FAQ Calvolver

Automated pipette calibration

1 - Basic information
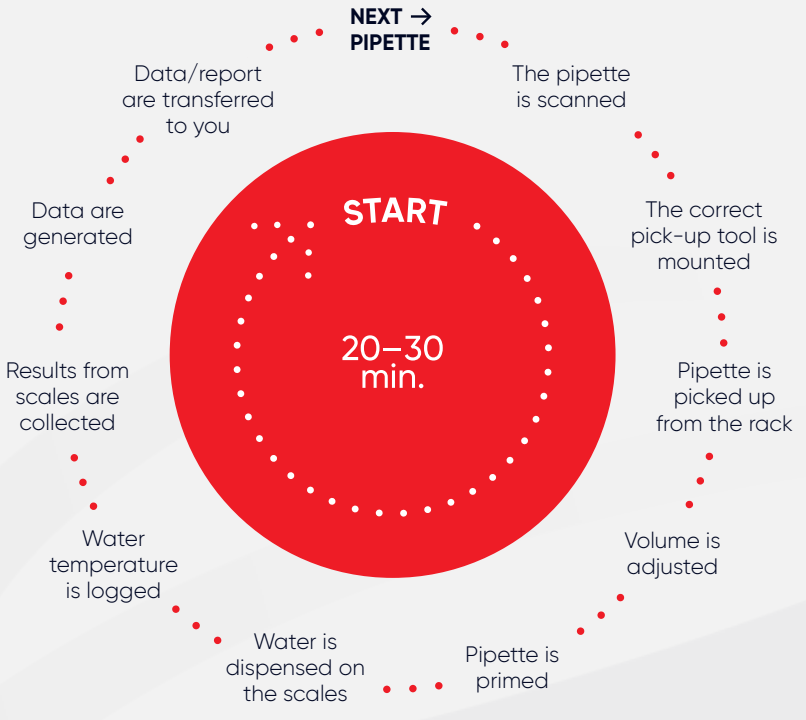
What is Techvolver and Calvolver?	Techvolver is the name of our company. We are a tech start-up situated just outside Copenhagen, Denmark. We automate tedious, repetitive workflows in laboratories. Calvolver is the name of our automated pipette calibration solution.
Where is Calvolver installed?	It will be installed in your laboratory and you will operate Calvolver yourselves
Do you need to have special tech knowledge to calibrate pipettes?	No, it is very simple to operate Calvolver. You can compare it to using a dishwasher: you place the pipettes – you press 'START' – you wait – you receive the calibration data.
Is manual handling needed?	No manual handling is needed, when the pipettes have been placed in the rack and the calibration is started. The manual part of the calibration is eliminated.
How much does it cost?	Calvolver is a service solution, so there are no investments (no CAPEX) needed from your side. You pay a monthly fee covering installation, validation, service and support. We have a production guarantee, so if Calvolver does not produce (and it is not you who have crashed something into it) you do not pay. Typically, we will have a 4 hour response time, and if Calvolver is not up and running within 24 hours, you do not pay. ***Please contact our Sales Manager, Ole Cornow, oco@techvolver.com for an offer based on your specific needs***

How much downtime/ break down have you experienced?	So far we have not experienced a breakdown of 24 hours.
Who does the CE-certification?	Techvolver does. It is included in the monthly cost.
Is Techvolver ISO-compliant?	Yes, Calvolver complies with relevant requirements in the following standards: ISO 9001-2015 Quality Management ISO 8655-2002 Pipettes with piston ISO 17025-2017 Calibration laboratories ISO 10218-2012 Robotic systems ISO 20607-2019 User instructions
Is it possible to have a user manual in local language?	Yes. We can make the risk assesment and user manual in Danish or other local language.

2 – Features & function

What power installation is needed?	You need: 220 volts – earth (jord)
What is the noise level for the system?	< 70 dB But really, it is very non-intrusive – normally less noisy that the lab ventilation.
What's the dimensions of the cabinet?	The dimensions are: Width: 1,5 m Depth: 1,2 m Height: 2 m (The cabinet will be delivered in two, so that it can pass through doors)
What are the requirements to the room in which Calvolver is installed?	Ordinary lab environment: · • Solid foundation/floor → our scales are very precise and sensitive, so any movement of the floor can cause non-acceptable measurement results. • Minimum space available is 1,5 x 2,5 meters. 2m in height. • We recommend a room temperature between 15 – 25°C and normal air humidity. Basically, it depends on how strict your calibration requirements are.

What's inside the cabinet?	Inside the cabinet you can find the following elements:
	
	The robot arm, based on Universal Robots technology, is a cobot = a collaborative robot, that is safe and flexible and can work together with humans.
	Scales → 5 & 6 digit
	Sensors → water thermometer
	Water system:
	    1. Container for water up-take
	    2. Container on scales for measurement
	    3. Waste container
	Vision system (e.g. Festo Camera):
	    1. Read QR-code, or other code, on pipette
	    2. Read volume on pipette display
	Pipette tip change system
	Rack with interfaces (= one tool for each pipette type)
	Rack for pipettes

Who handles the calibration/service of the high precision laboratory scales and thermometer?	Techvolver does. It's included in the monthly fee.
What kind of robot technology is used?	We base our solutions on well-known robot technology that has been thoroughly tested by both authorities and users. We do, however, make holders and some other elements needed to handle your pipettes as specified ourselves.

What is the workflow of the robot?	Here is an example of a robot workflow:
	NEXT → PIPETTE — Data/report are transferred to you — Data are generated — Results from scales are collected — Water temperature is logged — Water is dispensed on the scales — Pipette is primed — Volume is adjusted — Pipette is picked up from the rack — The correct pick-up tool is mounted — The pipette is scanned — START 20–30 min.
How does the robot identify each pipette before calibration?	The robot will identify each pipette scanning a code (e.g. QR), placed on each pipette. When identified, the robot will look up all necessary info, from the 'Pipette List' provided by you – ex.: pipette model and calibration volum es.
How does the robot know what kind of calibration mode to run?	From client input. Before starting the calibration, the robot looks into updated data in the 'Pipette List' from you. There it finds the pipette ID that it knows from scanning the pipette. It then performs the calibration stated there.
What kind of pipettes can you calibrate?	In principle all pipettes – if you have a pipette that we do not have a holder for, we will make it.

How many pipettes can be placed on the rack?	Standard is 2-8, but it is adjusted to ensure you can run as many as it makes sense for you to run at a time. – e.g. 8 hours.
How long time does it take to calibrate a pipette?	We have yet to meet a customer who could not calibrate out of office hours, so speed has not been relevant for us up until now. Calvolver calibrates single-channel pipette in 20-30 minutes on average.
What if we change pipettes of another brand? Is it at extra costs for us?	You will not be charged with extra costs for this addition, if we get a reasonable notice.

3 – Data

Can Calvolver transfer measurement results into our LIMS?	Yes it can. It is not really a technical challenge, but of course there are some validation requirements to enable that to happen.
Is 'walk away-analysis' possible?	Yes – that is the essence of what we do. You can walk away from Calvolver, when you have placed the pipettes and pressed (START). Then you receive the data automatically.
Does the operator influence data generation?	No, there is no operator impact. 100% data integrity is possible.
Will the automation give access to insights that we do not have today?	Yes, we are working on how to generate useful, quantitative calibration data enabling you to identify trends & make data-based decisions.

Get in touch

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