RICE PADDY RECEIVING SYSTEM

1. Reception, Cleaning, Drying & Storage of padding at SRM

Machine	Country of Origin
Weigh Bridges	**UK**
Paddy Pre-cleaners	**JAPAN**
Dryer	**USA**
Silos	**USA**
Temperature Detecting System (silos)	**USA**
Conveyors & Bucket Elevators	**USA**

At S.R.M. we have a system which receive, clean, dries and stores paddy (Rough Rice) within a very short period of time, particularly during the paddy harvest season, weighed and discharged into large intake (Receiving) pits. Conveyors then feed the paddy to the pre-cleaner Machines where coarse impure are removed. Next the paddy is dried to reduce its moister to 14%. This is achieved through several passes in vertical (L.S.U. Type) Dryer with intervals of 8-12 hours. Paddy at 14% moisture content is suitable for storage into silos, equipped with "Hot Spot" temperature detection system. It can be cooled with cold Air blowing system.

S.R.M is one of the only three Rice Mills in Pakistan, which has Silos storage system.

2. Cleaning & Paddy Thickness Grading

Machines Installed

Machine	Country of Origin
Paddy Cleaner	Malaysia
Thickness Grander (Paddy)	Japan
Conveyors	USA
Elevators	Australia
Bins (Paddy)	USA

Before paddy can be processed in the Rice Mills, it is necessary to clean it thoroughly by removing impurities such as dust and foreign matter through aspiration and sieve cleaning. The paddy after cleaning is passed through thickness graders to remove empty shells, shriveled grains and immature paddy grains from the healthy paddy.

3. Hulling & Paddy Separators

Machines Installed

Machine	Country of Origin
Rubber Roll Huller	Japan
Paddy Separators	Malaysia
Conveyors	USA
Elevators	Australia

Hulling is the process in which the husk from paddy is removed. This is achieved by the gentle of pair of rubber rolls applied on paddy. Next the husk aspiration system separates the husk from brown Rice. the brown Rice then passed into the paddy separators, which separates any unhulled paddy which is recycled back to the huller, the hulled Rice (brown Rice/Cargo Rice) passes on to the De-stoners and brown Rice thickness Graders.

4. De-Stoning & Brown Rice Thickness Grading

Machines Installed

Machine	Country of Origin
De-stoners	Canada
Brown Rice Thickness Graders	Japan
Conveyors	USA
Elevators	Australia

The brown Rice is passed through the De-stoners which remove heavy impurities such as stones and glass. The Brown rice is passed through Brown Rice Graders to remove the undersized Brown Rice and immature/ shriveled grains so that only healthy and clean brown rice goes to whitening process.

5.1 Whitening & Polishing

Machines Installed

Machine	Country of Origin
Emery Polishers (abrasive)	Japan
Friction Polisher	Japan
Conveyors	USA
Elevators	Australia

During whitening and polishing, bran layers are removed from the Brown Rice. The bran removed is best achieved in several steps to ensure evenly milled Rice grains with minimum breakage and optimum whiteness. The number of passes required, depends on the desire whiteness and finish on Rice.

5.2 Whitening & Polishing

Two different types of machines are used for whitening of Rice. Emery polishers and friction polishers. Emery polishers remove bran by abrasive action between rotating emery stoners and the Rice. These machines are normally used to remove the outer bran layers of Rice Grains, during the initial whitening passes. Rice polished in abrasive polishers has a bright white appearance and slightly rough surface.

Friction polishers remove bran by creating high friction forces between the Rice grains.

The friction polishers are used in final passes of whitening process and produce a very smooth with an opaque appearance. Multiple passes of friction polishing, while adding a little water "mist" prior to each polishing pass, yields the highest grade of polishing "Silky" polishing.

6. Grading

Machines Installed

Machine	Country of Origin
Plan sifter	Italy
Indented Cylinder	Canada
Conveyors	USA
Elevators	Australia

Grading is the process of removing broken Rice form head Rice, and storing them into fraction of different length. Plan sifters are used to separate Head Rice, small broken medium broken and a mixture of big broken and Head Rice. The mixture of big broken and Head Rice is further separated by a sequence of Indented cylinders into big broken and Head Rice.

Bagging Section, Head Rice, Broken Rice & Bran

Machines Installed

Machine	Country of Origin
Bran Rotex	USA
Bran Packing Machine	Australia
Rice Rotex	USA
Volumetric Feeders	Australia
Rice Weighing & Bagging Machine	USA
Conveyors	USA
Elevators	Australia
Bag Conveyors	USA
Bag Elevators	USA

The bran is collected from all the polishers and deposited by cyclones into the bran Conveying system. The Bran powder is passed through Bran Rotex, which separates tips of Rice from bran powder. The bran powder is weighed and bagged by Bran Packing Machine.

The Head Rice and different size broken Rice is stored in the bins separately. As per buyers demand the Broken Rice percentage in Head Rice is ensured through volumetric Feeder Machines. Before bagging, the rice is finally cleaned by Air Aspiration system and also through Rice Rotex machines.

The cleaned Head Rice is weighed through load cell auto weighed and bagged off. The bags are stitched by the stitching machines and the Rice filled bags are sent to finished products store through bag Conveyors, and stacked in the godown up to 16 layers of filled bags height by Bag Elevators.