

ONGO⁷

ONGO SPERM ANALYZER

USERS' MANUAL

Read before use, and store safely for reference.



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GENERAL OVERVIEW

ONGO Sperm Analyzer is a microscope with computer aided vision for the assessment of semen motility and concentration. ONGO is a standalone, automated, portable semen analyzer, which provides you quick, onsite, cheap CASA solution (CASA: Computer Aided Sperm Analysis).

ONGO is suitable for users who are involved in semen collection, preparation and processing, or artificial insemination.

Main features:

- Easy-to-use, no expert needed
- Heated slide stage
- Autofocus, plus electronically adjustable focusing
- Electronically controllable illumination
- Data exports to the included pen drive:
 - o videos in MP4
 - o report in PDF format
 - o report overview in CSV format
- CE Mark

ONGO is calibrated for use only one previously selected animal species which is set by the manufacturer. Available species:

- Canine: dog,
- Equine: horse,
- Ovine: sheep,
- Porcine: pig,
- Bovine: bull,
- Poultry: several species (duck, rooster, turkey etc.)
- Oryctolagus: rabbit
- Other species could be available after software development

Hardware specifications:

Size:	214mm x 129mm x 71mm
Power supply INPUT:	100-240V AC, 50-60 Hz, 1.4 A
Power supply OUTPUT:	5V, max. 6A
Battery:	3.7 V, 4100 mA
Working time without charger (only battery):	2 - 2,5 hours
Max. charging current:	1A
Operating temperature:	0°C - 30°C or 32 °F – 86 °F
Screen resolution:	320 x 240 pixels

Electrical Safety

Do not open or modify the device in any way!

Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power Company.

If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operations Safety

Before using the product, ensure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.

To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.

Avoid dust, humidity, and temperature extremes.

Do not place the product in any area where it may become wet.

Place the product on a stable surface.

CAUTION! Stage for slides may have a hot (37 - 38 °C) surface!

If you encounter technical problems with the product, contact a qualified service technician or your retailer.

ONGO Semen Analyser Starter Kit - COMPONENTS



Figure 1.

Your ONGO Semen Analyser Starter Kit contains:

A.) Protective briefcase with shaped protective foam inserts

B.) ONGO Semen Analyser + 32 Gbyte pen drive C.)

Charger (Type F or Schuko)

D.) ONGO Sperm Test slides box (Box contains: 25 pcs, 2 chambered slides – for 50 measurements)

E.) Users' Manual (behind briefcase lid foam, gently pull-on foam on the corner)

GETTING STARTED

Parts of ONGO Semen Analyser



Figure 2.

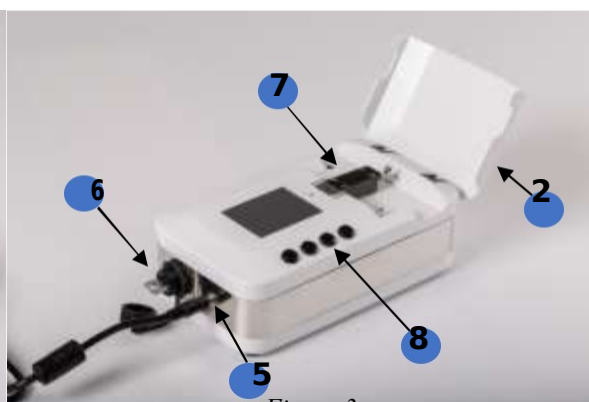


Figure 3.

ONGO Semen Analyser parts are the following (See Fig. 2., Fig 3., Fig. 4.):

1. Power ON/OFF button
2. Protection lid for slide stage (Fig. 2 - closed, Fig. 3 – opened)
3. Charging indicator LED
4. Screen
5. Power supply socket
6. USB 2.0 socket with protective screw cap
7. Heated slide stage with illumination
8. Push buttons for operating ONGO
9. Pivoting illumination unit (in lifted up position)
10. Microscope and camera lens
11. Place of the slide

Warning hot surface!

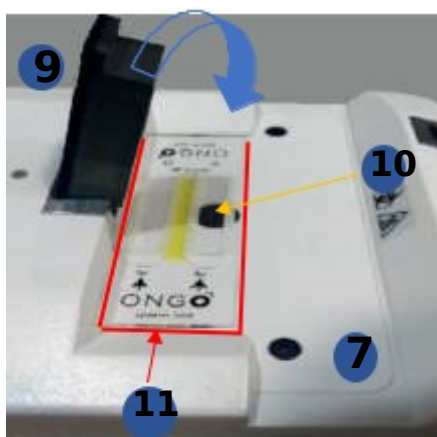


Figure 4.

Consumables – ONGO Slides boxes



Figure 5.

ONGO Starter Kit comes with one box of ONGO Sperm Test slides.

CAUTION: ONGO Sperm Analyser works and counts sperm characteristics only with ONGO Sperm Test slides.

Each box contains 25 pcs disposable slides.

Each slide has 2 chambers, for 2 measurements.

One box is enough for 50 measurements.

Slide types:

ONGO Yellow Box: ●

- Boar
- Bull
- Poultry
- Ram

ONGO Blue Box: ●

- Stallion
- Dog

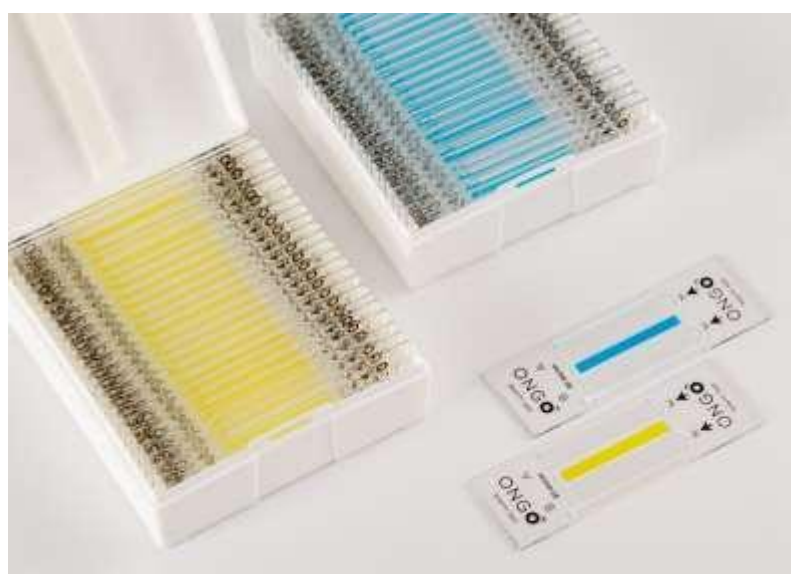


Figure 6.

Charging and 1st start

1. Take out the ONGO Semen Analyser and the charger from the briefcase.
2. Place ONGO on a flat, clear and dry surface.
3. Insert the included pen drive into the USB interface (page 6: Fig. 3., part 6.)
4. Plug in the charger and connect it to the ONGO Semen Analyser's Power supply socket (page 6: Fig. 3., part 5.)
5. Charging indicator LED will light up (page 6: Fig. 2., part 3.):
 - LED status: Blue ● = Charging
 - Green ● = Fully charged
6. When indicator LED become green ONGO is fully charged, you may disconnect the charger. When fully charged ONGO has 2-2,5 working hours from battery.
7. Push the Power ON/OFF button (page 6: Fig. 2., part 1.)

You will see the following "START" screen:

- ONGO logo
- Species preset
- Software version next to Species
- "ONGO" Connected and IP address of the device
- "Start" button above the left end button
- "Shut Down" above the right end button



Figure 7.

SEMEN MEASUREMENT PROCESS

Preparing semen for measurement

CASA [Computer Assisted Sperm Analysis] as a technology is not applicable for concentration assessment over 100 million/ml cell density in general. This is a technology limitation of computer aided vision. ONGO is able to go above a little bit this limitation, but too high density semen could cause false or inaccurate results.

Range of analysis:

5 – 120 million sperm cells/ml

Optimized range:

10 – 100 million sperm cells/ml

According to optimized range, we suggest to dilute the raw semen according to the following table.

Species	Raw semen density	Suggested dilution rate
Horse	20– 700 M/ml	1:3 to 1:6
Dog	100 – 600 M/ml	1:2 to 1:6
Pig	200– 1000 M/ml	1:4 to 1:10
Sheep	2000 – 6000 M/ml	1:300 to 1:400
Bull	500– 2000 M/ml	1:10 to 1:20
Rabbit	100– 1200 M/ml	1:8 to 1:15
Poultry	varies by species	

CAUTION: If using large quantity diluted sperm samples (eg. 100 ml pig sperm) always homogenize the liquid before testing with 3-4 slow upside-down movement.

Inserting the test slide

1. Connect ONGO Sperm Analyzer to the power connector, or make sure the battery is sufficiently charged.
2. Make sure the pen drive is inserted to the USB interface.
3. Switch on the device with the Power ON/OFF button.
4. Gently open up the slide stage protection lid (maximum angle:~95-100°)
CAUTION! Do not push the lid over the tilt angle, as it could brake!
5. Carefully lift the Pivoting illumination unit till hear a “click” sound (maximum angle: ~75-80°)
CAUTION! Do not lift the illumination unit over the tilt angle, as it could brake!

6. Put one ONGO Sperm Test slide on slide stage and push it gently till the mould edge, under the illumination unit. (Right side chamber of the slide should be above camera lense hole)
7. Carefully push back the Pivoting illumination unit above the positioned slide.
8. Choose menu item “Start” (push left end button), stage warming up begins.

See Fig. 8. for appropriate positioning of the slide.



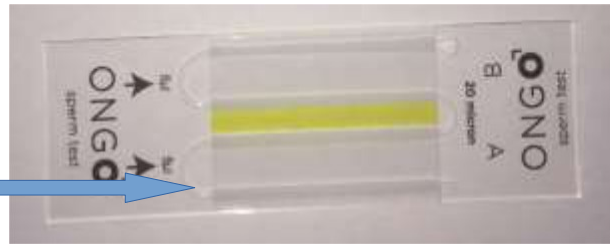
Figure 8.

Start semen measurement

1. Choose the menu item “Start” (push left end button). Stage warming up begins.
2. Heated slide stage actual temperature displayed at the left bottom of the screen. Target temperature is preset by the specific body temperature of the selected animal species (see Appendix 1.). Heating could take several minutes depending on the actual temperature of the device and the external temperature!



3. Put 5 μ l diluted semen sample with the pipette into the right-hand chamber. Drop the sample above the arrow into the “U” shaped part of the slide!



4. When the slide stage reaches the preset temperature a slide checking procedure come alive automatically. If it finds the slide properly positioned the live view of the sample become visible on the screen. ONGO starts Autofocusing to the sample and displays the Focus value at the top right corner.



CAUTION! Cells should look like small, dense black spots!

5. Autofocus mechanism generally provides good result but if necessary adjust:

- a. FOCUS: Use the “Focus +” (right middle) and “Focus -“ (right end) buttons to focus the sample. Start by pressing the “-“ button.



- b. LIGHT: Use the toggle (left middle) button and adjust the lighting with “Light +” (right middle) and “Light -“ (right end) buttons to obtain optimal contrast.



Generally You do not need to adjust illumination as the preset value is close to optimal.

6. Choose a field of view without debris and bubbles. When selecting a field of view, make sure the long side of the slide is pushed up against the housing to ensure correct slide placement.



7. Press “Continue”. After 30-40 seconds results displayed.

8. Select a new field of view. Move the slide a little bit up/down on the heated slide stage (Figure 9.)

Figure 9.

9. Push “Repeat” – left middle button.

10. Repeat Point 7-8-9 at least 2 times to improve statistical accuracy!

It is advised to capture around 1000 cells. On the result screen the cells’ number are added up from the repeated measurements to help you follow the statistical state of the overall analysis.

11. Push “Finish” button to save the report and videos to pendrive.

CAUTION! Always repeat measurement on the same sample at least 3 times for accurate results!

REMARK: Pendrive is detected anytime you plug it in. You do not have to eject the device as it is done automatically after the data is saved. Data saving happens at two stages during the measurement: video data is copied after the video recording immediately and analysis report is saved after pushing the “Finish” button.

PROCESSING SEMEN MEASUREMENT RESULTS

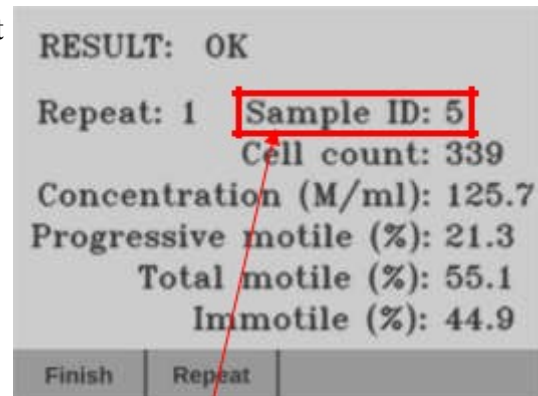
The “Results” screen

The results screen indicates

- Measurement success “Result:OK” or fault notification
- Repeat number
- Sample ID and

Lists values for:

- Cell count,
- Concentration (million sperm/ ml),
- Progressive motility (%),
- Total motility (%), and
- Immotile cells (%).



At the first measurement of a sample note down the sample ID.

This number corresponds to the folder name on the pen drive where all results and videos of this sample are stored. From this screen, a repeated measurement of the same sample can be continued by pressing the “Repeat” button, or results can be saved and the measurement process of the current sample concluded by pressing the “Finish” button. After recording further videos, all results are displayed as averages, except the cell count, which is cumulative.

Data on pen drive


All measurement data can be found on the pen drive in a folder corresponding to the sample ID on the results screen.

Name	Date modified	Type	Size
58	24/11/2021 17:05	File folder	
59	24/11/2021 17:05	File folder	
50	24/11/2021 17:05	File folder	
61	24/11/2021 17:05	File folder	
ONGO_results	21/11/2021 21:06	Microsoft Excel C...	2 KB
WHO_guides	23/11/2021 21:06	Microsoft Excel C...	1 KB

The files stored in each folder are:

- MP4 videos of each measurement
- a PDF file listing the results of the individual videos as well as the averaged results
- a CSV file in the root directory that contains all results and could be easily imported to Excel or other spreadsheet handling programs.
- The Folder name is the Sample ID eg. “58”
- Videos are named “Sample_ID_serial-Number-of-Measurement” eg. “58_1”
- The PDF named “Sample_ID_result” eg. “58_result”

An example of the PDF result page is shown below:



ONGO⁷
sperm test

Ongo Sperm Test
all rights reserved
<https://www.ongovetech.com/>

Date not synchronized.

RESULT: OK - INCLUDED
 ID: 285_1 dog heating_on
 Cell Count: 419
 Prog. Conc. (M/ml): 62.5
 Progressive motile (%): 67.7
 Total motile (%): 95.1
 Immotile (%): 4.9
 Concentration (M/ml): 92.3

RESULT: OK - INCLUDED
 ID: 285_2 dog heating_on
 Cell Count: 383
 Prog. Conc. (M/ml): 53.4
 Progressive motile (%): 63.4
 Total motile (%): 92.4
 Immotile (%): 7.5
 Concentration (M/ml): 84.2

RESULT: OK - INCLUDED
 ID: 285_3 dog heating_on
 Cell Count: 396
 Prog. Conc. (M/ml): 47.5
 Progressive motile (%): 54.5
 Total motile (%): 94.2
 Immotile (%): 5.9
 Concentration (M/ml): 87.1

averaged results:
 RESULT: OK
 ID: 285
 Cell Count: 1198
 Prog. Conc. (M/ml): 54.3
 Progressive motile (%): 61.8
 Total motile (%): 93.9
 Immotile (%): 6.1
 Concentration (M/ml): 87.8

Importing ONGO results to Your computer

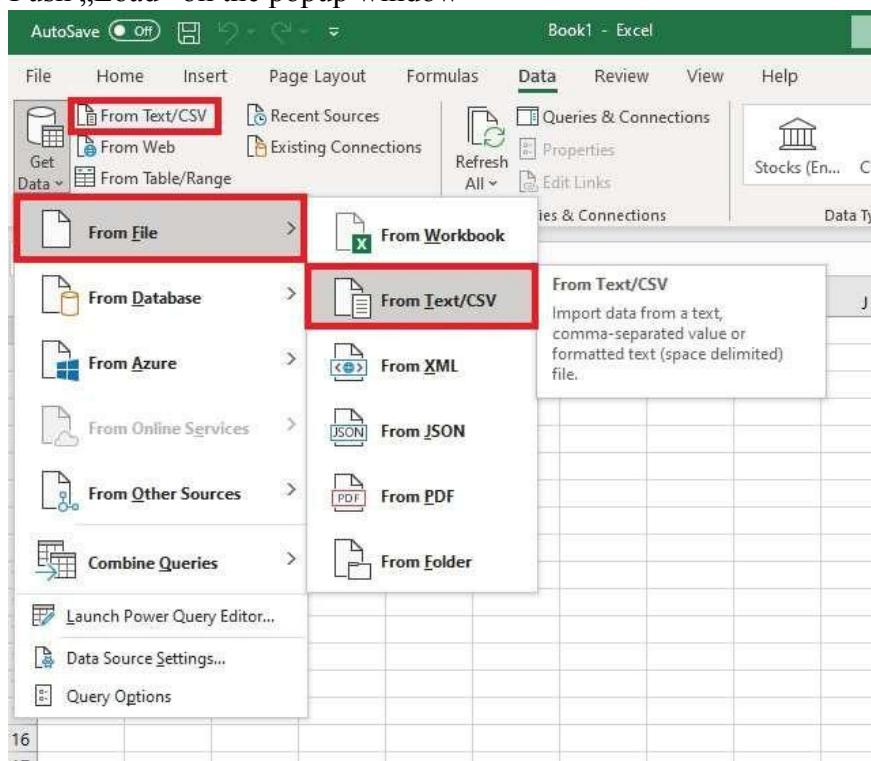
If You are preparing lots of samples a day, or You make databases with the measurement data, it could be easier to process ONGO Semen Analyser data with spreadsheet handling programs (Excel, Google Sheets etc.)

CAUTION! Always save the data from the ONGO pen drive to your PC into a separate directory. Avoid save onto the original “ongo_result_csv” on pen drive!

Some spreadsheet program can mix up comma separator with decimal comma.

Importing to Excel

1. Open Microsoft Excel
2. Pick „Data” in the header menu
3. Click „Get Data” → „From File” → „From Text/CSV” or just click the button „From Text/CSV” button next to „Get Data” icon.
4. Select the „ongo_result.csv” file from your computer’s File Explorer
5. Push „Load” on the popup window



Importing to Google Spreadsheets

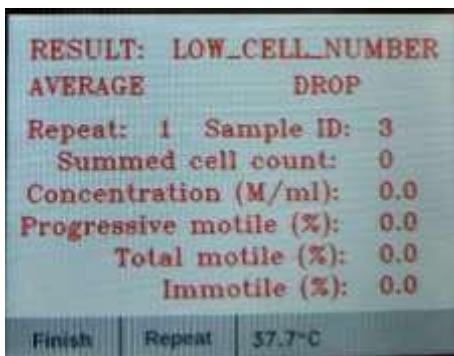
Simply select „File” → „Import” → „Upload” (Select the ONGO_results.csv file from your PC). Than push „Import Data” button at the bottom of the small popup screen.

ERROR MESSAGES



DRIFT: If excessive movement of all objects in one direction is detected, an info screen is shown (left) and the error message “drift” will be displayed on the results screen. Make sure that drift from filling the chamber has subsided. Wait a few seconds before recording the first video and ensure there is no excess semen after filling the chamber. 5 µl of the sample should be used and the device

should be placed on a level surface and undisturbed during measurements.



LOW CELL NUMBER: If fewer than 10 cells are measured in one video, the error message “LOW_CELL_NUMBER” will be displayed on the results screen. In this case, make sure that the ONGO slide is placed correctly, the chamber is completely filled (5µl sample can be pipetted) and the sample is not overdiluted.

LOW MOTILITY: If none or a very few moving cells are detected “LOW_MOTILITY” will be displayed on the result screen. This means that the sample is dead, statistically unreliable.



LOW BATTERY: In case of low battery power ONGO will return to the main screen. If an analysis process is under way, it will not be aborted, however the stage will no longer be heated.



USB DRIVE NOT DETECTED: If you forgot to connect the pen drive into the socket ONGO warns you that the results won't be saved. Connect the pen drive to the socket.



ONGO SLIDE ERROR

ONGO slides are authenticated immediately by the device after the stage is heated up. In case of authentication failure it warns You to check slide position.

MAINTENANCE and WARRANTY

Maintenance

Protect ONGO spermtest from water and temperatures outside 0-50°C.

Operating temperature 0-30°C.

Always use transport case and padding when transporting or not in use.

Clean with a dry cloth.

Clean the lens cover gently with a non-scratching textile suitable for optical equipment.

Do not press the lens cover!

To retain warranty, only use the power supply provided in the ONGO Starter Kit.

Warranty is void if the device is opened or modified.

Disposal

This product may not be disposed of in the household waste. It must be disposed of at a recycling facility.

Warranty

Ongo Vettech Ltd. warrants that new goods described herein and manufactured by Ongo Vettech Ltd. are free from defects in material and workmanship under normal use and service, normal wear and tear for which the products were designed for one (1) year from the date of shipment.

Ongo Vettech Ltd. warrants that goods repaired by it pursuant to the warranty are free from defects in material and workmanship for a period to the end of the original warranty or ninety (90) days from the date of delivery of repaired goods, whichever is longer.

Warranties on goods not manufactured by Ongo Vettech Ltd., are expressly limited to the terms of the warranties given by the manufacturer of such goods.

All warranties are void in the event that the goods or systems are:

- I. Misused or otherwise abused, whether such misuse or abuse is intentional or due to negligence or accident.
- II. Damaged, repaired, altered or modified without Ongo Vettech Ltd.'s consent

III. Not properly installed, maintained or inappropriately operated in strict compliance with instructions furnished by Ongo Vettech Ltd.

IV. Worn, damaged from abnormal use in operation or service

V. Subjected to acts of God, or extreme weather phenomenon including, but not limited to flood, lightning, tornado, hurricane, earthquakes, solar flares, or extreme temperatures exceeding device specifications.

VI. Subjected to intentional acts including, but not limited to vandalism, sabotage, or acts of terrorism.

THESE WARRANTIES ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED (INCLUDING WITHOUT LIMITATION WARRANTIES AS TO MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE), AND NO WARRANTIES, EXPRESSED OR IMPLIED, NOR ANY REPRESENTATIONS, PROMISES, OR STATEMENTS HAVE BEEN MADE BY ONGO VETTECH Ltd.

UNLESS ENDORSED HEREIN IN WRITING. FURTHERMORE, THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF.

Any warranties beyond those set forth herein must come directly from Ongo Vettech Ltd.

Buyer's sole remedy for breach of any warranty is limited exclusively to repair or replacement without cost to Buyer of any goods or parts found by Seller to be defective if Buyer notifies Ongo Vettech Ltd. in writing of the alleged defect within the warranty period stated above, and if the Buyer returns such goods to the Ongo Vettech Ltd. Corporate office, or to different location designated by Ongo Vettech Ltd., with transportation prepaid by the Buyer, within thirty (30) days of sending of such notification and which upon examination by Ongo Vettech Ltd. Proves to be defective in material and workmanship. Ongo Vettech Ltd. Is not responsible for any costs of removal, dismantling or reinstallation of allegedly defective or defective goods.

Under no circumstances will Ongo Vettech Ltd. be liable for incidental or consequential damages resulting from breach of any agreement relating to items subject to this warranty, from use of the information herein or from the purchase or use by Buyer, its employees or other parties of goods sold under said agreement.

Contact & support

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ONGO Semen Analyser – Declaration of Conformity (CE)

EU-MEGFELELŐSÉGI NYILATKOZAT (EU-DECLARATION OF CONFORMITY)		
1.	A gyártó neve/manufacturer:	Ongo Vettech Kft.
2.	A gyártó címe/address of the manufacturer:	2462 Martonvásár, Szent László utca 3. Hungary
3.	A termék megnevezése/generic name:	Ongo Sperm Analyser
4.	Típus azonosítója/product name:	MFL202
5.	A termék megnevezése, leírása/short description:	orvostechikai diagnosztikai rendszer tenyészállatok szaporítóanyagának vizsgálatára/ veterinary portable computer assisted semen analyser
6.	A fent nevezett berendezés megfelel a következő dokumentumok követelményeinek/EU directives:	<ul style="list-style-type: none"> • 2011/65/EU – 374/2012. (XII. 18.) Korm.rendelet • 2014/30/EU – 8/2016. (XII. 6.) NMHH rendelet • 2014/35/EU – 23/2016.(VII. 7.) NGM rendelet
7.	Az alkalmazott szabványok hivatkozásai/standards:	<ul style="list-style-type: none"> • MSZ EN 61010-1:2011 • MSZ EN 61010-2-081:2015 • MSZ EN 61326-1:2013 • MSZ EN 62311:2008
8.	A kiadás helye/place of issue:	Martonvásár, Hungary
9.	A kiadás dátuma/date of issue:	2020. 07. 27.
10.	A kibocsátó által meghatalmazott személy/responsible person:	Dr Bábel Tamás
11.	A kibocsátó által meghatalmazott beosztása/position in company:	Ügyvezető/Executive director
12.	A kibocsátó által meghatalmazott aláírása/signature:	
<p>E megfelelőségi nyilatkozat a felelős forgalmazó kizárólagos felelősségére került kibocsátásra./ This declaration of conformity is issued under the sole responsibility of the manufacturer.</p>		

ONGO Test slides – Declaration of Conformity



DECLARATION OF CONFORMITY

In-vitro diagnostics - medical device (IVD-MD)

With this certificate we declare the hereafter listed in-vitro diagnostic medical devices (IVD-MD - CE Class I) are in conformity with:

Directive 98/79/EG
Directive of the council about "In-vitro Diagnostics"

ONGO, glass disposable counting chambers for microscopic use: GMDN-code: 32408

Article#	Description
OS-B-210	ONGO, 10 micron, 2 chambers horizontal, Blue
OS-Y-210	ONGO, 10 micron, 2 chambers horizontal, Yellow
OS-B-220	ONGO, 20 micron, 2 chambers horizontal, Blue
OS-Y-220	ONGO, 20 micron, 2 chambers horizontal, Yellow

April 2, 2020
 Corné A. Westerveld
 Managing Director, Attain Technologies B.V.

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APPENDIXES

Appendix 1.: Temperature settings for different species

Species	Target temperature
Boar	37,6 °C (+/- 0,5 °C)
Bull	37,9 °C (+/- 0,5 °C)
Dog	38 °C (+/- 0,5 °C)
Stallion	37 °C (+/- 0,5 °C)
Poultry	37 °C (+/- 0,5 °C)
Ram	37 °C (+/- 0,5 °C)