

METIS

DRS 1300 DCS



by Metis

**The perfect merging between extreme quality
and productivity for the most demanding market**

It integrates the DC SynchroLight (Patent protected technology)

METIS

METIS DC SynchroLight and SuperScan

Lighting is one of the key element of the METIS DRS 1300 DCS. Color, specular reflections, embossing effects and even 3D are all calculated from the information provided by the DC SynchroLight lighting system. The DC SynchroLight lighting system (patent protected technology) allows to obtain thousands of different light schematics providing a high capacity of image enhancement and quality optimization.

The SuperScan is a sophisticated but completely automated acquisition mode, uniquely available in METIS scanners, which consist in scanning the original several times (from 2 to 4 passes are required depending on the original type and application). During the different SuperScan passes, the DC SynchroLight is finely modulated using specific irradiation schematics. The additional information provided in the SuperScan file allows: reprocessing the light schematic (changing the light direction and intensity at any time), calculating a reflectivity MAP which allows dealing with reflections and shadows in the images, extrapolating light variations from the original surface, combining the light variations with the color information in order to obtain results that cannot be achieved with traditional means, calculating 3D information for generating a Depth MAP that can be used for 3D printing/engraving. SuperScan files can be edited in the METIS Light Inspector software (from a single SuperScan file different TIFF files can be generated).

Thousands of possible results

Thanks to the DC SynchroLight, from a single scan is possible to extrapolate thousands of different versions of the same original.



Existing 3D technologies for surface/emboss scanning

Today many different technologies are available for the 3D scanning of objects but only a few can be effectively used for the 3D scanning of embossed surfaces (i.e. wood, stones, wallpapers, etc.). This is because 3D surface/emboss scanning for industrial or decorative applications require very high resolution levels (in X, Y and Z directions) and usually also a very large format that cannot be achieved using commercial 3D scanning technologies. Actually the best results are obtained using dedicated scanners based on a Laser sensor and by scanning the original one point after the other (the full scan may require hours or even days); but apart from the scanning time there are anyway limitations with those kind of 3D scanners as they usually cannot acquire color information too (only 3D), have limited depth of field and have also problem scanning glossy originals. Attempts of building a 3D surface/emboss scanner based on the stereophotogrammetric technique (also called stereo matching) have not being succesful because of the well known limitations of this technology (limited resolution capability, inevitable stereo matching errors with lots of artifacts, inability to recognize non textured originals, etc.).

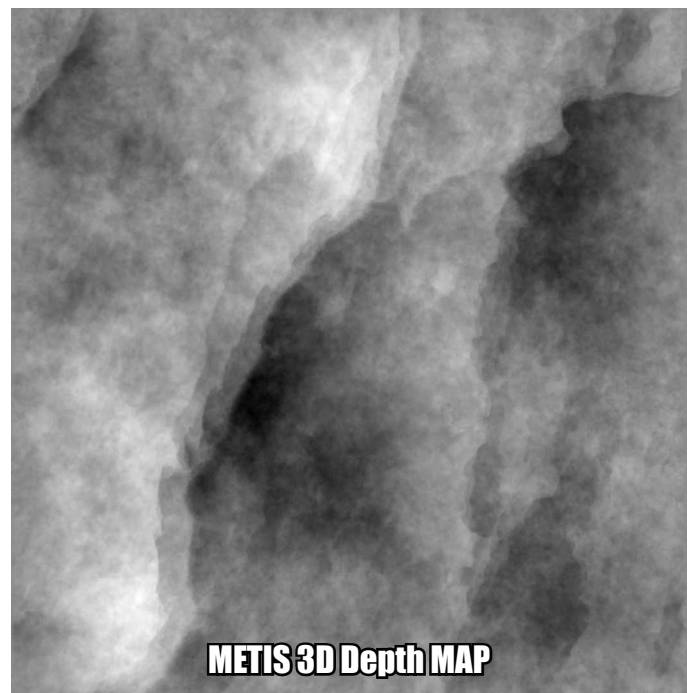
METIS PhotoMetric stereo 3D (DRS DCS)

But METIS 3D is based on a completely different technology called Photo Metric Stereo which allows to calculate 3D data from 2D color data. The theory behind Photometric Stereo have been presented for the first time in the 1980, but no practical use was really possible at this time because the provided mathematical model was not adequate for dealing with real-life situation (things tend to be quite complicated in the real world). And in fact still today Photometric Stereo 3D have limited practical applications because of the very complicated math and because it poses strict design constrain and limitations that are very difficult to achieve (i.e. it requires a specific and extremely accurate control over the emitted light rays within the entire scanner optical path). But after a long development in METIS we have been capable of solving those issues by designing a special version of the DC SynchroLight and by writing our own algorithms to solve the PhotoMetric Stereo theoretical model (a modified model that perfectly fit our specific scanner design and therefore is also very effective). As a result, METIS is actually producing the only commercial scanners based on PhotoMetric Stereo that works ! Thanks to its unique characteristics METIS 3D provide many advantages over existing 3D laser scanners such as: color and 3D information are available almost at the same time and match at the pixel level; scanning time and 3D calculation require only a few minutes instead of hours; depth of field is much larger; can deal with glossy originals; can deal with very large originals (several meters long) while most laser scanner are limited to less than 1x1 meter. And of course there are also some limitations in the METIS 3D as: optimal 3D reconstruction is achieved on continuous surfaces and a 3D absolute measurement scale cannot be provided; therefore in applications requiring to copy non-continuous surfaces and for absolute 3D measurement, laser scanners may still be required.

Stone detail SuperScanned with a DRS 2000 DCS.



Color Image with light from Left-Top side

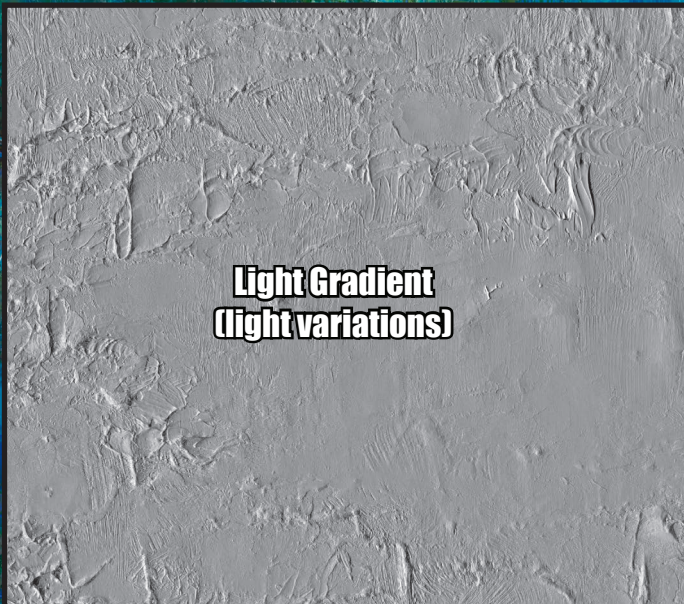


METIS 3D Depth MAP

SuperScan Sample : Oil Painting

Flat Lighting (only color)

**Light From Left side
(moderate strength)**



Scanner ICC Profiles are built in factory using METIS Color Profiler software (available on request). High color fidelity with a typical $\Delta E < 2$ can be easily achieved.



Flat Lighting (only color)

**Light From Left side
(stronger)**

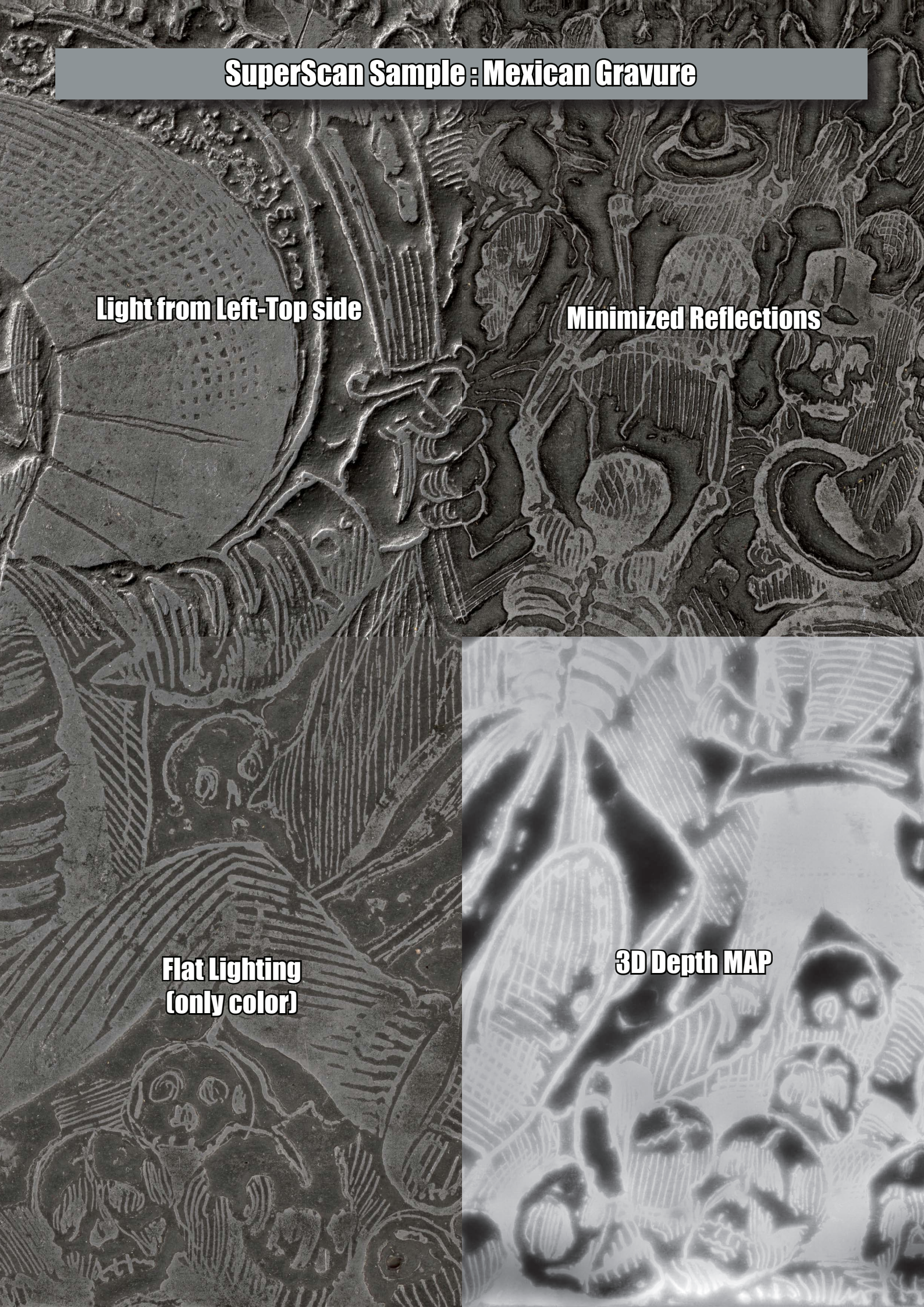
SuperScan Sample : Mexican Gravure

Light from Left-Top side

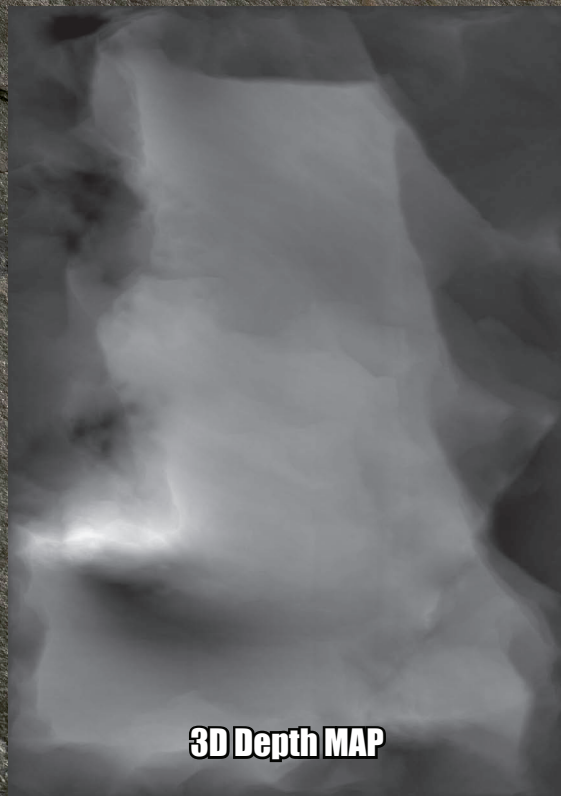
Minimized Reflections

**Flat Lighting
(only color)**

3D Depth MAP

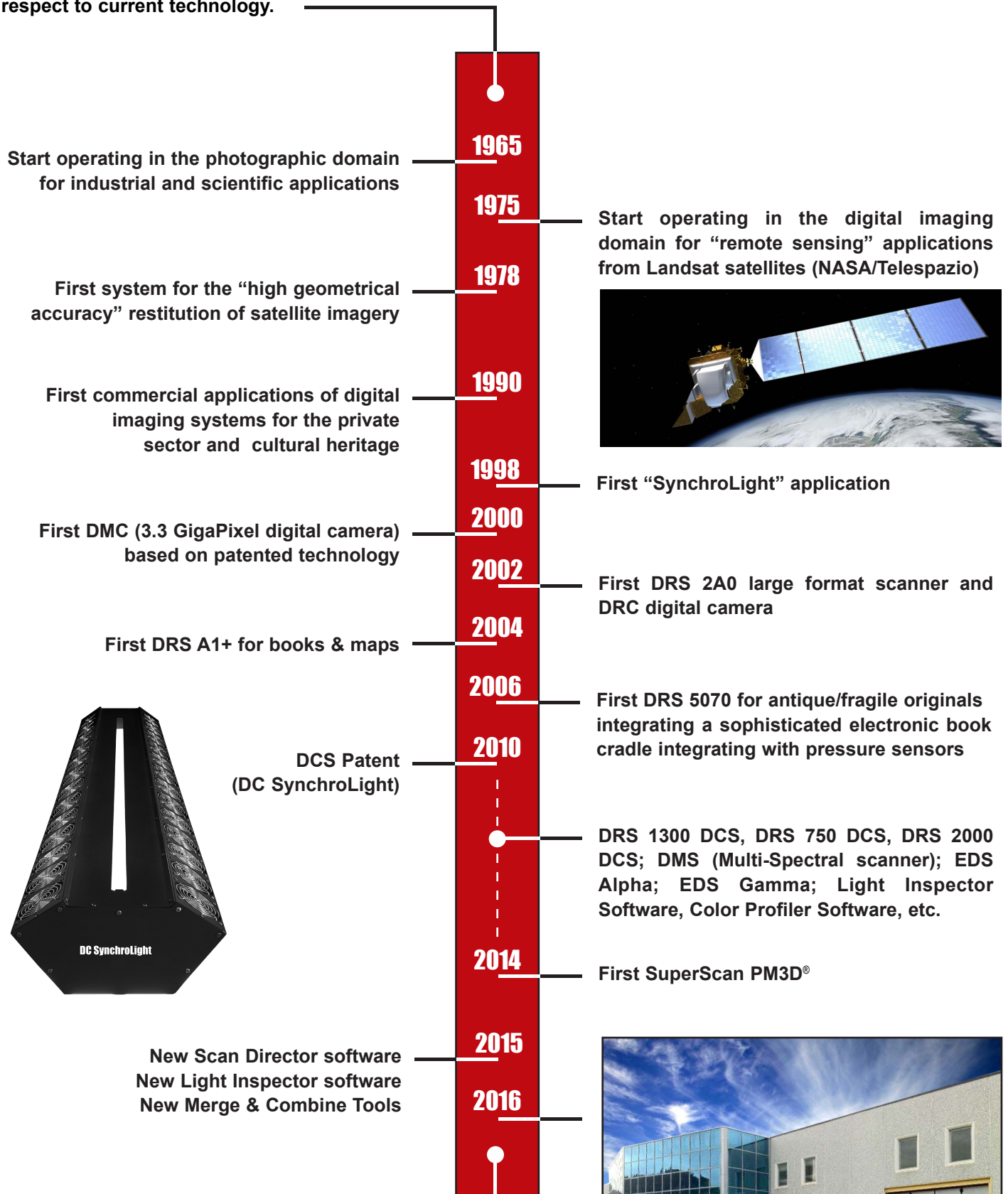


SuperScan Sample : Stone



About METIS

In METIS we continue a family tradition of industrial designers that started almost 1 century ago. This translates into high engineered and innovative products with unique characteristics and performances always at the top respect to current technology.



In METIS we are already thinking to the future and developing new technologies that will be implemented in the next generation scanner, digital camera, lighting and software

New factory (January 2016)

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DRS 1300 DCS

The DRS 1300 DCS introduces important features which have no comparison in any other system on the market such as the innovative *DC SynchroLight* lighting system (Dynamically Controlled Synchronized Light) which incorporates a unique technology developed by Metis, covered by patent deposited in January 2010, which allows to dynamic control the light in the scanning area. The *DC SynchroLight* technology gives the ability to control and change dynamically, instantly and automatically the angle and intensity of the light emitted by the light sources in the scanning area, making it possible to optimize the result of the digitization, depending on the type and nature of the originals and thus providing results previously unreachable. In addition to the *DC SynchroLight*, Metis has also designed a proprietary software tool that allows post-scan light variations for real-time light changes and calculating 3D data from 2D color data, without the need to rescan the original; post-scan light changes enable to select the best light schematic in a matter of seconds and providing unique results unreachable by any other system. Some of the new benefits introduced by the DRS 1300 DCS system are: high scanning speed; unique METIS SuperScan mode; the motorized digital camera allows achieving an optical resolution of 800PPI (and up to 1600x800PPI) on the A2 format; an unmatched lighting system with *DC SynchroLight* technology for light schematic variations; it support the new Metis Scan Director software expressly designed for the industrial and decor applications; special scanning mode (require combining 2 SuperScan images into the Light Inspector software) allowing the generation of a dense and accurate Depth MAP for 3D printing/engraving purposes.

DRS 1300 DCS General Features

- Maximum original format: 91x130cm. Depending on the original type the scan format can be extended thanks to the Scan Merge stitching tool
- Optical Resolution: 400-800 PPI (adjustable from 100 to 1600 PPI)
- Very Large Depth of Field (user selectable)
- Focusing: fine adjustable by Software control
- Lighting: new "*DC SynchroLight*" system, LED based, (IR/UV free) active only during the scanning process provide for thousands of different light schematics
- SuperScan mode: post-scan light changes, 3D data calculation
- High grade precision and reliable mechanic
- Automatic and motorized Cradles for holding any kind of originals (including books) up to the A0 format and up to 50cm; fully adjustable and user customizable
- Size (cm): Height 240, Length 205, Depth 160
- Weight: ~400 Kg

Workstation Minimal Requirements

- Latest i7 Intel Processor
- 32 GigaBytes RAM
- Windows 10 Professional 64bit

Product specification or appearance may change without prior notice.

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