



**GI AGRO TECHNOLOGIES PVT LTD**

**Ultimate Solution for Sorting & Grading**

# A COLOR SORTER FOR EVERY NEED; TO SORT & GRADE



CASHEW



RICE



PEANUTS



WHEAT



NUTS



BEAN



TEA



PLASTIC





**GAYATHRI**  
AGRO PROCESSING MACHINERY  
*Technology at its best*

**DESIGN ► DEVELOP ► DELIVER**

# ARTIFICIAL INTELLIGENCE BASED SORTING SOLUTION





## **Company** **Overview**

GI AGRO TECHNOLOGIES PVT LTD., Chennai established in 1994 to Design, Develop and manufacturing of food Processing machinery by two young professional with a passion to excel in the industry.

Our team of professionals consists of highly talented cross functional experts to offer technically advanced machineries with lower operating cost and ease of maintenance.

Robust in-house R & D team help us to design and develop customized solution to unique and specific needs of every customer. With end-to-end automation in cashew processing, we have set a benchmark for the Global industry.

The excellent performance of our machines has made the cashew processing industry around the world to look up to us for technology up- gradation from time to time.

We also undertake Turn key projects in India and Abroad to Set up a new processing plant and modernize running plants.

As part of our continuous growth plan, we have ventured in to manufacturing of Artificial Intelligent RGB Color grading and sorters machinery for food products like Rice, Grains, Cashews, Pulses, Coffee beans and solid material of any kind like Ores & Stones.



**GI AGRO TECHNOLOGIES PVT LTD**



# Product Development Events



- ◆ Company was established.
- ◆ Developed first indigenous electrical cashew drier.



1994

Developed Thermic Fluid, Wood / Cashew Shell Cake Heat exchange cashew drier. (Energy Saver).



1995

Geared Shelling machine developed (Hand and Leg operated).



1997



1998

Boiler and Steam cooker developed.

Cashew Kernel Cashew Tin Packing System introduced.



1999

First Export of Cashew processing machinery (End to End Cashew processing solution) to Madagascar - East Africa and Mexico - North America.



2000

Customization of Driers at Project sites based on customers need.



2003



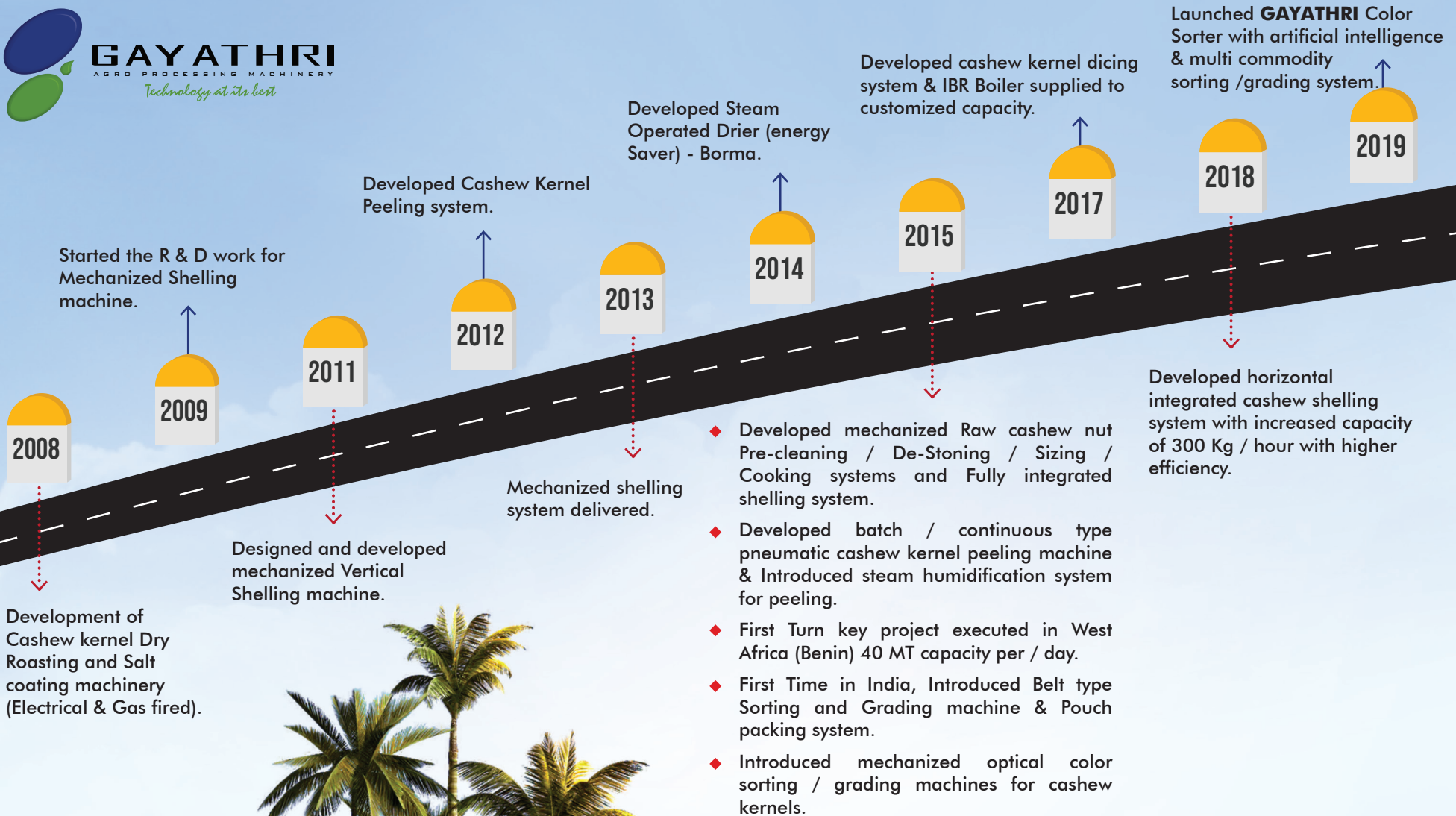
2005

Developed Gas Fired Heat exchanger for cashew drier. (Energy Saver).



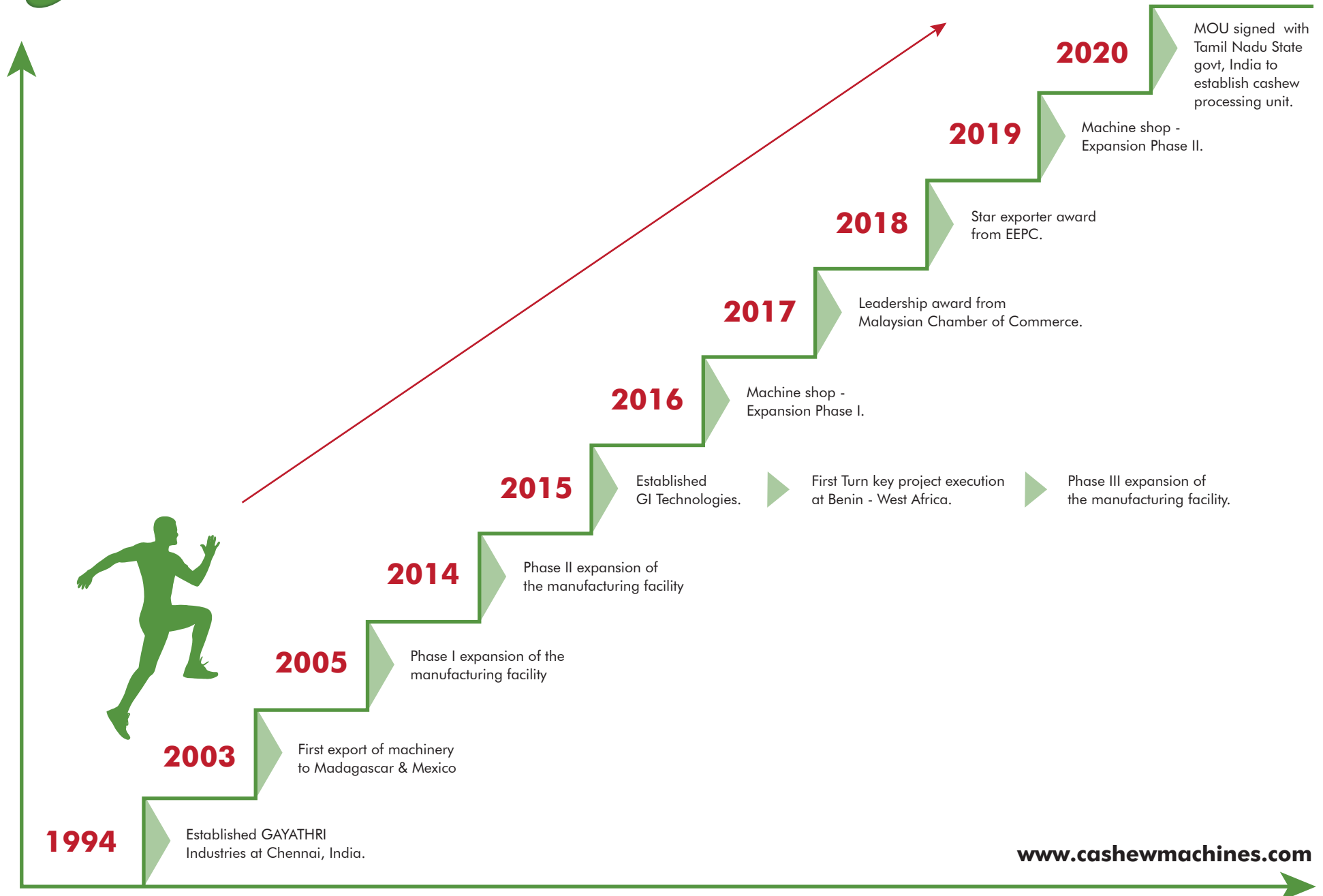
2006

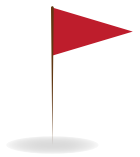
Export of Cashew processing machinery to Egypt (End to End Cashew processing solution).



- ◆ Developed mechanized Raw cashew nut Pre-cleaning / De-Stoning / Sizing / Cooking systems and Fully integrated shelling system.
- ◆ Developed batch / continuous type pneumatic cashew kernel peeling machine & Introduced steam humidification system for peeling.
- ◆ First Turn key project executed in West Africa (Benin) 40 MT capacity per / day.
- ◆ First Time in India, Introduced Belt type Sorting and Grading machine & Pouch packing system.
- ◆ Introduced mechanized optical color sorting / grading machines for cashew kernels.

## Our Growth





Mexico  
Morocco  
Ivory Coast  
Ghana

Republic of Benin  
Nigeria  
Egypt

Kenya  
Mozambique  
Madagascar

India  
Sri Lanka  
Indonesia  
Vietnam



World class high-resolution CCD RGB Colour sensor and High-speed signal processing system in GAYATHRI brand colour sorter senses discoloured rice for sorting accurately with precision exceeding 99.99%.

**Our Machine has 6 sorting modes:**

- Separate coloured grains from white rice
- Separate white rice from milky grain
- Separate milky grain from white rice
- Separate white rice from milky grain
- Simultaneous sorting of coloured and milky grain
- Separate the transparent and discoloured from sticky rice.

Highly reliable GAYATHRI brand colour sorter adopts to various working environment conforming to Industry's highest standard.



## Color Selection Case

## Size Selection Case



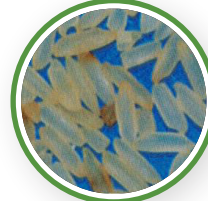
Pre-boiled rice  
finished product



Pre-boiled rice  
Inferior-quality product



Thailand Rice  
(Accepted)



Thailand Rice  
(Rejected)



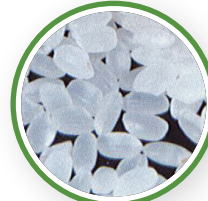
Red Rice  
Finished Product



Red Rice  
Inferior-quality product



Sticky Rice  
(Accepted)



Sticky Rice  
(Rejected)



Coarse Rice  
(Accepted)



Coarse Rice  
(Rejected)



Black Rice  
(Accepted)



Black Rice  
(Rejected)



Long Grain Rice  
(Accepted)



Long Grain Rice  
(Rejected)



China North East Rice  
(Accepted)



China North East Rice  
(Rejected)



Long Rice



Long-Broken Rice



Round Rice



Round-Broken Rice

# Rice Colour and Size Sorter



## AI- Artificial Intelligent Sorting:

Internet plus mobile APP enabled remote control combined with smart backup and language recognition makes the colour sorter user friendly.

## High-precision Image Processing System:

The ingenious combination of imaging and recognition systems can magnify and comprehensively recognize different shades of colours, shapes, textures and other physical features and executes a variety of functions with ease.

## AMD Big Data Management System:

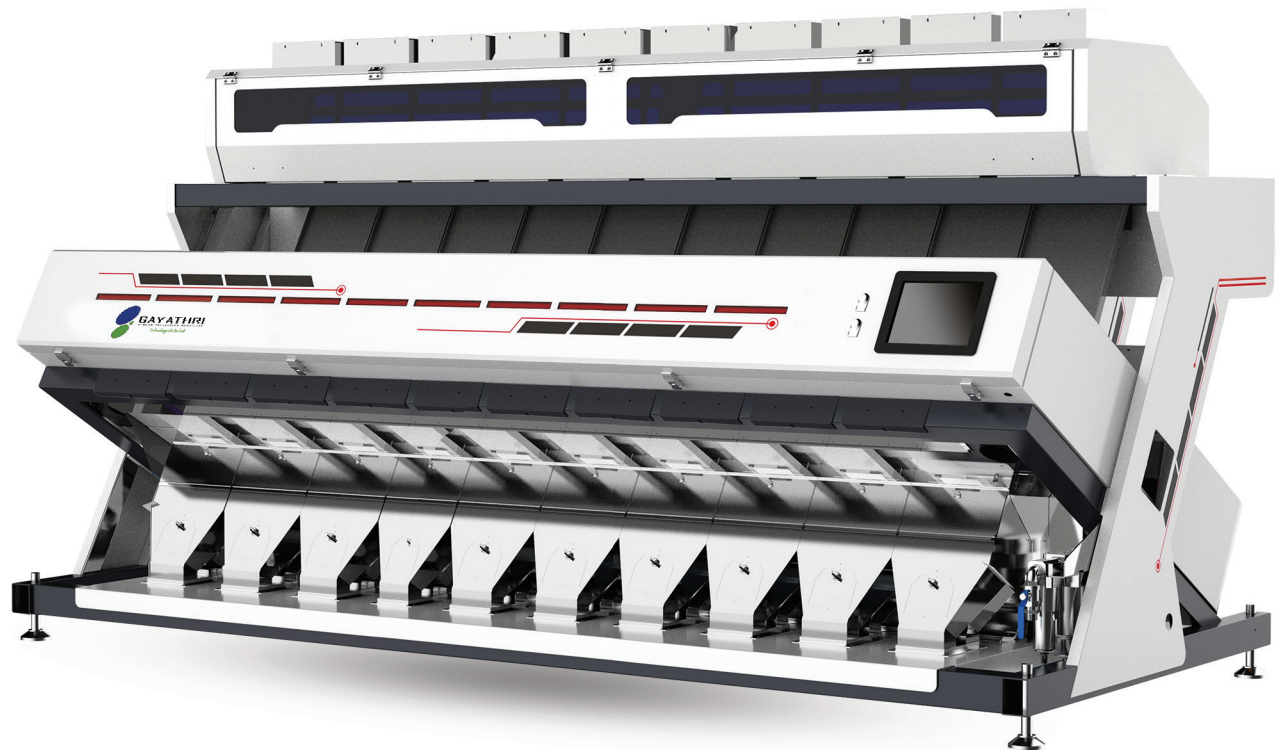
Cloud storage, massive database, a wide range of program selection in sorter.

## Breakage Prevention and Dust Removal:

Adopting feeding protection, soft landing and buffering device, the breakage of rice materials is reduced and the dust removal is made perfect.

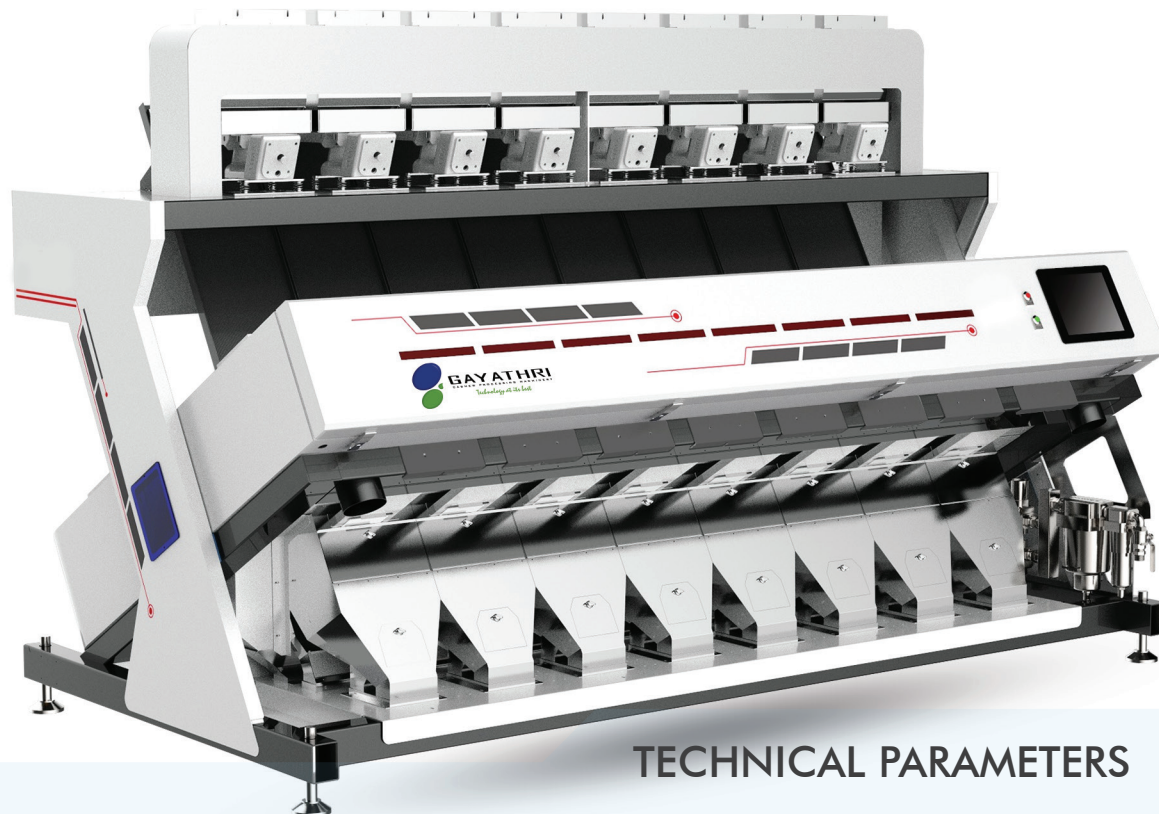
## Balanced Feeding:

Self-adaptive material level flow rate system ensures, equalized material flow in vibrator for a consistent and reliable sorting.





# Rice Colour Colour and Size Sorter



### Self-coordination of Background light:

The brightness of the background light is adjusted automatically for precise image recognition for sorting.

### Super Alloy High Frequency Ejectors:

Patented high frequency and low consumption, wear-resistant super alloy Ejectors ensures increased lifetime.

### Intelligent Quality Control:

Real-time statistics of the output of rice materials, yellowing, different colour shades, crushing, etc., support historical data acquisition.

## TECHNICAL PARAMETERS

MODEL	RC2-64X	RC3-64X	RC4-64X	RC5-64X	RC6-64X	RC6-64X	RC8-64X	RC10-64X
Output t/h	1-4	2-6	3-8	4-10	6-12	7-14	8-16	10-20
Carry Over Rate (Bad:Good)	20:1	20:1	20:1	20:1	20:1	20:1	20:1	20:1
Power Supply (V/Hz)	220/50	220/50	220/50	220/50	220/50	220/50	220/50	220/50
Power (Kw)	1.5	2	2.5	3.4	4	4.7	5.4	6.8
Air Consumption (m <sup>3</sup> / min)	≤ 2.5	≤ 3.6	≤ 4.0	≤ 4.8	≤ 5.5	≤ 6.0	≤ 6.5	≤ 7.0
Air Pressure (Mpa)	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8

# Cashew Kernel Colour and Size Sorter



State of the Art Gayathri brand Belt model sorter can sort cashew kernels precisely with the help of

High resolution multi-colour RGB camera sorting equipment,  
Accurate colour & size recognition feeding crawler and  
General algorithm for different materials





# Cashew Kernel Colour and Size Sorter



WHITE WHOLES - 150



WHITE WHOLES - 180



WHITE WHOLES - 210



WHITE WHOLES - 240



WHITE WHOLES - 320



WHITE WHOLES - 450



SCORCHED WHOLES 150



SCORCHED WHOLES 180



SCORCHED WHOLES 210



SCORCHED WHOLES 240



SCORCHED WHOLES 320



SCORCHED WHOLES 450



SCORCHED WHOLES SECONDS 240



SCORCHED WHOLES SECONDS - (SSW)



DESSERT SECONDS - (DW)

# Nut Special Colour and Size Sorter



## **AI- Artificial Intelligent Sorting:**

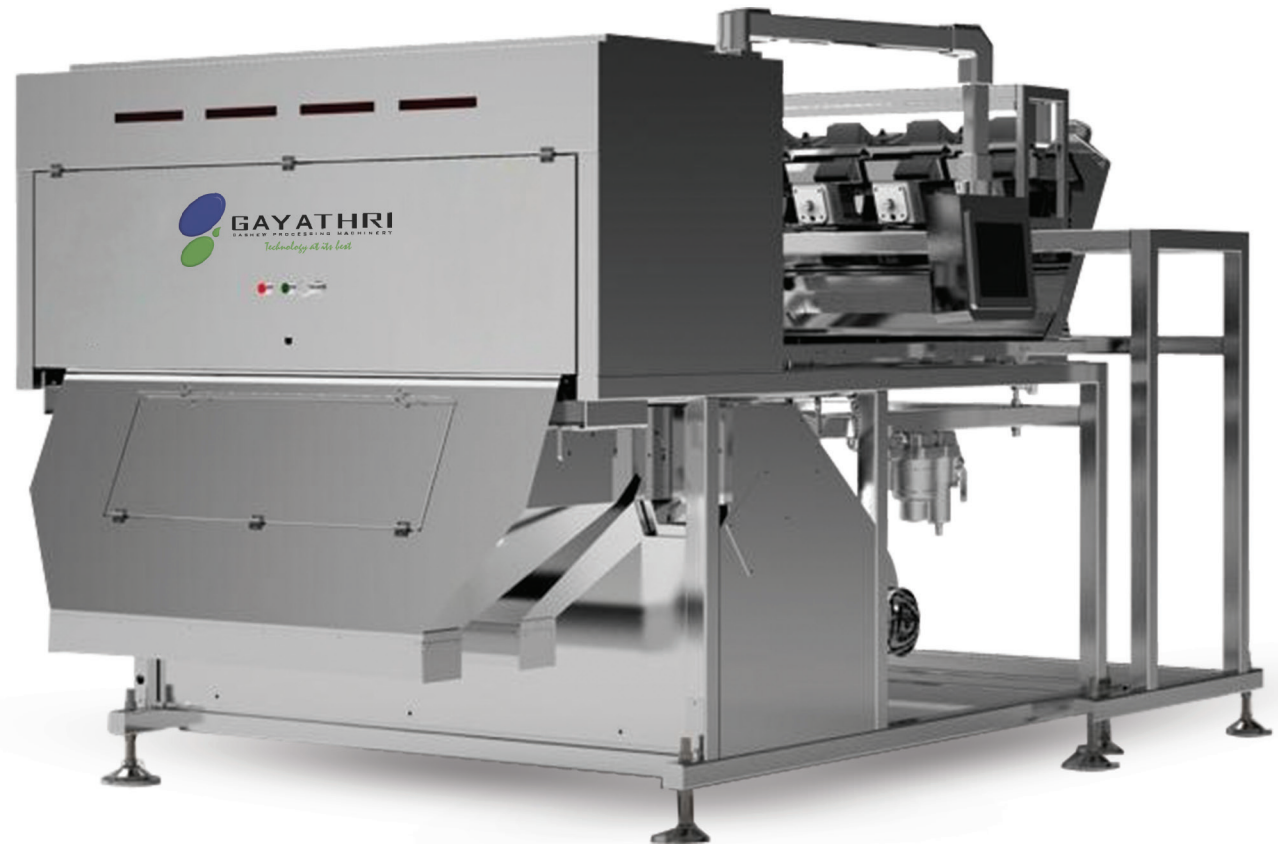
Internet+ Mobile APP enabled remote control combined with smart backup and language recognition makes the colour sorter user friendly.

## **Light Source Light Path:**

The Latest Intelligent LED shadow free cold light source, with the new multi-angle shadow free light path technology prevents material shadow completely, makes the lesions, the black point of the needle tip invisible. The identification becomes easier, sensing becomes perfect with high luminous efficiency, sorting more precise ensuring increased LED life. Strong anti-interference stability renders preheating in start-up unnecessary.

## **Color Image Acquisition System:**

High-definition color CCD camera image acquisition system are used to capture RGB (Red-Green-Blue) information, acquiring in-depth recognition of micro color shade variation which enables the sorter to identify and choose trace level impurities.



# Nut Special Colour and Size Sorter



### Stable Conveyor:

Elongated Conveyor enhances transmitting speed and throughput. Material selection performance is enhanced by uniform and consistent speed of material and belt.

### Image Processing System:

Applying the advanced full color scanning technology, DSP+FPGA processing, combined with complex algorithm of multiple modes with color and shape, the system provides for function of color & shape - based sorting depending on the difference of materials.

### High Mobility:

The integrated design maximizes its mobility without altering any performance and function.

## TECHNICAL PARAMETERS

MODEL	GIT K300	GIT K600	GIT K1200	GIT 4K1200	GIT D1200	GIT S300	GIT S600	GIT S1200
Throughput(t/h)	0.5-1.0	1.0-1.5	2.0-2.5	2.0-2.5	2.0-2.5	0.5-1.0	1.0-1.5	2.0-2.5
Voltage (V)	220V (50Hz)	220V (50Hz)	220V (50Hz)	220V (50Hz)	220V (50Hz)	220V (50Hz)	220V (50Hz)	220V (50Hz)
Power of Main Machine (KW)	1.5	2	2.9	3.6	4.9	1.5	2	2.9
Air Pressure (Mpa)	0.6-0.8	0.6-0.8	0.6-0.8	0.6-0.8	0.6-0.8	0.6-0.8	0.6-0.8	0.6-0.8
Air Consumption (m <sup>3</sup> /min)	≤ 1.0	≤ 2.5	≤ 3.6	≤ 3.6	≤ 7.2	≤ 1.0	≤ 2.5	≤ 3.6



# Raw Cashew Nuts Colour and Size Sorter



## 1. Color image acquisition system

High-definition color CCD camera image acquisition system is used to capture RGB (Red-Green-Blue) information, acquiring in-depth recognition of micro color shade variation which enables the sorter to identify and choose trace level impurities. Enables selection of Transparent and non-transparent material.

## 2. Image processing system

High-end color line scan technology of DSP+FPGA processing combined with CCD precision of 5400 X 10K scan capture, color and shape combination of complex intelligent algorithm for different ore materials enables the color and shape selection accurate.

## TECHNICAL PARAMETERS

MODEL	GIT RCN 1440	GIT RCN1440 - D
Output t/h	4-8	4-8
Carry over Rate (Bad:Good)	10:1	10:1
Power Supply (V/Hz)	220V/50Hz	220V/50Hz
Power (Kw)	4	7
Air Consumption (m <sup>3</sup> / min)	≤ 3.6	≤ 7.2
Air Pressure (Mpa)	0.6-0.8	0.6-0.8

## 3. Operating system

With intelligent operating platform, the system can be mastered and operated easily, turning the intelligent communication between human and machine into reality and user friendly.

## 4. Light source processing system

Using RGB LED light source background board, intelligent flexible conversion of the background color is simplified.

## 5. Cloud object link system

Online service support is enabled using cloud computing technology resulting in realization of online operations, monitoring, free upgrades of color sorter programs.



# X-Ray Foreign Matter Detector



## HIGH-SPEED ALGORITHM ACCURATE DETECTING AND SORTING:

HD linear array sensor combined with high-speed image acquisition system enables exceptionally sharp recognition, making foreign objects detection accurate.

## HIGH PRECISION AND LOW LOSS OF THE VALVE SYSTEM:

Original 64-channel self-injection nozzle and valve drive mode enables fast response, high detection accuracy and faster output.

## INTEGRATED DESIGN AND MAINTENANCE:

Integrated detection host and spray valve rejection device design makes installation and maintenance more convenient.

## HIGH STANDARD RADIATION PROTECTION:

Special radiation protection materials and structures ensures the safety of operators from radiation.

## INTELLIGENT X-RAY RECOGNITION:

The collaborative design of software and hardware combined with intelligent X-Ray recognition, ensures the equipment to clearly and sharply captures the original signal characteristics of the material, providing customers with the most economical and accurate X-Ray detection system.

## AUTOMATIC INTELLIGENT PARAMETER OPTIMIZATION:

Automatic parameter setting and adjustment functions make the operation smarter and user friendly.

[www.giagrotech.com](http://www.giagrotech.com)



## TECHNICAL PARAMETERS

MODEL	GIT X- Ray 4805
Machine Dimensions	2750 X 1179 X 2051
Power Supply (V/Hz)	Ac 200-240 V (50/60Hz)
Power (Kw)	2Kw
Air Consumption (m <sup>3</sup> / min)	≤ 1.0
Air Pressure (Mpa)	0.6-0.8

# Multi Grain Colour and Size Sorter



Multi Grain color and size sorting machine is a multi-purpose sorter, which offers sorting of soybeans, corn, beans, peanuts, coffee beans, pepper, raisin, chickpeas pulses and variety of agricultural products fast and accurate.





# Multi Grain Colour and Size Sorter



# Multi Grain Colour and Size Sorter

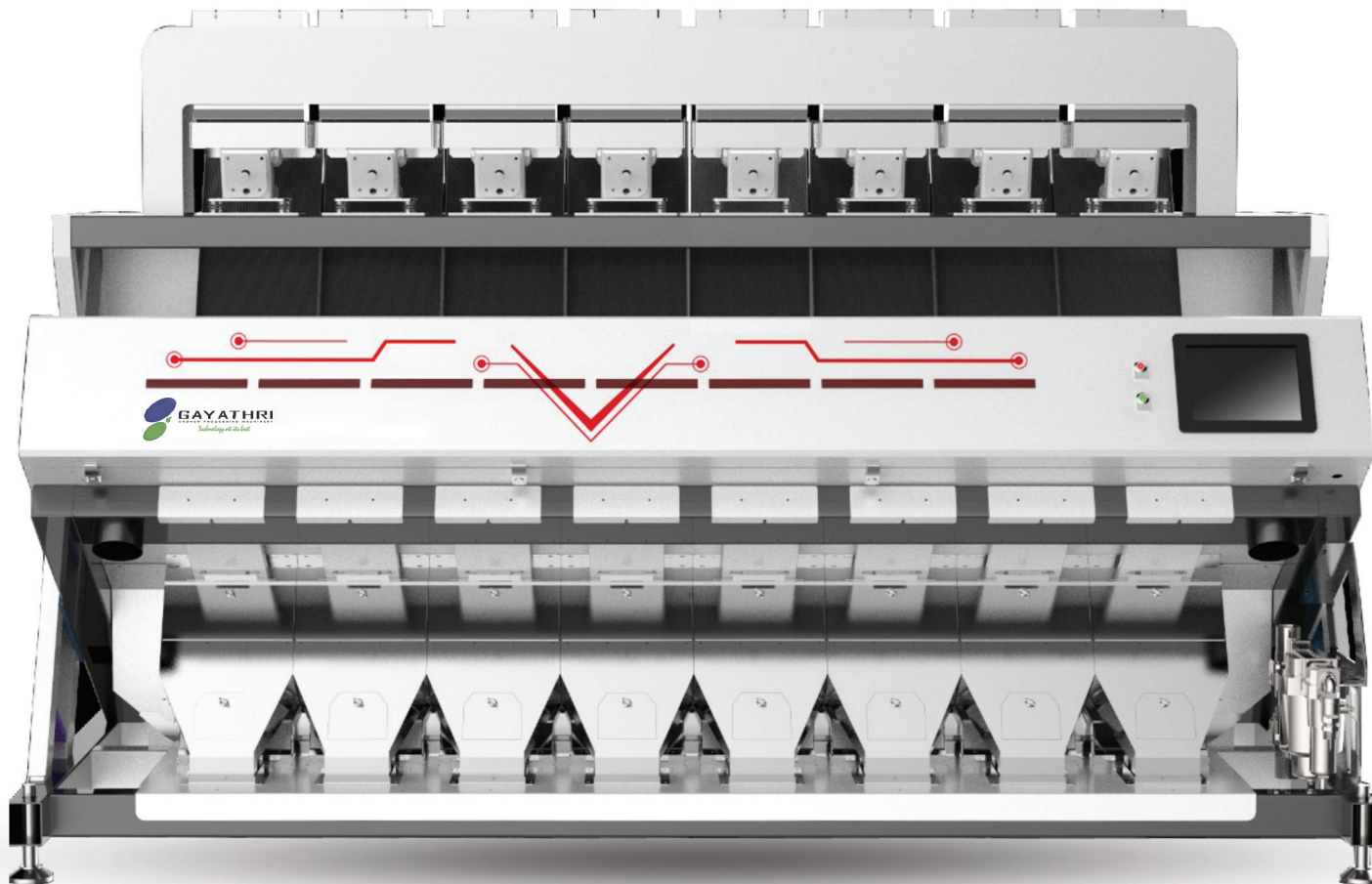


## Image Processing System:

Applying the advanced full color scanning technology, DSP+FPGA processing, combined with complex algorithm of multiple modes with color and space, the system provides for function of color & shape - based sorting depending on the difference of materials.

## High Mobility:

The integrated design maximizes its mobility without altering any performance and function.





# Multi Grain Colour and Size Sorter



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## Colour Image Acquisition System:

High-definition color CCD camera image acquisition system are used to capture RGB (Red-Green-Blue) information, acquiring in-depth recognition of micro color shade variation which enables the sorter to identify and choose trace level impurities.



## TECHNICAL PARAMETERS

MODEL	C1-64X	C2-64X	C3-64X	C4-64X	C5-64X	C6-64X
Output t/h	0.5 – 1.0	1 – 1.5	1.5 - 2	2 – 2.5	2.5 – 3	3.5 - 4
Voltage (V)	220V(50Hz)	220V(50Hz)	220V(50Hz)	220V(50Hz)	220V(50Hz)	220V(50Hz)
Power (Kw)	1.3	1.5	2.0	2.5	3.4	4.0
Air Pressure	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8
Air Consumption (m <sup>3</sup> /min)	≤ 1.0	≤ 2.5	≤ 3.6	≤ 4.0	≤ 4.8	≤ 5.5

**End to End**  
**Cashew Processing Solutions**



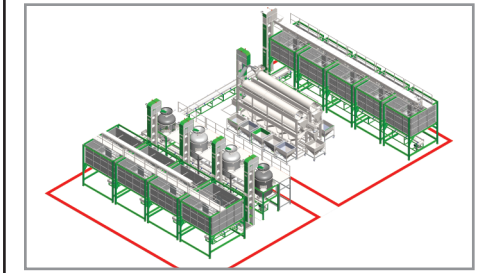
**RCN CLEANING & DE-STONING SYSTEM**



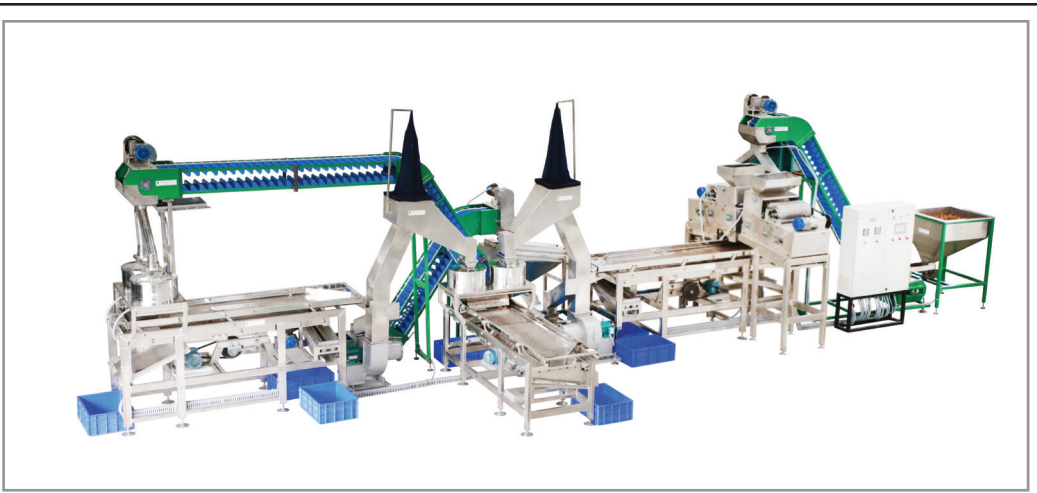
**RCN SIZING MACHINE**



**CASHEW NUT HMT BOILER**



**CASHEW COOKING SYSTEM**



**CASHEW NUT SHELLING, SEPARATING AND SCOOPING SYSTEM**





**KERNEL DRYING SYSTEM**



**KERNEL PEELING SYSTEM**



**SORTING AND GRADING SYSTEM**



**DICING SYSTEM**



**ROASTING SYSTEM**



**POUCH PACKING SYSTEM**



# Our Partners in Progress





# Awards & Recognition Events



EEPC Award for Export Excellence



Leadership Award Received by the founders of GI Agro from Malaysian Chamber of Commerce.



EEPC Star Performer Award issued by Governor of Telangana State, India



MOU Signed with Chief Minister of Tamil Nadu State, India.



KCMA Recognition



INC Membership Certificate



SIETTA 2014 - with the Prime Minister of Ivory Coast



African Cashew Alliance - Cashew Expo, Tanzania



GI Agro Technologies Exhibition Stalls in Africa & India



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**GI AGRO TECHNOLOGIES PVT. LTD.**

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