

## Appendix 8: Wood Pelleting Process in Detail

Softwood waste is dried to about 10% moisture content and reduced to chips below 10x10x100mm in size before being processed into pellets.

The core process of the Wood Pelleting Plant comprises five stages: milling, conditioning, pressing, cooling and screening

### **Stage 1 - Milling:**

The chips are reduced to a particle size of about 3mm in a hammer mill.



Hammermill

### **Stage 2 - Conditioning:**

The resulting powder is conditioned with dry steam and water to the required temperature and moisture content to activate the lignin as a pellet binding agent and to obtain the necessary malleability of the product. This is the most critical stage of the process. Conditioning takes place in two stages, a dosing screw feeder and an agitator with adjustable paddles.



Pellet Press with Conditioning Unit

### **Stage 3 - Pressing:**

The conditioned product passes over a permanent magnet to remove any ferrous metal before it is fed into the press. The pellets are formed by forcing the product through the rotating die with a pair of press rolls, achieving a compaction ratio of over 3:1.



View of Pellet Die and Press Rollers

#### **Stage 4 - Cooling:**

The pellets leave the press at a temperature of about 100°C and need to be cooled down to about 25°C to harden them. The cooling down process takes place in a Counter Current Pellet Cooler and is controlled with adjustable gates on the vibratory discharge hopper.



Counter Current Pellet Cooler

#### **Stage 5 - Screening:**

The finished pellets are passed over a Vibratory Pellet Screen to remove any dust. The dust goes back into Stage 1, and the pellets are stored and packed.



Vibratory Pellet Screen