



QwikCheck *Gold* BULL User Guide

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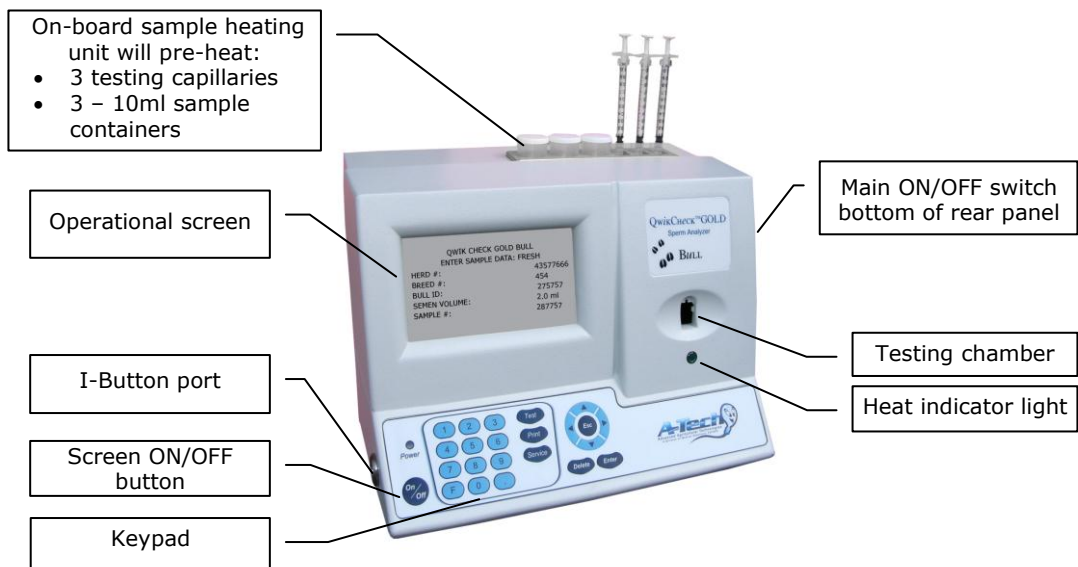
Section 1: Overview

The QwikCheck™ Gold Bull sperm quality analyzer is used to test and report the parameters of FRESH and FROZEN bull semen. The following semen parameters are reported:

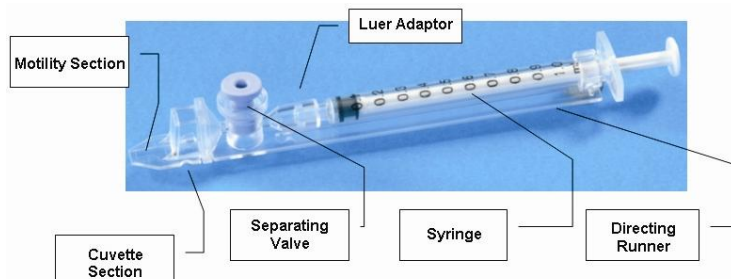
Reported Semen Parameters FRESH and FROZEN SAMPLES	
Total Sperm Concentration	Millions/milliliter
Motility	%
Progressive Motility	%
Morphology (Fresh only)	% Normal
Motile Sperm Concentration	Millions/milliliter
Progressively Motile Sperm Concentration	Millions/milliliter
Velocity	Microns/second
# Sperm	Billions per ejaculate/straw volume
Motile Sperm	
Progressively Motile Sperm	
FROZEN (Milk Based Freezing Media only)	
Motile Sperm Concentration	Millions/milliliter
Progressively Motile Sperm Concentration	Millions/milliliter
Velocity	Microns/second
Motile Sperm	Millions per straw volume
Progressively Motile Sperm	

Section 2: System Overview

QwikCheck™
Gold Bull
Sperm
Quality
Analyzer



QwikCheck™
Gold Bull
Testing
Capillary



- Plastic, multi-use (10X for animal use only), disposable.
- Refer to the appendix section for instructions on how to fill and clean the testing capillary.

Section 3: Operating the QwikCheck™ Gold BULL

- Turn on the main switch on the rear panel of the QwikCheck™ Gold Bull .
- Press the On/Off key on the keypad.
- Wait for the system to complete auto-calibration and self-testing.
- Press ENTER to view the **MAIN MENU**.

Four options are available from the **MAIN MENU**:

- **TEST FRESH**
- **TEST FROZEN**
- **ARCHIVE**
- **SETTINGS AND SERVICE**

When using the system for the first time please:

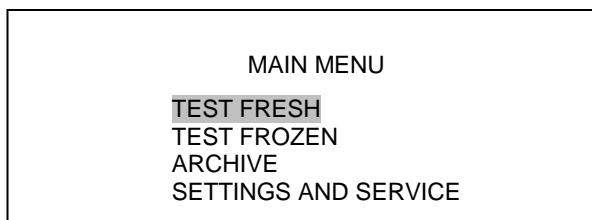
- Load I-Button tests: Go to: **MAIN MENU > SETTINGS AND SERVICE > ADD I-BUTTON TESTS**
- Set-up the system defaults: Go to: **MAIN MENU > SETTINGS AND SERVICE > DEFAULT SETTINGS**

Section 4: Test Fresh & Frozen

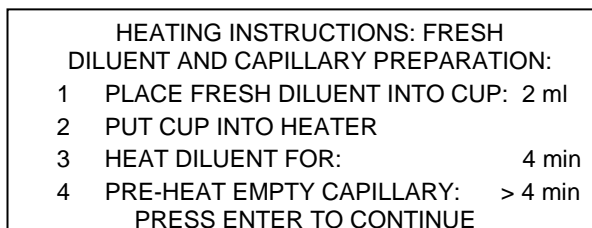
FRESH Sample Testing

To begin testing FRESH samples in the QwikCheck™ Gold Bull select:

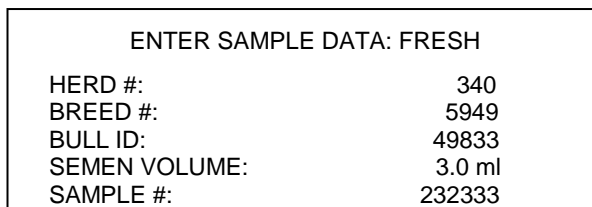
- **TEST FRESH** from the MAIN MENU:



- The heating instructions for FRESH semen will be displayed:



- Follow heating instructions. Press ENTER and the **ENTER SAMPLE DATA: FRESH** screen will be displayed:



- Enter the bull data using the QwikCheck™ Gold keypad:
 - Herd/Breed #: Up to 10 digits
 - Bull ID: Up to 10 digits
 - Semen Volume: Volume of the entire specimen (must be ≤ 20 ml)
 - Sample #: Up to 10 digits

FRESH SAMPLE TESTING:

NOTE: Load I-Button tests and set system defaults **PRIOR** to testing. Go to **SETTINGS AND SERVICE > DEFAULT SETTINGS**

NOTE: Data entry fields: herd, breed, bull ID and sample # have a limit of 10 spaces for data entry.

NOTE: See Appendix section for sample preparation and capillary filling guidelines.

- Press **ENTER** and the SAMPLE PREPARATION screen below will be displayed:

FRESH SAMPLE PREPARATION:

- 1 MIX SEMEN THOROUGHLY
- 2 ADD SEMEN TO DILUENT: 100 µl
- 3 MIX SEMEN, FILL AND WIPE CAPILLARY
- 4 WAIT FOR BEEP TO BEGIN TESTING

AUTOCALIBRATION – DO NOT TOUCH UNIT

- Prepare the FRESH semen sample for testing according to the instructions on the screen.
- Wait for a “beep” and a screen message before inserting the testing capillary into the QwikCheck™ Gold

FRESH SAMPLE PREPARATION:

- 1 MIX SEMEN THOROUGHLY
- 2 ADD SEMEN TO DILUENT: 100 µl
- 3 MIX SEMEN, FILL AND WIPE CAPILLARY
- 4 WAIT FOR BEEP TO BEGIN TESTING

INSERT CAPILLARY INTO CHAMBER

- Insert the prepared testing capillary when instructed. Testing will begin automatically.
- A “beep” will indicate that testing is complete after about 45-60 seconds.
- Test results will then be displayed on the screen below:

FRESH SEMEN – BULL ID: 49833

CONC.	332.6 M/ml	MSC	259.1M/ml
MOTILITY	77.9 %	PMSC	183.9 M/ml
PR. MOT.	55.3 %	VELOC.	69 mic/sec
MORPHOLOGY	81.0 %		
TOTALS (SEMEN VOL: 5.5 ml)			
# SPERM	1.83 Bil		
MOT. SPERM	1.43 Bil	PR. SPERM	1.01 Bil

- Data will automatically be saved to the QwikCheck™ Gold Bull archive.

DATA SAVED

- Press PRINT to print out a label (or the QwikCheck™ Gold will automatically print if the system default is set to do this).

After testing is completed the **MAIN MENU** will be displayed with additional option:

- **RECALL LAST TEST RESULTS** – View last test results

MAIN MENU

TEST FRESH
 TEST FROZEN
 RECALL LAST TEST RESULTS
 ARCHIVE
 SETTINGS AND SERVICE

FROZEN SAMPLE TESTING:

NOTE: Load I-Button tests and set system defaults **PRIOR** to testing. Go to SETTINGS AND SERVICE> DEFAULT SETTINGS

FROZEN Sample Testing

To begin testing FROZEN samples, select:

- **TEST FROZEN** from the MAIN MENU:

```

MAIN MENU
TEST FRESH
TEST FROZEN
ARCHIVE
SETTINGS AND SERVICE
    
```

- The heating instructions for FRESH semen will be displayed:

```

HEATING INSTRUCTIONS: FROZEN
DILUENT AND CAPILLARY PREPARATION:
1 PLACE FROZEN DILUENT INTO CUP: 500 µl
2 PUT CUP INTO HEATER
3 HEAT DILUENT FOR: 4 min
4 PRE-HEAT EMPTY CAPILLARY: > 4 min
PRESS ENTER TO CONTINUE
    
```

- Follow heating instructions. Press ENTER and the **ENTER SAMPLE DATA: FROZEN** screen will be displayed:

```

ENTER SAMPLE DATA: FROZEN
HERD #: 340
BREED #: 5949
BULL ID: 4944425833
BATCH #: 6767
STRAW VOLUME: .250 ml
STRAW DATE: 10/05/12
    
```

- Enter the bull data using the QwikCheck™ Gold keypad:
 - Herd/Breed #: Up to 10 digits
 - Bull ID: Up to 10 digits
 - Batch #: The number assigned to the entire batch of straws
 - Straw Volume: Volume of semen in the entire straw
 - Straw Date: The date the straws were PREPARED (up to 10 digits)
- Press ENTER to view the SAMPLE PREPARATION screen below:

```

FROZEN SAMPLE PREPARATION:
1 MIX SEMEN THOROUGHLY
2 ADD SEMEN TO DILUENT: 200 µl
3 MIX SEMEN, FILL AND WIPE CAPILLARY
4 WAIT FOR BEEP TO BEGIN TESTING
AUTOCALIBRATION – DO NOT TOUCH UNIT
    
```

- Prepare the FROZEN semen according to the screen instructions.
- Wait for a “beep” and insert the testing capillary when the message below is displayed. Testing will begin automatically:

```

FROZEN SAMPLE PREPARATION:
1 MIX SEMEN THOROUGHLY
2 ADD SEMEN TO DILUENT: 200 µl
3 MIX SEMEN, FILL AND WIPE CAPILLARY
4 WAIT FOR BEEP TO BEGIN TESTING
INSERT CAPILLARY INTO CHAMBER
    
```

- A “beep” will indicate that testing is complete and the results will be displayed.

FROZEN STRAW – BULL ID: 4944425833			
CONC.	82.6 M/ml	MSC	65.1 M/ml
MOTILITY	77.9 %	PMSC	58.9 M/ml
PR. MOT.	55.3 %	VELOC.	31 mic/sec
TOTALS (STRAW VOL: 0.250 ml)			
# SPERM	20.65 M		
MOT. SPERM	16.28 M		
PR. SPERM	14.73 M		

- The results of the straws with milk-based extenders will include: MSC, PMSC, Velocity and Total Motile and Progressively Motile Sperm.
- Data will automatically be saved to the archive.
- Press PRINT to print out a label (or will automatically print if the default is set to do this).

ARCHIVE **Section 5: Archive**

MAIN MENU	
TEST FRESH	
TEST FROZEN	
ARCHIVE	
SETTINGS AND SERVICE	

Select **ARCHIVE** in the MAIN MENU to view the screen below with four options. Highlight the search option by using the arrow key on the QwikCheck™ Gold keypad and press **ENTER**

ARCHIVE MENU	
BULL ID	
DATE OF TEST	2/05/13
SCROLLING	
CLEAR ARCHIVE	

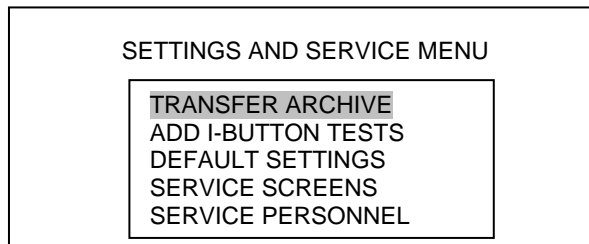
- Select **BULL ID** or **DATE OF TEST** – enter the information and press **ENTER** to view the record (**DATE OF TEST** search option is displayed above).
- Select the **SCROLLING** option and the table below will be displayed:
 - Press **ENTER** after highlighting the **SCROLLING** option
 - Select the desired test record using the directional arrows
 - Press **Print** for a copy of the test results

BULL ID	DD/MM/YY	TIME
2002	07/05/08	17:31
2003	07/05/08	17:40
2004	07/05/08	17:55
3001	07/05/08	11:33
3009	07/05/08	11:25

Section 6: SETTINGS AND SERVICE MENU

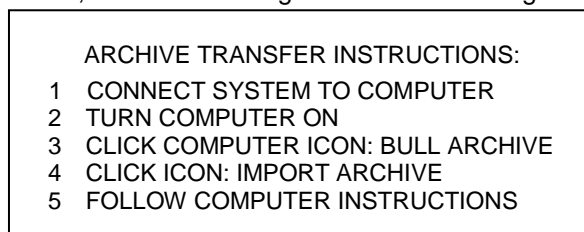
SERVICE

Select the **SETTINGS AND SERVICE MENU** and one of five options:



TRANSFER ARCHIVE: (Requires installation of the ARCHIVE software included with the QwikCheck Gold Bull system – see accompanying software installation instructions)

In order to transfer the internal archive of the system to the computer, select **TRANSFER ARCHIVE** option from the menu above, and the following screen will be brought to view:

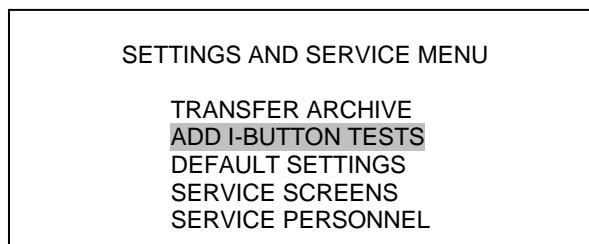


Follow instructions listed above, and the system archive will be transferred to the computer Excel file (Excel software must be available on a PC).

ADD

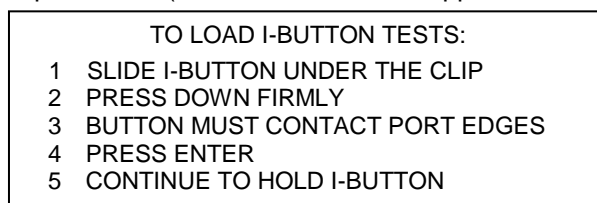
I-BUTTON TESTS

ADD I-BUTTON TESTS:



To view the screen below, select: **ADD I-BUTTON TESTS** from the **SETTINGS AND SERVICE MENU** when:

- An I-BUTTON warning message is displayed on the QwikCheck™ Gold screen.
- Before starting to run tests on the QwikCheck™ Gold the first time.
- A new test kit is purchased (a new I-BUTTON is supplied with each test kit).



- Follow the screen instructions: **HOLD NEW I-BUTTON AGAINST PORT / PRESS ENTER.**
- Make sure the I-BUTTON touches both the internal surface and the edges of the port.
- Press and HOLD the I-button firmly in the port during the entire loading process.
- The # TESTS ADDED and the # OF TESTS NOW REMAINING will be displayed.

NOTE:
The BULL ARCHIVE software should be uploaded to the computer prior of time for handling the archive transfer (provided by MES Ltd.)

NOTE: If the I-Button is not properly inserted a message: **I-BUTTON NOT PROPERLY ACTIVATED OR NOT RECOGNIZED BY SYSTEM** will be displayed. Remove the button, press ESC and try again.

DEFAULT SETTINGS:

DEFAULT SETTINGS	
LOCAL TIME:	08:15:45
DATE FORMAT:	MM/DD/YY/DD/MM/YY
DATE SETTING:	01/04/08
AUTO PRINTING:	YES/NO
CONC STANDARD:	1 / 2

- **LOCAL TIME:** Enter current local time.
- **DATE FORMAT:** Select the format **MM/DD/YY** or **DD/MM/YY** using the right/left arrows on the keypad. Press **Enter** to confirm.
- **DATE SETTING:** Enter current date.
- **AUTO PRINTING: YES / NO** Select **YES** to automatically print a label after running a test.
- **CONC STANDARD:** Select “1” for Neubauer standard; “2” for Nucleocounter standard

Press **ENTER** and the **FREEZING MEDIA DEFAULT SETTINGS** screen will be shown. Select the media that was used in the freezing process and press **ENTER**.

FREEZING MEDIA DEFAULT SETTINGS	
1.	CLEAR
2.	SEMI-CLEAR
3.	SEMI-DENSE
4.	DENSE
5.	MILK

Freezing Media Default Settings: Five media settings are available

- **CLEAR:** Completely clear, transparent extenders that do not contain ANY turbid components such as soybean proteins or egg yolk.
- **SEMI-CLEAR:** Slightly turbid extenders containing soybean protein or a synthetic based media.
- **SEMI-DENSE:** Egg Yolk media prepared with fresh FILTERED egg yolk (homemade) and CSS or TRIS buffer. These extenders appear semi-translucent and darker than the SEMI CLEAR extenders. Commercially available Egg Yolk extenders which are denser than the previous category (more opaque).
- **DENSE:** Dark yellow media that are dense in nature. Egg Yolk based media prepared with fresh NON FILTERED egg yolk (homemade). Egg yolk particles can be seen under the microscope.
- **MILK:** All milk-based extenders.

CLASSIFICATION OF EXTENDERS (OPTICAL DENSITY AND NAME)				
#	FREEZING MEDIA	OD RANGE*		EXTENDER
		FROM	TO	
1	CLEAR	0.00	0.00	Optidyl®, Triladyl®, Biladyl®
2	SEMI-CLEAR	0.10	0.20	Andromed®, Bioxcell
3	SEMI-DENSE	0.25	0.35	Homemade fresh, FILTERED egg yolk based
4	DENSE	0.40	0.60	Homemade fresh NON-FILTERED Egg Yolk based extenders
5	MILK	0.70	1.8	All milk based extenders

*OD = Optical Density. If this is not known, a sample of non-diluted freezing media can be run on the system to obtain this value. Contact your local distributor or the manufacturer @ www.a-tech-global.com for instructions on how to run this test.

SERVICE SCREENS: Click **SERVICE SCREENS** to display three screens: Screen #1: Service Data, Screen #2: Self-Test Data (Internal Data after a test) and Screen #3: Self-Test Data Algorithm. These screens are used for technical troubleshooting and might be required if a problem occurs with the system.

SERVICE PERSONNEL: For technical service personnel only (requires a password).

Section 7: Troubleshooting and Warning Messages

The QwikCheck™ Gold will display a variety of warning messages when something is wrong. Please see the various screens below and the actions required if the screen is displayed:

Stabilization Failure:

STABILIZATION FAILED
TURN OFF MAIN SWITCH ON REAR PANEL
REACTIVATE UNIT

IF PROBLEM PERSIST,
CALL FOR TECHNICAL SUPPORT

Self-Test Failure:

FAILED SELF TEST
TURN OFF MAIN SWITCH ON REAR PANEL
CLEAN OPTICAL CHAMBER
REACTIVATE UNIT

IF PROBLEM PERSIST,
CALL FOR TECHNICAL SUPPORT

1. Make sure there is no testing capillary in the measurement compartment.
2. Remove the **QwikCheck™ Gold** from sources of electronic noise or vibration.
3. Clean the measurement compartment (refer to Appendix section).
4. Reboot the system without a testing capillary in the chamber:
 - Turn system **OFF** then back **ON** at the main switch on the rear panel.
 - Press the front panel **ON/OFF** key to begin Auto-Calibration /Stabilization.
5. Call technical support if failure recurs.

Electronic Noise:

ELECTRONIC NOISE
TURN OFF MAIN SWITCH ON REAR PANEL
REACTIVATE UNIT

IF PROBLEM PERSIST,
CALL FOR TECHNICAL SUPPORT

Reboot the **QwikCheck™ Gold** . If this message is displayed again:

- Follow steps 1-3 above.
- Turn the system **OFF** then back **ON** at the main switch on the rear panel.
- Press the front panel **ON/OFF** key to begin Auto-Calibration and Stabilization.
- From MAIN menu: Select **TEST FRESH or FROZEN** and re-run.
- Call technical support if this message is displayed again.

Overflow Error:

OVERFLOW ERROR
REMOVE CAPILLARY
TURN DEVICE OFF AND ON
RE-RUN THE SAMPLE

IF PROBLEM PERSIST,
CALL FOR TECHNICAL SUPPORT

- Remove the testing capillary from the measurement chamber
- Turn the system **OFF** then back **ON** at the main switch on the rear panel.
- Press the front panel **ON/OFF** key to begin Auto-Calibration and Stabilization.
- From MAIN menu: Select **TEST FRESH or FROZEN** and re-run.
- Call technical support if this message is displayed again.

Remove Capillary:

REMOVE CAPILLARY
FOLLOW ON-SCREEN INSTRUCTIONS

- This message is displayed prior to running a new test if the capillary from the previous test was left in the measurement slot. Remove the testing capillary and insert when instructed.

Archive Full:

ATTENTION:
THE ARCHIVE IS ALMOST FULL!
PLEASE DELETE TESTS
TO PREVENT
LOSS OF RECORDS

- This message is displayed when the **QwikCheck™ Gold** archive is full. The archive needs to be transferred to the PC (if required) and cleared. Refer to the Section 6 for instructions for transferring the archive. To clear the archive go to: **MAIN MENU > ARCHIVE > CLEAR ARCHIVE** and follow the screen instructions on the ARCHIVE MENU screen.
- Select: YES when the second screen appears:

ARCHIVE MENU BULL ID DATE OF TEST SCROLLING CLEAR ARCHIVE	ALL RECORDS WILL BE DELETED ARE YOU SURE? YES/NO
--	--

Appendix I: FRESH and FROZEN Semen Sample Preparation

EQUIPMENT REQUIRED:

- Testing Media: QwikCheck™ Diluent for FRESH BULL SEMEN and QwikCheck™ Diluent for FROZEN BULL SEMEN (normal volume FROZEN testing only).
- Diluent Dispenser or pipette
- 10 ml Plastic Containers
- Pipette with tips
- **QwikCheck™ Gold** testing capillary

ALL SAMPLE TESTING: Pre-heating requirements using the on-board heating unit

- Pre-heat the testing capillaries at least 4 minutes
- Pre-heat the FRESH and FROZEN diluent for at least 4 minutes before placing any semen into the container



Figure 1 Diluent Dispenser or pipette



Figure 2 Pipette the sample.



Figure 3 Add semen to the pre-heated diluent

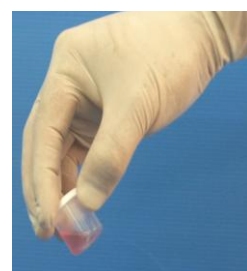


Figure 4: Gently rotate the container to mix the sample.

QwikCheck™
Gold Sample
Preparation:
FRESH
SAMPLES

FRESH SEMEN SAMPLES:

DILUENT PREPARATION (prior to adding semen)

- Place 2.0 ml of **QwikCheck™ Diluent for FRESH BULL semen** into a 10 ml plastic container (Fig. 1).
- Heat for 4 minutes in the on-board heater (Fig 5).

FRESH SAMPLE PREPARATION

1. Extract exactly 100 µl of semen using a pipette (Fig. 2), wiping the pipette tip to remove any excess semen.
2. Add the semen to the 2.0 ml of pre-heated **QwikCheck™ Diluent for FRESH BULL semen** (Fig 3).
3. Gently but thoroughly mix the sample for 10 seconds (Fig 4).
4. Fill a pre-heated testing capillary per the instructions in Appendix II: Capillary Filling Instructions for FRESH or FROZEN Samples.

QwikCheck™
Gold Sample
Preparation:
FROZEN
SAMPLES

FROZEN SEMEN SAMPLES:

1. Thaw 1-2 frozen straw(s) to room temperature. Place the semen from the straws into a pre-heated (at least 4 min) 10ml plastic container.
2. Extract exactly 200 µl of semen using a pipette (Fig. 2) and wipe the tip of the pipette to remove any excess semen.
3. Add the semen to the 500 µl of pre-heated **QwikCheck™ Diluent for FROZEN BULL semen** (Use QwikCheck Diluent for FRESH BULL semen to dilute straws prepared with MILK based freezing medias) Fig 3.
4. Gently but thoroughly mix the sample for 10 seconds (Fig 4).
5. Fill a pre-heated testing capillary per the instructions in Appendix II: Capillary Filling Instructions for FRESH or FROZEN Samples.

Appendix II: Capillary Filling Instructions for FRESH and FROZEN SAMPLES

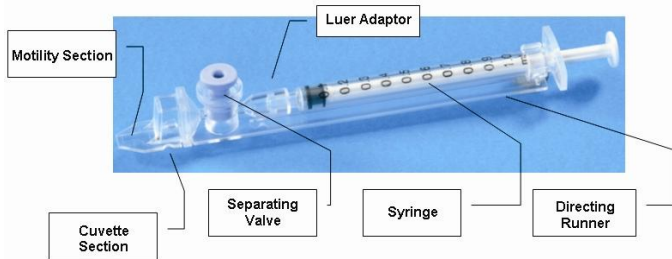


Figure 1

**QwikCheck™
Gold
Capillary
Filling
Instructions
for FRESH
and FROZEN
SAMPLES**

1. Push the syringe piston in fully. Place the thin part of the capillary into the bottom of the sample (Figure 1).
2. Placing two fingers below the piston head pull the piston back slowly while keeping the tip of the capillary well below the sample level and below any surface bubbles (Figure 1). Continue to aspirate the sample until it appears in the Luer adaptor (Figure 2).
3. Hold the capillary in a vertical position and visually confirm that the sample has completely filled the thin section and the cuvette section and appears in the Luer adaptor (Figure 2).
4. Tap on the syringe to make sure there are no air bubbles in the sample.
5. Quickly and thoroughly wipe both the top and bottom of the outer surface of the capillary with a tissue such as Kimwipes, etc. (Figure 3).
6. Visually confirm that the capillary chambers are still full after wiping. If some of the sample has been lost, a meniscus will be visible in the thin section of the capillary. If so, push very slightly on the piston to re-fill the thin capillary section.
7. Slowly and carefully push-in the separating valve until it is level with the plastic. The capillary is now ready for testing (Figure 4)
8. Insert the capillary into the **QwikCheck™ Gold** (Figure 5)



Figure 2



Figure 3



Figure 4



Figure 5

Appendix III: QwikCheck™ Gold Cleaning Instructions

When to clean:

Daily or after every 25 tests
If the system fails **SELF-TEST**

Cleaning kit components:

- Blue Dot capillaries (Fig. 1)
- Sponge-tipped drying capillaries (Fig. 2)
- Cleaning brush-wooden-handled (Fig. 4)
- Cleaning fluid

CLEANING: STEP 1

1. **TURN OFF** the *QwikCheck™ Gold* and unplug it at main electrical outlet.
2. Select a **BLUE DOT** cleaning capillary (Fig. 1).
 - Moisten with **ONE** drop of cleaning fluid, shaking off excess fluid.
 - Insert into the measurement compartment - fibrous material facing up, and move back and forth a few times in the directional runner.
 - Repeat with fibrous material facing down
 - Select a sponge material capillary (Fig. 2) and insert it in the same compartment in order to dry the chamber (Fig. 3)

CLEANING: STEP II

Clean the channel that measures concentration using the cleaning brush (Fig. 4):

1. Insert the brush (bristle-side down) fully into the upper portion of the lower chamber of the *QwikCheck™ Gold* in same manner as a testing capillary (Fig. 5).
2. Pull the brush out of the chamber while sweeping or "dusting off" the LED (you will feel a step or shelf at the back and top of the chamber – this is the top of the LED). (Fig. 6)
3. Switch *QwikCheck™ Gold* unit **ON** and observe self-test results. The system should now **PASS** the self-test. If not, repeat cleaning procedure with the brush.

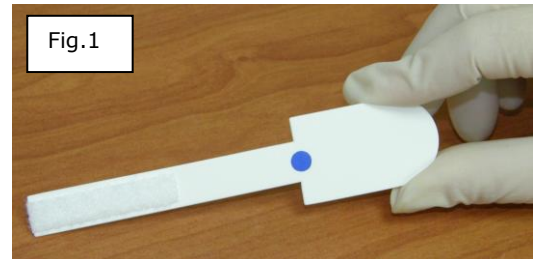


Fig.1

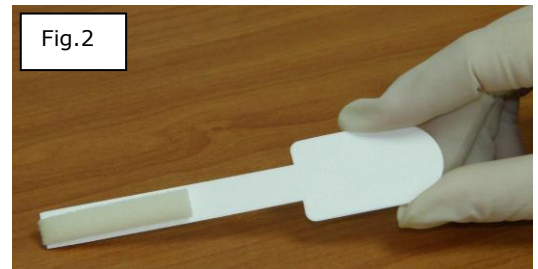


Fig.2



Fig.3



Fig.4



Fig.5



Fig.6

Appendix IV: Capillary Washing Instructions



(For animal applications ONLY!)

Both testing capillaries and 10ml sample collection cups can be washed and re-used up to 5 times by following this EASY procedure:

How to wash the Testing Capillary



Repositioning the blue valve with the jig



Removing the plunger



Reassembled capillary

How to wash the 10ml sample collection cups

Step 1 After running a test:

- Use the white capillary jig to re-position the blue capillary valve
- Expel semen by pumping the plunger a couple of times
- Soak the testing capillary in tap water until ready to wash

Step 2 Set-up: Fill with 1 liter/2 quarts of solution as follows:

- Bowl #1: Tap water (marked "TAP WATER")
- Bowl #2: Distilled water (marked "DISTILLED WATER")
- Bowl #3: Isopropyl Alcohol 70% - 100%

Step 3: Remove all liquid from the testing capillary:

- Pump the syringe plunger a couple of times to remove liquids.

Step 4: Capillary Washing – Follow this order:

- Bowl #1 Tap Water: Completely fill each capillary with tap water. Expel the solution into a hazardous waste container. **Repeat 2 times** then go to Bowl 2.
- Bowl #2 Distilled Water: Completely fill each capillary with distilled water. Expel the solution into a hazardous waste container. **Repeat 2 times** then go to Bowl 3.
- Bowl #3 Isopropyl Alcohol: Completely fill each capillary with isopropyl alcohol and expel the solution into a hazardous waste container. **Repeat 2 times.**
- Remove the plunger from the syringe.

Step 5: Capillary Drying Options:

- Place the capillaries:
 - On a flat surface and dry overnight.
 - In a commercial desiccator - follow manufacturer instructions.
 - In an oven on low heat for a few hours.

Step 6: Final Preparation/Inspection:

- Replace the plunger into the syringe and inspect the capillary.
- Discard capillaries with debris, cracks or broken parts.
- Make a dot on the capillary with a water proof marker after each washing cycle.

Washing – Please refer to Step 4 and Step 5 of the Capillary Washing Procedure above - follow the same process for washing in solution bowls #1; #2 and #3. Turn upside down on absorbent paper to dry overnight or place in a commercial warming oven for a few hours.

Appendix V: Glossary of Terms

	QwikCheck™ Gold	Definition
Sample/Test Data	SN	Serial Number of the QwikCheck™ Gold
	SAMPLE #	The number assigned to the semen sample
	BULL ID	The identifying number of the bull being tested
	HERD #	The number that identifies the herd of the bull being tested
	BREED #	The number that identifies the breed of the bull being tested
Test Results	CONC.	Total Sperm Concentration expressed in millions/ml
	MSC	Motile Sperm Concentration expressed in millions/ml
	PMSC	Progressively Motile Sperm Concentration expressed in millions/ml
	MOTILITY %	% of Motile Sperm
	PR. MOT. %	% of Progressively Motile Sperm
	MORPHOLOGY	% of Morphologically Normal Sperm
	VELOC.	The average velocity of the motile sperm cells (microns/sec) in the sample
	# SPERM	The total number of sperm cells per ejaculate (FRESH Semen)
	MOT. SPERM	The total number of motile sperm cells per ejaculate (FRESH)
PR. SPERM	The total number of progressively motile sperm cells per ejaculate (FRESH)	

Appendix VI: QwikCheck™ Gold System Specifications

Dimensions: 20 x 29 x 24cm (HXWxD) - Weight: 4.1 kg

AC power Supply: 100-251 VAC, 50/60 Hz, 10 VA

Measurement Compartment

- **Sources of radiant energy** - 2 880 nm LEDs - motility and spectrophotometry channels
- **Detector system** – 2 photo detectors - Motility and Optical Density

Display(s)

- Operational backlight LCD (16 lines x 40 characters)

Keypad

- **Operational keys:** ON/OFF, TEST, PRINT, SERVICE, DELETE, ENTER, four cursor buttons, ESC, numeric buttons (0-9)

Front Panel

- LCD operational display, Measurement compartment, Multi-button keypad

Rear/Side Panel

- Power connector with fuse-holder (fuse 250V, 2A), RS232 cable outlet, I-Button port

Specimen Testing Supplies

- **Testing capillary:** Disposable, multi use plastic (purchase from manufacturer).
- **I-Button:** Required to run tests (supplied with testing capillaries)

Archive Capacity

- 250 test records in each archive

Operating System

- **Control:** Keypad
- **Analysis Time:** Normal Test – 45-70 seconds
- **Software:** Flash memory - drives all interface functions, runs algorithms for test measurements and operational screens.
- **Sample Testing Temperature:** Calibrated for 37 degrees centigrade. Motility results will be impacted if temperature controls are not followed.
- **Motility channel input signal:** Analog, up to 5V.
- **Spectrophotometer channel input signal:** Modulated (1 kHz) analog, up to 5V.

Quality Control

- **Internal:** Electronic Self-Test and Auto-Calibration.

Operational Temperature and Humidity

- System is operational at 20-31°C / 80% humidity.
- **NOTE:** The system operates in a wide range of ambient temperatures. The system is calibrated to measure semen samples heated to 37°C / 98.6°F. Temperature is maintained during testing by built-in heating block.

Maintenance Schedule

- Clean daily or after every 25 tests (refer to the User Guide Appendix section).

Manufacturer Recommendations

- Operate the system away from devices that may cause electronic noise or other devices causing vibrations such as centrifuges.
- Turn system off at the rear-panel when not in use for extended period of time.
- Treat semen handling following procedure for biologically hazardous materials.

Factory Default Settings

Date/Time: Format - **DD/MM/YY**; Manufacturer's local date/time

Operational Default Settings:

- Automatically Print: **YES**
- Sample Type: FRESH
- # Labels to print: 1
- Conc. Standard: 1
- FREEZING MEDIA – SEMI CLEAR