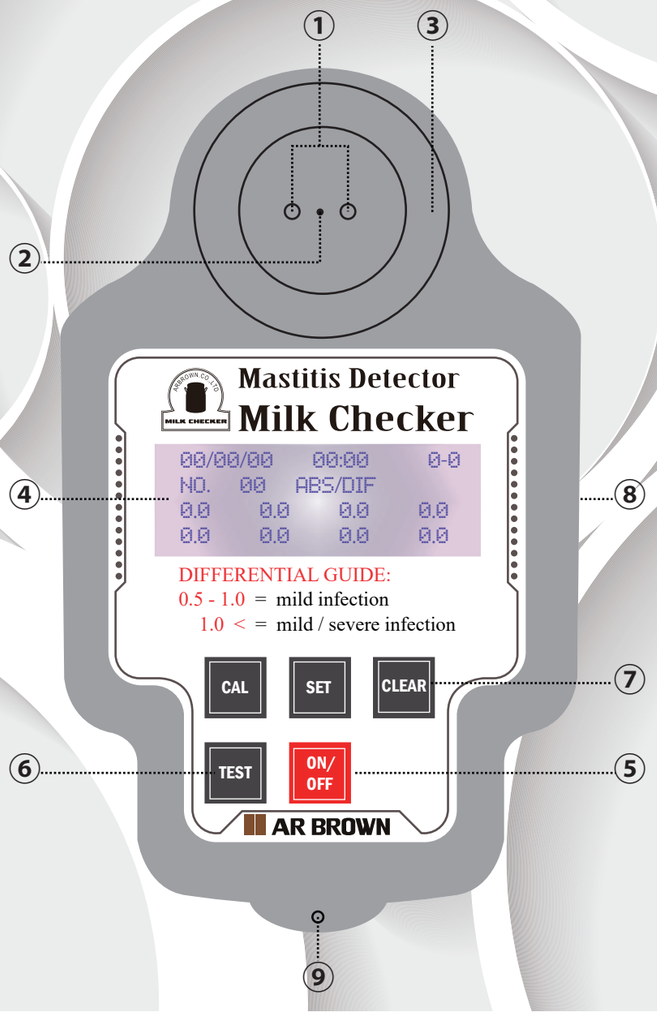
Illustration and Function



① Small Electrode Sensor
This is build-in unit, for measuring electric conductivity.

② Temperature Sensor
Electric conductivity is changed by temperature easily, but it compensates temperature automatically.

③ Sampling cup
Cup is designed to ease sampling.

④ Digital display
Absolute electric conductivity of all quarters are displayed in digital simultaneously, then calculates differential electric conductivity automatically, and also indicates calibrated electrical conductivity.

⑤ Power switch (ON / OFF)
Press the switch at first for turning on the power.
By pressing it again, power is turned off.
(If not in use, unit turns off after 3 minutes)

⑥ Measuring switch (TEST)
Electric Conductivity of four quarters are displayed in one display simultaneously by pressing TEST switch 4 times for individual quarters and press this switch one time (the 5th time) for calculation of differential electric conductivity.

⑦ Clear switch (CLEAR)
To test the new cow, the CLEAR switch will erase the previous reading held.

⑧ Battery Box
Placed on the back side of unit.

⑨ Wrist Strap

Specifications:

Measuring Method:	Measurement of electrical conductivity
Calculation:	Differential E.C. is calculated by microcomputer and automatically calibration.
Display:	Backlight LCD
Measurement Range:	0 – 13mS/cm
Accuracy:	3% ± 1 digit
Automatic Temperature Compensation:	+3 – 40℃ (compensated at +25℃)
Power Source:	Dry cell battery AA x 2 pcs.
Power Consumption:	140 mA (measuring and backlight on)
Dimensions:	91(w) × 149.5(H) × 118(D)mm
Weight:	320 g
Data Communication:	RS232C Cable

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ARBROWN.CO.,LTD
MILK CHECKER

MILK CHECKER
MCM-5L

Handy Digital Mastitis Detector for on farm

MADE IN JAPAN

AR BROWN
Think Quality & Create Value

ELECTRIC CONDUCTIVITY OF ALL QUARTERS ARE DISPLAYED SIMULTAEOUSLY, AND BOVINE MASTITIS IS EASY TO BE DETECTED ON FARM.

MADE IN JAPAN

Milk Checker is handy type device for cows to measure the electrical conductivity of milk in quarters of udder and to detect mastitis.
When inflammation or other mammary disorders occurs, plasma constituents may exudate and cause changes in concentration of electrolytes contained in cow milk such as Na+, Cl−, etc. A rise in sodium and chloride content results in increased electrical conductivity in the milk.
Milk Checker is based on this principle and can detect abnormalities in the udders quickly and accurately by measuring electrical conductivity in milk.

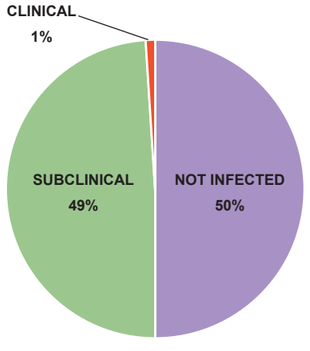
FEATURES

1. Milk Checker is very helpful to dairy farmers abnormal milk caused by mastitis can be accurately detected by computerized mechanism.
2. Because it is easy and simple to handle and the results can be quickly determined.
   Milk Checker is very useful for diagnosis of dairy cow kept on mass breeding system.
3. By the diagnostic method on the new principle different from conventional method, abnormal milk can be detected in earlier stage.
4. Detection results are displayed for all of the quarters of the udder at the same time.
   The results of the difference between quarters of the udder can also be displayed.

WHAT IS SUBCLINICAL MASTITIS?

Clinical mastitis can be easily detected because “kernels” are found in milk or various changes occur in udder. However it is very difficult to detect latent or subclinical mastitis by visual inspection.
Further, this disease causes considerable loss.

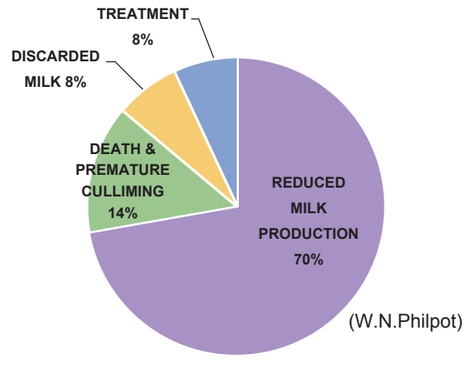
1. It occurs by 15 to 40 times more prevalent than clinical mastitis.
2. It usually precedes clinical mastitis.
3. It is of long duration.
4. It is difficult to detect.
5. It causes reduction in milk production and also adversely affects milk quality. (W.N.Philpot)



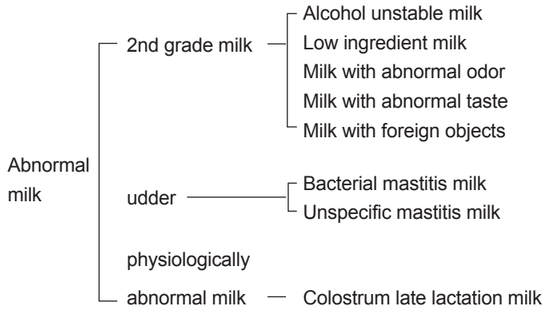
NMC (Current concept of bovine mastitis)

ECOOMIC LOSS DUE TO MASTITIS

Decrease of milk quality caused by subclinical mastitis occupies 70% of total economic loss due to mastitis. Without being aware this disease causes considerable loss to dairy farmers.



(W.N.Philpot)



The changes of milk quality due to are characterized by increase of NA+ and Cl- and decrease of K+ and lactose. The percentage of these ingredients are kept in balance due to osmotic pressure regardless of cause or degree of inflammation. Milk Checker makes it possible to diagnose mastitis by detecting abnormal milk quality and it is possible to measure low ingredient milk with lower lactose content.

THRESHOLD

Absolute Conductivity	6.2mS/cm or more	Abnormal milk
Differential Conductivity	0.5mS/cm or more	Infected

Note: Test each quarter of udder. The degree of inflammation can be detected by hind differential conductivity between quarters of udder.

Perform diagnosis using absolute conductivity values by taking such factors as systemic disease, changes of feed materials, estrus, lactation period, treatment by antibiotics, and other factors into account.

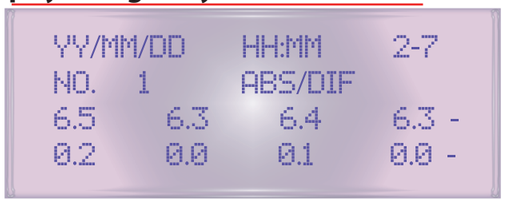
THRESHOLD FOR ABNORMAL MILK BASED ON ABSOLUTE CONDUCTIVITY AND DIFFERENTIAL CONDUCTIVITY

Absolute Conductivity (ms /cm)	Differential Conductivity between quarters	Evaluation
6.2>	0.5>	Normal milk
6.2>	0.5<	Abnormal milk
6.2<	0.5<	Infected milk (containing low ingredient milk and physiologically abnormal milk)
6.2<	0.5>	Low ingredient milk and physiologically abnormal milk

In case differential conductivity values between quarters of udder exceeds 0.4, there is a risk of mastitis. Consult veterinarian

Example of normal milk

Example of Low ingredient milk and physiologically abnormal milk



Example of mastitis milk ①

Example of mastitis milk ②