

GeoSortIII

SmartSort

MSE

QSort



The most reliable and precise grader
optimised for citrus

SmartSort
citrus



Precision, flexibility and reliability

The well thought out modern design and use of high quality materials results in low maintenance needs. The machine is robust with unparalleled reliability. The user-friendly iGS program (Intelligent Grading Software under Windows) in the SmartSort-citrus allows you to manage the flow of fruit in your warehouse in an efficient way, quickly and accurately adapting the parameters to suit changeable market demands.

LED lighting

The new optical lighting system based on LED diodes saves significantly on energy and has extraordinarily low maintenance requirements. The new optical system design has increased the precision and reliability of all parameters.

Transfer unit

- The new transfer unit, which has evolved from robust previous generations of SmartSort-citrus, offers optimal reliability and precision even at high speeds.
- The exclusive and patented Greefa transfer system between singulator and fruit carriers keeps transport and measuring sections separate.
- Ensures great precision and reliability during the singulation, measuring and discharge processes.
- Allows the machine to be used – almost without adjustment – for both large fruits such as oranges as well as smaller ones such as clementines.
- Easy and low maintenance. The fruit carrier systems, for instance, hardly need any maintenance.
- Increased occupation rate of the fruit carriers (more capacity).
- Weight grading (optional) is more precise thanks to the special suspension of the load cells in the upper part of the transfer unit.

Unparalleled... Unparalleled... Unparalleled...

With the SmartSort-citrus, Greefa presents a new achievement in engineering and design. Retaining the precision of all its parameters, this machine can grade 12 fruits per second with the greatest ease, and with very low maintenance needs. With all of these basic qualities, the SmartSort-citrus has been developed to suit the special needs of the citrus sector and to satisfy the demands the most exacting client. The iQS-citrus (Intelligent Quality Sorter) option has been specially designed for citrus fruits and permits flexible yet precise external quality selection to meet the specific needs of each client, thus maximizing profit while saving on labour costs.

Increased capacity and guaranteed precision

Practically all individual components of the robust SmartSort-citrus have been designed for even higher speeds. The singulator, transfer unit and discharging elements are good examples. By making certain components more solid, undesired vibrations are reduced to a minimum. This gives greater accuracy in the optical measuring process and weight sizing with an added bonus of a greatly increased life span without problems or incidents.



Eye for quality

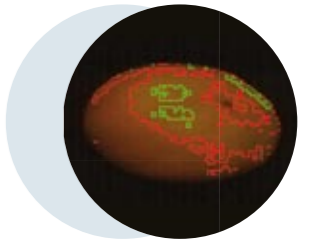
Measuring module

Fruit size is determined by means of high resolution infrared cameras. Using a special combination of software and hardware, the size of each fruit is measured several times. This gives an extremely precise measurement.



Colour module

Special high resolution CCD colour cameras are used to determine the colour of the fruits. These cameras classify the fruits on the basis of an average value of colour, blush or background colour. Moreover, special filters eliminate sheen and undesirable reflections.



Weighing module

An advanced 3-point weighing system is used to weigh the fruits electronically. This system is located in the upper part of the transfer unit. It gives extremely high precision and there is minimal chance of contamination or interference by vibrations from the sensors and other weighing elements.

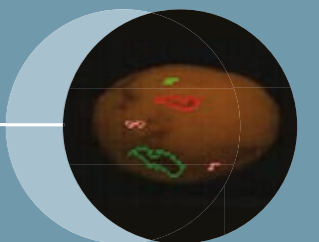


Specific weight module

The specific weight parameter (volume / weight index) can be used to classify fruit on the basis of its density, allowing the removal of dry, spongy citrus fruits, for instance clementines or oranges affected by frost or other similar causes.

iQS-citrus module – automatic selection of external quality

Ever since the introduction of iQS in 1997 in the citrus sector in Valencia (Spain) our R+D department has worked continuously on its evolution and now proudly present the new iQS-citrus. This intelligent Quality Selection module selects fruits automatically on the basis of external quality, taking 70 photographs of each fruit. This is done by means of special CCD infrared cameras and colour cameras. The advanced software evaluates the photographs and classifies them in accordance with the operator's programming. iQS allows you to meet the specific demands of each of your clients quickly and flexibly, maximizing profit while saving on labour costs.



iFA module (internal quality)

The SmartSort-citrus does the nearly impossible. The intelligent Flavour Analysing module determines the internal quality of your fruits using Near Infra Red (NIR) evaluation. It is an exclusive transmission technique that examines the entire fruit. On the basis of these measurements values including Brix and acidity can be established.

A selection of innovations

iGS program (machine operation)

The new SmartSort-citrus is standardly equipped with Greefa intelligent Grading Software (iGS). This easy to operate system is based on Windows and offers many possibilities.



Automatic lubrication

For those elements of the machine that need to be lubricated, the new SmartSort-citrus is equipped with a fully automatic and programmable lubrication system. This PLC operated system always releases the correct amount of lubricant at opportune pre-programmed intervals, minimising wear and tear and lengthening the useful life of the machine.

Easy to use; simple to maintain

Automatic cleaning unit

The new SmartSort-citrus can be fitted with optional automatic cleaning units. These PLC operated modules clean fruit carriers and diabolos thoroughly, saving you a lot of work.

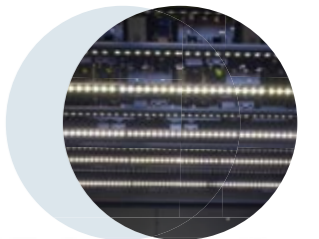


Remote support

Whenever necessary, Greefa can use the internet to make remote contact in real time with your machine for inspection purposes. Thanks to this rapid and efficient means of support, non-productivity will be minimised.

LED lighting

The combination of different types of advanced LED diodes gives a wide light spectrum, allowing the new Greefa iQS system to determine the external quality of your fruits very clearly. The use of LEDs has led to the development of a durable energy-saving measuring unit with simple, greatly improved maintenance.



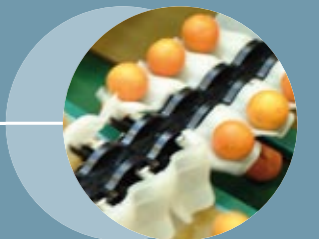
Accessibility and maintenance

Maintenance of the new SmartSort-citrus will not cost you much time, for three reasons. Firstly, the grader components are constructed from robust and durable materials, which we obtain from the best specialist suppliers. Secondly, the important parts of the SmartSort-citrus are made from the least possible number of components, minimising maintenance. Lastly, maintenance-sensitive areas have been made more accessible.



Ejector system and chain tension

The special concept of the ejectors (solenoids) in the new SmartSort-citrus facilitates an extremely rapid and precise discharge process. Construction and materials combine to provide an extraordinarily long life, so that you never need to worry about them. The installation is equipped with devices that ensure easy maintenance, for instance the automatic tension compensation device for the traction chains.



Greefa ... quality in motion

Summary of the advantages of the SmartSort-citrus:

- 2, 4, 6, 8 and 10 lane models with custom-made exits tailored to suit your needs
- Productive and efficient, with all selection parameters optimised to 100% of its speed
- Innovative and high quality specifically designed for citrus fruits
- Can be used for large fruits such as oranges as well as for small fruits such as tangerines
- Low maintenance needs, even for large machines (more than 100 meters)
- Safe, reliable and durable
- Easy to use
- Modular construction, making it easy to expand at a later date
- Wide range of selection parameters available (modules)
- New software (iGS), based on Windows offers numerous possibilities
- Grading result is not affected by stray labels in the reading area

SmartSort is also available in other models, suitable for fruits such as tomatoes, kiwis, peaches, apricots, plums etc.



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