

eVol[®] Everyone an Expert

Introducing the Worlds First Digitally-Controlled
Analytical Syringe





eVol – Every One an Expert

eVol is the union of two precision devices

a digitally controlled electronic drive



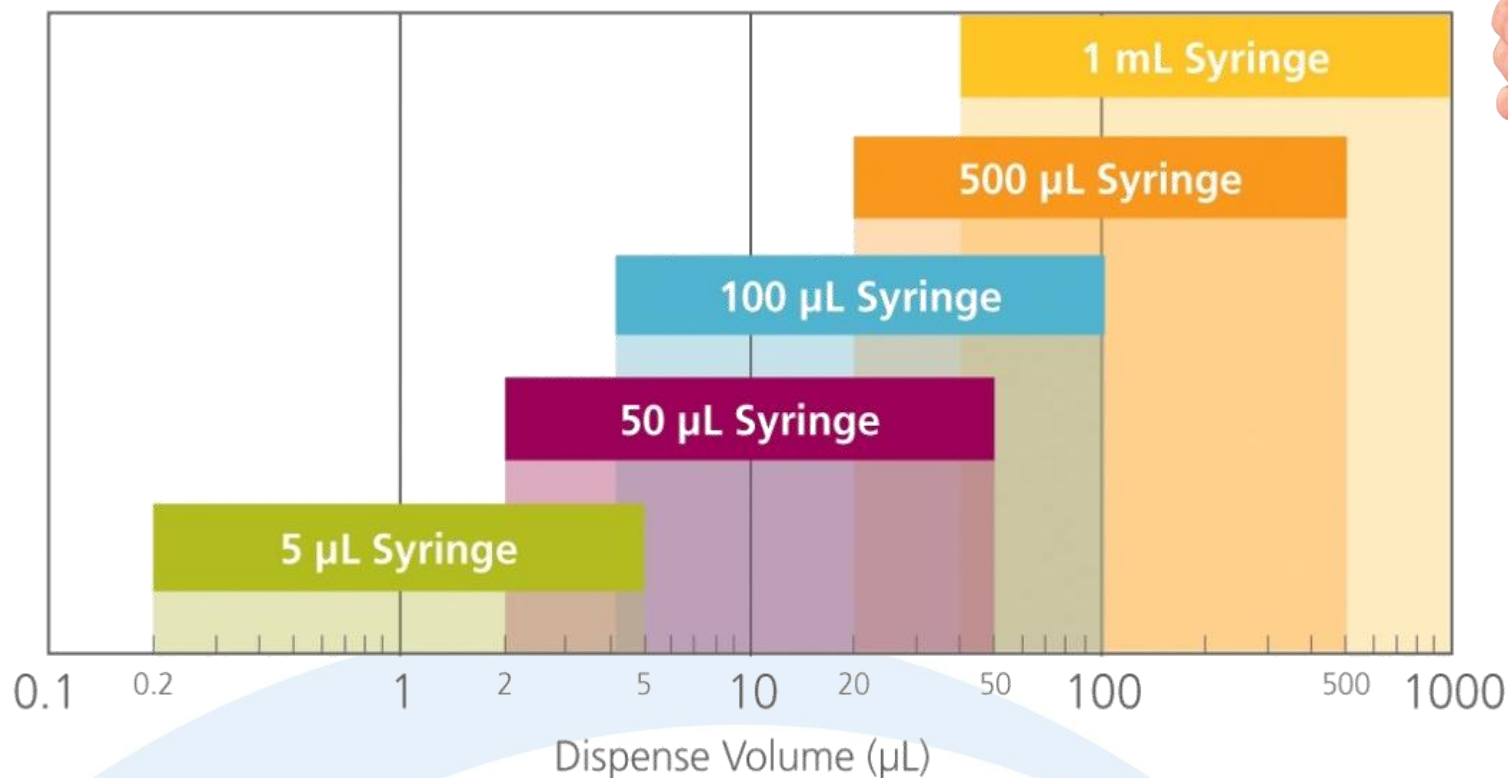
and

XCHANGE[®] Analytical Syringes





eVol XR



Complete eVol[®] syringe range which allows dispensed volume from 200nL – 1mL.



eVol - Accuracy and Precision

eVol is both **precise** and **accurate**
independent of the user's skills



eVol - Every One an Expert

GAOI - IFAGLA OUG SU IFXDGLO



eVol - Accuracy and Precision

eVol is both precise and accurate independent of the user's skills

Precision ●

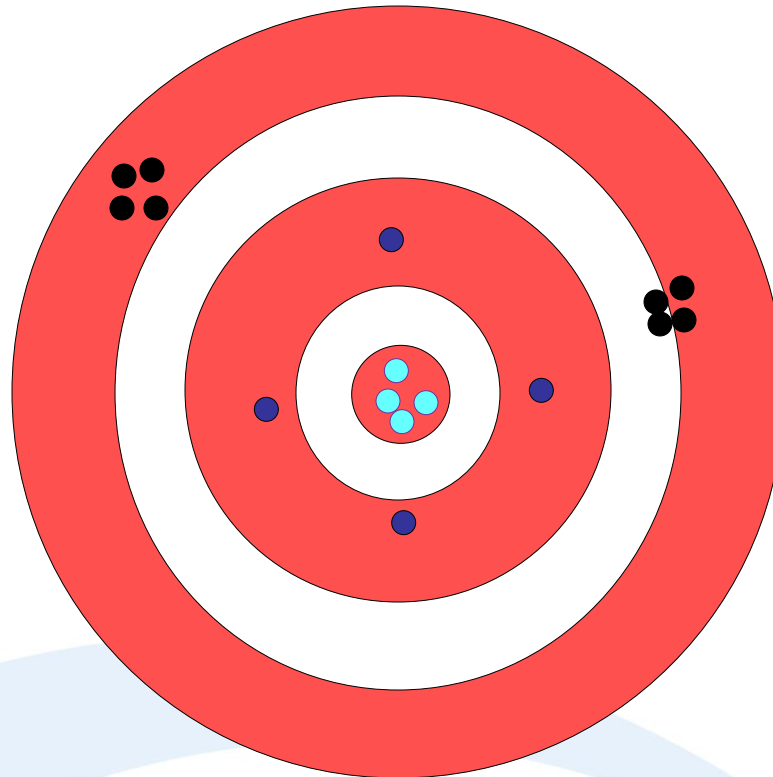
results are close together

Accuracy ●

average result is accurate

eVol ●

Accurate and Precise



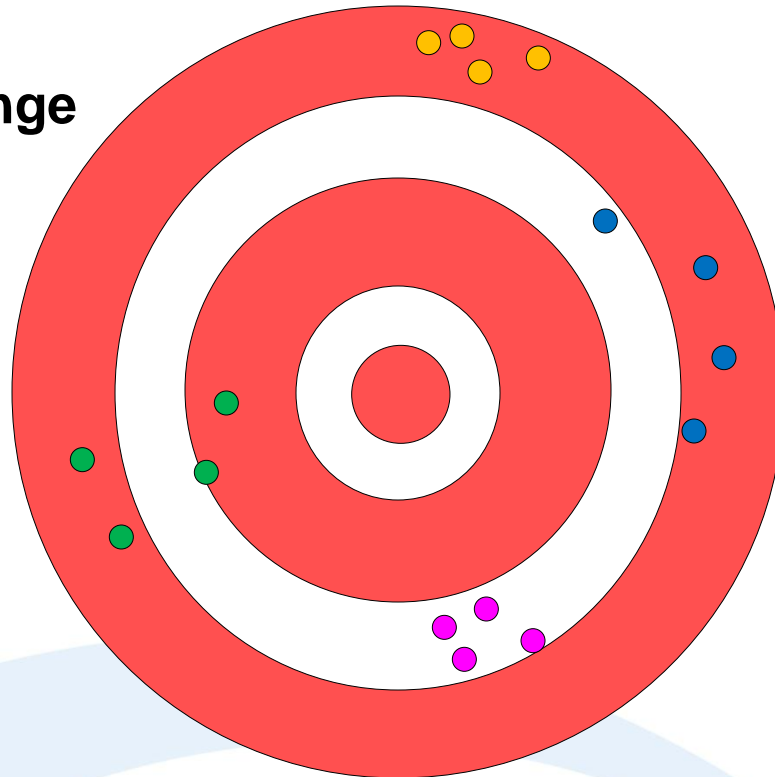


eVol - Accuracy and Precision

eVol is both precise and accurate independent of the user's skills

Manual dispensing
with **Analytical Syringe**

- User A** ● Not Precise
Not Accurate
- User B** ● Precise
Not Accurate
- User C** ● Precise
Not Accurate
- User D** ● Not Precise
Not Accurate



User B and **C** are both able to manually dispense liquid **precisely**
but since they are not accurate they will get **different results**



eVol - Accuracy and Precision

eVol is both precise and accurate independent of the user's skills

operator-error

Manual dispensing
with **un-calibrated eVol**

User A ● Precise

User B ● Precise

User C ● Precise

User D ● Precise



An **un-calibrated eVol** removes
The **operator-error** from any
dispensing procedure,
for any liquid
with an accuracy better
than $\pm 1.0\%$ at full scale

Even with an un-calibrated eVol **User A, B, C and D** are
all able to manually dispense any liquid **precisely**



eVol - Accuracy and Precision

eVol is both accurate and precise independent of the user's skills

mechanical-error

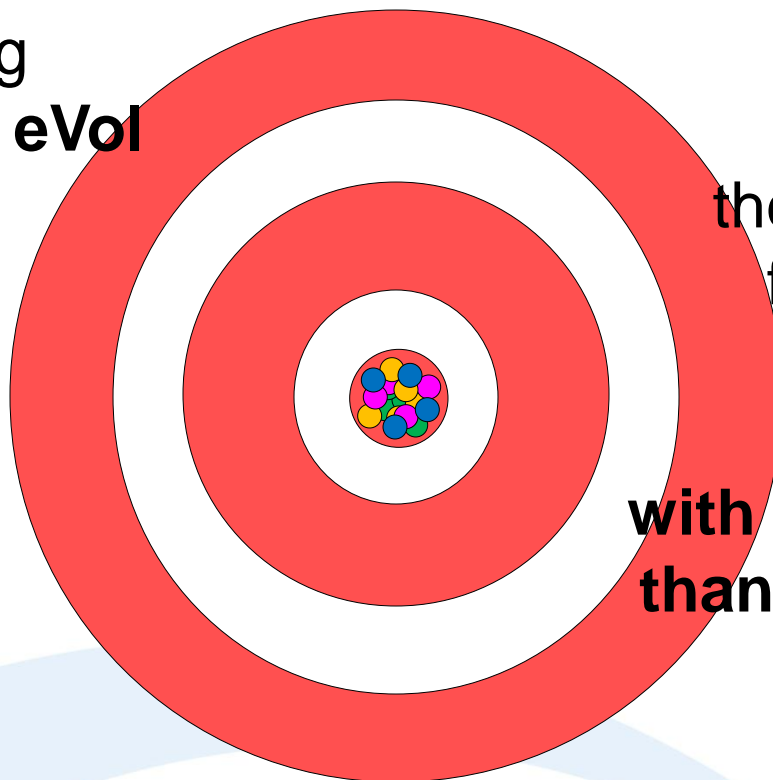
Manual dispensing
with a calibrated eVol

User A ● Precise &
Accurate

User B ● Precise &
Accurate

User C ● Precise &
Accurate

User D ● Precise &
Accurate



A calibrated eVol
removes
the **mechanical-error**
from any dispensing
procedure,
for any liquid
**with an accuracy better
than $\pm 0.5\%$ at full scale**

With a calibrated eVol **User A, B, C and D** are all able to
manually dispense any liquid **precisely and accurately**



eVol – Comparison with Pipette

Pipette 5-100uL Evol with 50uL (25ul volume)	Average dispensed volume (uL)		% RSD (Precision)		% Accuracy	
	Pipette	eVol	Pipette	eVol	Pipette	eVol
Water	24.36	24.98	1.6	0.1	2.6	0.1
Methanol	23.78	25.01	5.9	0.2	4.9	0.04
DCM – not sealed	22.20	22.33	4.1	1.2	11.2	10.7
DCM – sealed	✗	25.00		0.2		0.0



eVol - Accuracy and Precision



Syringe	Accuracy			Precision	
	Calibrated Syringe at Full Scale	Calibrated Syringe at 10% Scale	Uncalibrated Syringe at Full Scale	RSD at Full Scale	RSD at 10% Scale
1 mL	± 0.2 %	± 0.5 %	± 0.5 %	± 0.3 %	± 0.6 %
500 µL	± 0.2 %	± 0.5 %	± 0.5 %	± 0.3 %	± 0.6 %
100 µL	± 0.2 %	± 0.5 %	± 0.7 %	± 0.4 %	± 0.7 %
50 µL	± 0.2 %	± 0.5 %	± 1.0 %	± 0.4 %	± 0.8 %
5 µL	± 0.2 %	± 1.0 %	± 1.0 %	± 0.5 %	± 1.0 %



eVol – Every One an Expert

eVol will be valued for all liquid handling applications that require **accurate** dispensing.

Accuracy is always important for quantitative tests that rely on absolute readings or comparisons to external standards.

Examples:

- Preparation of calibration standards (internal and external)
- Dispensing of internal standards
- Preparation of control samples
- Serial dilutions
- Sample spiking (surrogate samples)
- Antibody addition in immunoassays
and so on....





Seek First to Understand

- Are manual syringes and/or pipettes used in the laboratory?



- What applications are syringes/pipettes being used for?

Addition internal standards, calibration standards, serial dilutions

- What solvents/solutions are used?

Aqueous, non-aqueous, viscous, volatile, hazardous

- Are accurate, reproducible results required?





eVol

FEATURE

BENEFIT

Ergonomic, light, can be used with right or left hand

Easy to use, operate all day



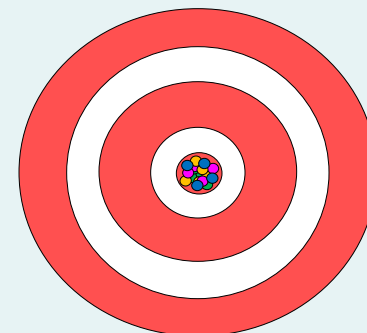
Touch wheel, large colored screen

Rapid menu selection, easy to use



Digitally controlled aspirate and dispense

Accuracy, reliability and precision



FEATURE

BENEFIT

Colored syringes with unique batch number

Easy use, easy identification, no risk of contamination. traceability



Syringes with gas tight plunger (PTFE) as a positive displacement system

Applicable for liquid/gas/viscous /aqueous/volatile samples with high accuracy and precision.

Syringes with metal needles

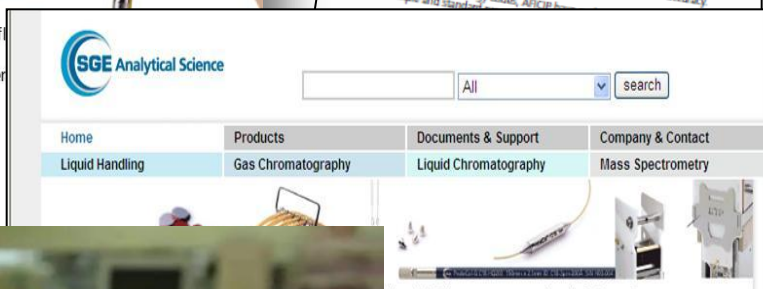
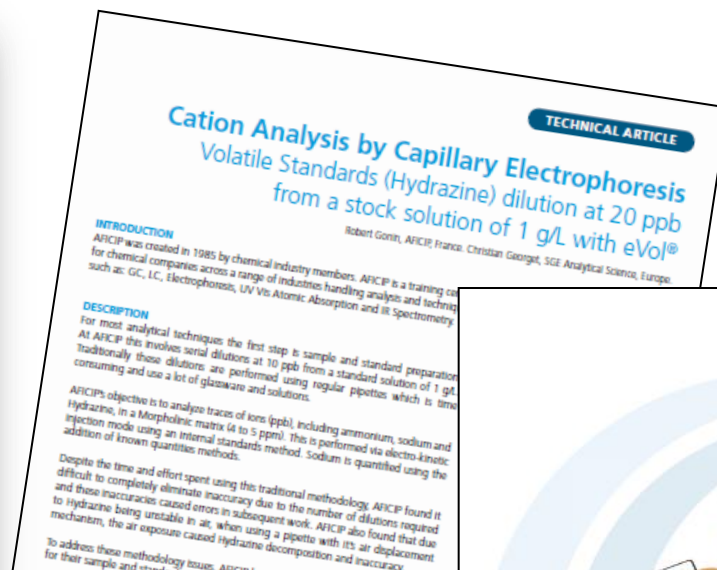
Can pierce vial septa reducing handling time and avoiding risk of contamination. Ensures minimal evaporation for volatile samples.



Resources

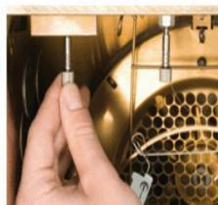


- Speed up and simplify laboratory work
- Improve accuracy and reproducibility
- Standardize results independent of operator



Liquid Chromatography | Mass Spectrometry

gas chromatography
columns without the



Technical support



eVol – Value Proposition

For laboratories that need to repeatedly dispense liquids, especially non-aqueous liquids, eVol is a digitally-controlled positive-displacement device that improves the efficiency of the laboratory and the reliability of results. Unlike other laboratory dispensing-devices, eVol is a unique hand-held digital dispenser that can be easily calibrated to accurately and precisely dispense liquids independent of the user's skills.