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# INDUSS

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THE RICE ENGINEERS



30 Years of Leadership in Parboiling Technology

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**INDUSS IS THE LARGEST MANUFACTURER OF PARBOILING AND DRYING EQUIPMENTS IN ASIA**

- Pioneer in Parboiling technology since 1974
- Largest exporter of rice processing equipments from India
- INDUSS equipments process more than 16 million tons of paddy per year



## **TECHNICAL COLLABORATION FOR RESEARCH AND DEVELOPMENT**

Joint Research and development program with  
IIT Kharagpur (Post Harvest Technology Center)

**EVERY TWO DAYS - AN INDUSS PLANT  
IS COMMISSIONED**

## INDUSS PLANT POPULATION

More than 2000 INDUSS plants in operation



Andhra Pradesh	550
West Bengal	480
Haryana	160
Orissa	118
Karnataka	84
Chattisgarh	110
Uttar Pradesh	45
Uttaranchal	33
Madhya Pradesh	28

Maharashtra	97
Bihar	21
Jharkhand	40
Punjab	46
Tamilnadu	16
Kerala	2
Gujrat	4
Others	40
All India	1874

EXPORTS	
Bangladesh	45
Nepal	15
Nigeria	3
Vietnam	1
Pakistan	60
Sri Lanka	1
Total Export	125



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## PARBOILING PLANTS



### WHAT IS PARBOILING

The process of wetting, heating, steaming and drying of paddy is called par boiling. The purpose of this process is to produce physical, chemical modifications in the cereal with economic, nutritional and practical advantages:

- Lower broken than raw rice
- Low free fatty acids in rice bran
- Higher oil content in rice bran

### SINGLE STAGE SINGLE STEAMING

#### THE PROCESS

- Hot water filled in tanks
- Paddy filled in tank
- Soaking for 3 hours
- Water discharged
- Steaming
- Discharge to Drier
- Drying at 120<sup>0</sup> Centigrade for 6 hours



Capacity - 50 Tons/day to 1500 Tons/day





## SINGLE STAGE DOUBLE STEAMING

### THE PROCESS

- Paddy filled in tanks
- Steaming in tanks
- Cold water filled in same tank
- Soaking for 3 hours
- Water discharged
- Second Steaming
- Discharge to Drier
- Drying at  $120^{\circ}\text{C}$  for 6 hours

## THREE STAGE DOUBLE STEAMING FOR WHITE RICE (LONG GRAIN)

### THE PROCESS

- 1 Paddy filled in small tank on top
  - Steaming in small tank
- 2 Cold water filled in big tank
  - Soaking for 4-5 hours
  - Water discharged
- 3 Second Steaming in small tank at the bottom
  - Discharge to Drier
  - Drying at  $120/100^{\circ}\text{C}$  for 8 hours



Capacity - 50 Tons/day to 1500 Tons/day

## RAW AND PARBOILED PADDY DRIERS



### ADVANTAGES

- High energy efficient - lower husk consumption
- Efficient Blower - Low installed power
- Low Broken
- Low drying time - less than 6 hours
- Can be installed in the open area
- Available in 8 Tons per batch to 70 Tons per batch
- Available in Stainless Steel & Mild Steel



## STEAM RICE

- “Aged” or “Seasoned” rice - stored for 10-12 months.
- Change in cooking quality and taste.
- Disadvantages of long storage:
  - Chances of fungus and insects and rodents
  - Loss in weight
  - Large storage space and blocking of capital

### ADVANTAGES OF STEAM RICE

- Cooking quality, colour and taste as “aged rice”
- No storage



500 TPD raw paddy drying cum 200 TPD steamed paddy processing unit

### PROCESSING STEAM RICE

- Paddy filled in tanks
- Steaming in tanks
- Discharge to Drier
- Drying at 70<sup>0</sup> C for 2 hours

Capacity - 50 Tons/day to 1500 Tons/day



## LATEST PROCESSING TECHNOLOGY



### CONTINUOUS PRE - COOKER

- Raw paddy flows into this pre cooker continuously at 10TPH.
- The steam flow and pressure is controlled.



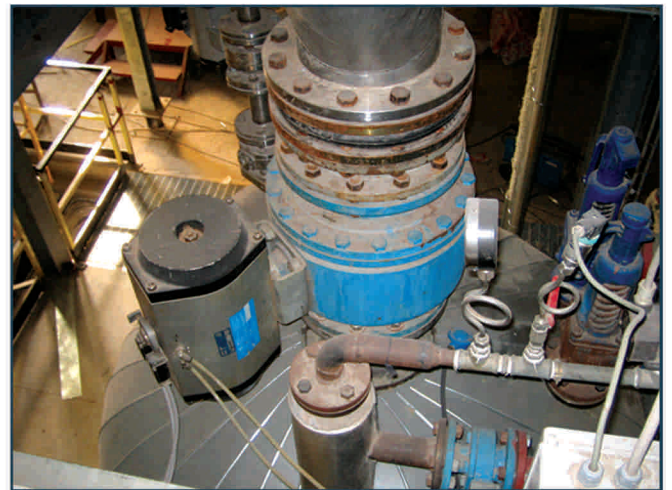
### CONTINUOUS COOKER

After soaking, the paddy is steamed at a fixed flow rate. Steam pressure and temperature are constant capacity 10 TPH - 15 TPH.



## AUTOMATION

- Automatic paddy and water filling
- Automatic water circulation
- Automatic water and paddy discharge
- Automatic steaming



4 batches parboiling per day



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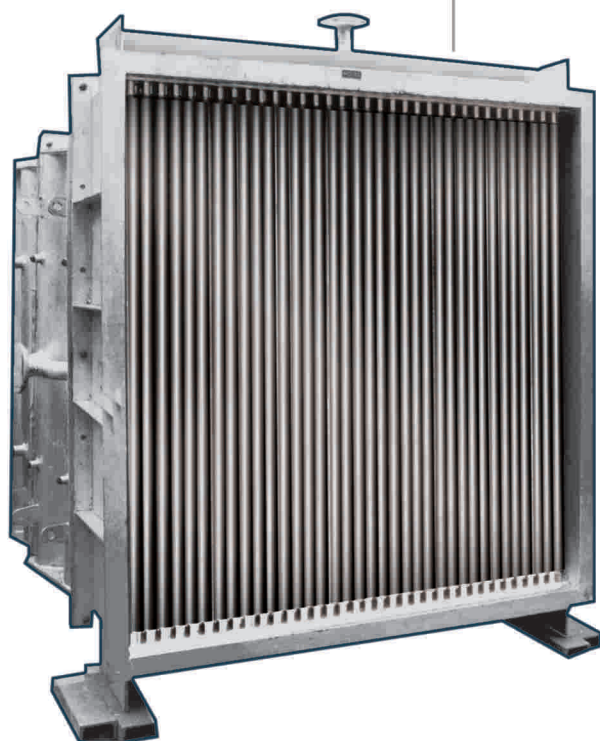
## EQUIPMENTS



### CENTRIFUGAL BLOWER

**Low power consumption**

CAPACITY	POWER
12 Tons	5.0 hp
16 Tons	7.5 hp
20 Tons	10.0 hp
24 Tons	12.5 hp
32 Tons	15.0 hp
40 Tons	25.0 hp
50 Tons	30.0 hp



### STEAM HEAT EXCHANGER

**In Stainless steel tubes with aluminium fins**

- Energy efficient
- Drying time six hours

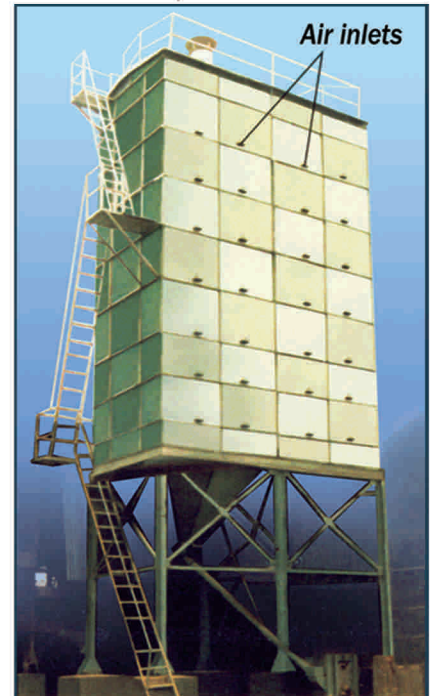


## SILO

Natural air circulation system  
for raw/parboiled paddy

Advantages:

- Uniform cooling
- Installed outside mill house



## DIGITAL GRAIN MOISTURE METER

- Measurement of moisture content  
in the paddy, brown rice,  
polished rice



## ONLINE WEIGHING SYSTEM

- Accurate weight of paddy,  
rice in every batch.

## INDUSS AGENTS

### INDIA

**BURDWAN (WEST BENGAL)**

AMARESH CHATTERJEE  
MOBILE : +91 94342-51408

**NORTH BENGAL**

PRATIK KR. PAL  
MOBILE: + 91 9434046407

**KARNATAKA**

SHANKAR S.G.  
MOBILE : +91 94481-49057

**UTTAR PRADESH**

KAPISH AGARWAL  
MOBILE: +91 94102-16227

**ORISSA**

GOPAL JAIN  
MOBILE : +91 98538-46308  
S. CHAKRABORTY  
MOBILE: +91 98303-15617

**TAMILNADU**

S.P. GOVINDRAJ  
MOBILE: +91 92443-37224

**PUNJAB**

ASHWANI KUMAR  
MOBILE: +91 98140-94974

**BIHAR**

KRISHNA MURARI  
MOBILE : +91 9304375397

**CHATTISGARH**

SANJAY AHUJA  
MOBILE : +91 93009-74951  
GIRISH PALIWAL  
MOBILE: +91 94241-42699

**HARYANA**

MOHINDER KALRA  
MOBILE : +91 99960-16969

**MAHARASHTRA**

RATAN KATHOKE  
MOBILE : +91 94221-06265

**GUJARAT**

DEEPAK AGARWAL  
MOBILE: +91 93761-22317

**JHARKHAND**

S. CHAKRABORTY  
MOBILE: +91 98303-15617

### OVERSEAS

**PAKISTAN**

Mr. HAMID MALIK  
Contact: 0092-3004143493

**BANGLADESH**

**ADVANCED ENGINEERS**  
Mr. S.M. ENAMUL HAQUE BABU  
Contact: 0088-01717507404

INDUSS FOOD PRODUCTS & EQUIPMENTS LIMITED

238/B, A.J.C Bose Road, Kolkata 700 020 (India)

Phone No. : +91 33 2287 8503 / 9266 / 1962, +91 33 2280 2743

Fax No. : +91 33 2287 1874 / 8246

Email: [info@indussgroup.com](mailto:info@indussgroup.com)

Web: [www.indussgroup.net](http://www.indussgroup.net)