



# GUYSON

## Medical Blast Finishing Options from Guyson

It is currently estimated that around 500,000 hip replacement operations are performed every year world-wide, with between 40- 50,000 procedures carried in the United Kingdom alone. Furthermore, the number of knee replacements is rapidly approaching that of hip replacements and the number of hip fractures may rise as high as 120,000 per year in the UK within 20 years. With people around the world living longer and with the increased wealth of large population centres such as India, China and Mexico, there is higher demand than ever before for surgical and dental implants to help maintain the quality of life and mobility of the 'silver' generation.

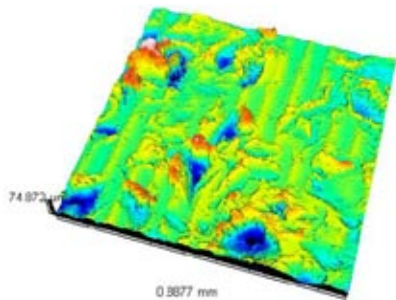
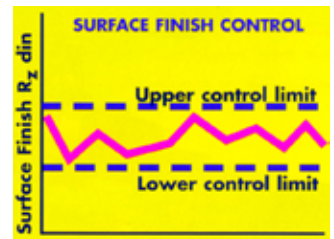


### Guyson's unique medical equipment offering

Guyson International Ltd has a great advantage by being able to offer medical device manufacturers around the world a comprehensive range of surface cleaning and preparation systems with its blast finishing, spray wash and ultrasonic cleaning equipment.

### Exactng Standards for Medical Prosthetic Implants

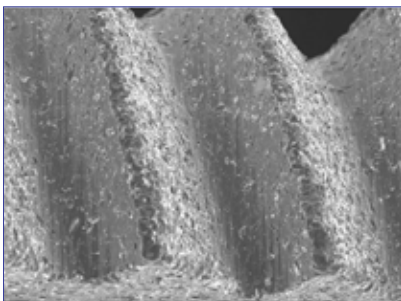
Medical implants and devices are produced to a validated process complying with ISO 13485 or FDA 510(K) registration and FDA 520 (F) "Quality System and Good Manufacturing Practice standards". Manufacturers increasingly assure quality through Six Sigma improvement techniques and ISO 14971 "Application of Risk Management to Medical Devices" with the objective of doing the right thing, right first time.



Surface topography control is a key attribute of medical devices in either functional terms or cosmetic appearance. A consistent surface finish, measured typically, in amplitude parameters like Ra or Rz is required to be maintained within specific statistical control limits.

To achieve consistency of surface finish needs careful analysis on each application and consideration to the initial process selection and on-going quality monitors and controls in either the machine design features or PPM schedule.

Initial parameters of media type and size, blast pressure and gun angles are essential start points but enhanced media control via screen separators, magnetic separators and superior cycloning to provide consistent media sizing and purity of blast media are all critical elements. Surface blast speed and blast nozzle stand off are other parameters to be controlled in the HMI recipe.



Graphic above: Shows surface finish profile with clear areas with no impact craters which would be detrimental for surface etch applications prior to coating.

Bottom picture: Scanning electron microscope (SEM) picture of thread showing right flank of screw thread correctly treated and left flank under blasted.

Graphics courtesy of Taylor Hobson. Implant picture (right) courtesy of JRI.

## where quality comes to the surface

# MEDIBLAST CABINET TARGETS MEDICAL INDUSTRY



The Guyson Mediblast range of stainless steel blast cabinets have been especially engineered for medical product manufacturers and laboratories where the introduction of ferrous contamination would be detrimental to the production process.

The existing and proven range of Euroblast® cabinets can now be offered in 316 L stainless steel along with all ancillary internal parts such as turntables, door handles,

blast media creating contamination. Options outside the cabinet include providing polyurethane pipes and wear resistant elbows on the media extraction to the cyclone and internal polyurethane lining to the inside of the cyclone.

The Mediblast cabinets are compatible with a wide range of blast media types and grades, making them ideal for a broad range of medical surface preparation, finishing and cleaning applications. The system also comes complete with an efficient dust collector so enabling a clear view of the component surface whilst blasting.



assembly screws etc also made from stainless steel. In addition, options for rubber lining the internal walls of the blast chamber and polyurethane coating the critical metal parts, such as turntables, blast gun body etc are available to stop the abrasive nature of the

*The Mediblast leaflet is on our website ready for you to download or call our customer service department for a copy.*

## EUROBLAST® SELECT

Improved operator comfort and production efficiency are the prime objectives behind the Guyson Select variable height beadblaster; available exclusively in models sizes 4 and 6.

Ideal for multi-operator workshops, the cabinet height is adjustable electrically or manually. The electrical version allows a range of 300mm vertical adjustment whilst the manual hydraulic option offers 158mm of travel. Both will allow the cabinet operators to adopt a more relaxed standing position and avoid the discomfort caused by crouching or overreaching by being able to select the height which gives them the most comfortable arm access and viewing positions.

Options include enlarged armholes (and armrests) to allow greater manoeuvrability of the blast gun inside the blast chamber. Also optional flip top lighting above the viewing window if component surface viewing is critical.

A 'cat flap' option can also be added to any cabinet to enable

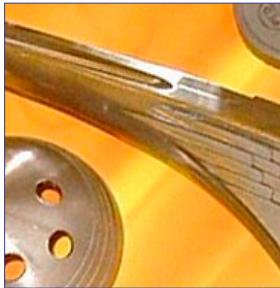
load and unload of smaller components without the need to open the larger doors, eliminating the possibility of workfloor contamination with blast media.



# Automated Blasting Suitable for Medical Implants

To eliminate the inevitable variations in hand processing, Guyson offers increasing levels of automation to medical implant manufacturers for low through to high production volumes for simple to complex geometry shapes and for manual loading to lights out fully automated systems. Entry level automated systems are often based on a single Rotating Spindle Blast (RSB) concept. For increasing volumes the RXS400 rotating and indexing two spindle system is frequently chosen and for very high volume systems the RXS900 six spindle system is specified.

The RXS400 (pictured right) has been designed specifically for the work-cell manufacturing environment. Typically this type of machine is quite quick to set up and the blast parameters can be stored in a menu system for later recall to aid consistency of product surface topography. Robot load or robot gun manipulation and post non-contacting surface finish measurement are options available.



Occupying less than one square metre of floor space, the unit is small enough to fit into the most compact manufacturing cell, yet capable of precise and repeatable impact treatment in single piece work flow

manufacturing operations. The RXS400 operates with two sealed and abrasion protected ball bearing spindles that index in and out of the blast chamber by means of a rotary actuator. Thus allowing maximum efficiency of operation, with one component being loaded during the blast cycle of the other piece.

The fixtured component rotates at a controlled, adjustable speed and is exposed to blast media from multiple nozzles that are pre-positioned at the correct angles and distances for overall or selective coverage of the target surfaces. In other cases, nozzle motion is required for efficient processing. As a manufacturer Guyson offers several options, including oscillation of the blast guns at adjustable stroke and speed, programmable linear traversing of the nozzles that is synchronized with spindle rotation, as well as nozzle manipulators capable of motion in multiple axes.

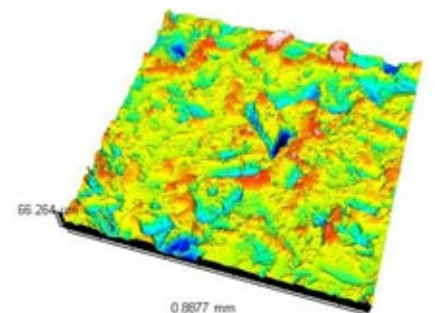
The RXS400 is provided with a touch-screen interface that simplifies operation of the automated blasting, streamlines access to control functions, and enables password-protected direct entry of dimensional data or processing parameters into the system's programmable logic controller (PLC). The panel can also display control settings, production data and system feedback such as sensor and fault indications or maintenance prompts.

A complete installation includes a cyclone media reclaimator to separate contaminants and fines from the recirculated media and an efficient cartridge

type dust collector that filters exhaust air to prevent discharge of particles into the work environment. Guyson offer numerous media delivery and reclaim system enhancements to meet special separation and dust control requirements.

*For further information call our customer service department to have an hard copy brochure sent to you or visit our website for a PDF version.*

*Top right: RXS400  
Middle right: RXS900 robot load/unload  
Bottom right graphic: shows 100% coverage with a Guyson automatic blast system.  
Left: Blast chamber RXS400*



Guyson International Limited is the largest independent manufacturer of blast finishing, spray washing and ultrasonic cleaning equipment in Europe and supplies a worldwide customer base. Guyson offer automated handling solutions, where suitable, including robot load & unload and pick & place options across its entire range of equipment.



FM 38758  
ISO 9001:2008

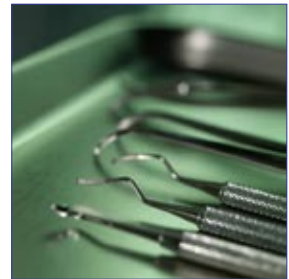
# Guyson International

## EUROBLAST® SBP - sit down blast cabinet



Guyson International has within its comprehensive Euroblast® cabinet range a compact blasting cabinet that can be comfortably and productively used by a seated operator. The Model SBP4 blast system is often used for technical surface preparation of medical implants and surgical instruments.

The SBP4 blast chamber is 50 cm high at the back wall, 81 cm wide and 61 cm deep and the cabinet is fitted with a large abrasion-protected safety glass viewing window with the interior of the blasting enclosure brilliantly illuminated, ensuring good visibility. A full-depth door on each side of the cabinet makes loading and unloading of components quick and convenient whilst the foot pedal operated blast control leaves hands free for component manipulation.



## Microblasting for surface preparation and cleaning

The Guyson Pencil Blast unit uses a small independent pressure fed system to deliver a high powered blast source through a micro tipped blast nozzle. This makes it perfect for cleaning intricate and difficult to reach areas. The pencil shaped nozzle, with internal diameters as fine as 0.8mm, pressure blasts ultra fine media of a particle size of less than 300 microns. The Pencil Blast unit can be fitted as an option to Guyson's standard Formula and Euroblast® systems, or it can be used as a freestanding unit. Dental laboratories and medical departments have found them invaluable for surface preparation, cleaning and deburring of orthodontic devices, surgical instruments and medical implants.



Above: Formula 1200 fitted with micro tipped Pencil Blaster  
Above left: Typical dental screw implant



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