KASETPHATTANA GRAIN DRYERS

KASETPHATTANA CHACHOENGSAO FACTORY COMPANY LIMITED

Thailand is a country on the equator. The atmosphere is warm and humid. The high rainfall average makes moisture contents (MC) in agricultural products relatively high. Therefore, grain dryer is very essential. For this reason, Kasetphattana has executed research and development of mixed-flow high efficiency grain dryers in response to the growing demand in grain drying. The drying process is essential to grains such as white rice, parboiled rice, corn, soybeans, green beans, and black beans. The price of agricultural products in Thailand are quite low. Moreover, it is inevitable that MCs are quite high in the products. For this reason, we prioritize design principles such as cost and operation efficiency, as well as holding paramount appropriate standard of dried products. The products can pass appropriate food production standards. For example, dried products must maintain appropriate color, smell, and flavor as well as no smoked contaminants and high nutrition level. After drying, grain must not be too cooked so that product properties remain unchanged. At the same time, operation cost per ton of drying capacity is kept at lowest possible level.

"we must work to meet the needs of investors…to achieve maximum productive value for the investment."

Grain dryers are stationary machines which are installed at a particular location. If the investment does not worth the value, it will become a building that represents failure of both the investor and the manufacturer. I realize this is serious. Therefore, we must work to meet the needs of investors. The machines have to be durable for years of use, which will be feasible and beneficial to their high investment. Durability also means lower operating cost. Another key success factor we have considered when designing the machines is high energy utilization efficiency. Not only the dried grains are at highest quality, but the process of drying must yield most efficient energy consumption per rate of water evaporation ratio. The dryers can use agricultural residues such as rice husk, corn cob, or wood chips as heating energy source. With all design factors in mind, environmental pollution is also kept at minimal. I am confidence that Kasetphattana have the ability and potential to help you solve your unanswered questions about grain dryers to achieve maximum effective value for the investment. Kasetphattana can tailor drying solution to suit all investment scale you may desire. This will allow you to generate sufficient returns for further expansion in a near future ahead.

Mr. Chanathat Yokubon
Managing Director

LEADERS, MANAGERS
and Team

KASETPHATTANA LEADERSHIP

1. Mr. Chanathat Yokubon
Managing Director
2. Mr. Kritsada Yokubon
Assistance Managing Director
3. Mr. JARUWAT MONGKOLTANATAS
Technical Advisor, Former Senior Expert of Agricultural Engineering, Department of Agriculture
4. Dr. Mitree Nawapanich
Postharvest Technology Consultant, Former Senior Postharvest Technology Specialists, Department of Agriculture
5. Mr. Kittipat Klubdee
Senior Agricultural Machine Design Engineer with over 20 years experiences
6. Mr. Yingsak Rattananithikul
Human Resources and Transportation
7. Mr. Woothipong Aoonprai
Head of Grain Dryer Department
8. Mr. Chomphol Chaisongkram
Grain Dryer Production Control
9. Ms. Ladda Yampiam
Head Accountant
10. Mr. Pratheep Ponying
Engineering Drawing Control
11. Mr. Narong Aphiwongsophol
Production and Maintenance Coordination

COMPANY HISTORY

Kaset Phattana Group was developed from a small agricultural machinery factory called Kaset Phattana Chachoengsao Factory Co.,Ltd. It was firstly founded in 1978, in Chachoengsao province, about 50 km. from Bangkok by Mr. Chanathat Yokubon.

As a former rice trading firm, the company has long experiences in working with farmers and knows the real need of farmers. First product from Kasetphattana that entered the market was a rice thresher. With the knowledge of the real needs, Kasetphattana rice threshers sales topped at number 1 in Thailand. Three additional production plants were established in response. Not long after the success of the threshers, Mr. Chanathat foresaw the need for grain dryers and thus initiated research and development long before the market emerged in Thailand.

Today, Kasetphattana is involved in preharvest process of rice production with new innovative 8 gearing levels two wheel tractors with casted gearbox.

Kasetphattana is prepared and ready to work alongside you with over 30 years of experiences in agricultural machine utilization knowledge. Professional management, engineers, researchers, and aftersales service teams are committed to move forward together with confidence.

1978 Mr. Chanathat Yokubon founded first Kasetphattana at Klongnakorn Nuengkhet in Cahchoengsao

1980 Establishment of Kasetphattana Industry in Phitsanuloke

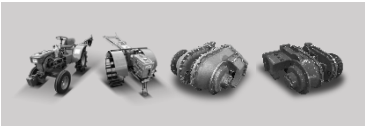
1983 Establishment of Kasetphattana Chachoengsao (current location)

1986 Establishment of Agricultural Development in Khonkaen

1987 Research and development of mixed-flow grain dryers started

1990 Establishment of Thai Agricultural Machine Company Limited (TAMCO) in Phitsanuloke

2001 Research and development of crawling rotavator started



2010 Two wheels and four wheels tractors, 10 HT, and 12 HT transmission gearbox

KASETPHATTANA DRYERS
Highly Effective and Productive Grain Dryers

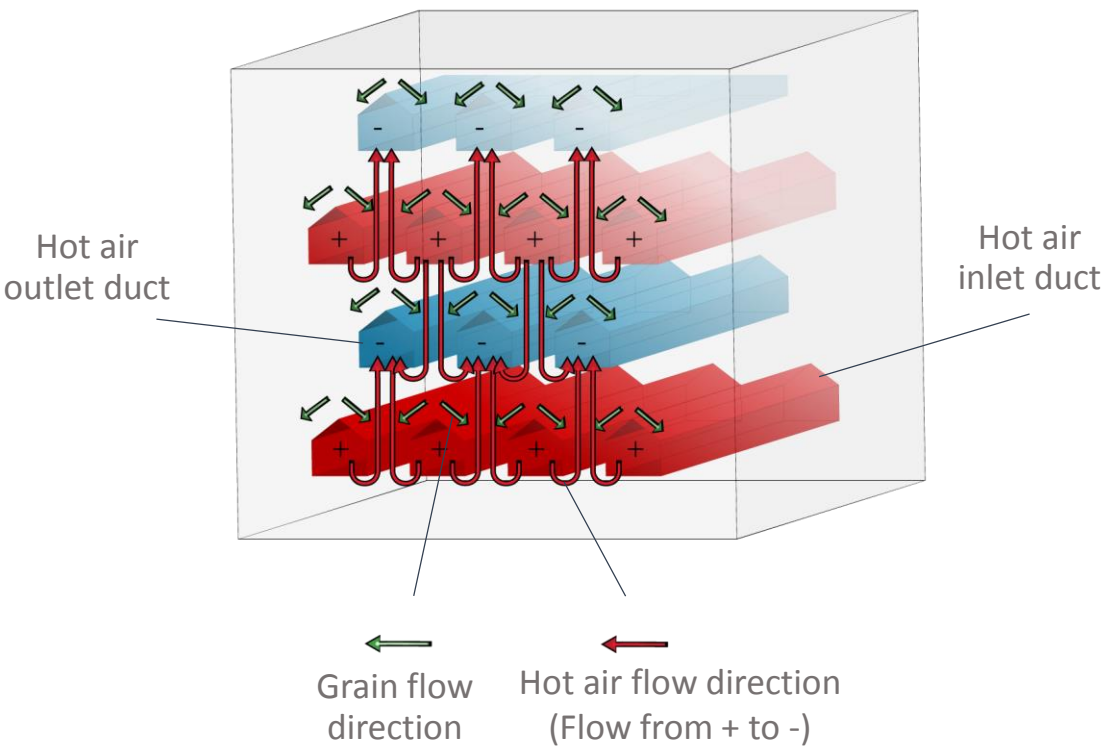
- High drying efficiency with low operating cost
- High quality dried grain, clean grain without smoked contamination
- Higher percentage of milled rice than milled sun-dried rice
- Semi automatic system for ease of operation and minimum operators requirement
- Available for various grains drying; paddy, corn, soybean, etc…

The moisture decrement of grains is very well controlled due to the use of the mixed air flow method. Because of the indirect heating system, the dried grains will be very clean as it has no contact between grains and fire smoke.

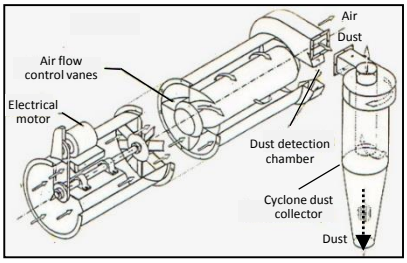
HIGH EFFICIENCY DRYING SYSTEM

We engineer our grain dryers to have a very well controlled moisture and temperature changes by adjusting for a suitable air flow rate relative to the grain flow rate in the drying chamber. This is made possible by the crosswise flow between hot air and grains. Grains within the drying chamber will release moisture content uniformly. This results in a very effective controlled drying time and high quality dried grains.

Mixed flow drying system



ENVIRONMENTAL FRIENDLY DRYER



Hot air is sucked into and blown off from the drying chamber by multiple axial flow aspirators equipped with a dust detecting and collecting set.

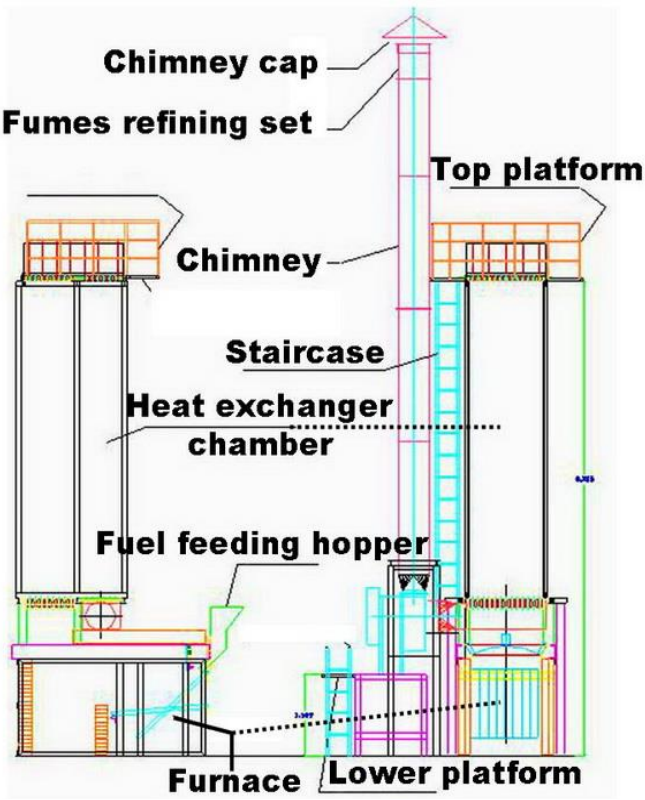
The exhaust air from the drying chamber will therefore carry minimum dirt to the environment

EFFECTIVE HEAT GENERATING UNIT

“…the heated air carries zero smoke and dust to the grains resulting in clean dried product.”

The unit consists of a heat resistance brick furnace and a heat exchanger chamber. Rice husk or corn cob is used as energy source.

With the application of an indirect heating system through the use of a heat exchanging chamber, the ambiance air is forced to flow cross-pass an array of hot pipes in the heat exchanger in which the hot fume air from the furnace is flowing inside. The heated air is then used to dry the grains within the drying chamber. This means that the heated air carries zero smoke and dust to the grains resulting in clean dried product.

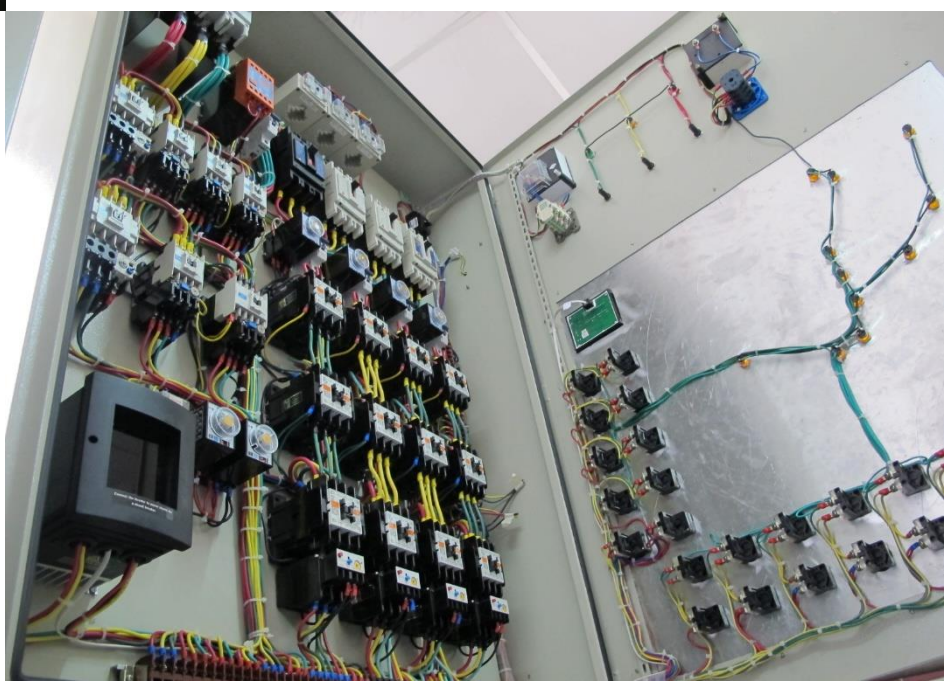


SCHEMATIC OF HEAT GENERATING UNIT

Temperature of the heated air can be easily controlled through the fuel feeding rate. The furnace is equipped with an exhausted fumes confining set. Therefore its exhaust will not pollute the surrounding environment.

ELECTRICAL
CONTROL SYSTEM

All dryer models are equipped with automatic electrical control system. The main electrical circuit will be automatically cut off if whenever there is any electrical failure occurred within the drying system. With this protective system, only 1-2 workers are needed to operate the entire drying plant.



GRAIN FLOW RATE CONTROL WITH PROTECTIVE SYSTEM

The grain input-output control system is switched on-off automatically to allow for a uniform grain flow and prevent overloading within the drying chamber.

STANDARD MANUFACTURING PRODUCTION

Not only designed by experienced engineers; our dryers are manufactured in mass production process with advance machine tools. Effectiveness and reliability are highly warranted.




PADDY DRYER
SPECIFICATION

Kasetphattana dryers are different from other dryers because they are able to execute multiple batches of grain per day. The dryers are capable of reducing moisture content of the grains from 25% to 15% within about 6 hours.

Model	KDP-6	KDP-11
Electrical power requirement	20 (kVA)	33 (kVA)
Drying chamber		
Width	1.8 (m.)	1.8 (m.)
Length	1.8 (m.)	1.8 (m.)
Height	7.5 (m.)	11 (m.)
Capacity	6 (tons)	11 (tons)
Heat generating unit (Heat exchanger)		
Temperature (Rice husk)	90-100 (°c)	90-100 (°c)
Temperature (Corn cob)	120-140 (°c)	120-140 (°c)
Blower		
Number of sets	1 (Set)	2 (Sets)
Dust detecting and collecting set	Equipped	Equipped
Type	Axial flow	Axial flow
Bucket Elevator		
Number of sets	2 (Sets)	2 (Sets)
Bucket size	200 (mm.)	200 (mm.)
Area Requirement		
Width	15 (m.)	15 (m.)
Length	15 (m.)	15 (m.)

KDP-15	KDP-27	KDP-33	KDP-38
41 (kVA)	60 (kVA)	79 (kVA)	94 (kVA)
1.8 (m.) 1.8 (m.) 13.5 (m.) 15 (tons)	2.34 (m.) 2.34 (m.) 15 (m.) 27 (tons)	2.34 (m.) 2.34 (m.) 17.5 (m.) 33 (tons)	2.34 (m.) 2.34 (m.) 19.5 (m.) 38 (tons)
90-100 (°c) 120-140 (°c)	90-100 (°c) 120-140 (°c)	90-100 (°c) 120-140 (°c)	90-100 (°c) 120-140 (°c)
3 (Sets) Equipped Axial flow	3 (Sets) Equipped Axial flow	3 (Sets) Equipped Axial flow	4 (Sets) Equipped Axial flow
2 (Sets) 250 (mm.)	2 (Sets) 300 (mm.)	2 (Sets) 300 (mm.)	2 (Sets) 300 (mm.)
15 (m.) 15 (m.)	17 (m.) 21 (m.)	17 (m.) 21 (m.)	17 (m.) 21 (m.)

	KDP-6	KDP-11
Drying Requirement		
Electricity	15-20 (kW/hr.)	25-30 (kW/hr.)
Energy consumption (Rice husk)	100-150 (kg./hr.)	150-200 (kg./hr.)
Operators	1-2 (persons)	1-2 (persons)
Approximate holding capacity		
Holding material	Rice paddy	Rice paddy
Capacity	6 (tons/batch)	11 (tons/batch)
Drying Capacity		
Drying rate	From 25% MC to 15% MC	From 25% MC to 15% MC
Capacity	24 (tons/day)	44 (tons/day)

KDP-15	KDP-27	KDP-33	KDP-38
30-45 (kW/hr.) 200-300 (kg./hr.) 1-2 (persons)	45-60 (kW/hr.) 250-300 (kg./hr.) 1-2 (persons)	60-80 (kW/hr.) 300-400 (kg./hr.) 1-2 (persons)	65-90 (kW/hr.) 500-700 (kg./hr.) 1-2 (persons)
Rice husk 15 (tons/batch)	Rice paddy 27 (tons/batch)	Rice paddy 33 (tons/batch)	Rice paddy 38 (tons/batch)
From 25% MC to 15% MC 60 (tons/day)	From 25% MC to 15% MC 100 (tons/day)	From 25% MC to 15% MC 130 (tons/day)	From 25% MC to 15% MC 150 (tons/day)

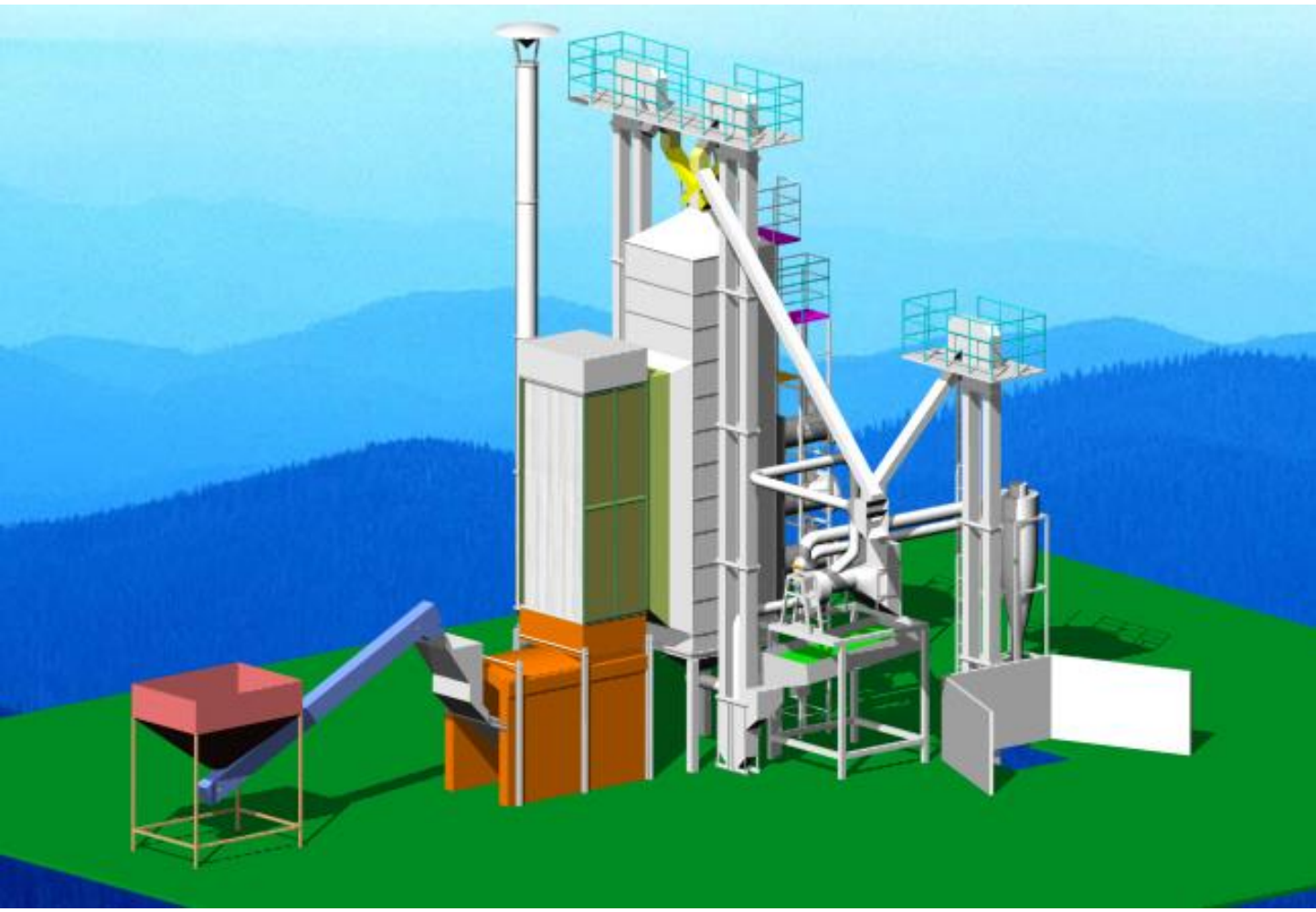
Model	KDC-8	KDC-16
Electrical power requirement	20 (kVA)	33 (kVA)
Drying chamber		
Width	1.8 (m.)	1.8 (m.)
Length	1.8 (m.)	1.8 (m.)
Height	7.5 (m.)	11 (m.)
Capacity	8 (tons)	16 (tons)
Heat generating unit (Heat exchanger)		
Temperature (Rice husk)	90-100 (°c)	90-100 (°c)
Temperature (Corn cob)	120-140 (°c)	120-140 (°c)
Blower		
Number of sets	1 (Sets)	2 (Sets)
Dust detecting and collecting set	Equipped	Equipped
Type	Axial flow	Axial flow
Bucket Elevator		
Number of sets	2 (Sets)	2 (Sets)
Bucket size	200 (mm.)	200 (mm.)
Area Requirement		
Width	15 (m.)	15 (m.)
Length	15 (m.)	15 (m.)

CORN DRYER **SPECIFICATION**

Drying chamber, furnace, and bucket elevator sizes are the same as the paddy dryers. However, corn dryers are equipped with different grates (circular sieve). Drying temperature and grain flow rate are also different.

KDC-20	KDC-37	KDC-45	KDC-52
41 (kVA)	60 (kVA)	79 (kVA)	94 (kVA)
1.8 (m.)	2.34 (m.)	2.34 (m.)	2.34 (m.)
1.8 (m.)	2.34 (m.)	2.34 (m.)	2.34 (m.)
13.5 (m.)	15 (m.)	17.5 (m.)	19.5 (m.)
20 (tons)	37 (tons)	45 (tons)	52 (tons)
90-100 (°c)	90-100 (°c)	90-100 (°c)	90-100 (°c)
120-140 (°c)	120-140 (°c)	120-140 (°c)	120-140 (°c)
3 (Sets)	3 (Sets)	3 (Sets)	4 (Sets)
Equipped	Equipped	Equipped	Equipped
Axial flow	Axial flow	Axial flow	Axial flow
2 (Sets)	2 (Sets)	2 (Sets)	2 (Sets)
250 (mm.)	300 (mm.)	300 (mm.)	300 (mm.)
15 (m.)	17 (m.)	17 (m.)	17 (m.)
15 (m.)	21 (m.)	21 (m.)	21 (m.)

	KDC-8	KDC-16
Drying Requirement		
Electricity	15-20 (kW/hr.)	25-30 (kW/hr.)
Energy consumption (Corn cob)	300-350 (kg./hr.)	400-500 (kg./hr.)
Operators	1-2 (persons)	1-2 (persons)
Approximate holding capacity		
Holding material	Corn	Corn
Capacity	8 (tons/batch)	16 (tons/batch)
Drying Capacity		
Drying rate	From 30% MC to 15% MC	From 30% MC to 15% MC
Capacity	30 (tons/day)	60 (tons/day)



KDC-20	KDC-37	KDC-45	KDC-52
30-45 (kW/hr.) 400-600 (kg./hr.) 1-2 (persons)	45-60 (kW/hr.) 500-600 (kg./hr.) 1-2 (persons)	60-80 (kW/hr.) 500-700 (kg./hr.) 1-2 (persons)	65-90 (kW/hr.) 600-800 (kg./hr.) 1-2 (persons)
Corn 20 (tons/batch)	Corn 37 (tons/batch)	Corn 45 (tons/batch)	Corn 52 (tons/batch)
From 30% MC to 15% MC 80 (tons/day)	From 30% MC to 15% MC 130 (tons/day)	From 30% MC to 15% MC 150 (tons/day)	From 30% MC to 15% MC 170 (tons/day)

MEMO

“ Kasetphattana will move forward with Quality, Reliability, Responsibility, and Services ”

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