Wood, one of nature’s valuable raw materials, is an indispensable source of pulp, paper, and panelboard. At each mill, wood handling is the very start of the processing chain. Since the wood raw material varies greatly depending on the location of your mill, the main challenge is how to handle these various species of wood in the right way. That means treating the raw material as gently as possible to make it perfect for further processing and to get the best possible yield.

For this purpose, Metso Paper has developed a unique solution called ChipWay. This is our concept of wood handling, which incorporates all process stages and results in high-quality chips in a way that saves wood. ChipWay features in-depth process know-how based on our wide experience, cutting-edge machine technology and embedded automation solutions.

Besides being gentle to the raw material, ChipWay also pays special attention to the environment. By taking care of nature now, we will all ensure a sustainable healthy source of chips into the future.

Follow the new way in wood handling – ChipWay!

In the ChipWay concept, it is essential that the wood raw material is handled with special care at all stages of the wood processing chain. It is widely recognized that a conventional drum infeed with chain conveyors causes wood losses of 3–5% and that damaged logs deteriorate chip quality. To overcome this, we at Metso Paper have developed the GentleFeed™ drum infeed system.

This ingeniously simple, patented system has exceeded all expectations. With GentleFeed, wood losses are smaller and maintenance costs are lower than with any other debarking drum infeed method on the market. Thanks to its unique and gentle feeding system, the wood flow discharged from the drum contains a minimal amount of broken and crushed wood, significantly improving the chipping result.

Maximized process availability, minimized costs

Another major benefit of GentleFeed is the maximized process uptime. Its innovative chainless conveying principle eliminates unexpected production stoppages such as jammed logs or broken chains that often occur with chain conveyors. GentleFeed is customized to meet the particular needs of each mill. The system is suitable for all kinds of raw materials ranging from shortwood to tree-length wood, softwood or hardwood, tropical or frozen, fresh or dry. If you operate in arctic conditions, GentleFeed is equipped with a deicing system. In case your raw material contains dirt and sand, a log washing station is supplied to accompany GentleFeed.

The GentleFeed system eliminates the need for load decks, chain conveyors and feed chutes. Therefore, its service and maintenance costs are extremely low.
The GentleBarking process

Optimized debarking the easy way

According to ChipWay, the ultimate target of the debarking process is to obtain the best possible chip quality with the lowest possible wood loss. In other words, after debarking, your logs should be clean but not over-debarked. This means that conventionally the barking drum must be able to provide both optimal bark removal and effective bark separation.

To achieve an optimal debarking result, different types of barking drums are needed for different mills, processes and capacities. Climatic regions also have an effect on the quality of wood raw material in terms of wood species, density, freshness, log length and diameter.

GentleBarking™ – successful separation of stringy bark

Wood species like eucalyptus and acacia have tough, stringy bark, which is difficult to remove using conventional debarking methods. Although the drum easily removes the bark from the log surface, only a small quantity of the loose bark exits through the bark slots while the rest of the bark exits the drum with the debarked logs. GentleBarking, Metso Paper’s innovative solution, successfully combines optimized debarking and efficient separation of stringy bark. In the GentleBarking concept the function of the drum is purely to remove the bark from the log surface. The loose bark is separated from the log flow after the drum on a special screening conveyor system. This allows for a shorter drum and eliminates the need for bark slots, realizing substantial benefits and savings in terms of less wood loss, better chip quality, lower operating and maintenance costs and higher uptime. This unique, simple operating principle is extremely flexible and can be applied to practically all wood species.

Tailor-made, proven drum solutions

Metso Paper’s latest contribution to debarking is the GentleDrum™ barking drum, which is specially designed for our GentleBarking process. Our product range also includes the EasyTyre™, EasyFloat™, and EasyRoll™ barking drums as well as a steel roller supported barking drum, all with special features to meet different customer needs. Their easy and reliable operation is proven by nearly one thousand successful installations worldwide. In fact, many of the barking drums we supplied over twenty years ago are still running smoothly today!
Chipping for maximum raw material gains

The most important part of ChipWay is naturally the chipper, which produces high-quality chips perfect for your pulping process. The impact of chip quality on pulp and paper quality is indisputable. The two critical features in chip quality are uniform chip size and minimal fines content that bring major benefits in further processing.

High-quality chips benefit your pulping operations in terms of a higher yield, less reject, lower kappa level, less kappa variation, lower chemical consumption and higher pulp strength. High-quality pulp commands a better price and a higher demand than a standard grade. Better quality also means lower pulp consumption in papermaking and better quality paper, which both increase profitability at a paper mill.

Camura GS™ leads ChipWay

The outstanding design of Camura GS chipper incorporates the benefits of eleven different patented features. It was developed with over 100 years of chipping expertise gained from the famous Carthage, Murray and Rauma chippers. The new generation Camura GS chipper features chipping geometry that produces more uniform chips with an extremely high accept content and a high raw material yield. The high quality of chips in turn improves the uniformity and strength of pulp in both chemical and mechanical pulping.

GentleKnife™ for perfect chips

In recent years, we at Metso Paper have focused on the chipper knife system and its influence on chip quality. The outcome of this intensive development work is the GentleKnife system. It is based on a unique material technology solution, combined with the correct geometry of the window where wood is converted into chips. The knife itself is sharper and more durable than any other available on the market today, bringing significant improvements in chip quality, increases in continuous production time as well as savings in service and maintenance.
Embedding our intelligent analysis and control system, GentleMatic, into your wood handling process will allow you to take full advantage of ChipWay. GentleMatic has been specially developed for the optimization of the debarking and chipping processes. Combined with our advanced process measurement devices, it controls the wood room operation to achieve the target capacity and desired chip cleanliness. These factors, together with maximized raw material yield, bring you substantial savings and result in total economy of the debarking and chipping processes.

**VisiBark™ online measurement for bark and chips**

The VisiBark measurement system provides the control of wood losses and chip cleanliness. It is installed directly on the debarking and chipping line. There is no need for a separate sampler, because measurements are taken optically from the material flow. Furthermore, the measurements are taken online and the results can be used to control the debarking. Combining VisiBark with GentleMatic provides total optimization for the debarking and chipping process.

**VisiChips™ optical chip quality analyzer**

VisiChips represents a new generation of optical chip analyzers. It is designed to measure chip size distribution, length, width and thickness. The VisiChips analyzer can measure all chip size and dimension distributions simultaneously. Any known standard (for example SCAN or TAPPI) can be used for chip size distribution simply by changing the parameters.

- Quick optical measurement
- All necessary data simultaneously
- High precision
- Easy installation and maintenance
- Online or offline measurement

**Total benefits**

The use of GentleMatic, VisiBark and VisiChips improves the efficiency of the entire pulp line in terms of:
- less wood loss
- higher yield
- proper cooking kappa
- less rejects
- higher strength
- chemical savings
At the end of your wood handling chain, ChipWay maintains the high quality of the chips while they are in storage. Our reclaimers feature 100 percent automatic and reliable reclaiming to prevent chip pile deterioration. The systems operate on the first-in-first-out principle that guarantees excellent blending and homogenization of the chips for further processing.

**RotaRecAll™ for clean chips and a clean environment**

An ultra-modern, environmentally sound chip storage system with a RotaRecAll screw reclaimer will bring significant advantages to every pulp and paper mill. It features minimal variations and uniform chip quality. These factors are vital in the pulping process for producing pulp and paper of consistent high quality.

With RotaRecAll it is possible to build a large covered silo for storage of up to 26,000 m$^3$ of chips. This chip volume is sufficient for intermediate storage for most production lines and ensures maximum safety in operation. Covered storage is also a solution to ever-increasing environmental requirements. It prevents wind screening as well as all kinds of chip contamination that occur in open stockpiles.

**RecAll™ with an extremely wide reclaim opening**

RecAll is a traversing screw reclaimer that ensures a fully automatic chip storage system with no need for bulldozers or similar equipment, resulting in minimal chip damage.

**GentleStore™ – large storage with the best chip homogenization**

GentleStore provides the latest cutting edge technology for wood chip storage and reclaiming. The chip pile is built up at the front and reclaimed from the back. The chips are reclaimed gently from the entire cross section of the pile, which ensures excellent blending and homogenization of the chips while minimizing chip damage. GentleStore includes several unique features and allows low operation and maintenance costs, making it a beneficial total investment.

**Quality and savings with ChipWay**

The success of our customers is vital to us. Since wood is unquestionably the highest expenditure in pulp making, we at Metso Paper do our utmost to develop solutions like ChipWay that make effective use of this indispensable raw material. ChipWay turns your valuable wood raw material into high-quality chips, giving the best possible start for the next stage of your processing chain.