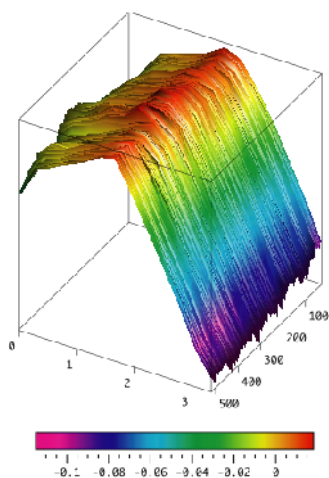


## RECTA-Profile

### General Presentation

The Vision System that checks the straightness and squareness up to 1.85 m (6 ft) in the blanking shops.

Intended for use by non-specialists.



The 3D scan of the cut, highly accurate, requires a few seconds.

RECTA-Profile is a 3D Vision System designed to check the straightness and the squareness of cut blanks (straight cuts only).

RECTA-Profile can be installed in a shop, close to the blanking presses. The operation of RECTA-Profile is fast and simple, and presents no risk of mistake.

Compared to a standard all-purpose 3D measuring machine, RECTA-Profile is easier and much faster, and it provides results of better interest.



**TFT Monitor**

*Optional. Provides a better user experience and saves space.*

**Table**

*The self-lubricating sliding bars help manipulate conveniently the blanks, including the largest ones.*

**Profilometric Head**

*Includes a 100% digital (FireWire) video camera. Reads on the fly the successive profiles.*

**Fast Clamps**

*The fast clamps glide along the rail so as to adjust to blanks of any size.*

**Reference Wire**

*Located in a groove designed to protect it from pollution, the wire is RECTA-Profile's reference of straightness.*

**Blank to Check**

*The blank is clamped on the table prior to reading its edge.*

**Self-supporting Frame**

*RECTA-Profile may be moved using a standard fork lift truck.*

**Antivibration Feet**

*Optional. Required to use RECTA-Profile near blanking presses.*

RECTA-Profile includes a table on which the blank will be placed, and a video profilometric head mounted on a trolley. A wire in tension provides an absolute reference of straightness.

As the profilometric head scans the cut edge, RECTA-Profile records at a high rate the successive profiles of the edge. When the inspection is complete, the software gathers the profiles into the 3D-surface of the cut edge. RECTA-Profile then displays the straightness curve and the 3D plot.

### Satimage's Product Line

Satimage's Machine Vision systems include two kinds of solutions.

- ▶ Generic Measuring Machines. They provide, in real time and with a high accuracy, some defined physical measurements. Numerous applications.
- ▶ Dedicated Systems. Designed up to the finest details with the help and for the purposes of their users. Devoted to some specific manufacturing process.

RECTA-Profile is one of the Dedicated Systems that Satimage has designed for the blanking industry and its clients.

### Basic Features

- ▶ Plots the straightness of the cut.
- ▶ Displays the value of the overall deflection.
- ▶ Plots the 3D scan of the cut : the 3D plot allows for checking visually the profile of the edge. In particular, the 3D plot evidences the respective shorn off / torn fractions, the fin and the bevel.
- ▶ Stores the whole set of data.
- ▶ Handles the data archives by part code and shop order number.
- ▶ Issues automatically an Inspection Report. The Report includes the plots.
- ▶ Prints automatically the Report.

Checks the straightness of the cut.

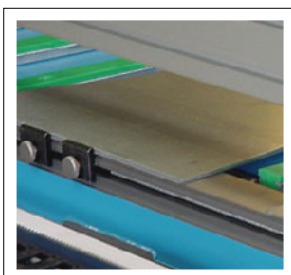
Checks the squareness of the cut.

Prints the Inspection Report.

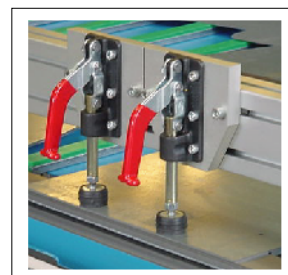
- Bavurex
- Brillo
- Diffuso
- FireVision
- KitNum
- Profilo
- Recta**
- SeamInspector
- Slots
- WeldInspector



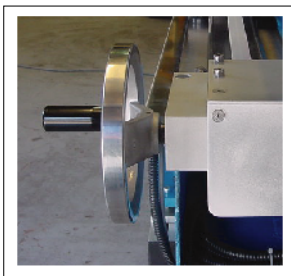
## Operation of RECTA-Profile



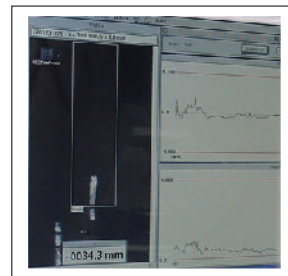
The operator places the blank on the table and against the stops.



The operator clamps the blank with the fast clamps. If the blank's buckle is important, the operator uses the long angle iron (provided) to clamp the edge flattened.



The operator gets to the keyboard and launches the capture (F1 key). He enters the Part Code and Shop Number of the part. Then he moves the camera along the edge using the rotating handle.



While RECTA-Profile records the data, the monitor displays continuously the cross section of the cut at a high magnification (x 20 ca.). The operator detects on the fly any anomaly such as a ding or a shaving.

Once the head has inspected the whole edge, the operator ends the capture (F1 key). A short instant later, the monitor displays the curve of straightness and the 3D surface of the scan of the edge. The readings are saved as a file on the hard disk.



RECTA-Profile edits automatically the Inspection Report and then prints it. The operator removes the blank. The operation is complete.

## Performances

### Common Data

- ▶ Image Magnification x 18
- ▶ Maximum Thickness Supported 5 mm (0.2 in)
- ▶ Resolution, length-wise 0.6 mm (0.025 in)
- ▶ Resolution, thickness-wise > 0.02 mm (0.8/1000 in), adjustable
- ▶ Accuracy of the Readings ± 5 microns (0.2/1000 in) or better
- ▶ Depth of Field ± 1 mm (0.04 in)

Max. Scanned Length	Space Required	Time Required	Size of the Table	Price
1.85 m (6 ft)	L x D = 3 x 1.5 m (10 x 5 ft)	< 2 mn	L x D = 2 x 1.2 m (6.5 x 4 ft)	55,000 Euros
1 m (3 ft 3 in)	L x D = 2 x 1.3 m (6.5 x 4 ft)	< 1 mn	L x D = 1 x 1 m (3 x 3 ft)	42,000 Euros

### Measuring Principle - Calibration

RECTA-Profile's profilometric head is calibrated once for ever. Its "accurate or nothing" design secures the use of RECTA-Profile : if (by accident) the profilometric head ever gets damaged to such an extent as to endanger the accuracy of the measurements, the software will detect this condition and notify the user.

RECTA-Profile's profiles are readings relative to a rigorously straight reference : the wire. In particular, the accuracy of RECTA-Profile's measurements is decorrelated from the accuracy of the head's motion.

## Architecture

- ▶ Structure : Aluminium profiles, self-supporting - Table : steel.
- ▶ Optics : Lighting, 100 W Halogen - Profilometric Head, PRA/4590 type, Field 9.5 mm.
- ▶ Video : 100% digital, FireWire (IEEE 1394) standard.
- ▶ Computer : tower unit with FireWire port, one board with a counter for a coding wheel. Internal storage hard disk > 10 GB. Internal CD burner for archive. Software engine : SMI. Desktop Inkjet Printer and 19" Computer Cabinet provided.