



CROSS
AGRICULTURAL ENGINEERING

Cross Beet Processing Machinery Range

Capacities from 20 tonnes per hour to 100 tonnes per hour



Cross Agricultural Machinery – It's the Obvious Choice



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The Cross Beet Machinery range is built to the highest standards by a team of dedicated engineers using quality materials and manufactured in the latest high-tech manufacturing facilities. Our beet de-stoners and washers can deliver class leading levels of performance, quality and reliability to exceed the expectations of the most demanding users. You can be assured of a quality beet sample for sugar processing, for fermentation in biogas operations or animal feeding as part of a total mixed ration, when you choose a machine from the Cross beet processing range. With over 30 years' experience in the beet industry, Cross Agricultural Engineering are market leaders when it comes to beet processing machinery

Cross Beet De-stoner and Washers

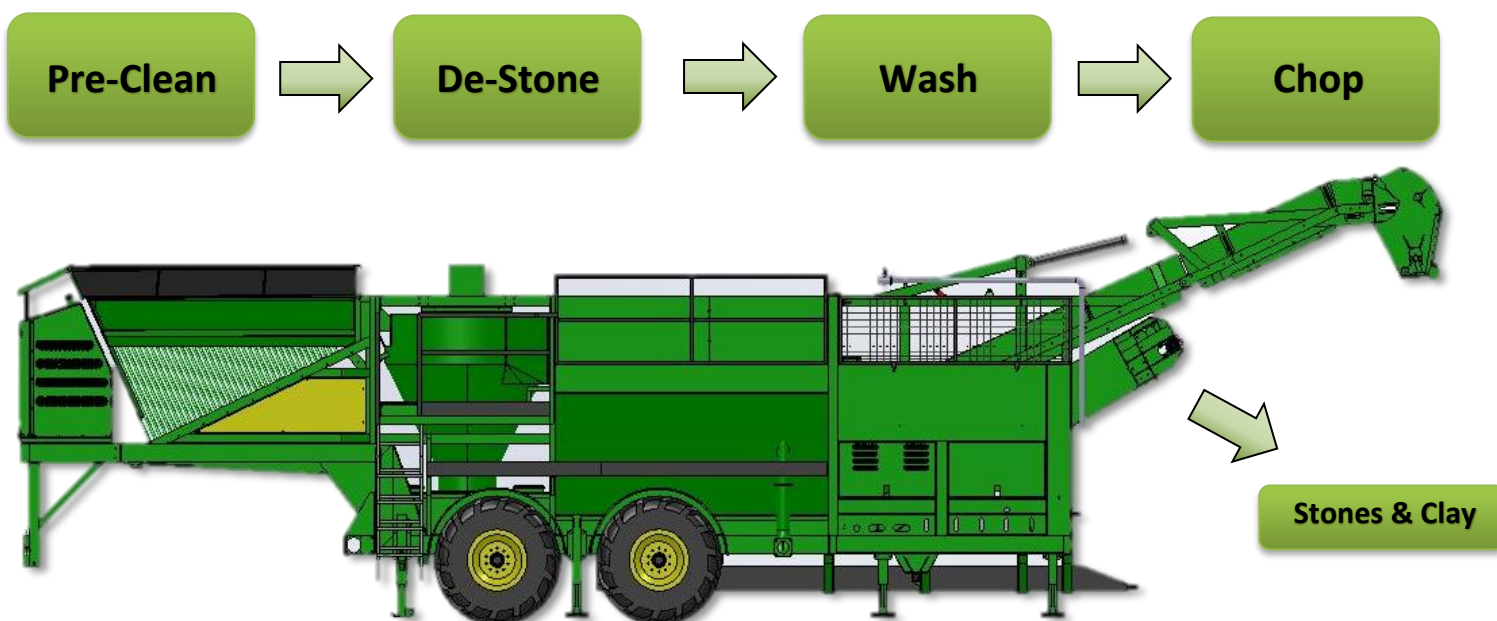
The Cross Washer and De-stoner range of beet processing machinery uses a combination of patented cleaning elements to ensure that you can deliver a quality clean and stone-free sample of beet for any application. The Cross Beet De-stoner and Washer range uses a unique water powered cyclone washing and cleaning system in combination with a tumbler cleaning cylinder to achieve consistent high quality beet for use in sugar processing, for the fermentation process used in biomass units and for feeding to livestock.

Each unit can be fitted with an optional hydraulic drive chopper unit at the end of the unloading conveyor. This attachment can be easily engaged, depending on changing farming needs.

All of the Cross Beet De-stoner and Washer machines have been developed in tough Irish conditions to remove stones of all shapes with the minimum use of water per tonne of beet washed and de-stoned. These quality machines have been proven to deliver quality and reliability on farms in Ireland, Germany and the UK.

Process

The range of Cross Washers & De-stoners can contain a combination of any of the processes below. Ranging from a 4 process machine to a single process machine, Cross Agricultural Engineering will have a machine that suits your needs.



Cross Agricultural Machinery – It's the Obvious Choice



Beet Washers – Transportable Machines

The standard range of Beet washers were first designed in the late 80's and were manufactured for and sold under the Armer Salmon Brand. These machines have been well proven in the past 30 years with many of the machines still out working today.

Many improvements have been made to this range over the years and are now available with all the latest components and technology attached.



Gazelle Beet Washer & Chopper

The Cross Gazelle Beet Washer was first designed for Armer Salmon who sold to all beet growers throughout Europe. It uses a combination of patented cleaning and chopping elements to ensure that you can deliver a quality clean sample of beet for any application. The Gazelle can be used for the dirtiest of beet crops to ensure clean and safe cattle feed. With an output of 20T/H the Gazelle Washer & Chopper is sure to provide a clean sample at a steady output rate.



Hippo 1 Beet Washer & Chopper

The Cross Hippo 1 Beet Washer was also first designed for Armer Salmon. The Hippo washer uses the same patented technology to ensure a clean sample is achieved.

This machine has the option of washing whole or chopped beet with a hydraulic folding chopper. The Hippo1 has a pre-cleaning feature and therefore the water in the machine lasts longer. The front elevator will allow to feed into any diet feeder.

With an output of 30-40 T/H the Hippo 1 Washer & Chopper is sure to provide a clean sample.



Hippo 2 Beet Washer & Chopper

The Cross Hippo 2 Beet Washer is a modernized version of the Hippo 1. With all the same capabilities, the Hippo 2 has some additional features which are not included in the Hippo1. These include a folding elevator (stationary on the hippo1), larger hopper, high speed road axles and more output.

With an output of 60 -80T/H the Hippo 2 Washer & Chopper is sure to provide a clean sample.

Beet Washers & De-Stoners – Transportable Machines

In the early years of Cross Beet Processing Machinery, all de-stoners were built as stationary machines. Machines took up big area and took a lot of power to drive. Since the late 1990's Cross have developed and released a range of Patented Beet Washers and De-Stoners which are fully transportable. These machines are capable of an output of up to 100 tonnes per hour, can be easily moved around the road and are easy to set up in a number of minutes.

All Beet Washers and De-Stoners are either tractor drawn or HGV pulled. These machines are powered via tractor, an optional onboard engine or an electric motor.

There are numbers of optional extras available on these machines such as touch screen controls, remote control and much more.

Rhino Beet Washer, De-Stoner & Chopper

The Cross Rhino Beet Washer was first designed for the biogas market and later spread into the sugar and fodder beet market. The Rhino contains a patented stone separation feature along with all the other features of the Hippo. Previously mentioned. With an output of 60 - 80 T/H, this machine has the capabilities of the Hippo2 with the added feature of stone separation.



Elephant Beet Washer, De-Stoner & Chopper

The Cross Elephant Beet Washer was first designed to increase the output and the transportation time of the Rhino. The Elephant also contains a patented stone separation feature. This machine has its own on board engine and is transported with an articulated tractor unit. This means there is no need for any tractors to drive the machine. With an output of 80-100 T/H, this machine has the capabilities of the Rhino with more output and less road transport time.



Alligator & Crocodile Beet De-Stoners

In some applications where the soil is sandy but contains a lot of stones, a Beet de-Stoner can suffice as the only beet processing needed. This is due to the beet being very clean after harvesting and containing only a small percentage of soil. In this case the operator will de-stone and not wash.

All Cross Beet De-Stoners are available with the same options as the Rhino or Elephant but without the Washing cylinder. These machines are called the Alligator and Crocodile



Cross Agricultural Engineering – Beet Washer – Specifications:

Model	Gazelle	Hippo 1	Hippo 2	Rhino	Elephant	Alligator	Crocodile
Output washing	20 T/H	40 T/H	80 T/H	80 T/H	100 T/H	80 T/H	100 T/H
Output washing & Chopping	18 T/H	25 T/H	60 T/H	60 T/H	80T/H	60 T/H	80T/H
Water Requirement Litres (Gallons)	4,560 Litres (1000 Gals)	4,560 Litres (1000 Gals)	4,560 Litres (1000 Gals)	14,592 Litres (3200 Gals)	14,592 Litres (3200 Gals)	11,365 Litres (3200 Gals)	11,365 Litres (3200 Gals)
Power Requirements	35hp	80hp	120hp	140hp	150hp	120hp	130hp
Engine Drive	Not Available	Not Available	Optional	Optional	Optional	Optional	Optional
Hopper Capacity	1,000kg	1,800kg	3,000kg	3,000kg	3,000kg	3,000kg	3,000kg
De-Stoner	Not Available	Not Available	Not Available	Standard	Standard	Standard	Standard
Chopper	Optional	Optional	Optional	Optional	Optional	Optional	Optional



Before



After



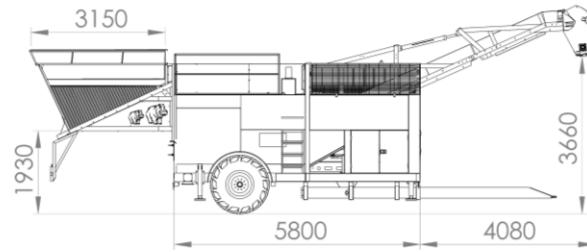
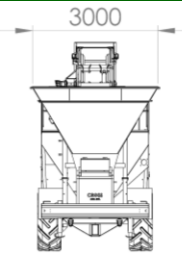


Cross Beet Processing Machinery Range

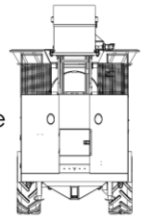
Capacities from 20 tonnes per hour to 100 tonnes per hour

Technical Data: Machine Selection Chart : Washers

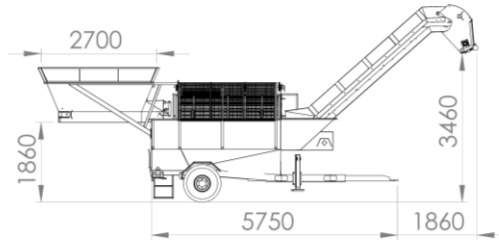
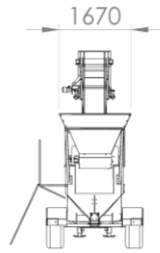
HIPPO
80 Tonne/
Hr



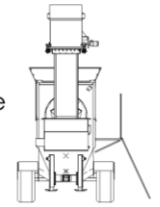
630mm Trace



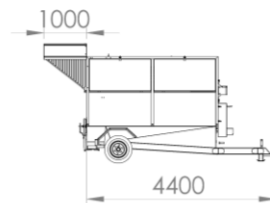
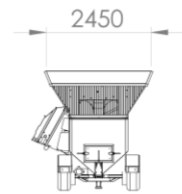
HIPPO MK1
40 Tonne/
Hr



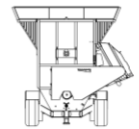
430mm Trace



GAZELLE
20 Tonne/
Hr

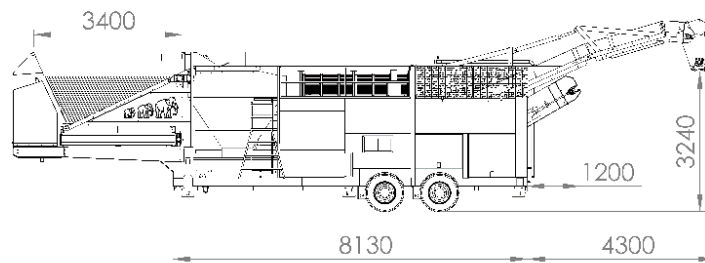
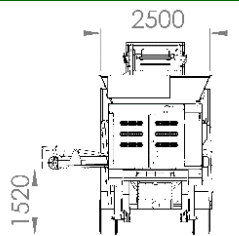


Side Feeder

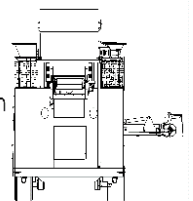


Technical Data: Machine Selection Chart : Washers & De-Stoners

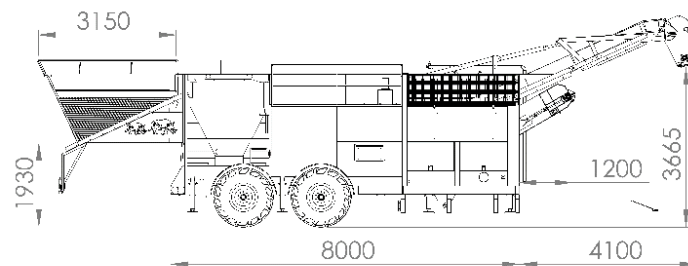
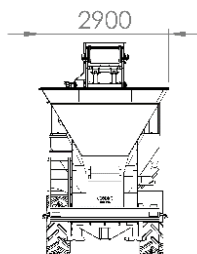
ELEPHANT
100 Tonne/
Hr



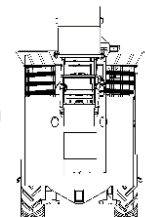
1000mm Trace



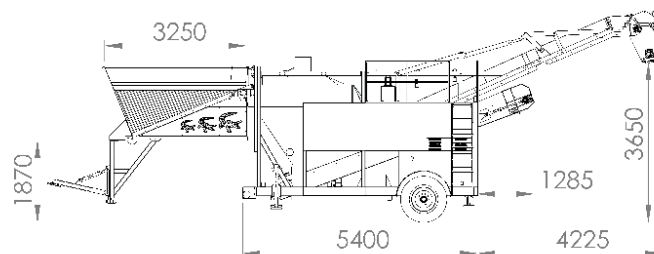
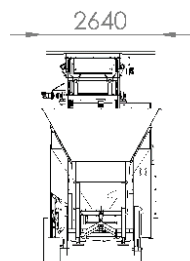
RHINO
80 Tonne/
Hr



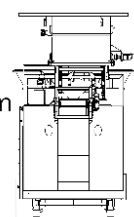
630mm Trace



ALLIGATOR/
CROCODILE
80/100 Tonne/
Hr



1000/630mm Trace



Beet Washers – Stationary Machines

In the last number of years Cross Agricultural Engineering have developed a range of Beet Washers which are built on a stationary Chassis. This gives the Biogas plant, sugar factory or dairy farm the ability to add a beet washer into their production line. With an optional electric power pack, this machine can be operated with the flick of a switch and can be left set up full time to cut down on set up time.

All stationary washers have the option of being fitted onto an already owned trailer or can be supplied with a high speed trailer for moving from farm to farm.



Beet Washers – Module Built Washers

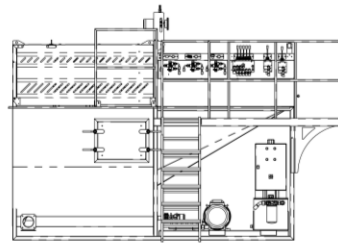
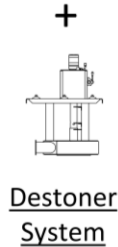
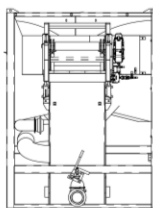
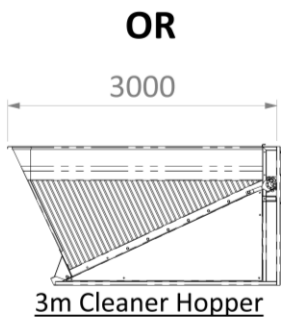
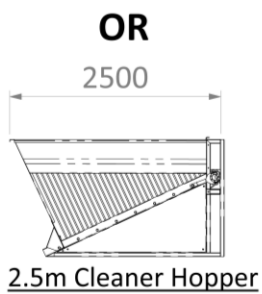
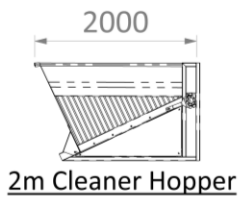
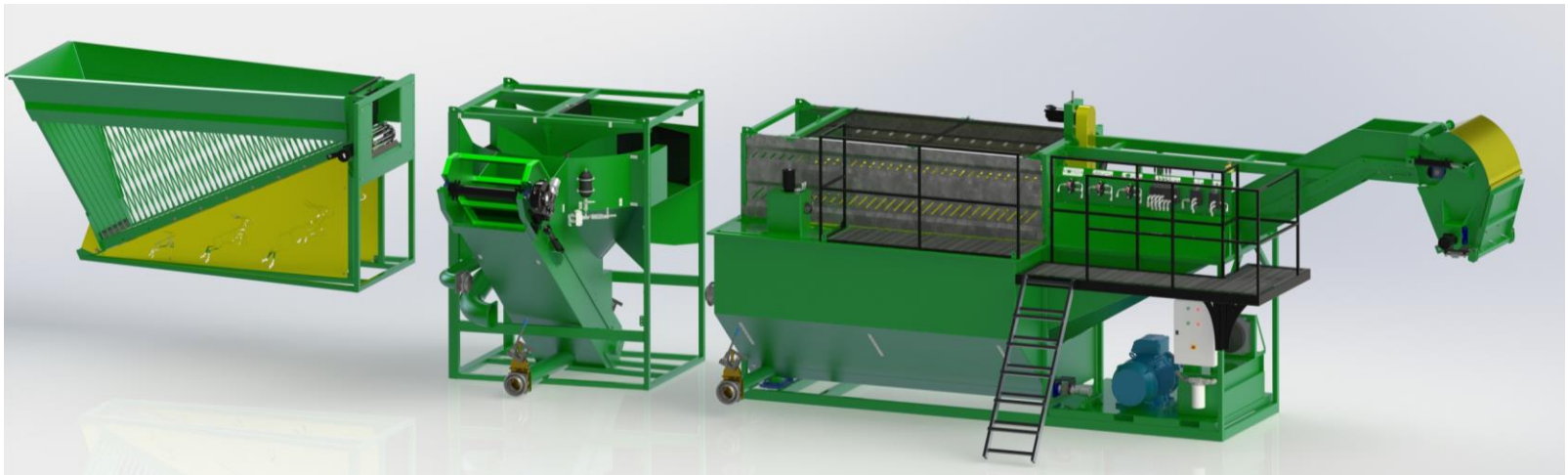
All stationary washers from Cross Agricultural Engineering Ltd can be built in a module form. The customer can select the type of machine wanted, the output needed and much more. The machine can be built with or without a chopper. It can be supplied with a trailer or without a trailer. Other aspects of the machine which can also be selected include the drive unit. Engine, electric or PTO drive can be purchased. This machine is designed to be mounted on any flat surface, raised walls, bale trailer or foundation.



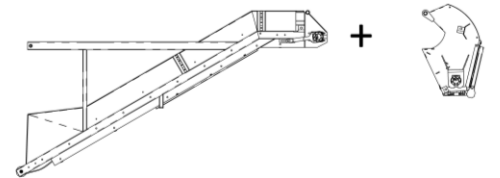
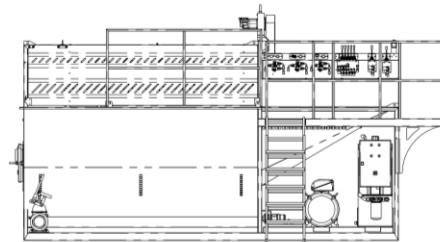
OR



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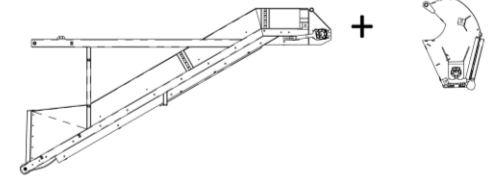
OR



430mm Trace Elevator

430mm Chopper

OR



630mm Trace Elevator

630mm Chopper

Cross Agricultural Engineering – Beet Washer – Specifications:

Model	Zebra	Antelope 1	Antelope 2	Moose				
Output washing	20 T/H	30 T/H	40 T/H	50 T/H				
Output washing & Chopping	15 T/H	25 T/H	35 T/H	45 T/H				
Water Requirement Litres (Gallons)	4,560 Litres (1000 Gals)	4,560 Litres (1000 Gals)	4,560 Litres (1000 Gals)	4,560 Litres (1000 Gals)				
Power Requirements								
Engine Drive	Optional	Optional	Optional	Optional				
Hopper Capacity	1,000kg	1,800kg	2,500kg	3,000kg				
De-Stoner	Not Available	Not Available	Not Available	Not Available				
Chopper	Optional	Optional	Optional	Optional				

Cross Beet Chopping Machinery Range

Cross Beet Choppers

Cross Agricultural Engineering manufacture a range of Beet choppers for the biogas, sugar and farming industry. The beet choppers range in capacity from 30 tonnes per hour to 150 tonnes per hour.

All Cross Beet Choppers are fitted with hydraulic stone release and a variable chop size door. All choppers are available in either PTO drive or 3 phase electric hydraulic.

Designed in Ireland this chopper is able to withstand the toughest of beet conditions and will always provide an accurate chop to suit the operator's needs



PTO Driven Chopper

The Cross range of PTO powered Beet Choppers vary in size from 2.26m to 3.46m wide. These choppers range from 60 tonnes per hour to 150 tonnes per hour.

Each PTO chopper has a Hydraulic release stone system which also works as a variable chop size door. This stone protection system also is equipped with a shear bolt to cope with a sudden stone jam.

Tractors from 60hp upwards are suitable for this machine.



Electric Hydraulic Beet Chopper

All Cross Beet choppers can also be purchased with a fully electric hydraulic drive system. An electric motor ranging from 30kw to 70kw in size is used to power an onboard hydraulic system. This hydraulic system powers the chopper rotor.

All Electric Drive choppers are fitted with 3 forms of safety: Hydraulic Pressure Relief valve, Electric Pressure cut off switch and thermal overload. This ensures the machine cannot get damaged from stones being present in the crop. A hydraulic moving door is also present to let the stones pass and vary the chop size.

Machines can also be fitted with a twin drive option for users who want to PTO chop at one job and electrically chop at the next.



Transport

All Cross Beet Choppers can be fitted with 2 types of transport kit. The first type of kit is a yard moving kit. This kit only lets you move the chopper around the yard where you are working it. The second type of kit is a fully road legal transport kit which is fitted with hydraulic brakes and lights.

Cross Agricultural Machinery – It's the Obvious Choice

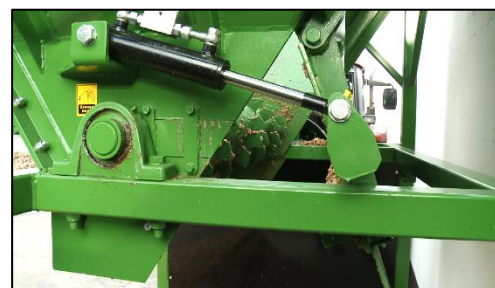
Stone protection & Variable chop size

The Cross Stationary Beet Chopper has been designed with a moving hydraulic chopper door. The hydraulics can be used to open the door and allow stones to pass which may be mixed into the beet crop. The door can also be fitted with springs to allow it spring open when a stone comes into contact with the rotor and allow the stone to pass through.

The moving door is also used for varying the chop size of the product. The Beet can be chopped to a pulp or just roughly chopped. The fineness of the chop all depends on the operators needs and it can be set using the hydraulic system on the machine.



- The sample of beet pulp can be seen here to show chop size



Other Features

Other features of the machine include Adjustable Legs, Dual powered machines (PTO & and Electrics) and extra high output units.

- Adjustable legs can be manual (pin & lift type) or hydraulically controlled. The side guards move with the adjustable legs.
- Dual Power Machines can be run off a tractor PTO or the Electrics installed on the machine.
- Extra high output units use a 70kw motor and are capable of nearly double the output of the 35kw model.



Cross Agricultural Engineering – Beet Chopper – Specifications:

Model	2260	2960	3460
Output Chopping PTO	100 T/H	150 T/H	175 T/H
Output Chopping Electric	60 T/H	95 T/H	120 T/H
PTO Power Required	60 hp	80 hp	100 hp
Electric Drive	Optional	Optional	Optional
Adjustable Legs	Optional	Optional	Optional
Hopper Capacity	2,500 kg	3,000kg	3,000kg
Transport Kit	Optional	Optional	Optional

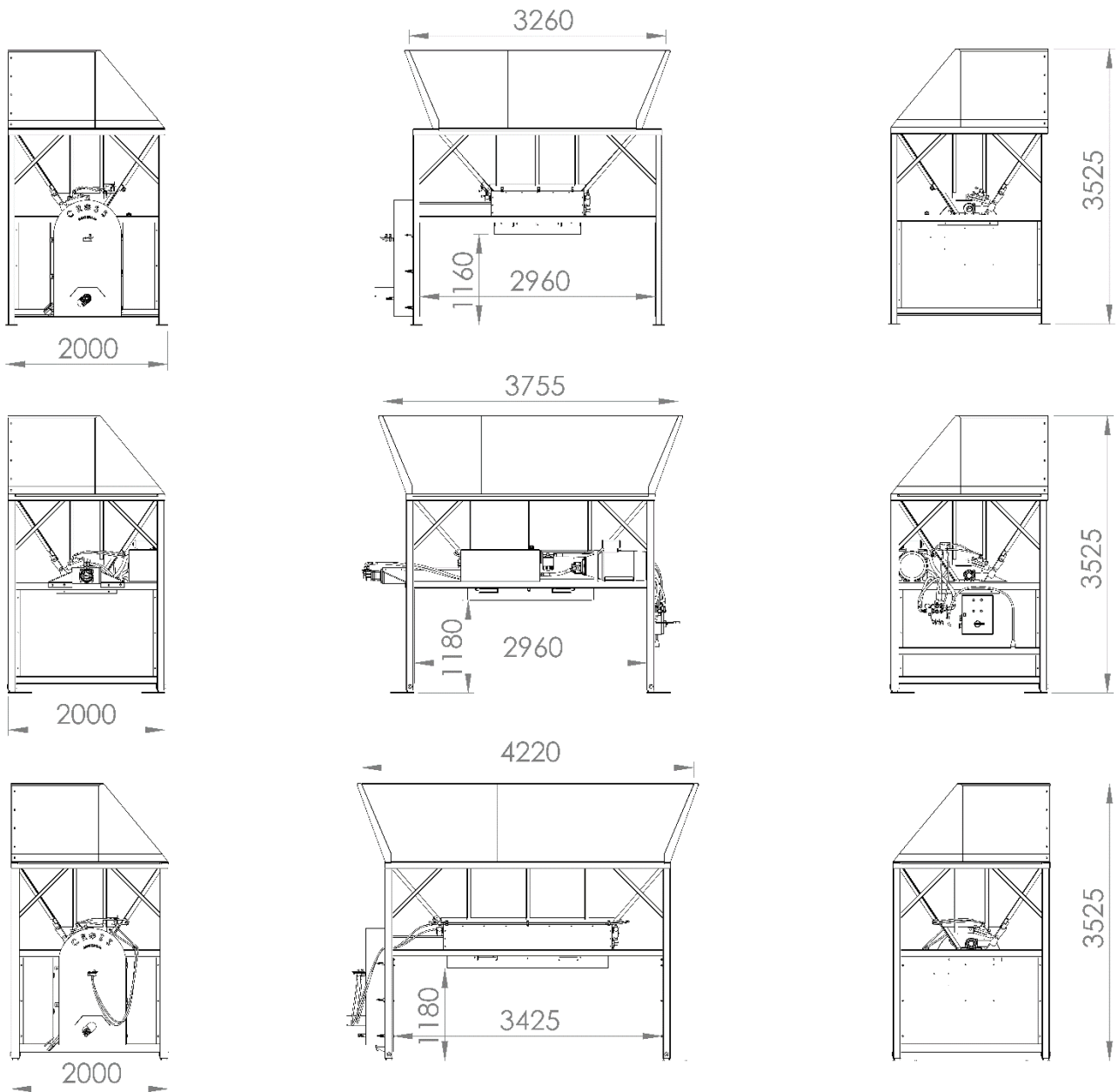


Technical Data: Machine Selection Chart

Cross Beet Choppers

When Selecting a Cross Beet Chopper off the chart below it is important to keep in mind the width of your bucket. Your loading bucket should be less than 2960 in width for the small and middle range machine and less than 3452 for the largest.

Smaller beet choppers are also available on request for small tractor buckets. Drawings can be provided on request of the smallest tractor bucket range.



Cross Beet Harvesting & Dry Cleaning Machinery Range

Cross Beet Harvesters

Cross Agricultural Engineering manufacture a range of Beet harvesters for the biogas, sugar and farming industry. Originally sold by Armer Salmon these machines are well proven in their field. Each machine uses a unique top lifting mechanism which lifts the beet by the leaves rather than the bulb. A small plough moves under the beet bulb also to help it out of the ground.

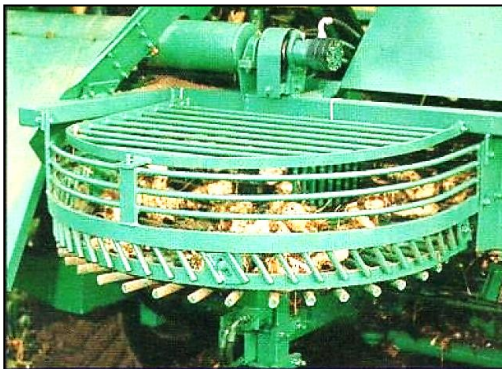
The main advantage of this machine over any other harvester is the absence of stones when harvested. As this machine lifts by the leaves it will not harvest stones.

This Cross Beet Harvester range come in a 1,2 or 3 row machine.



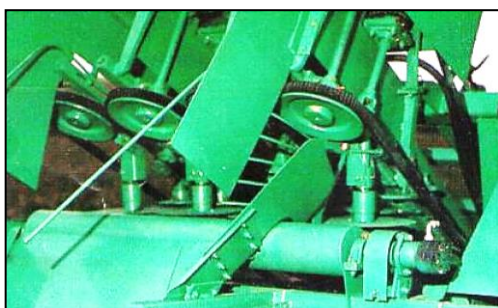
Front Tool Bar

Tough coulters discs, automatic row finder sensors and hardened plough shares reduced field losses and allow high outputs to be attained. The Coulters discs split and cut the leaves and allow the row finder to work. The row finder uses an on-board hydraulic system to move the whole harvesting head from left to right. The plough which lifts the beet from underneath as the belts pull the beet uses a hydraulic breakaway system in case it comes in contact with any stones.



New Carousels

New carousel cleaning is adjustable to suit all conditions. This section of the machine is hydraulically driven and the speed of the carousels can be adjusted to clean more or clean less. The speed adjust of the carousels can be set from the machine control cabinet. An in cab speed adjust with mounted camera is also available.



After Lifting

Rotary leveling guides and quick adjustable crowning discs combine to ensure accurate crowning of every root. Accurate Crowning is important to get the best beet sample for storing after harvesting. Beet that is not crowned correctly will try to re-grow its leaf when stored in a pile. This attempt at re-growing the leaf uses energy from the beet and in turn makes the beet less valuable to feed or as a sugar crop.

Cross Agricultural Engineering – Beet Harvester – Specifications:

Model	Cheetah	Beaver	Tiger
PTO Power Required	110 hp	140 hp	160 hp
Hopper Capacity	3000kg	3500kg	3500kg (optional)
Wheels	2	3 (tandem 1 side)	3 (tandem 1 side)
Output (Acre per Hour)	0.6	1	1.7
Variable Speed	Belt & Elevator	Belt & Elevator	Belt & Elevator
Hydraulics	Electric Hydraulic	Electric Hydraulic	Electric Hydraulic

Cross Beet Cleaner loaders

Cross Agricultural Engineering manufacture a range of Cleaner Loaders for the biogas, sugar and farming industry. Originally sold by Armer Salmon these machines are well proven in their field. Varying from 60 – 200 tonnes per hour these machines can load with ease while cleaning most of the loose dirt from the beet.

Each machine has its own on-board engine and remote controls are standard. Tractor driven machines are available on request.

All Cross Cleaner loaders can be fitted with a tumble clean section to get the maximum cleaning out of one machine. The Cross Cleaner Loader range can handle volumes of up to 20,000 tonnes annually at low cost and with proven reliability. These machines are working on farms across Europe for more than 25 years.





Cross Compact Cleaner loaders

Cross Agricultural Engineering now manufacture a range of Compact Cleaner Loaders for the biogas, sugar and farming industry. These machines were developed as a low cost solution to the larger Cross Cleaner Loaders. Varying from 30 – 100 tonnes per hour these machines can load with ease while cleaning most of the loose dirt from the beet. Each machine has its own on-board engine and remote controls are optional. Tractor driven machines are available on request. All Cross Cleaner loaders can be fitted with a tumble clean section to get the maximum cleaning out of one machine.



Cross Agricultural Engineering – Beet Cleaner Loaders – Specifications:

Model	HD60	HD100	HD115	HD125
Output Cleaning & Loading	60 Tonnes/hr	100 Tonnes/hr	115 Tonnes/hr	125 Tonnes/hr
Web Elevator Width	635mm	36" Hook Link	1,000mm	1,000mm
Power Requirement	11hp	11hp	11hp	11hp
Engine Drive	Standard	Available (Tractor Drive)	Available (Tractor Drive)	Standard
Hopper Capacity	3,000kg	3,000kg	3,000kg	3,000kg
Overall Working Length	8 Meters	11 Meters	11 Meters	11 Meters
Beet Loading Hopper Height	3.0 Meters	4.0 Meters	4.0 Meters	4.0 Meters
Picking Off Trace	Not Available	Not Available	Not Available	Not Available
Chopper	Available	Not Available	Available	Available

Cross Agricultural Machinery – It's the Obvious Choice

Cross Beet Machinery Range Power Systems

Cross Power Systems

Cross Agricultural Engineering machinery can mainly be purchased in three different varieties: Tractor Drive, Engine Drive, and Electric Drive. Tractor drive machines either use the tractor PTO or the tractor hydraulic system powers the machine. Engine drive machines use a hydraulic system to run the machine. The engine powers the hydraulic system through a chain of pumps and drives. When an electric system is fitted to a machine, a large 3 phase motor powers the hydraulic pumps of the machines and in turn operates the machine.

Any power system can be fitted at the request of the buyer.



All large Beet processing machinery from Cross Agricultural Engineering come fitted with a JCB Diesemax Engine. The 75kw Turbo charged engine is more than capable of powering the hydraulic system on the range of machines. All Elephant Beet Washers come with this engine as standard.



Super Silent

All small Beet processing machinery from Cross Agricultural Engineering can be fitted with a super silent engine power pack.

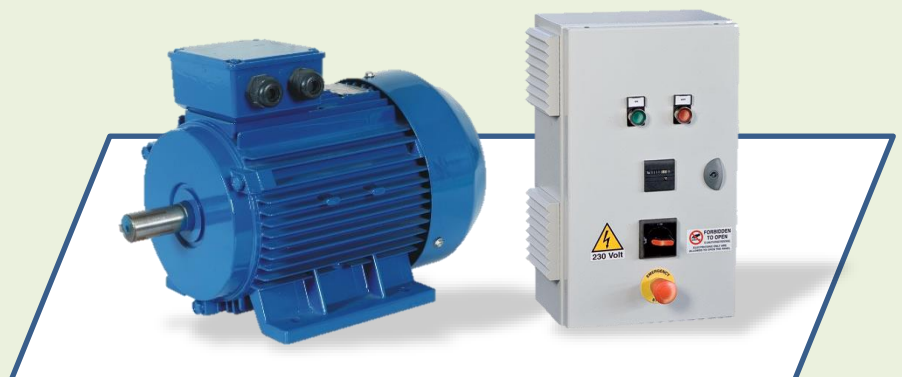
This engine type comes in various sizes depending on what type machine you are using and what hydraulic demand is going to be placed on it.



Electric Hydraulic

All small Beet processing machinery from Cross Agricultural Engineering can be fitted with an electric hydraulic power system. This system uses 3 phase power to run a motor which in turn drives the hydraulic pumps.

Each motor fitted to a machine will be supplied to suit the hydraulic requirement of that machine.



Dual Power

Some of the Cross Agricultural Engineering Machines can be fitted with Dual power systems. For example. All stationary washers can be powered by an electric motor, engine or tractor by simply plugging in two pipes. Most of the larger machine however have to be determined day one what way they are to be powered.

Cross Agricultural Machinery – It's the Obvious Choice

Other Cross Machinery

Cross Agricultural Engineering also do a huge range of other farm machinery. With over 50 products in the Cross catalogue there are machines to suit all types of farming. These machines include: Chaser Bins, Ring Rollers, Slurry Tankers, Slurry Agitators, Post Drivers, Furrow Presses and much more.

Contact a Cross representative today for more information.



“It’s the Obvious Choice”



Cross Agricultural Engineering is the result of generations of metal working skills within the Cross family. This heritage has provided a solid foundation for the design and manufacture of quality farm machinery, with the constant help and co-operation with farmers and contractors. All Cross machines are manufactured in a purpose built facility, which utilises the latest in manufacturing technology. The company provides all of its own research and development work in-house. Following this new machines are tested rigorously to assess their reliability and

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