There is nothing more appealing to the customer than a highly polished, glossy chocolate sweet. Like all the previous panning stages, polishing is a two-step process. In theory, one or two coatings of shellac (shellac is the refined resinous secretions of the lac insect) would be sufficient to produce a good shine. However shellac, diluted in alcohol, will interact with the chocolate or the compound coating, so the final surface is poor. To avoid this interaction, a sub-coat is applied as a barrier. The polishing masse consists of colloids (gum arabic, dextrin, starches etc.) in sugar syrup, with glucose added as an adhesive and to prevent crystallisation. To reduce the possibility of the product bed sticking together, it is advisable to add 3–5% of cocoa butter or hard fat as a separating agent. The polishing masse should then have a total solids content of 55–65%. Polishing solutions, which are available commercially, are in general a lot easier to use than home-made ones. This sub-coat has a high polish of its own. Unfortunately, it is a water-based coating which loses its brilliance very quickly in a humid environment and so requires a sealant and/or packing in a suitable moisture-resistant pack.

It is useful to understand what causes a high gloss. With the elimination of cracks, scratches, impurities and so on, a narrow spectrum of light is reflected from the surface instead of being absorbed, thus giving the glossy appearance.