



DAKOTA 3D



OPERATING INSTRUCTIONS | DAK_COR_E001E Rev. A



DAKOTA 3D OPERATING INSTRUCTIONS


DAK_COR_E001E
Rev. A

2/37

Version	Date	Written by	Approved by	Comment
A	26/03/2014	G. GENOT	F. EQUOY	Original version

Contents

I.	Introduction	5
II.	Reference documents	5
III.	Company details	5
IV.	Machine details.....	5
V.	Declaration of conformity	5
VI.	General description	7
1.	Overview.....	7
2.	Advantages.....	8
3.	Cabinet location on the production line	8
4.	Components localization	11
VII.	Conditions of use	13
1.	Package features.....	13
2.	Cabinet transfer (flat position)	13
3.	Lifting cabinet into an upright position	13
4.	Cabinet transfer (vertical position).....	16
VIII.	Transportation.....	16
IX.	Workstations description	17
X.	Protection measures.....	18
XI.	Normal use description.....	20
XII.	Counter-arguments.....	20
XIII.	Assembly	21
1.	Networks with the site.....	21
2.	Cabinet fitment.....	21
XIV.	Instruction reducing the noise.....	22
XV.	Commissioning instructions.....	22
1.	System start up.....	23
2.	Production mode.....	23
a.	Production tab.....	27
b.	Production log tab.....	29

	<p style="text-align: center;">DAKOTA 3D OPERATING INSTRUCTIONS</p>	<p>DAK_COR_E001E Rev. A</p>
		<p style="text-align: center;">3/37</p>

3.	End of production (cabinet stays turned on).....	30
4.	Resumption of production (cabinet turned on)	30
5.	Complete stoppage (maintenance intervention).....	31
XVI.	Description of components in the cabinet	31
XVII.	Potential failures	34
1.	Shutter	34
2.	PC	34
3.	No pictures.....	35
4.	No carrier data	35
XVIII.	Adjustment and maintenance	36
XIX.	Protective measures during settings and maintenance.....	36
1.	Controls	36
2.	Maintenance	37
XX.	Drawings.....	37
1.	Electrical drawings.....	37
2.	Mechanical drawings	37
XXI.	Spare parts	37
XXII.	Noise emission	37



	<p style="text-align: center;">DAKOTA 3D OPERATING INSTRUCTIONS</p>	<p>DAK_COR_E001E Rev. A</p>
		<p style="text-align: center;">4/37</p>

Table of Figures

Figure 1: Injected foam	7
Figure 2: different kind of components placed inside the molds before injection.....	7
Figure 3: Triangulation.....	7
Figure 4: Images 2D and 3D of the bowl.....	7
Figure 5: Views of the 4 sides of the cabinet. From left to right: left side (2doors), user side (monitor, control panel), right side (2 doors) and shutter side (line side)	8
Figure 6 : General view of the cabinet – Stay end position.....	9
Figure 7 : Mold passing in front of the cabinet « DAKOTA »	10
Figure 8: Different kind of molds.....	10
Figure 9 : Cabinet - General view with camera and laser fields.....	11
Figure 10 : Inside the cabinet – Upper part (Shutter – Light – 3D Module)	12
Figure 11 : Inside the cabinet – Lower part (Air conditioner – 3D Module).....	12
Figure 12: Cabinet transfer.....	13
Figure 13: Lifting rings on the 4 corners.....	14
Figure 14: Cabinet lifting process using the rings	15
Figure 15: Cabinet moving on a forklift.....	16
Figure 16: Areas for each workstation, particularly DAKOTA 3D one in « INSPECTION » area	17
Figure 17: Pictogram « unauthorized access »	18
Figure 18: Additional protection on production line	18
Figure 19: Pictograms – Contain lasers and electrical risk	19
Figure 20: Protective glasses specific to laser IIIB.....	19
Figure 21: Anchorage of the cabinet legs.....	22
Figure 22: Display of the DAKOTA application	23
Figure 23: Items from DAKOTA application	24
Figure 24: Alarm list - Normal.....	24
Figure 25: Alarm list - Abnormal.....	25
Figure 26: Upper frame – carrier details.....	25
Figure 27: Result of the current carrier inspection	26
Figure 28: Tab « Production Log »	29
Figure 29: DAKOTA icon	30
Figure 30: opened shutter – correct positions	34
Figure 31: "COM" tab, Profibus communication test	35
Figure 32: Location of windows	36

	<p style="text-align: center;">DAKOTA 3D OPERATING INSTRUCTIONS</p>	<p>DAK_COR_E001E Rev. A</p>
		<p style="text-align: center;">5/37</p>

I. Introduction

This document is the operating instructions for the DAKOTA system. It complies with the machine directive and each section follows an item of this directive.

II. Reference documents

- [1] DAK_***_E010 - Electrical drawings
- [2] DAK_***_E020 - Mechanical drawings

***: the 3 first letter of the site name.

These documents are attached to these operating instructions.

III. Company details

GIPSVISION
17 impasse Figuière
13004 MARSEILLE
France
www.gipsvision.fr

IV. Machine details

Model number: DAKOTA 3D Vx
Voltage: 230 VAC
Frequency: 50 Hz
Weight: 550kg

V. Declaration of conformity

The following is a copy of the declaration of conformity.



DAKOTA 3D OPERATING INSTRUCTIONS

DAK_COR_E001E
Rev. A

6/37



DECLARATION OF CONFORMITY



Manufacturer's name:

GIPS vision

Address:

17 impasse Figuière
13004 MARSEILLE
FRANCE

Description and identification of the machine

Function:

3D vision system

Model:

DAKOTA 3D

Type:

Standard line, Carousel line

Serial number:

Indicated on the CE nameplate

We, GIPS vision, declare that the machine DAKOTA satisfies the provisions of the following directives:

- 2006/42/CE (Machine)
- 2006/95/CE (Low voltage)
- 2004/108/CE (Electromagnetic compatibility)

MARSEILLE, march 2014

Frédéric EQUOY, Director

VI. General description

1. Overview

DAKOTA inspection system, developed by the company GIPS vision, has been created for foam plants in particular those manufacturing car seats. It can inspect several kind of components placed inside a mold before foam injection.



Figure 1: Injected foam

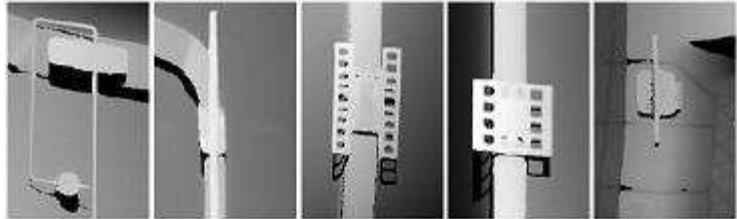


Figure 2: different kind of components placed inside the molds before injection

It uses two 3D profile cameras to inspect both the tank or bowl and the lid directly on the flow on the line.

The acquisition is based on the triangulation. For each module, the laser beam is projected on the bowl (or the lid) and the camera acquires each profile and adds it in order to create a 3D image. A 2D luminosity image, based on profile brightness, is also collected at the same time.

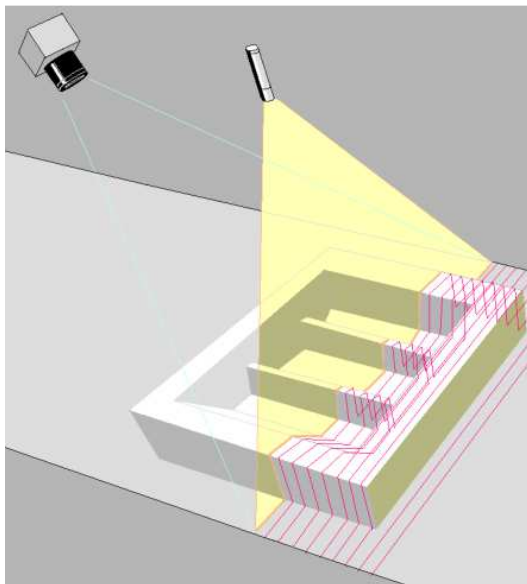


Figure 3: Triangulation

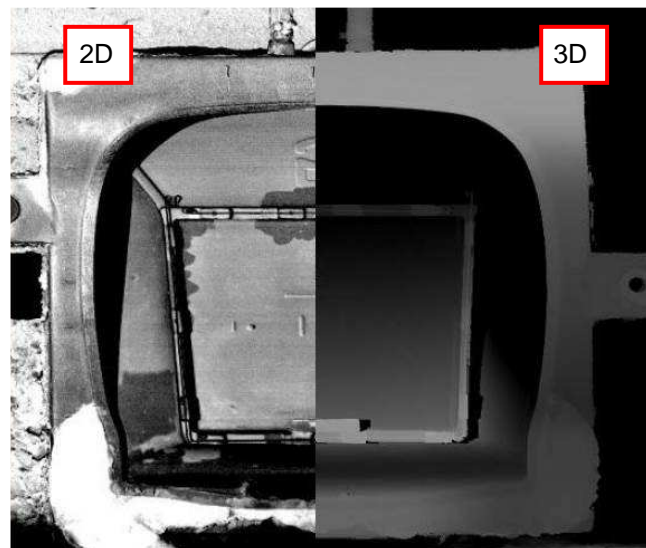


Figure 4: Images 2D and 3D of the bowl

Inspection result is sent within a few seconds after the carrier has passed the vision system in order to avoid injection in a mold with missing or misplaced components.



Figure 5: Views of the 4 sides of the cabinet. From left to right: left side (2doors), user side (monitor, control panel), right side (2 doors) and shutter side (line side)

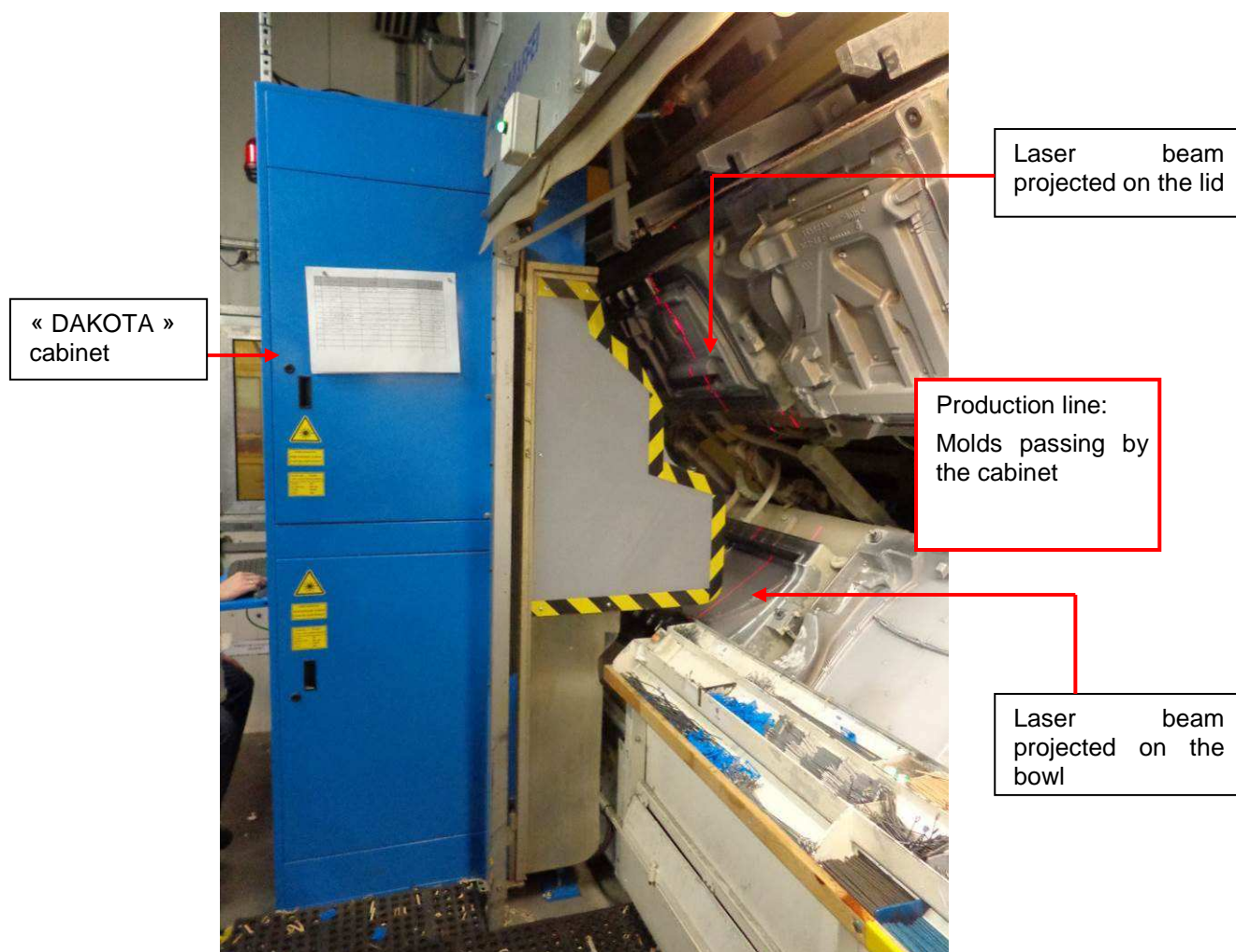
2. Advantages

The three main advantages of the DAKOTA system are the following ones:

- Avoid customer complaints for incomplete products;
- Reduce material loss, injecting foam only when useful;
- Watch the damage, wear or soiling of molds.

3. Cabinet location on the production line

The DAKOTA system cabinet is positioned along the production line with the shutter opened on the line side in order to inspect the lids and the bowls passing by.

**Figure 6 : General view of the cabinet – Stay end position**

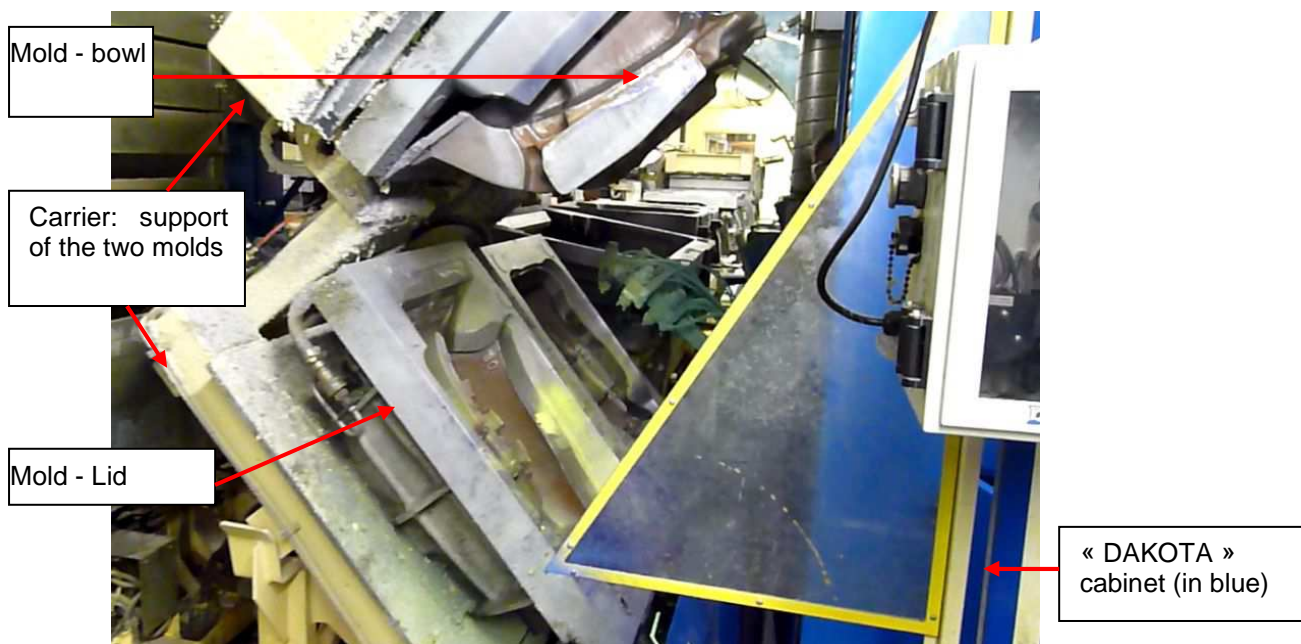


Figure 7 : Mold passing in front of the cabinet « DAKOTA »

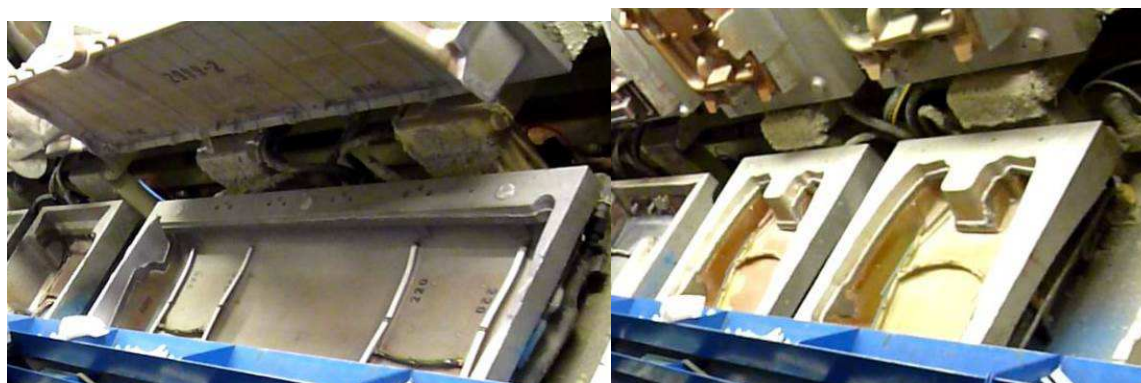


Figure 8: Different kind of molds

4. Components localization

The 3D modules are mounted in the cabinet; one in the upper part orientated to inspect the bowls, one in the lower part orientated to inspect the lids. The picture below shows the laser and camera fields of view. The position and tilt angle of the 3D modules may change according to the position and the opening angle of the molds.

The electrical and IT parts between both 3D modules are insulated from the ambient environment.

The 4 doors give access to the electrical part and to cabinet inside.

Note: Access to inside the cabinet by the shutter side is prohibited.

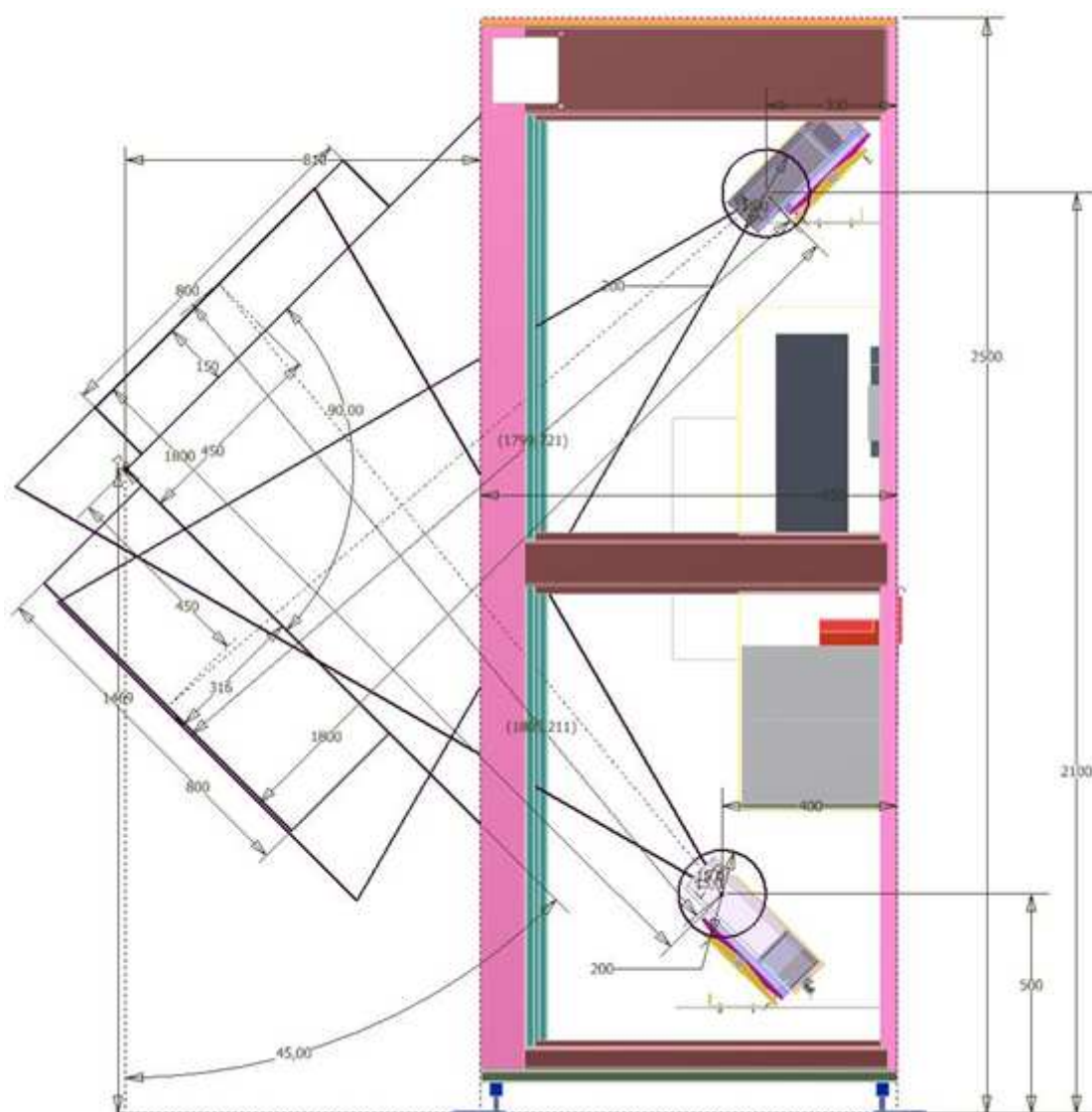


Figure 9 : Cabinet - General view with camera and laser fields

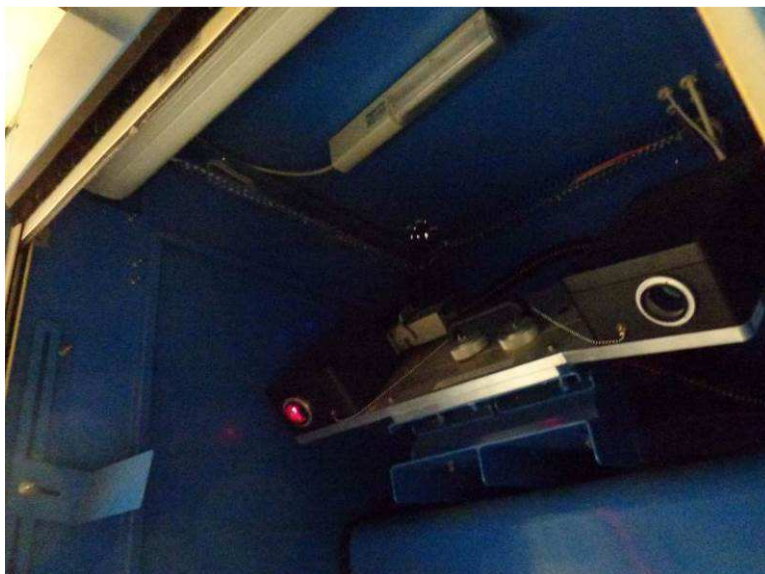



Figure 10 : Inside the cabinet – Upper part (Shutter – Light – 3D Module)



Figure 11 : Inside the cabinet – Lower part (Air conditioner – 3D Module)

Note: Warning, before any use, the cabinet must be installed in presence of GIPS Vision, because the technique of 3D digitization requires specific fittings which have to be performed by GIPS vision. If the cabinet is moved, these fittings would have to be carried out again.

	<p style="text-align: center;">DAKOTA 3D OPERATING INSTRUCTIONS</p>	<p>DAK_COR_E001E Rev. A</p>
		<p>13/37</p>

VII. Conditions of use

1. Package features

The cabinet is delivered, on its side, either filmed on a pallet or in a box.

The overall dimensions are:

- On a pallet: 3000mm x 1500mm
- In a box: 2500mm x 900mm x 800mm

The weight is approximately 550kg.

Note: Warning! When unpacking, do not slide the cabinet from its packing. Leave it in its original position until it's ready to be lifted into an upright position (see §3 below).

2. Cabinet transfer (flat position)

Even if the cabinet is in a horizontal position, use a forklift for moving the cabinet from place to place, see the picture below.



Figure 12: Cabinet transfer

3. Lifting cabinet into an upright position

Note: Before lifting the cabinet, take into consideration any loose parts which may be in the cabinet. Check that the 4 legs are in place.

In order to lift the cabinet into its vertical position, put four rings (M12) on the top of the cabinet. The rings are not supplied by GIPS vision.



Figure 13: Lifting rings on the 4 corners

Use a bridge or a hoist for lifting 550kg. The cabinet height is 2500mm, but this measurement doesn't include the sling height.

Note: WARNING! DO NOT STAY under the cabinet during the lifting process.





Figure 14: Cabinet lifting process using the rings

After lifting, remove the rings and replace them by capping screws which have the same diameter, i.e. M12. The screws fill the holes and prevent dust from entering (GIPS vision doesn't provide the capping screws).

4. Cabinet transfer (vertical position)

When the cabinet is in vertical position, move it with care by using a forklift.



Figure 15: Cabinet moving on a forklift

VIII. Transportation

When it is moved, the cabinet must be positioned in such a way it cannot fall. It will be properly secured during the transportation.

IX. Workstations description

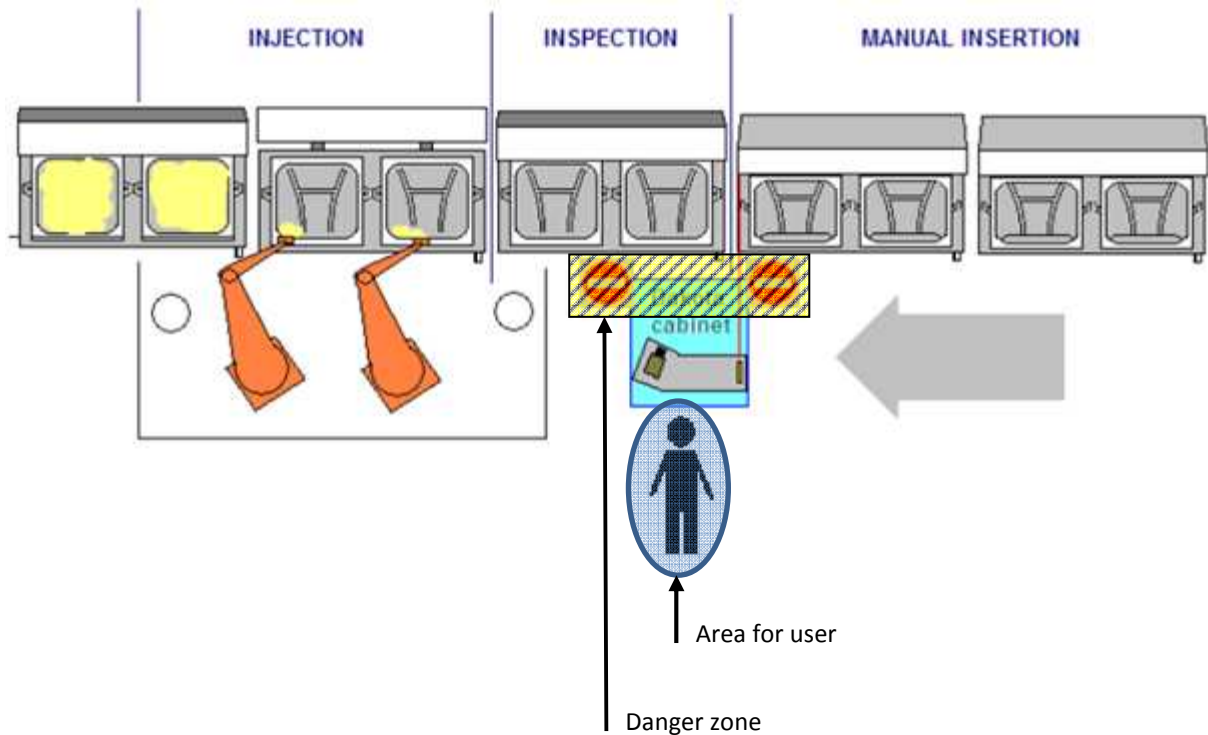


Figure 16: Areas for each workstation, particularly DAKOTA 3D one in « INSPECTION » area

Note: For the protection measures see the section below “Protection measures”.

The components are positioned manually and the foam is injected by robots. The cabinet is anchored between the manual insertion area and the robotic injection area. The conveyor belt may go from left to right as from right to left. The component insertion is the step before the DAKOTA inspection, and the injection is the one after.

A spacing of **one** carrier is mandatory between the inspection and the injection in order that the result can be sent to the supervision before the injection order.

Any user of the DAKOTA system needs to receive training from GIPS vision. During the production, with the conveyor belt active, the user must be in front of monitor. The space between the shutter and the belt is prohibited, as are the right side and the left side of the cabinet (see Figure 16).

X. Protection measures

A laser IIIB requires strict safety rules in order to avoid any eye risk. Never look directly into the laser beam.

In production, the shutter is opened so as to enable the lasers to highlight the molds, which are on the conveyor belt. The access of the cabinet by the shutter side is prohibited. The following pictogram is located on the cabinet, near the shutter (conveyor belt side):



Figure 17: Pictogram « unauthorized access »

The client commits himself to add physical protections on both sides of the cabinet in order to prevent access to the work area, as on the Figure 16.

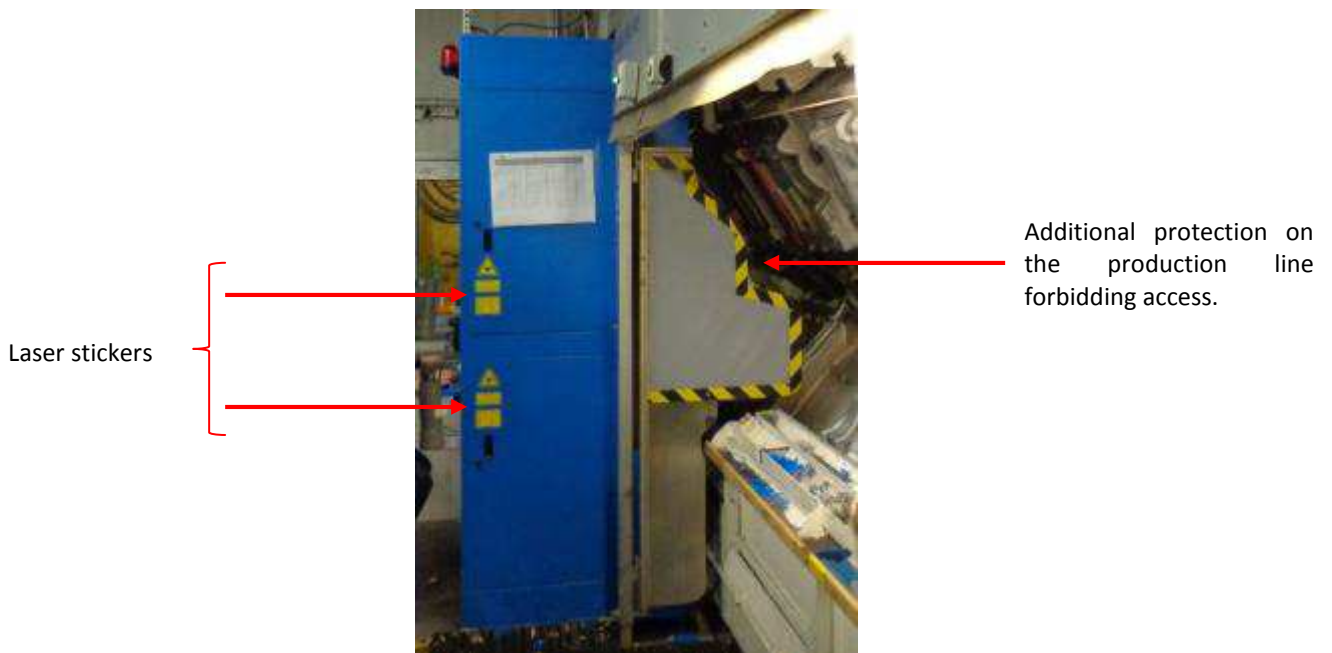


Figure 18: Additional protection on production line

Lasers can turn on only when all the doors are closed. On the doors, the following pictograms are placed; one for the lasers and one for electrical risk.

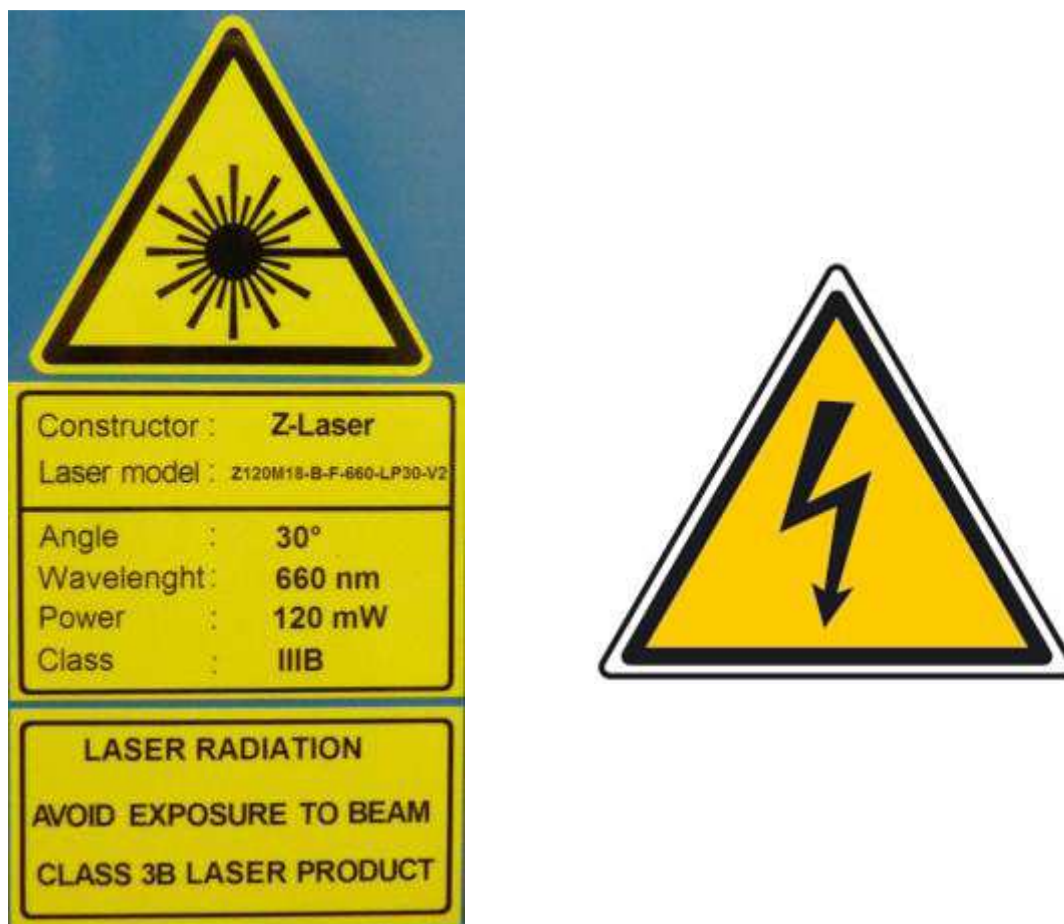


Figure 19: Pictograms – Contain lasers and electrical risk


In production, nobody must be in the cabinet.

However during the fitting step (lasers turned on) it is mandatory to wear appropriate glasses which are supplied with the cabinet.

Note: Attention! Laser adjustment may be carried out only by GIPS vision authorized personal.



Figure 20: Protective glasses specific to laser IIIB.

	DAKOTA 3D OPERATING INSTRUCTIONS	DAK_COR_E001E Rev. A
		20/37

XI. Normal use description

Only people who have received training for the DAKOTA cabinet can use it.

The cabinet is intended for indoor use.

Its supply voltage shall be at 230 VAC (50 Hz), maximum power consumption is 16A.

The cabinet should run with the additional protections (see section above « Protection measures »).

In accordance with the section « Assembly », the cabinet must be anchored on level, stable ground. This ground will not make vibrations.

XII. Counter-arguments

The cabinet must not be exposed to severe conditions, i.e. to temperature ranges which are different from [-20°C; +40°C].


The ground inclination must be lower than 1°.

The cabinet is made of electrical components. It must not come into contact with water or water sprays. The shutter must be closed during cleaning of the production line.

No intervention shall be made when the cabinet is energized.

For any intervention, turn off the cabinet and lock it with a padlock. Doors can then be opened with a specific key.

Window cleaning (2 lasers and 2 cameras) requires a soft dry cloth. For this, the access is by the doors only with the shutter closed.

	<p style="text-align: center;">DAKOTA 3D OPERATING INSTRUCTIONS</p>	<p>DAK_COR_E001E Rev. A</p>
		<p>21/37</p>

XIII. Assembly

See the section « Conditions of use ».

1. Networks with the site

Networks with the client are as follows:

- Encoder signal: 2 wires to be connected to X1 terminal (see [1])
- Trigger signal: 2 wires to be connected to X1 terminal (see [1])
- Profibus communication
- Power supply 230 VAC 16A : 3 wires to be connected to X1 terminal (see [1])
- Network cable
- Emergency stop (optional) : 2 wires to be connected to X1 terminal (see [1])

2. Cabinet fitment

Cabinet has 4 adjustable legs for height. So each leg can be levelled to the required height.

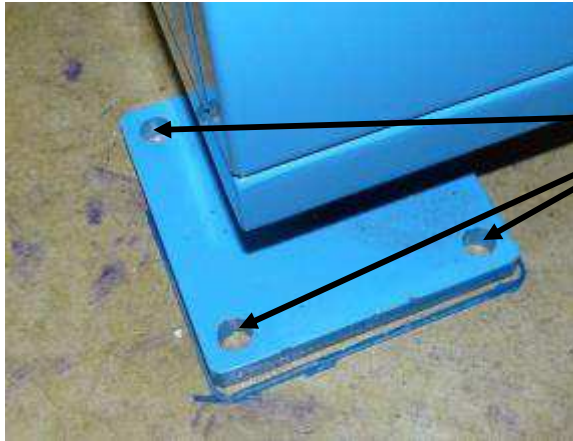
For a standard line, the cabinet should be parallel to the production line.

For a carousel line, the cabinet should be tangent to the production line.

An anchorage of 8 screws minimum is required, 2 per leg.



Adjustement screw



For each leg: 2 or 3 locations
for the anchorage screws

Figure 21: Anchorage of the cabinet legs

XIV. Instruction reducing the noise

The system is not sensitive to noise, but to vibrations

XV. Commissioning instructions

Two types of operators can use in accordance with the rights of access (password).

- The *production user* will be able to start the system, stop it and consult the data from the "Production log" tab.
- The *production technician* will be able to make the required settings for cabinet operation.

Only these technicians who have received training for the cabinet can use it. This training is composed of the following items:

- System overview
 - 3D Profilometry
 - Realization
 - Synchronization
 - Laser safety
 - Software overview
- Settings
 - Tools list
 - Main actions
 - Practical workshop
- Anomalies, Maintenance :
 - Regular maintenance
 - Potential failures
 - Fault diagnostics

1. System start up

1. Turn on the cabinet (Main switch)
 - The white light turns on (« POWER ON »);
 - The PC starts automatically ;
 - The DAKOTA software starts automatically in production mode ;
 - The blue button « LASER RESET » turns on.
2. Raise the shutter by using the button « SHUTTER ». Push the button up and hold it for 30 seconds. This will completely open the shutter.
3. Turn the button « LASER » on « ON »
 - The blue button « LASER RESET » is on ;
 - The red light is turned off.
4. Press the « LASER RESET » button
 - The blue button « LASER RESET » turns off ;
 - Lasers turn on and the red light « LASER ON » turns on.
5. Check the camera is active on the supervision.

2. Production mode

When the software starts, the display is as follows:

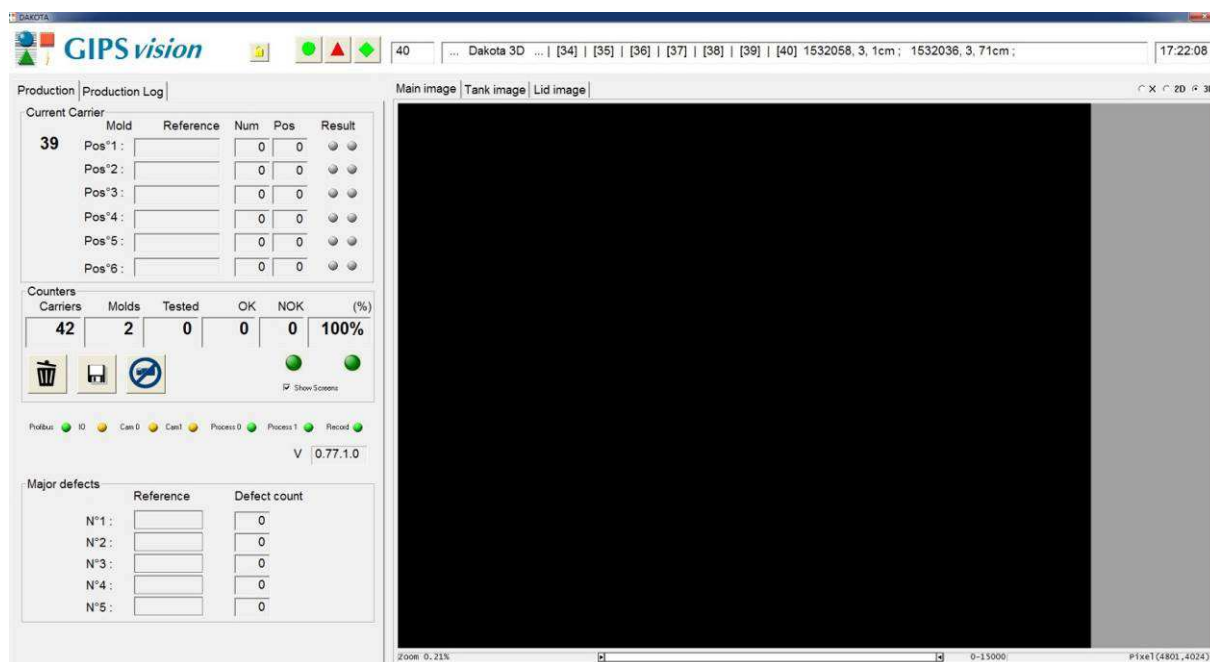


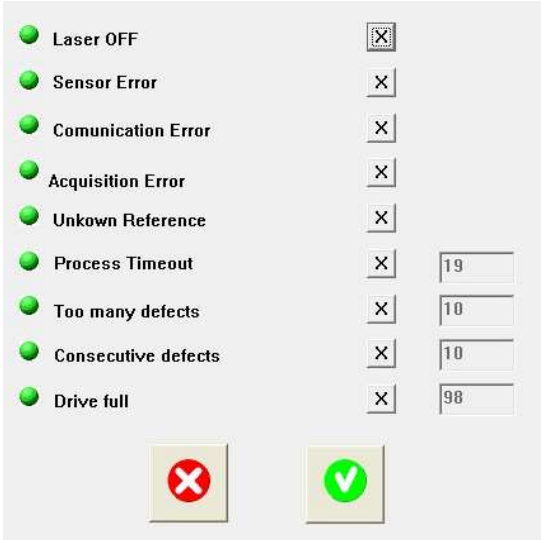


Figure 22: Display of the DAKOTA application

Information details of the DAKOTA program:



Figure 23: Items from DAKOTA application

	<p>The circle indicator means the state of the system :</p> <ul style="list-style-type: none"> Green: normal, the vision system is in production. Red: normal, but the last carrier inspected is in default. Yellow: abnormal, the vision system is not in production mode.
	<p>The triangle indicator means the alarms:</p> <div data-bbox="443 1301 1273 1883"> <ul style="list-style-type: none"> Green: normal, no alarm.  </div> <p style="text-align: center;">Figure 24: Alarm list - Normal</p> <ul style="list-style-type: none"> Red: major alarm. Click on this indicator to display the alarm list. Acknowledge every alarm or adjust the value for alarm

thresholds (for instance min space left on drive 98%)

● Laser OFF	<input type="checkbox"/>	
● Sensor Error	<input type="checkbox"/>	
● Communication Error	<input type="checkbox"/>	
● Acquisition Error	<input type="checkbox"/>	
● Unknown Reference	<input type="checkbox"/>	
● Process Timeout	<input type="checkbox"/>	<input type="text" value="19"/>
● Too many defects	<input type="checkbox"/>	<input type="text" value="20"/>
● Consecutive defects	<input type="checkbox"/>	<input type="text" value="10"/>
● Drive full	<input type="checkbox"/>	<input type="text" value="98"/>

✕

✓

Figure 25: Alarm list - Abnormal



The diamond indicator is reserved to GIPS vision.



36 ... [36] 826889, 3, 75cm; 826975, 2, 1cm; ... [35] 611222, 4, 75cm; 611222, 1, 1cm; ... [34] 487434, 7, 7

Figure 26: Upper frame – carrier details

The PLC sends to vision PC the carrier characteristics for each carrier through Profibus. A part of this information is displayed in the upper frame. The displayed information is as follows:

- carrier number (increasing or decreasing);
- mold reference (15 chars text);
- mold number (tooling number from 0 to 99);

- mold position on carrier (in cm from the carrier first edge regarding line direction).

If there are several molds on the same carrier, each mold reference, mold number and mold position are displayed (see the picture above) after the carrier number.

The main screen is made of two parts (see picture below):

- At left, « PRODUCTION » and « PRODUCTION LOG » tabs: see the following sections (2 and b) for more details ;
- At right, the current image of the carrier, i.e. lid and bowl, or only the image of the bowl, or only the image of the lid.

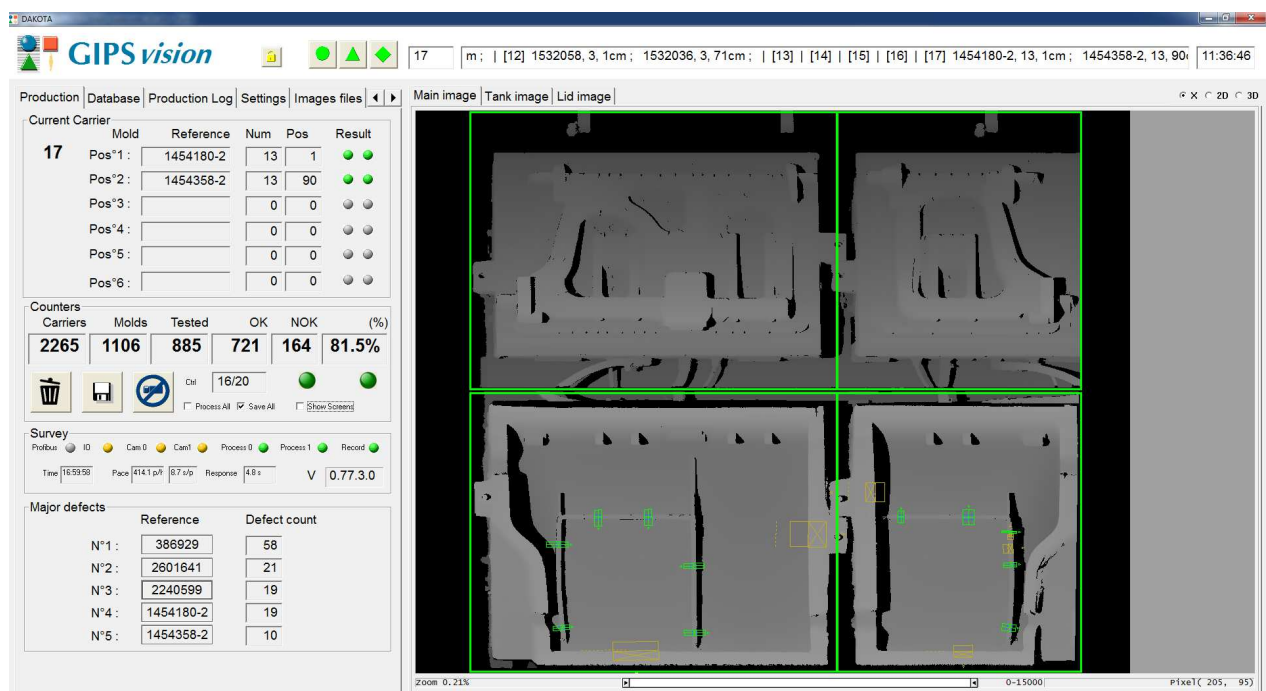


Figure 27: Result of the current carrier inspection

a. Production tab

<div>« Current carrier » :</div> <div>Description and results of the current carrier:</div> <div><div>- Reference</div><div>- Mold number</div><div>- Position</div><div>- Inspection result (bowl and lid)</div></div> <div>Results for each mold:</div> <div><div><div></div><div>OK</div></div><div><div></div><div>NOK</div></div><div><div></div><div>Not tested</div></div></div>	<div><div><div>Production</div><div>Production Log</div></div><div><div>Current Carrier</div><div><div><div>39</div><div><div>Mold</div><div>Reference</div><div>Num</div><div>Pos</div><div>Result</div></div><div><div>Pos°1 :</div><div>Pos°2 :</div><div>Pos°3 :</div><div>Pos°4 :</div><div>Pos°5 :</div><div>Pos°6 :</div></div><div><div><div><div>0</div><div>0</div></div><div><div>0</div><div>0</div></div><div><div>0</div><div>0</div></div><div><div>0</div><div>0</div></div><div><div>0</div><div>0</div></div><div><div>0</div><div>0</div></div></div><div><div><div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div></div></div></div></div></div></div></div>
<div>« Counters » :</div> <div><div><div><div>• Total carriers count</div><div>• Total molds count</div><div>• Tested molds count</div><div>• Injected molds count</div><div>• Rejected molds count</div><div>• 2 light indicators :<div><div>• Too many successive defects</div><div>• Too high defect rate</div></div></div><div>• Reset button: reset counters, with previous storage</div><div>• Store button: store counters, without reset</div><div>• « Pass through » button: Temporary running mode without inspection (all molds are injected, regardless of inspection)</div></div></div></div> <div><div><div></div><div></div><div></div></div></div> <div><div>Note: In PassThrough mode the system does not inspect molds anymore</div></div>	<div><div>Counters</div><div><div><div>Carriers</div><div>Molds</div><div>Tested</div><div>OK</div><div>NOK</div><div>(%)</div></div><div><div>42</div><div>2</div><div>0</div><div>0</div><div>0</div><div>100%</div></div></div><div><div><div></div><div></div><div></div></div><div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div><div></div><div></div></div><div><div></div><div></div></div></div></div><div><div><div>Show Screens</div></div></div></div></div></div>
<div><div><div>• Profibus: supervisor sent frame, next carrier is announced</div><div>• IO: sensor trig, next carrier is been acquired</div><div>• Cam0 & Cam1: Bowl and lid image is ready, respectively</div><div>• Process0 & Process1: Bowl and lid image is being processed, respectively</div></div></div>	<div><div><div>Profibus</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>IO</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Cam 0</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Cam1</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Process 0</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Process 1</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Record</div></div></div></div></div></div></div></div></div>



DAKOTA 3D OPERATING INSTRUCTIONS

DAK_COR_E001E
Rev. A

28/37

- Record: Bowl and/or lid image is being recorded

Notes:

- Out of production mode these lights are grayed
- In production mode these lights switch between green (ready) and yellow (on action)

« Major defects » :

The references which are the most in default, in descending order.

Major defects

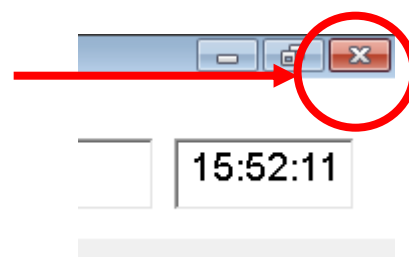
	Reference	Defect count
N°1 :	<input type="text"/>	<input type="text" value="0"/>
N°2 :	<input type="text"/>	<input type="text" value="0"/>
N°3 :	<input type="text"/>	<input type="text" value="0"/>
N°4 :	<input type="text"/>	<input type="text" value="0"/>
N°5 :	<input type="text"/>	<input type="text" value="0"/>

3. End of production (cabinet stays turned on)

In order to stop the application because of the production, for example before line maintenance or cleaning, the system should be protected in the following way.

Note: For a complete stoppage, for example during the maintenance, see the section “Complete stoppage (maintenance intervention)”

- Exit program with the red cross on the top right
 - Lasers stopped automatically when the production mode is stopped;



- Turn the button « LASER » on « OFF » ;
- Lower the shutter by using the button « SHUTTER ». Push the button down and hold it for 30 seconds;
- Open the cabinet and put the caps on the 4 windows (in top and in bottom, camera and laser);
- Close the cabinet;
- **WARNING!** In case of an automatic backup system over the production (the weekend for example), DO NOT CLOSE WINDOWS OR SWITCH OFF THE COMPUTER.

4. Resumption of production (cabinet turned on)

- Raise the shutter by using the button « SHUTTER ». Push the button down and hold it for 30 seconds;
- Open the cabinet and remove the caps from 4 windows (on bottom and top module, camera and laser windows) ;
- Close the cabinet;
- Turn the button « LASER » on « ON » ;
- Start the program « DAKOTA » by double-clicking on its icon, placed on the desk;



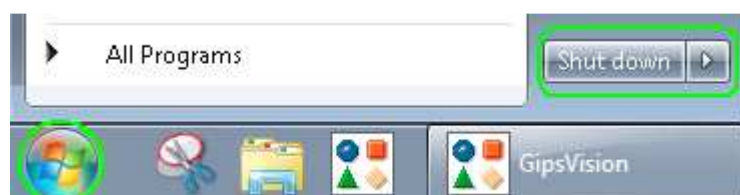
Figure 29: DAKOTA icon

- Press the button « LASER RESET »
 - The blue button turns off,
 - The red light « LASER ON » turns off.

5. Complete stoppage (maintenance intervention)

For complete stoppage for maintenance for example the system is turned off as follows:

- Exit the DAKOTA program by clicking on the red cross in the top right corner;
- Turn the button « LASER » on « OFF »
 - The blue button « LASER RESET » turns on ;
- Lower the shutter by using the button « SHUTTER ». Push the button down and hold it for 30 seconds;
- Shut down;



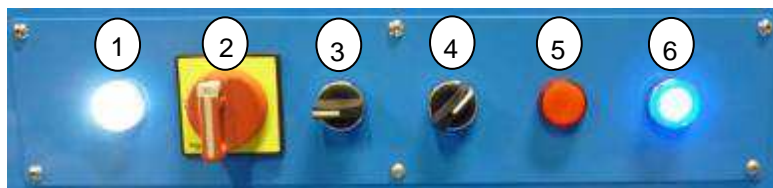
- Wait the PC lights. Turn off the cabinet by using the main switch
 - The white light « POWER ON » turns off.

XVI. Description of components in the cabinet

The cabinet is mainly made of:

2 3D modules	
1 computer with monitor, keyboard and mouse	 

1 control panel (user side).



- 1 – White light “POWER ON”
- 2 – Main switch
- 3 – Switch to raise the “SHUTTER” or lower it
- 4 – Switch for the lasers
- 5 – Light for the lasers on
- 6 – Laser reset button

Note : On each button, a label describes its function in the language of the first installation country (or in english).

1 shutter.

It is located on the conveyor belt side. So it protects the cabinet inside when the line is at a standstill.



1 inner light used for the maintenance. It turns on automatically whenever a door opens.



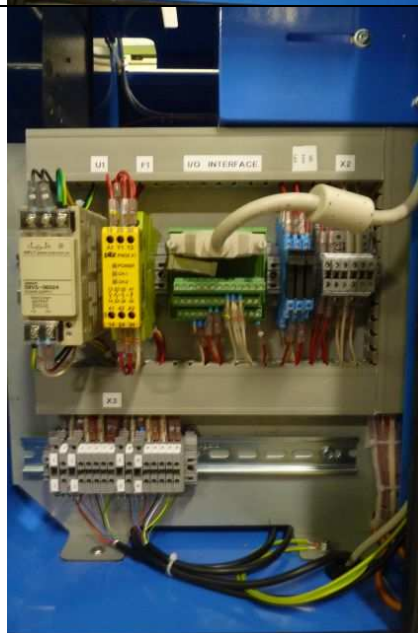
1 air-conditioner, which controls the temperature in order to keep the IT and electrical part to the correct temperature.



Electrical plate (X1 Terminal) –
230V distribution



Electrical plate (X2 Terminal) –
Converter from 230V to 24V



4 doors.
The doors can be either
hinged doors or detachable
panels



Each 3D module includes one laser and one camera. Both are connected to a computer via Ethernet cable.

The cards in the PC are the following ones:

- Profibus card for the communication with the Supervisor (PLC);
- I/O card for lasers driving and signal exchanges;
- GigaEthernet card for communication with both cameras.

XVII. Potential failures

Only the production technician and people authorized by GIPS vision can carry out the actions detailed in this section.

1. Shutter

The shutter can slip out of its slots, particularly during the transportation. In this case, it's easy to put back in place by rolling it up to the right length. Then replace the shutter in its slots.



Figure 30: opened shutter – correct positions

2. PC

If the computer doesn't start, check the following points in accordance with safety rules related to lasers:

- The switch on the back of the PC is turned on;
- PC is connected to main power (multi-socket);
- Monitor is connected to main power (multi-socket);

- The multi-socket is OK;
- Monitor is connected to PC.

If it passes all these inspections, change the PC with the spare one (option spare part) and perform a diagnostic (outside of the cabinet) with the assistance of GIPS vision.

3. No pictures

If the DAKOTA software is started and the main screen is displayed (see Figure 27), but no picture displays or changes although the conveyor belt is running, make the following checks in accordance with the safety rules described in this document:

- Check that the window caps are not closed;
- Check the leds on the GigaEthernet card on the back of the PC. The leds associated with both cables « BOWL » and « LID » flash green
 - If both flash; check the IP addresses with the assistance of GIPS vision or the installation procedure (provided with the option "spare PC"),
 - If one led doesn't flash, change the module cable (spare cable supplied with the spare module);
- Trigger signal is sent and arrives on the X1 terminal (see [1]);
- Encoder signal is sent and arrives on the X1 terminal (see [1]).

4. No carrier data

In the upper frame (see Figure 26: Upper frame – carrier details **Error! Reference source not found.**), no carrier data display or the values are not correct, check the following points:

- Data is sent by the supervisor;
- Profibus communication is correct. In « super-user » mode (a specific password is mandatory) on the « COM » tab, verify the communication by pressing the

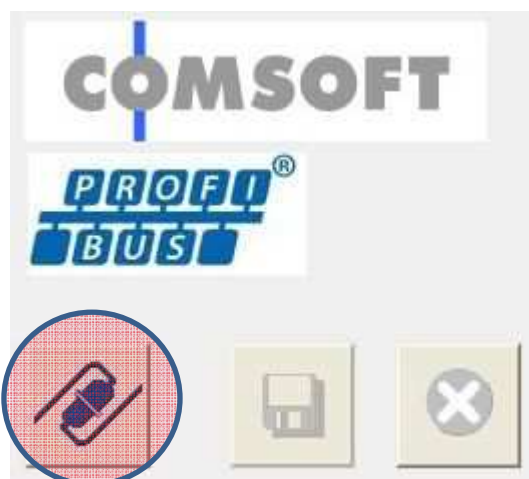


Figure 31: "COM" tab, Profibus communication test

XVIII. Adjustment and maintenance

Once a week, the maintenance of the 4 windows (2 cameras and 2 lasers) is necessary. For this, the production line must be at a standstill and the cabinet switched off.

The person in charge locks the main switch with a padlock and uses the specific key to open the cabinet.

The doors are opened or removed (in accordance with the DAKOTA 3D model) and each window can be cleaned with a soft, dry cloth.




Figure 32: Location of windows

After cleaning, doors can be closed with the specific key and the consignment can be removed.

XIX. Protective measures during settings and maintenance

1. Controls

Note: Settings inside the cabinet (lasers, location of 3D modules, etc.) are performed with/by GIPS vision.

	<p style="text-align: center;">DAKOTA 3D OPERATING INSTRUCTIONS</p>	<p>DAK_COR_E001E Rev. A</p>
		<p style="text-align: center;">37/37</p>

2. Maintenance

The protective measures to be taken on maintenance (cleaning of windows) need to be carried out in the following order:

1. Close the shutter, holding the button of the control panel until it is completely closed;
2. Lock the main switch (padlock, not supplied by GIPS vision) ;
3. Open the doors (specific key, supplied by GIPS vision);
4. Start the maintenance phase inside the cabinet
Note: Attention! Nothing should be left in front of the windows (caps should be removed);
5. Close the doors;
6. Remove the consignment.

XX. Drawings

1. Electrical drawings

See. [1]

2. Mechanical drawings

See. [2]

XXI. Spare parts

GIPS vision offers the following spare parts:

- 3D acquisition module which is composed of one metal base, one laser, one camera and their associated cables.
- Spare part for PC which is composed of:
 - Acquisition card;
 - Profibus card;
 - I/O card;
 - CVB license;
 - 4 display ports video card (optional).

Each part is delivered with its installation procedure. Regarding the acquisition module, it will be calibrated at the same time as the installation step.

Note: GIPS vision declaims all responsibility for the use of different spare parts even if they have the same functions.

XXII. Noise emission

The cabinet doesn't make a significant noise. The noise level of the cabinet is lower than 70db.