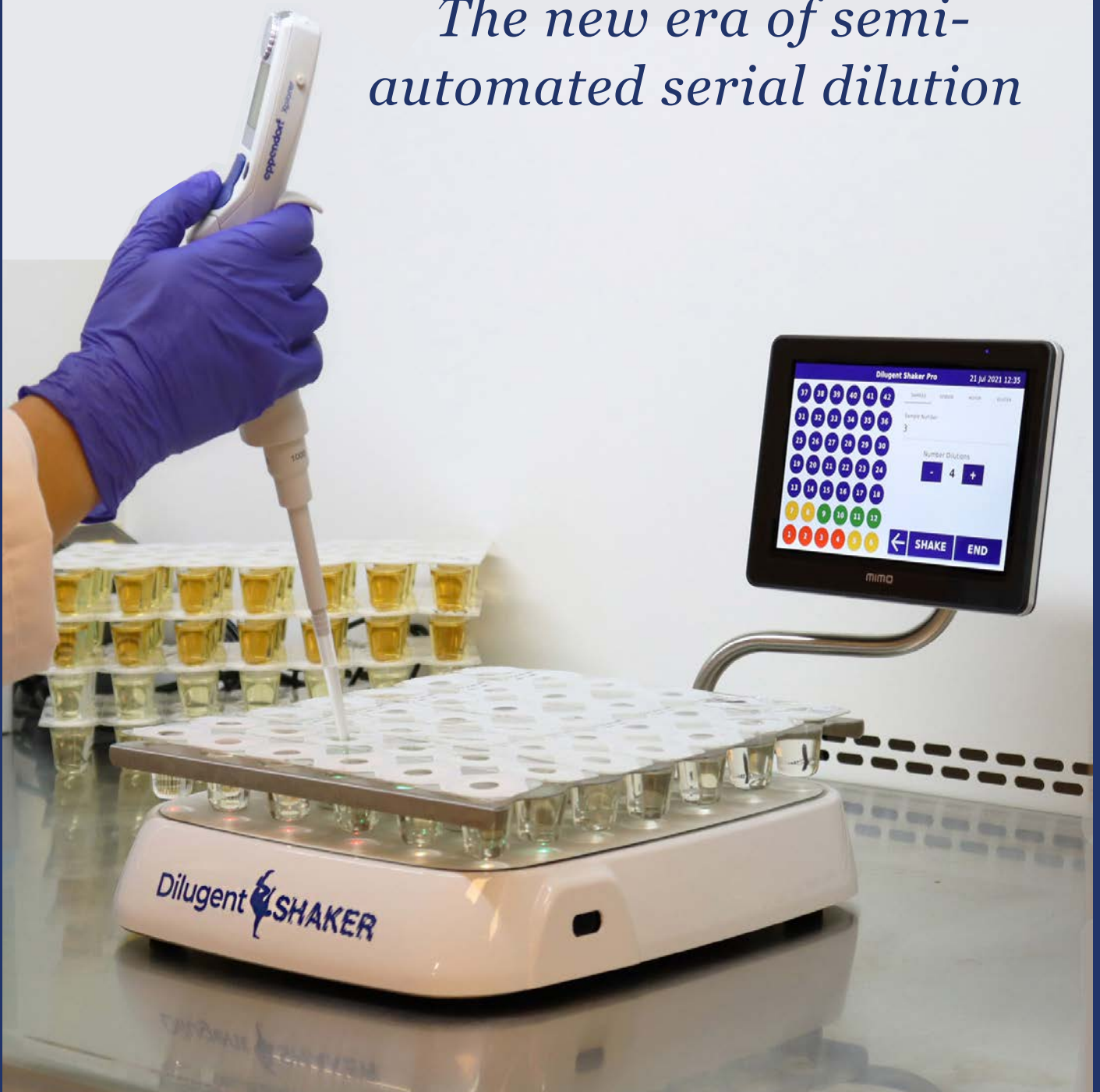


# Dilucup<sup>®</sup> System

*The new era of semi-automated serial dilution*



# Contents

Optimize your serial dilution

Dilucup® System

Standardize your results

Dilucup® Elegance

Diligent® Shaker

The first traceable dilution system

Diligent® Shaker is available in 3 models

Dilushaker III *digital*

Benefits of the Dilucup® System

Enumerate microorganisms with Dilucup®

Contact information

# Optimize your serial dilution process



DILUCUP® SYSTEM ALLOWS STANDARDIZATION OF THE DILUTION PROCESS AND REDUCES VARIABILITY BETWEEN TECHNICIANS

# Dilucup® System

## SAVE TIME

*Reduces technician labor time and cost; allows them to reallocate saved time to other activities*



## COST SAVING

*Due to increased effectivity*



## EASY TO USE

*Ready-to-use Dilucup® and intuitive instruments*



## TRACEABILITY AND AUTOMATION

*Reproducible system increases quality of the results*



## PREVENT INJURIES

*The shakers eliminate repetitive motion concerns; great from an employer perspective*



## SAVE STORAGE AND TRANSPORT SPACE

*Thanks to Dilucup® compact design*



MADE IN SWEDEN





## STANDARDIZE YOUR RESULTS



### Easy as 1, 2, 3!

- 1 Add 1mL of sample to the first Dilucup®
- 2 Start the shaking
- 3 Collect 1mL to the next Dilucup®

# Dilucup® Elegance

Dilucup® Elegance is a small container pre-filled with **9 mL of sterile diluent**.

A thin film guarantees the sterility and **right volume** in the cups.

The design of the cups allows its **rotation at high speed** without spilling on Dilushaker III or Dilugent® Shaker.

Dilucup® is available in blisters of seven rows of either three or six cups.



STERILIZED BY  
IRRADIATION

EASY  
PEEL-OFF  
FILM

THE WHITE  
FILM KEEPS THE  
SOLUTION IN THE CUP  
WHEN SHAKING



**30 MONTH  
SHELF LIFE**

LabRobot offers 3 standard Dilucup® Elegance products, but other diluents can be ordered on request.

#### Dilucup® Elegance MRD (Maximum Recovery Diluent)

Compostion: Peptones 1 g/L, NaCl 8.5 g/L, Buffers / pH: 7.0 ± 0.2

40DEM RD3      3 cups/row, 9.0 mL ± 2 %  
672 total cups/box (2 bags x 16 blisters x 21 Dilucup®)

40DEM RD6      6 cups/row, 9.9 mL ± 2 %  
672 total cups/box (2 bags x 8 blisters x 42 Dilucup®)

40DEM RD993    3 cups/row, 9.9 mL ± 2 %  
672 total cups/box (2 bags x 16 blisters x 21 Dilucup®)

#### Dilucup® Elegance BPW (Buffered Peptone Water)

Compostion: Peptones 10 g/L, NaCl 5 g/L, Buffers / pH: 7.0 ± 0.2

40DEBPW3      3 cups/row, 9.0 mL ± 2 %  
672 total cups/box (2 bags x 16 blisters x 21 Dilucup®)

40DEBPW6      6 cups/row, 9.0 mL ± 2 %  
672 total cups/box (2 bags x 8 blisters x 42 Dilucup®)

#### Dilucup® Elegance NACL (Saline solution)

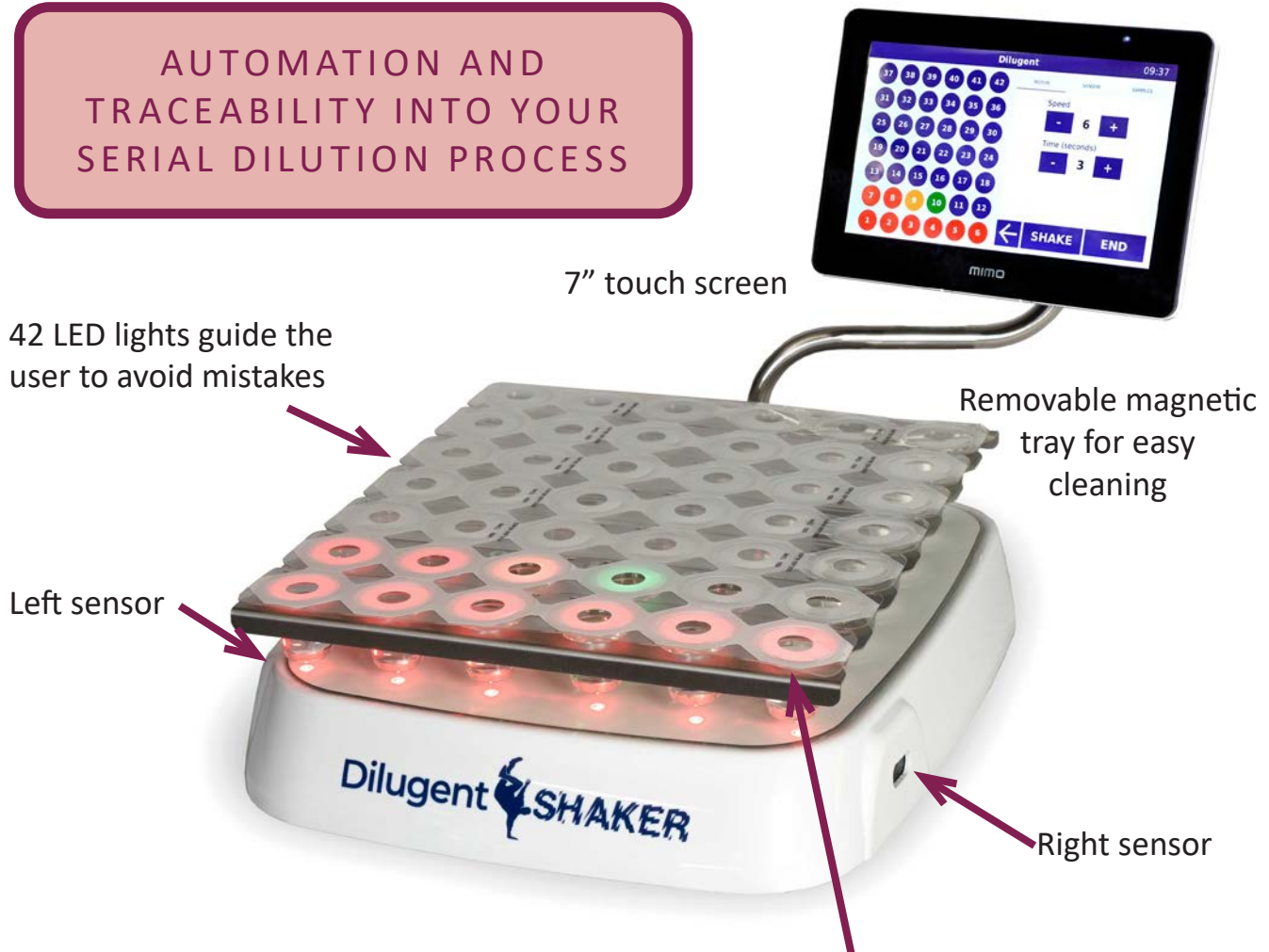
Compostion: NaCl 8.5 g/L, Buffers / pH: 7.0 ± 0.2

40DENACL3      3 cups/row, 9.0 mL ± 2 %  
672 total cups/box (2 bags x 16 blisters x 21 Dilucup®)

40DENACL6      6 cups/row, 9.0 mL ± 2 %  
672 total cups/box (2 bags x 8 blisters x 42 Dilucup®)

# Dilugent® Shaker

AUTOMATION AND  
TRACEABILITY INTO YOUR  
SERIAL DILUTION PROCESS



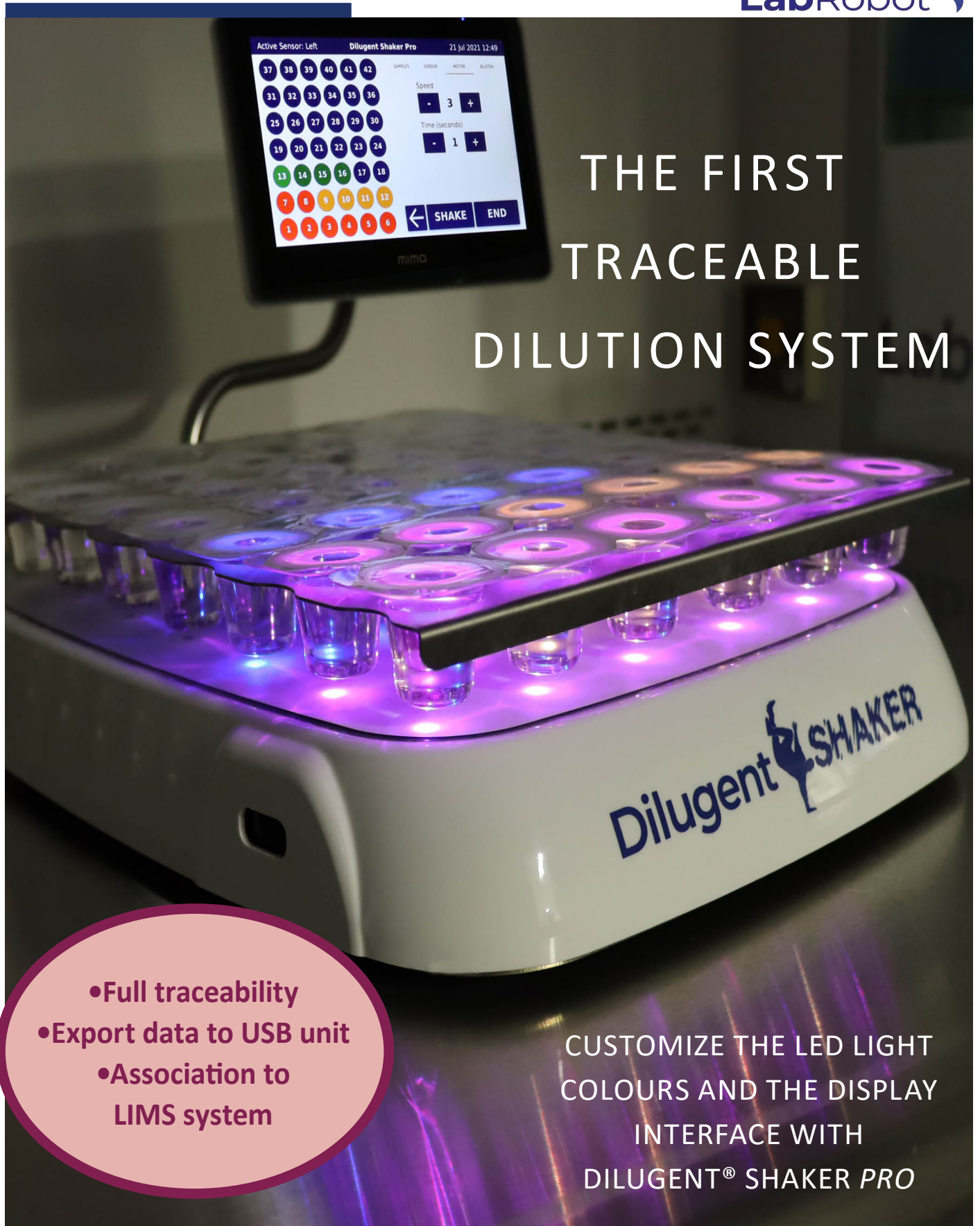
#### Colour legend:

- Flashing green: first cup to be used in the dilution series
- Green: cup to be used
- Orange: cup already used in the dilution series
- Red: cup already used in the previous dilution series

Dilugent® Shaker is an innovative instrument that **guides the user** through the dilution process. A **LED light under each well (42 in total)** and the display clearly indicate where the user is in the dilution series **minimizing user error**.

**Customize** your testing programs by saving up to **10 different templates** to make time in the laboratory more **effective**.





# THE FIRST TRACEABLE DILUTION SYSTEM

- Full traceability
- Export data to USB unit
- Association to LIMS system

CUSTOMIZE THE LED LIGHT  
COLOURS AND THE DISPLAY  
INTERFACE WITH  
DILIGENT® SHAKER PRO

Diligent® Shaker provides full traceability by saving information of the Dilucup® batch, the operator ID, the sample ID, the shaking time, the rotation speed, the number of dilutions in a sample and the day and time of the dilution.

# Precision and speed at your fingertips!

COMFORTABLE  
PIPETTING

EACH CUP  
THOROUGHLY  
VORTEXED

INTUITIVE  
AND EASY

- Activation of the shaking by 2 optical sensors or footswitch
- Shaking speeds: 410, 460, 510, 560, 610, 660 rpm
- Shaking time: 1 to 60 s
- For 7x6 or 7x3 Dilucup®
- 2D code reading with external scanner
- Dimensions *without screen*: 38 cm x 30 cm x 8 cm, 5.1 kg

## Diligent® Shaker is available in 3 models

Features	Diligent® Shaker <i>Light</i>	Diligent® Shaker	Diligent® Shaker <i>Pro</i>
Possible steering with foot switch	•	•	•
Selectable working direction (from Left or Right)	•	•	•
Up to 2 templates can be stored	•		
Up to 10 templates can be stored		•	•
Visual "service required" information, Service menu	•	•	•
Error codes	•	•	•
Possible 2D code (bar or QR) reading		•	•
Visual information of active sensor		•	•
Sample, user, Dilucup® batch identification		•	•
Export of information to USB memory		•	•
Full traceability of operations		•	•
Advanced programming			•
Step ahead without shaking for doing replicates			•
Customizable interface and LED light colours			•
Full connectivity (LIMS interface not included)			•

### Diligent® Shaker *Light*

Same design with a lighter software. No traceability.

40DGT84LT

### Diligent® Shaker

Traceability of dilutions. Export of information. 2D code reading with external scanner.

40DGT84SD

### Diligent® Shaker *Pro*

Advanced programming for those who work with duplicates, triplicates or have other traceability needs. Possible connection to LIMS.

40DGT84PO

### Accessories

Scanner

40SC04

Power supply 12V (*included with all models*)

40PS85

Footswitch

40FS02

Transport suitcase for Diligent® Shaker with 2 wheels and trolley handle

40TC6700

# Dilushaker III *digital*



Optical sensor

Adjustable rotation speed (400, 500 or 600 rpm)

Adjustable number of dilutions per sample

Adjustable vortex time from 1 to 30 s

2 MODELS:  
FOR 21 OR 42  
DILUCUP®



LED lights indicate the position of the next dilution

Removable tray for easy cleaning

Specifications	Dilushaker III	Diligent® Shaker
Shaking time	1 to 30 s	1 to 60 s
Motor speed	400, 500, 600 rpm	410, 460, 510, 560, 610, 660 rpm
Number of LED lights	3 or 6	42
Steering by footswitch	Yes	Yes
Optical sensor for shaking	One in the front	Two; one on each side
Total height (without screen)	11 cm	8 cm (more ergonomic)
Tray removal	Rotate while pressing	Magnetic
Same machine for 7x3 or 7x6 Dilucup®	No	Yes
Traceability of dilutions	No	Yes
Shake without influencing the LED lights	No	Yes
Simultaneous dilution with optical guide	No	Yes



### Dilushaker III

Tray for 21 Dilucup® (7x3), ramp with 3 LED lights. 19cm x 34.5cm x 11.5cm	40DS21PRXT
Tray for 42 Dilucup® (7x6), ramp with 3 LED lights. 26cm x 34.5cm x 11.5cm	40DS42PRXT

### Accessories

Footswitch	40FS02
Power supply 12V for Dilushaker III (included with all models)	40PS12
Transport suitcase for 1 Dilushakers III with 2 wheels and trolley handle	40TC5500
Transport suitcase for 2 Dilushakers III with 2 wheels and trolley handle	40TC1567

## Benefits of the Dilucup® System

- **Save time**

Ready-to-use cups in addition to save half the time per dilution compared with standard dilution tubes.

- **Save money**

The reasonable cost of the ready-to-use Dilucup® combined with the significant increase of the laboratory efficiency is contributing positively to the lab economy.

- **Prevent work injuries**

All the shaking vibrations are absorbed by the shaker when using the Dilucup® System, this prevents possible injuries as Repetitive Strain Injuries with the repeated use of a vortex mixer.

- **Increase quality**

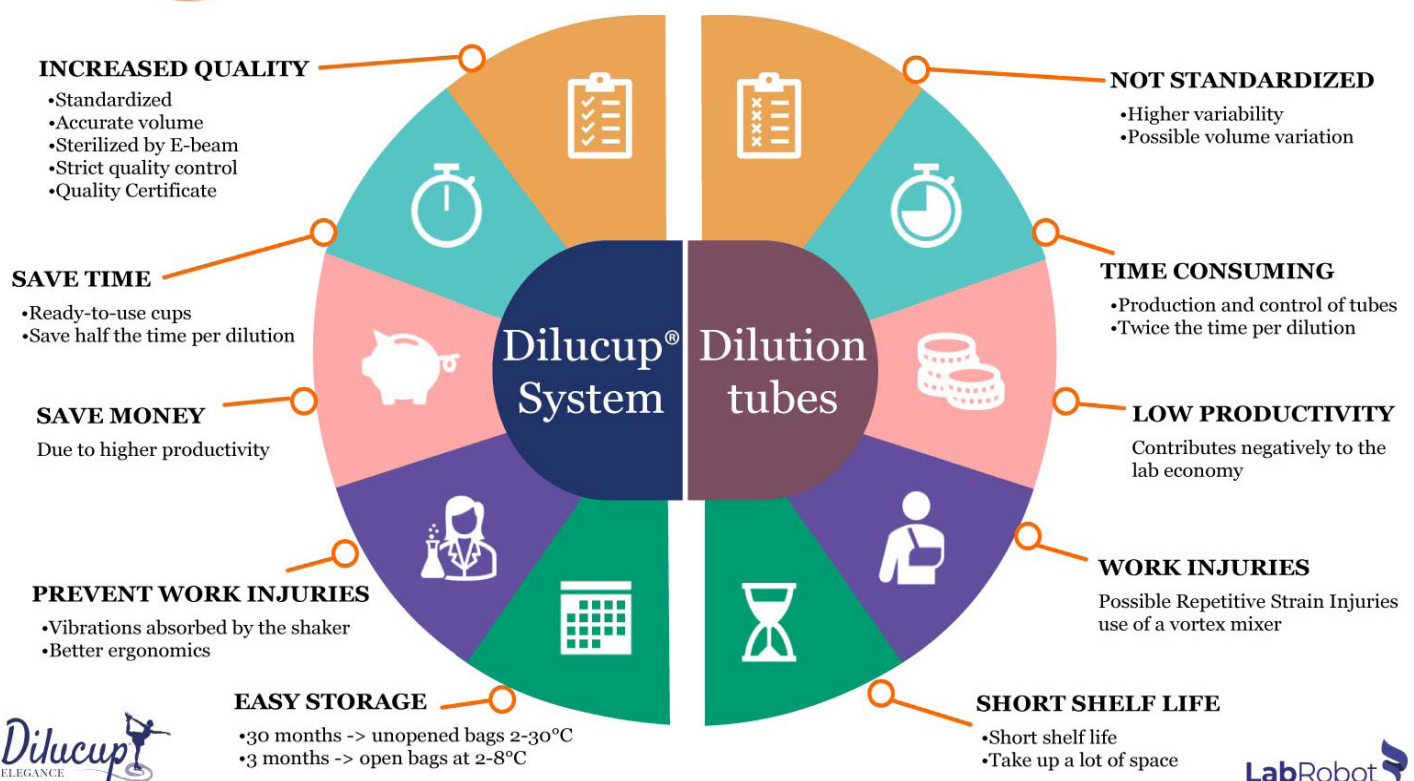
This is obtained through the standardization of the dilution process (less variability) and the accurate volume of the diluent in the Dilucup®.

- **Easy storage**

Sealed bags with Dilucup® can be stored at room temperature up to 30 months. Bags that are open can be stored for up to 3 months refrigerated. In addition, Dilucup® requires half the space that dilutions tubes would need.

# 5

## reasons to use the Dilucup® System



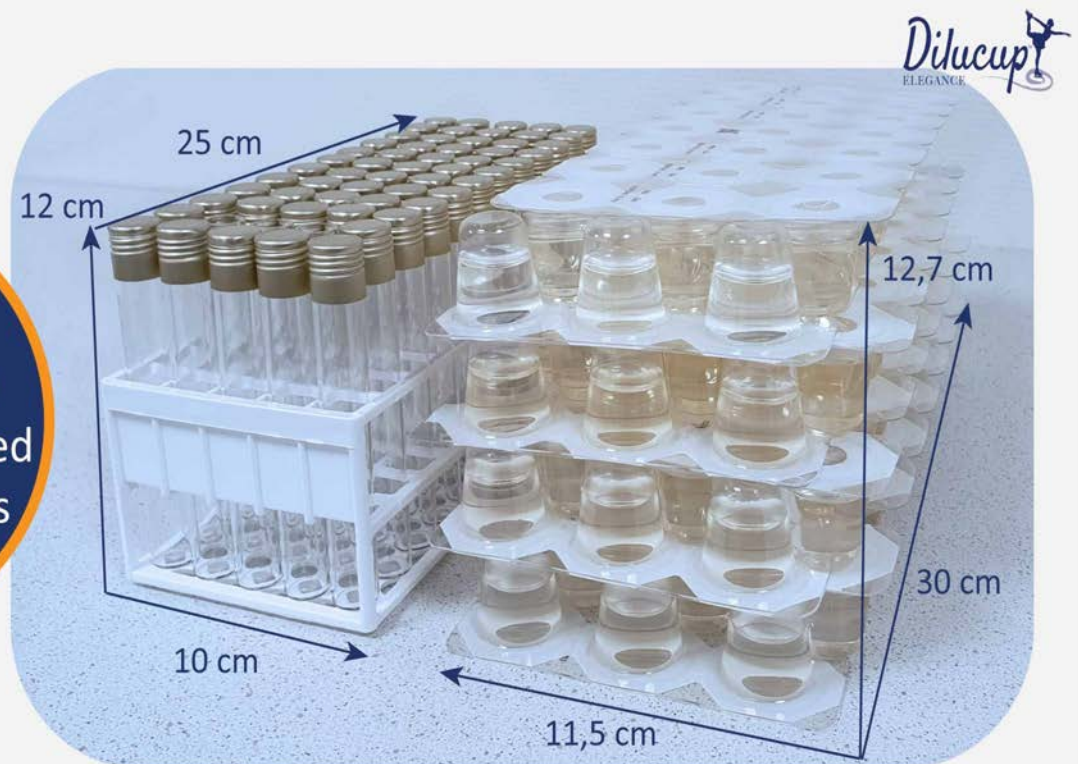
## Space is money, and Dilucup® helps you to save it!

The design of Dilucup® allows the blisters to be packed in a way that significantly reduces footprint. Less volume equates to less storage and transport space, resulting in less impact on the environment.

You will have **twice as many samples with Dilucup®** in the same space as for dilution tubes.

Can you imagine the space you could save in your laboratory with Dilucup®?

**48%**  
less space with  
Dilucup® compared  
to dilution tubes



60 tubes  
50 cm<sup>3</sup>/tube

168 Dilucup  
26 cm<sup>3</sup>/Dilucup®

## Increase the quality of your results

Standardize your dilution process. With Dilucup® you do not need to worry about volume or pH.

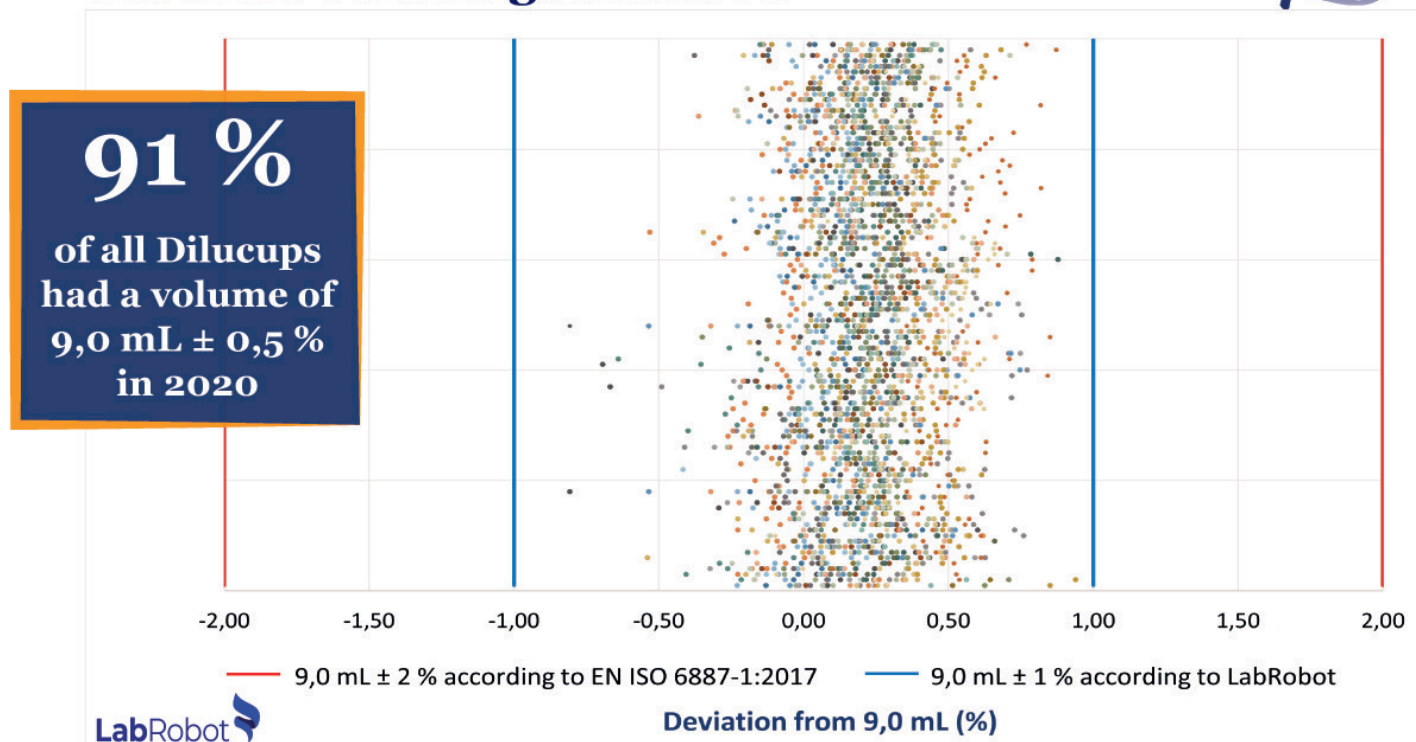
The following parameters are always guaranteed:

- Sterility
- Accurate volume 9 mL  $\pm$  2 %
- pH 7,0  $\pm$  2%
- Same orbital vortex in every cup
- Recipe consistency

In 2020 none of the cups manually controlled in the quality control laboratory exceeded the  $\pm$  1 %.



### Accurate volume guaranteed



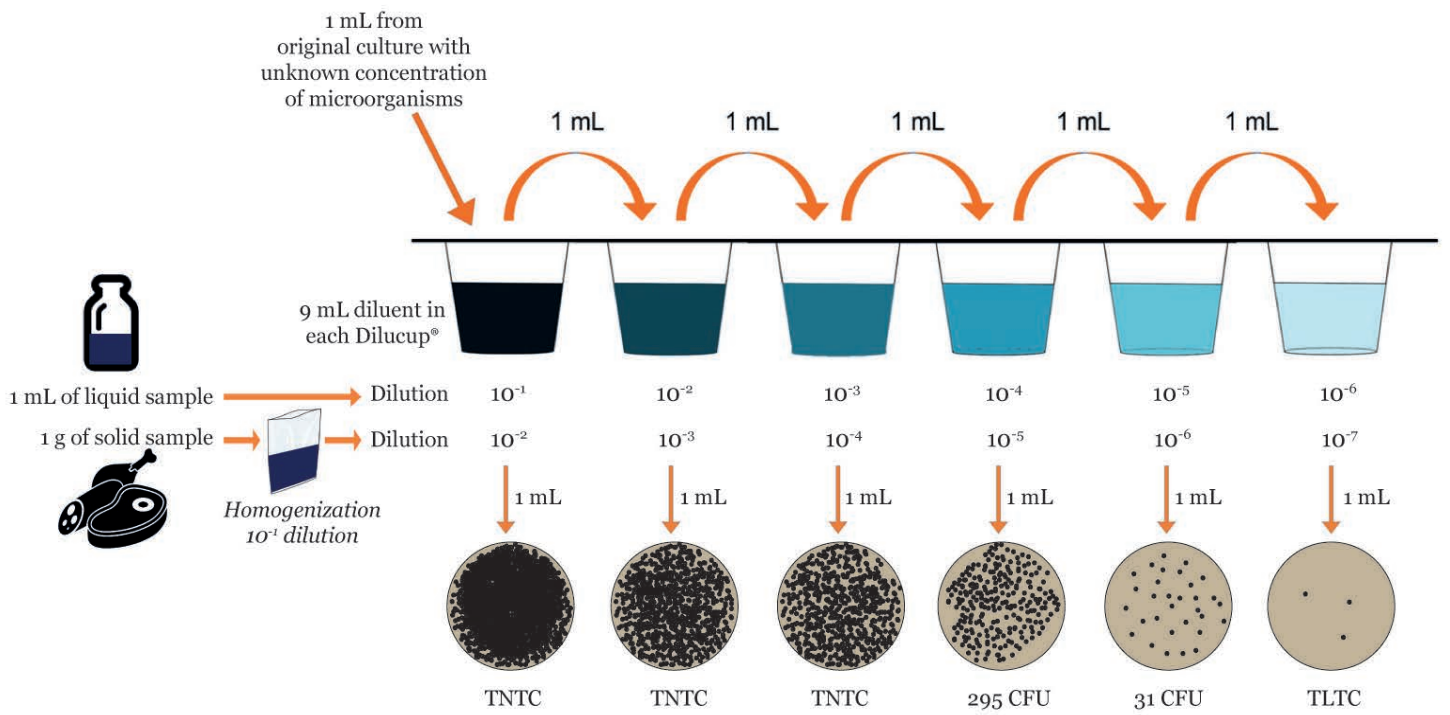
**Fig. 1:** Every point represents a Dilucup manually controlled in LabRobot's QC laboratory during 2020. The red lines represent the limits of deviations from 9,0 mL ( $\pm$ 2%) tolerated according to EN ISO 6887-1:2017 and the blue lines according to LabRobot ( $\pm$ 1%).  
**Conclusion:** All Dilucups manually controlled in 2020 had a volume deviation of 9,0 mL  $\pm$ 1,0%.



# How to use Dilucup® System

1. Place the blister with Dilucup® on the shaker.
2. Tear off the protective film.
3. Add 1 mL sample to the first Dilucup®.
4. Start the shaker by moving your hand in front of the optic sensor. *The 1:10 dilution is now ready.*
5. With a new sterile pipette tip, collect 1 mL from the first cup and release it into the second cup in order to perform the next dilution 1:100.
6. Start the shaker by moving your hand in front of the optic sensor.
7. Repeat this operation until the final dilution rate is reached.

How to enumerate the microorganisms in a sample with Dilucup® Elegance?



Initial concentration of microorganisms =  $\frac{\text{CFU}}{\text{dilution}}$

$295/10^{-4} = 2,95 \cdot 10^6$  CFU/mL in the liquid sample

$295/10^{-5} = 2,95 \cdot 10^7$  CFU/g in the solid sample

The initial concentration of microorganisms is:  
 $3 \cdot 10^6$  CFU/mL in the liquid sample  
 $3 \cdot 10^7$  CFU/g in the solid sample



## Contact information

### LabRobot Products AB

Munkerösvägen 4, SE-444 32 Stenungsund, Sweden

+46 303 846 73

kontakt@labrobot.com

For further information visit our website: <https://labrobot.com/>

Version number: DSP2107.1

FOLLOW US!

