Flo-Mech

Flo-Cut™

Designed for the Potato Industry

Dedicated Food Processing Systems

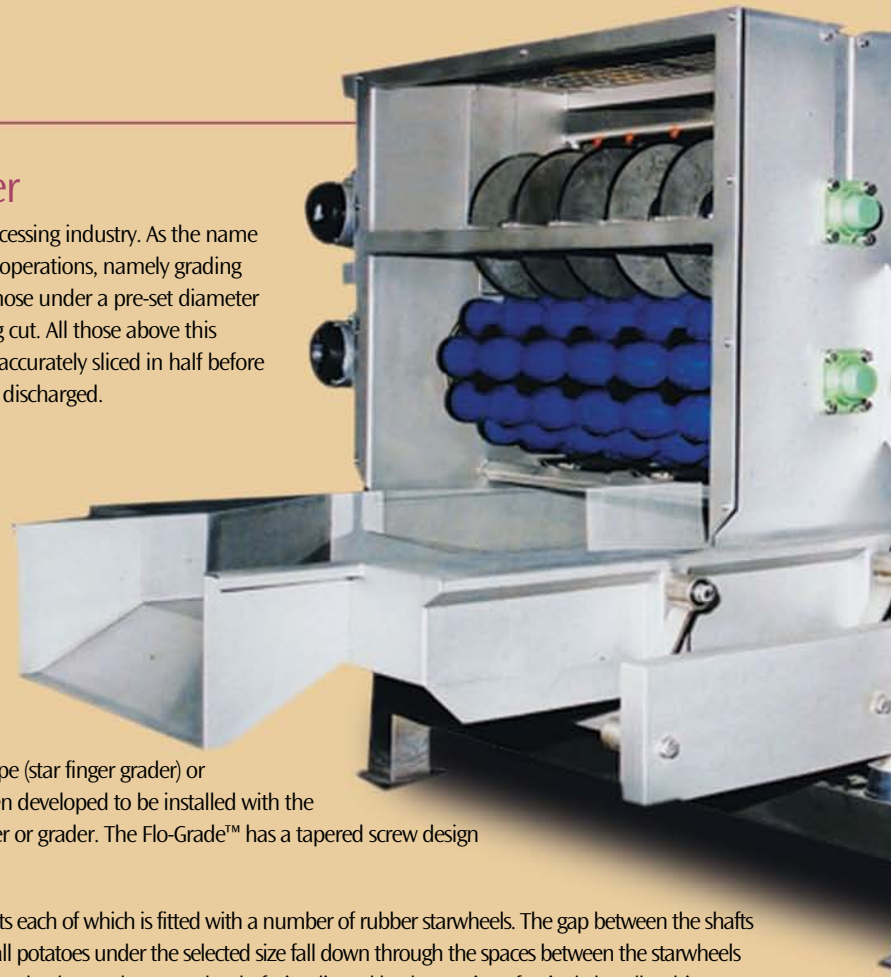
The Potato Halving Industry Standard

The forefront of food processing technology

Flo-Cut™

Introducing the Flo-Cut™ Sizer Halver

The Flo-Cut™ sizer halver is designed specifically for the potato processing industry. As the name of the machine indicates, the Flo-Cut™ sizer halver carries out two operations, namely grading (sizing) and cutting (halving). Potatoes enter the machine and all those under a pre-set diameter are graded out and allowed to pass straight through without being cut. All those above this diameter enter the cutting section of the machine where they are accurately sliced in half before being reintroduced into the flow of acceptable product and finally discharged.

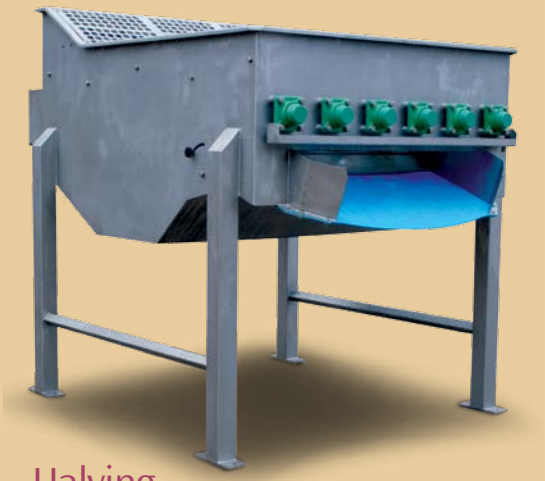


Grading

The grading (sizing) operation is carried out by either a starwheel type (star finger grader) or screw roller type (Flo-Grade™) grading unit. The Flo-Grade™ has been developed to be installed with the Flo-Cut™ sizer halver unit or on its own as a standalone potato tuber or grader. The Flo-Grade™ has a tapered screw design for gentle grading and transfer of potatoes.

The starwheel type grading unit comprises of a series of rotating shafts each of which is fitted with a number of rubber starwheels. The gap between the shafts is adjustable and the rotation of the shafts is synchronised such that all potatoes under the selected size fall down through the spaces between the starwheels and all those over this size are transported along the top of the starwheels. The gap between the shafts is adjusted by the turning of a single handle. This adjustment can be carried out while the machine is in operation therefore allowing for very precise tuning of the grading operation.

All potatoes which fall through the grader are gently lowered through a chute to a vibrating conveyor below and ultimately discharged at the far end of the machine. All oversize potatoes travel along the top of the grader and then enter the halving unit. The rotating shafts of the star finger grading unit are driven by a single fixed speed direct drive motor gearbox. The Flo-Grade™ unit is installed with a variable speed drive unit.



Flo-Grade Screw Grader

Star Finger Grader

Halving

Graded potatoes enter the cutting (halving) unit and are transported towards the blades at the far end by a set of rotating shafts, each of which is fitted with profiled plastic rollers. The rotation and design of these profiled rollers is such that the potatoes tend to settle into individual “pockets” which exist between the rollers. As the potatoes travel between these pockets towards the cutting blades the centroid of each potato is precisely aligned with the cutting edge of the blade. There are a sufficient number of these rollers to ensure that each potato is very accurately aligned before it is driven into the rotating cutting blade.

Due to this precise alignment of the potatoes with the cutting blades they are always cut along their minor axis therefore giving maximum size reduction. Drive to the transport rollers is provided by a single fixed speed direct drive motor gearbox unit.

The cutting assembly consists of a number of circular blades mounted on a heavy duty shaft which is driven by a direct drive motor gearbox unit. The 4 lane sizer halver is equipped with a cutting assembly which has 4 blades and likewise the 6 lane model has 6 blades.

Conveying

The machine is fitted with a single vibratory conveyor which is situated underneath the full length of both the grader and the cutting unit. The conveyor collects all acceptable sized product which falls through the grader and also picks up the discharge from the cutting unit. This design ensures that the final discharge from the machine is a consistent mix of cut and uncut product.

Capacity

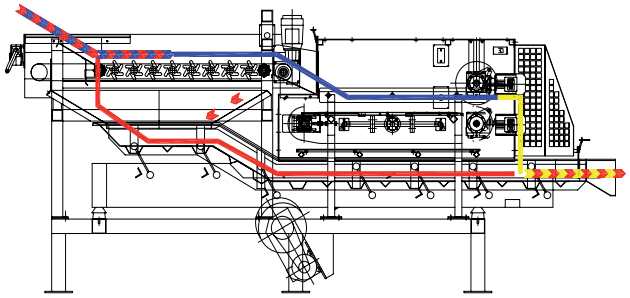
The capacity of Flo-Cut™ is expressed in terms of the number of potatoes entering the cutting section:-
The 4 lane machine has a cutting capacity of approximately 10,500 tubers per hour.
The 6 lane machine has a cutting capacity of approximately 16,000 tubers per hour.
To calculate the capacity in terms of kg/hour it is necessary to take into account the following factors:-
a) the average weight of each tuber
b) the percentage of the total throughput of product which requires cutting

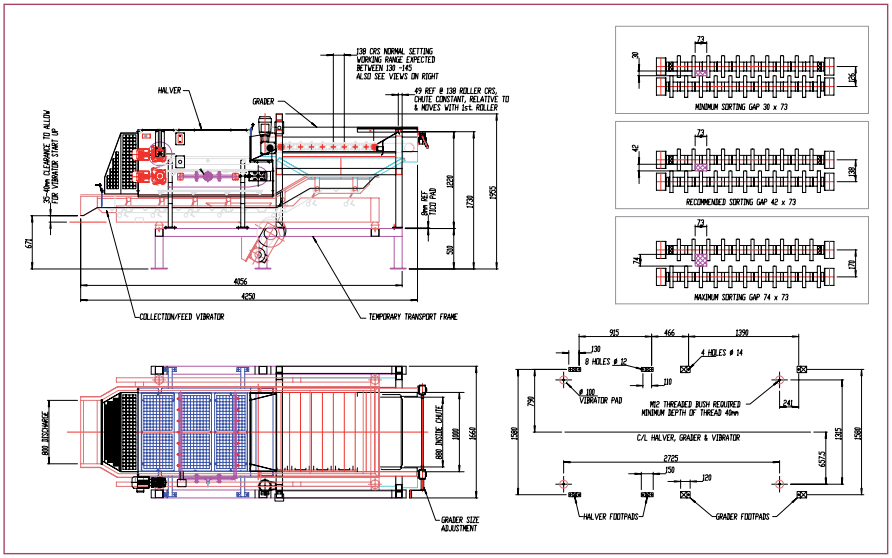
As an example, if the average weight of each potato is 250g and 25% of the total throughput is above this average figure and requires cutting, then the maximum capacity of a 6 lane sizer halver machine would be approximately 16,000kg/hour. Higher capacity available on request.

- Flo-Cut™ can be tailored to suit customer product specifications (tuber size)

Flo-Cut™ Features

- Proven and refined design
- Grader adjustable during operation
- Precise cutting alignment for maximum size reduction
- High quality food grade materials throughout
- Consistent discharge of cut and uncut potatoes
- Easy clean design





Drive Sizes and Services

- Grader drive 0.75kW (starwheel) 2.2kW (Flo-Grade™)
- Cutting unit rollers drive – 0.55kW
- Cutting blades drive – 0.55kW
- Vibrator – 1.1kW
- Electricity – 400V, 3 phase
- Water consumption – 0.5m^3/hour @ 5 bar

Construction

- Machine framework and chutes – stainless steel
- Grading unit starwheels – black EPDM or polypropylene rollers on Flo-Grade™
- Halver unit rollers – polypropylene
- Halver unit cutting blades – stainless steel

For more information please contact Flo-Mech Limited Telephone: +44(0)1733 233 166
Email: enquiries@flo-mech.com or sales@flo-mech.com or visit www.flo-mech.com

At the forefront of food processing technology…

Who are Flo-Mech?

Flo-Mech is a privately owned limited company, employing highly skilled personnel with a heavy emphasis on engineering. We design and manufacture specific pieces of machinery that cannot be procured within our group.

To achieve this, our designers create manufacturing drawings, which are then passed onto a number of specialist sub-contractor workshops. This equipment is manufactured under our total supervision before it is given the Flo-Mech name.

Turnkey project management

One of Flo-Mech's strongest assets today is its ability to provide our customers with the most complete project management service. Many of our customers prefer only to deal with one company who can manage full "turnkey"

projects. With many successful installations already completed, we have secured a number of long-term partnerships with major "blue-chip" clients. From pre-engineering studies through to factory installations we can provide a "total management" solution. Our team of experienced project managers pride themselves on providing the very best service to meet our customer's requirements. By using the latest computer technology, CAD and 3D drawing facilities, projects are closely controlled to ensure "milestones" are met. Each project is enhanced by implementation of a modern Health & Safety policy incorporating on-going risk assessments and regular auditing. Production of P&ID and PFD drawings, detailed project schedules, operation and parts manuals and relevant C.E. documentation all go to help making each contract a complete success, to specification, on time and within budget.

Commitment to service

Commitment to our customers extends way beyond the sale. We understand that response times are critical in the food industry, and this is reinforced with our 24 hour a day, 7 day a week emergency service.

We ensure that members of our service team become involved with each contract at a very early stage, ensuring continued quality support long after the installation crews have left site. Our fully qualified service engineers are registered with the Gas Safe Register and A.C.S approved. A comprehensive range of spare parts is held at Flo-Mech House, further enhancing the commitment to our customers.

The Flo-Range

Flo-Therm™

Flo-Therm™ has now been a part of our lives for the past 30+ years. A proven design for gently heating frying oil and at the same time offering total pollution control, ensuring that your frying emissions to atmosphere are "clean". We are constantly reviewing our heater designs to ensure compliance with the very latest emission levels and efficiency requirements (C.C.L.). Flo-Therm™, caring for our environment.

Flo-Starch™

The Flo-Starch unit has been designed to recover starch from potato processing waste-water giving the benefit of reusing the cleaned water back in the process line and collecting the dry starch to be used in other processes. The Flo-Starch™ system is a self contained, skid mounted plug and play unit based on centrifuge technology with PLC control to ensure optimum performance.

Flo-Grade™

The Flo-Grade™ has been developed to be installed with our Flo-Cut™ sizer halver unit or on its own as a standalone potato or tuber grader. It has a tapered screw design for gentle grading and transfer of potatoes.

Flo-Flavour™

Flo-Flavour™ in recent times has expanded into two main areas. The systems are designed either to handle a pre-mixed slurry, keeping the components in suspension and delivering to the flavour drum, and in addition can be supplied with full mixing and holding/ distribution tank facilities.

Flo-Cool™

Oil quality is an important operational and financial factor in modern frying processes. Flo-Cool™ is designed to rapidly reduce the frying oil temperature at the end of production or during a production break. Production shut down times are reduced and coupled with our Nitrogen blanket system, the oil can be returned for storage and protected in an inert gas environment under greater operational control.

Flo-Mech Limited

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