

**\*\*COMPLETE THIS FORM TO INITIATE SUPPLIER SCOUTING\*\***  
**MEPNN Supplier Scouting Opportunity Synopsis**

\*The submitting organization (ex. MEP Center, requesting company, federal/state agency) agrees to notify NIST MEP of the status of actions taken as a result of this scouting instance within 30 days after receiving a results report. Notification should be via email to [scouting@nist.gov](mailto:scouting@nist.gov), indicating the following:

- Contact with matches identified in report complete and supply contract awarded, process complete
- Contact with matches identified in report complete and no supply contract awarded, process complete
- Contact with matches identified in report complete and supply negotiations underway, process in progress
- Contact with matches identified in report underway; supply negotiations not yet begun; process in progress
- Contact with matches identified in report not yet begun, process in progress
- Contact with matches identified in report will not occur within the next 6-months, process complete

Certus Flex Liquid Dispenser  
 Item to be Scouted

\_\_\_\_\_ days  
 Opportunities will be posted for 30 days unless specified

Please describe the item application/ the end use of item.\* Provide the item number if applicable: (N95 Mask vs Protective Mask).  
*Ex: What is it used for? What does the company need it for? For additional guidance....*  
 To autonomously dispense single nanoliter to microliter volumes of reagents or cell suspensions for the development and utilization of biological and biochemical assays.

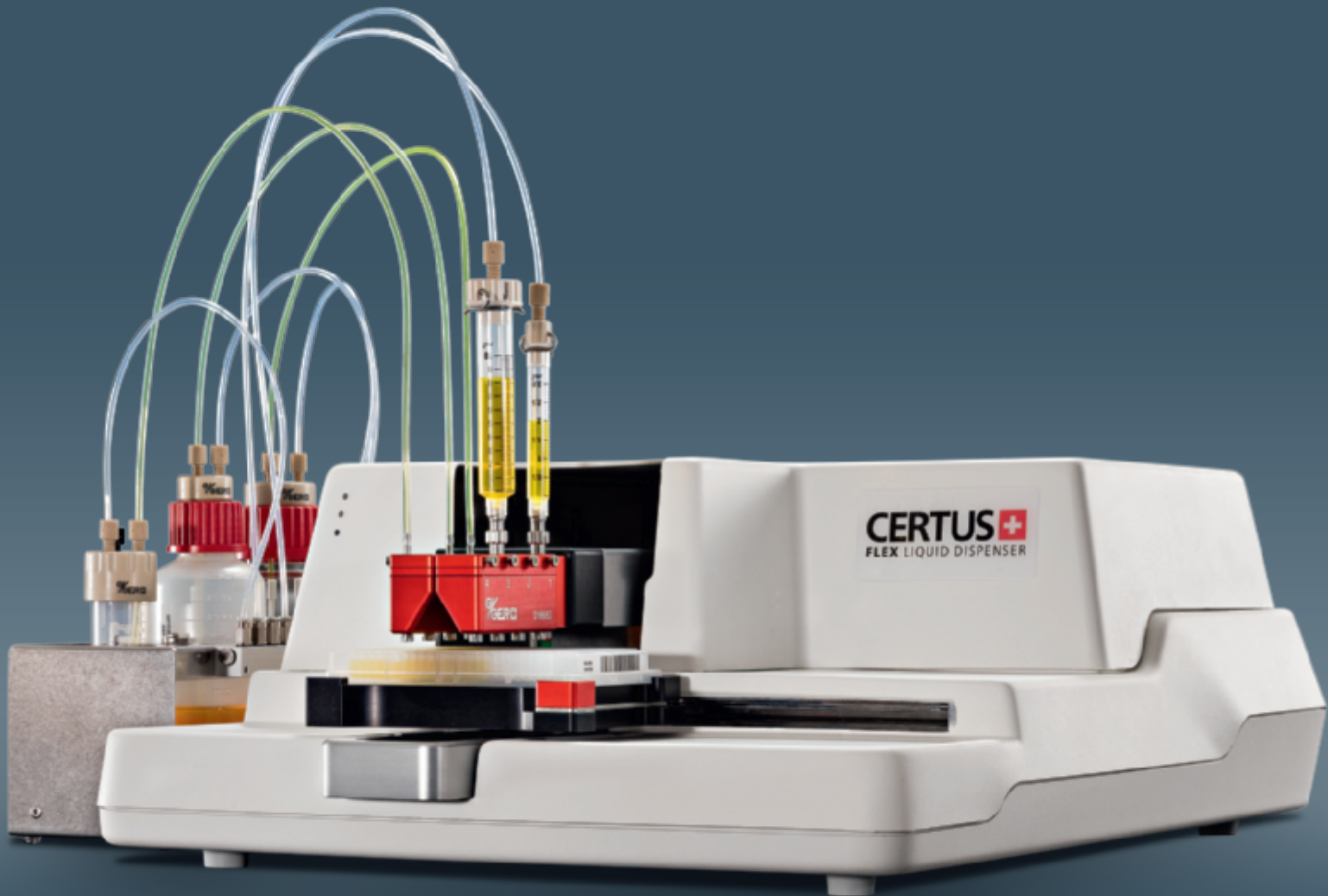
2022-070  
 Supplier Scouting Number (NIST MEP use)  
 334516  
 Scouting customer/product NAICS Code, if known

<b>TECHNICAL INFORMATION:</b>	<b>1. Supplier Information</b>	<b>a. Type of supplier being sought*</b>
		<input checked="" type="checkbox"/> <b>Manufacturer</b> <input type="checkbox"/> <b>Contract Manufacturer</b> <input type="checkbox"/> <b>Distributor</b> <input type="checkbox"/> <b>Other</b> _____
	<b>2. Summary of Technical Specifications and Performance Requirements:</b>	<b>b. Reason for scouting submission*</b>
		<input type="checkbox"/> <b>2<sup>nd</sup> Supplier</b> <input type="checkbox"/> <b>Price</b> <input type="checkbox"/> <b>Re-shore</b> <input type="checkbox"/> <b>Past supplier no longer available</b> <input type="checkbox"/> <b>New Product Startup</b> <input checked="" type="checkbox"/> <b>Other</b> <u>Explore potential establishment of a domestic (United States) source per Executive Order 14005.</u>
	<b>2. Summary of Technical Specifications and Performance Requirements:</b>	<b>a. Describe the manufacturing processes (elaborate to provide as much detail as possible).*</b>
		<i>Ex: injection molding, metal casting, electronic assembly; For additional guidance....</i> All standard manufacturing processes required to produce a scientific instrument capable of autonomous liquid dispensing via integrated computer software control.
		<b>b. Provide dimensions / size / tolerances / performance specifications for the item.*</b>
		<i>Ex: 16" x 9" sheets; clearance of .005mm; For additional guidance...</i> Please see attached product brochure for technical specifications.
	<b>2. Summary of Technical Specifications and Performance Requirements:</b>	<b>c. List required materials needed to make the product, including materials of product components.*</b>
		<i>Ex: Steel plate and rivets; For additional guidance....</i> Product is a complex scientific instrument capable of simultaneously and autonomously dispensing single nanoliter volumes of 8 different liquids at once. The instrument is controlled via software installed on a computer. Many materials and processes would be required to replicate the instrument, please see attached product brochure for more information and image of equipment.

BUSINESS INFORMATION:	Requirements and Performance	<p><b>d. Are there applicable certification requirements?*</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Please explain</p> <p><i>Ex: Needs to be compliant with Underwriters Laboratory certifications; For additional guidance...</i> All certifications for laboratory equipment to be utilized in the United States are applicable.</p>
		<p><b>e. Are there applicable regulations?*</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Please explain</p> <p><i>Ex: Needs to be compliant with FDA regulations; For additional guidance...</i> All regulations for laboratory equipment to be utilized in the United States are applicable.</p>
		<p><b>f. Are there any other standards, requirements, etc.?*</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Please explain</p> <p><i>Ex: Needs to be compliant with ASME, IEEE; For additional guidance...</i> All standards and requirements for laboratory equipment to be utilized in the United States are applicable.</p>
		<p><b>g. Additional Comments: Is there other information that would impact the item's performance or usefulness? Please explain.</b></p> <p>The product required is to be compatible with microvalves covered under US Patent Application Publication number US 2011/0042605 A1.</p>
		<p><b>3a. Estimated potential business volume (i.e., # Units Per Day, Month, Year) *:</b></p> <p><i>Ex: 20 units per week, 150 per month, 5000 units per year; For additional guidance...</i> N/A. This is a one time solicitation for a Certus Flex Liquid Dispenser.</p>
		<p><b>b. Estimated target price / unit cost information (if unavailable explain) *:</b></p> <p><i>Ex: \$x.xx per unit, bundle, group; For additional guidance...</i> US EPA has been quoted \$91,090.00 for one (1) Certus Flex Liquid Dispenser and accessories.</p>
		<p><b>4. Delivery Requirements:</b></p> <p><b>a. When is it needed by? (Immediate, 30 Days, 6 months, etc.)*</b></p> <p><i>Ex: Immediate, 2 weeks, 3 months; For additional guidance...</i> Immediate.</p> <p><b>b. Describe packaging requirements (i.e., individually/group packaging)*</b></p> <p><i>Ex: Individually wrapped, palletized, groups of 5; For additional guidance...</i> N/A</p> <p><b>c. Where will this item be shipped? *</b></p> <p><i>Ex: city, state; For additional guidance...</i> Research Triangle Park, NC</p>
Comments:	<p><b>5. Additional</b></p> <p><b>Is there other information you would like to include?</b></p> <p><i>Use attach file button at the top of the page for attachments</i></p> <p>Vendor/company must be registered or will register in SAM.gov (<a href="https://sam.gov/content/home">https://sam.gov/content/home</a>).</p> <p>This inquiry does not guarantee award of contract.</p>	

Photos or diagrams of the item (helpful but not required).

**CERTUS**   
FLEX LIQUID DISPENSER



THE ONE-OF-A-KIND **DIGITAL**  
**DISPENSING TECHNOLOGY**

# BECAUSE YOU NEED THE **HIGHEST THROUGHPUT** WITH THE **LOWEST** **MARGIN OF ERROR**

Thanks to the CERTUS FLEX one-of-a-kind digital dispensing technology the days of tedious manual dispensing and error-prone dilution patterns are over. The CERTUS FLEX does this part of the job for you. Thus, you will reach higher throughput, which means higher cost efficiency.

We give you a **modular design** in two basic versions, with 5 or 8 individually controllable channels, which can be equipped with different valves to facilitate ideal dispensing of substances with different physical properties. The dispensing parameters of each channel are individually controlled by the **intuitive and adaptable** proprietary CERTUS CONTROL PC software and electronics. We have developed CERTUS FLEX for **contactless dispensing** of a broad range of liquid substances and large molecules, using our renowned Gyger micro valve technology and air pressure control, giving you maximum **precision and flexibility**.

Thanks to the **SiLA compliance of CERTUS CONTROL**, you can rely on easy integration into your laboratory automation workflows such as HTS platforms.



**CERTUS**   
CONTROL PC SOFTWARE





GYGER+

D196053

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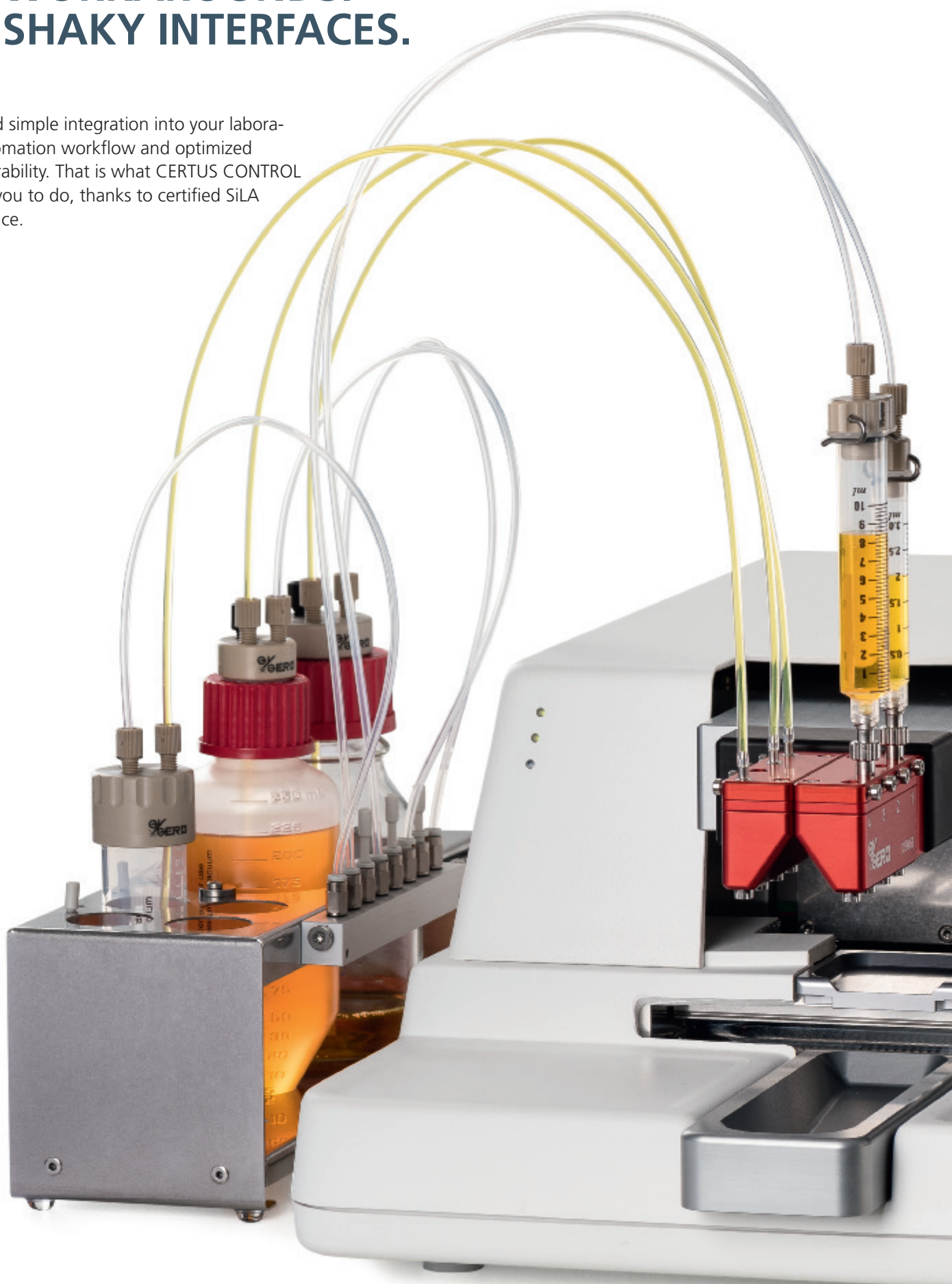
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# PERFECT PROCESS INTEGRATION. NO WORKAROUNDS. NO SHAKY INTERFACES.

You need simple integration into your laboratory automation workflow and optimized interoperability. That is what CERTUS CONTROL enables you to do, thanks to certified SiLA compliance.



# ACCURACY. SPEED. FLEXIBILITY. COMPARABILITY.

## PRECISION

<b>&lt;3.0 %CV</b>	0.05 – 0.1 $\mu$ l
<b>&lt;2.0 %CV</b>	0.10 – 1.0 $\mu$ l
<b>&lt;1.0 %CV</b>	1.0 – $\infty$ $\mu$ l



## ACCURACY

<b>&lt;<math>\pm</math>3.0 %</b>	0.05 – 0.5 $\mu$ l
<b>&lt;<math>\pm</math>2.0 %</b>	0.05 – 1.0 $\mu$ l
<b>&lt;<math>\pm</math>1.5 %</b>	1.0 – $\infty$ $\mu$ l



## RESOLUTION/INCREMENT

**>0.05 nl**



## SPEED (8 values in parallel)

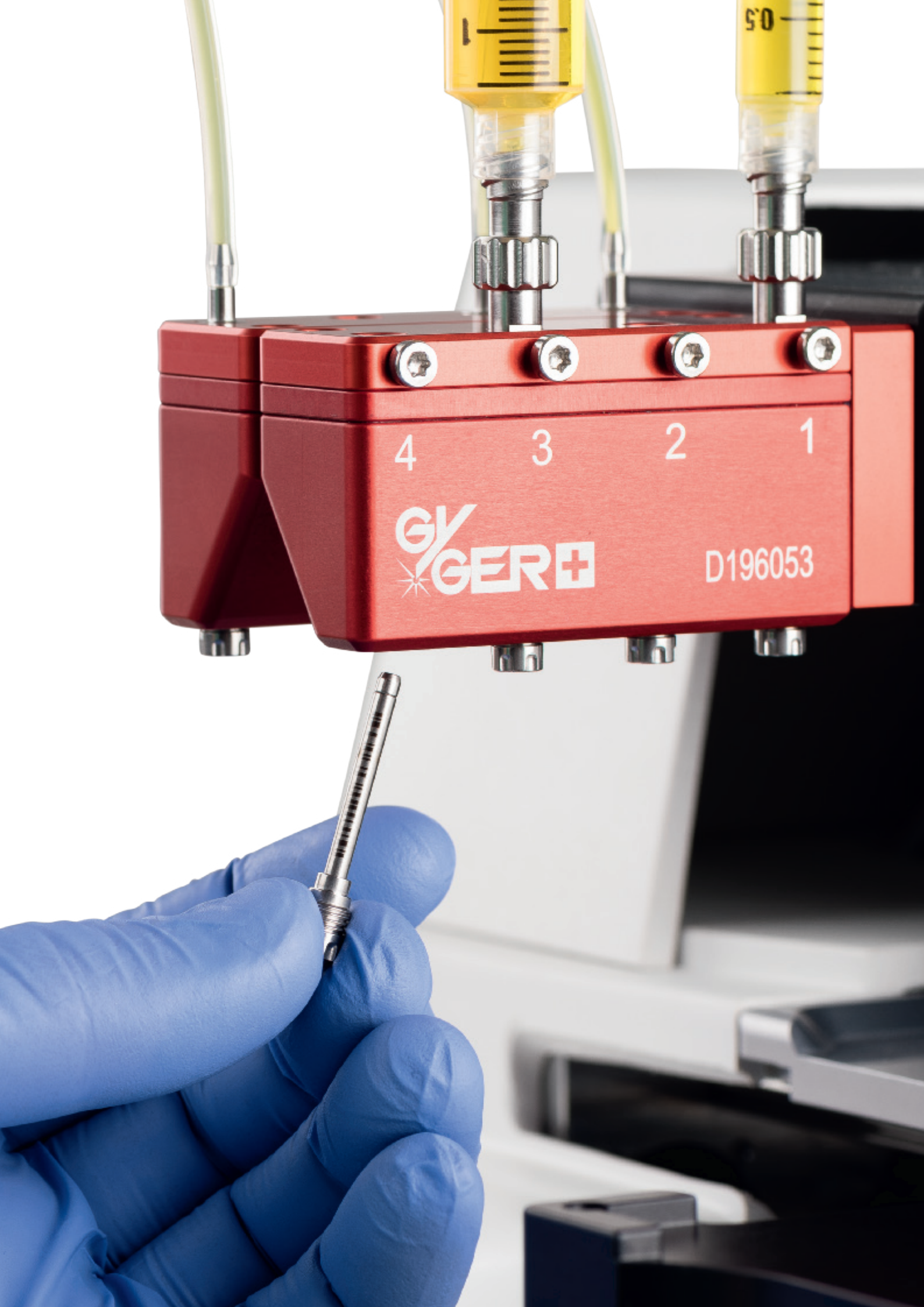
<b>96 wells,</b>	20 $\mu$ l within	<b>7 s</b>
<b>384 wells,</b>	5 $\mu$ l within	<b>11 s</b>
<b>1536 wells,</b>	0.5 $\mu$ l within	<b>27 s</b>




CERTUS FLEX gives you the immense flexibility to dispense fluids of low to high viscosity in individual, precise and highly accurate doses from nanoliters to milliliters.

CERTUS FLEX dispensers are also equipped for high speed parallel dispensing. However, dispensing is also possible into a broad range of other plate formats (standard and custom), to meet your exact experimental requirements. Due to identical dispensing technologies between CERTUS FLEX (i.e. SMLD micro valves, digital control unit, dispensing principles, CERTUS CONTROL PC software) we can guarantee absolute comparability of your dispensing results.









## **UNIQUE MICRO VALVES** FOR MORE DISPENSING OPERATIONS, WITH **LESS DEAD VOLUMES**

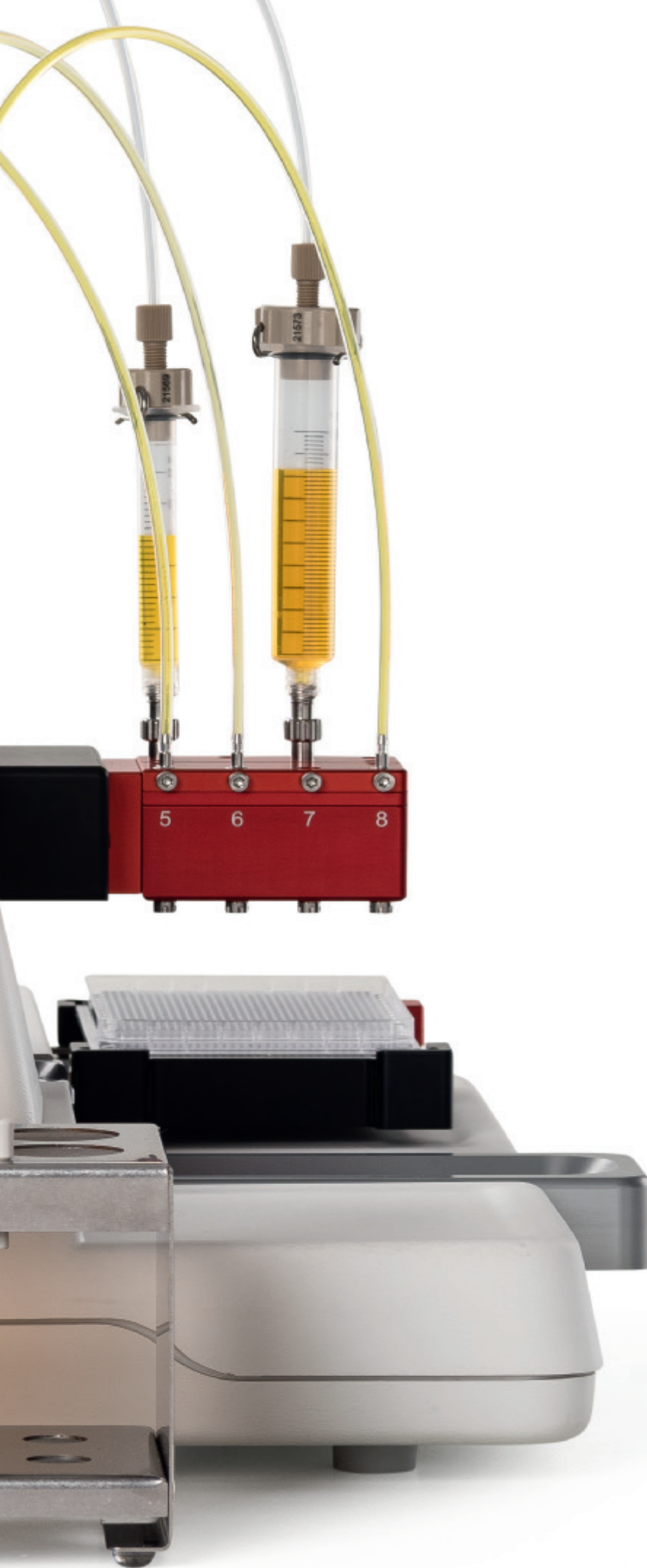
Up to 500 million cycles without losing accuracy, that's the performance of our GYGER micro valves. Our micro valves dispense larger substance volumes in one single shot, in contrast to many separate tiny drops. Bottom line: your number of effective valve movements is significantly reduced, giving you more total dispensing operations for your investment.

In addition, cleaning and maintenance are simple and reduced to the absolute minimum.

# FLEXIBLE FLUID UPTAKE OPTIONS THAT MEET YOUR EXACT NEEDS.

If large quantities of fluids are to be dispensed, fluids can be fed to the micro valves from bottles or other containers. For the dispensing of smaller volumes or high value substances, syringes with volumes from 3 to 60 ml can be connected directly to the dispensing head using luer-lock.





# LIQUIDS. LARGE MOLECULES. HIGH AND LOW VISCOSITY. WE GOT IT COVERED.

CERTUS FLEX has been developed for contactless dispensing of a broad range of liquid substances (such as aqueous buffers, alcohols, DMSO, solvents, detergents, cells, DNA / RNA, proteins or oils) and large molecules, all with a focus on greatest accuracy.

## WE DEEPLY **BELIEVE** IN OUR **PRODUCT**, THAT IS WHY **WE** **BUILT IT TO LAST.**

This is our promise: When you buy a GYGER dispenser you will hold in your hands an unmatched product, with the potential to last a lifetime.

## **FAST RETURN OF YOUR INVESTMENT**

CERTUS FLEX offers an unmatched margin of options allowing for a huge range of applications. No cartridges, no disposable tips and no other hidden costs. Altogether, your investment will save costs for consumables as well as for additional devices.

# THE CERTUS CONTROL PC SOFTWARE: INTUITIVE AND EASY TO PROGRAM

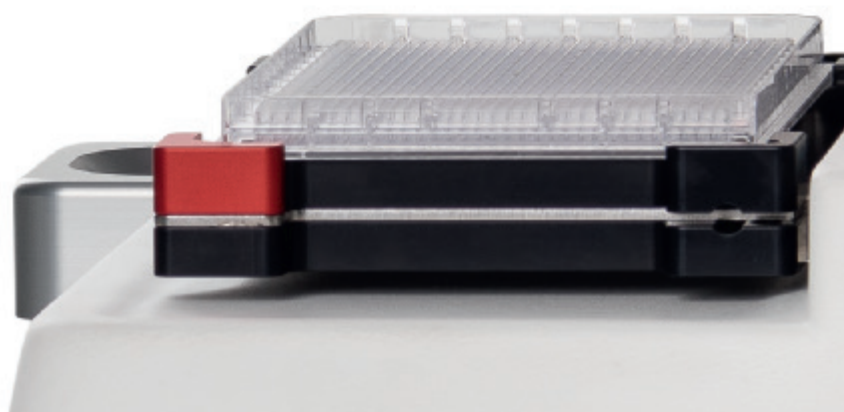
CERTUS FLEX comes with an intuitive, modular proprietary software, which enables flexible programming of dispensing onto multiple regions using different valve types for diverse liquids at the same time. It offers dispensing on any well plate format as well as the calibration and verification of each individual microvalve and also permits automated detailed reporting of your dispensing experiments. Furthermore, it allows you to easily and monitor all your CERTUS FLEX devices in order to transfer methods and experiments; no matter whether they operate as stand-alone-devices or are integrated into larger platforms. Thanks to the Windows based user interface it has a familiar look-and-feel making it much easier to use.

**CERTUS**   
CONTROL PC SOFTWARE

## BROAD RANGE OF APPLICATION AREAS

Due to its unique flexibility, accuracy and economy the CERTUS FLEX can be used in a large number of laboratory application areas, such as:

- › Drug Discovery
- › HTS (High Throughput Screening)
- › Compound Management
- › Biochemical and Cell Based Assays
- › Cancer Research
- › Genomics and Proteomics Research
- › PCR and Protein Crystallography
- › Environmental and Chemical Research
- › Cosmetics Development and Testing
- › Nutritional Science and Food Technology





# TECHNICAL SPECIFICATIONS

## GENERAL

DISPENSING, CALIBRATION AND VERIFICATION	Each channel separately / independent
FLUSHING, FILLING, PURGING AND DRAINING	Each channel separately / independent
DISPENSING PRINCIPLE	Contactless drop-on-demand by solenoid micro valves SMLD 300GC
VALVE TYPE	Gyger SMLD 300GC Ø 0.1 mm - Ø 0.45 mm, 10 different types of valves, depending on the volume range and viscosity
DEAD / TRANSFER VOLUME	Total 125 µl with skyringe; 65 µl valve net.
HANDLING	CERTUS CONTROL PC software
HARDWARE-INTERFACE	Ethernet (1 Gbit/s, RJ45)
SOFTWARE-INTERFACE	SiLA (Standardization in Lab Automation)
PNEUMATICS	1.7 - 2.0 bar inlet pressure, max 5 l/min oil-free, dry, filtered (5 µm)
POWER	110 - 240 V 50/60 Hz nominal operating current: < 0.5 A / 240 VAC
DIMENSIONS (W X D X H)	425 x 555 x 180 mm (H + 20 mm for 70 mm DWP)
WEIGHT	15 kg

## DISPENSING HEADS

CHANNELS	1 – 8 channels independently controlled straight or 22° angled
WETTED MATERIALS	Stainless steels 1.4404 (A316L), 1.4301 (A301), 1.4310 (A304), 1.4113 IM / 1.4105 IL (A430F) PEEK, sapphire, ruby, FEP, FFKM

## DISPENSING PERFORMANCE

DISPENSING VOLUME, DYNAMIC RANGE INDEPENDENT FOR ALL CHANNELS	< 50 nl – ∞
ACCURACY	< ±3.0 %: 0.05 – 0.5 µl < ±2.0 %: 0.50 – 1.0 µl < ±1.5 %: 1.0 – ∞ µl
PRECISION	< 3.0 %: 0.05 – 0.1 µl < 2.0 %: 0.10 – 1.0 µl < 1.0 %: 1.0 – ∞
RESOLUTION / INCREMENT	> 0.05 nl
EXAMPLE DISPENSING SPEED IN PARALLEL MODE (UP TO 8 CHANNELS)	96 wells, 20 µl: within 7 s 384 wells, 5 µl: within 11 s 1536 wells, 0.5 µl: within 27 s
EXAMPLE DISPENSING SPEED IN SERIAL MODE (1 CHANNEL)	96 wells, 20 µl: within 21 s 384 wells, 5 µl: within 50 s 1536 wells, 0.5 µl: within 145 s

## WELL PLATES

ANSI-STANDARD; SPECIAL PLATE TYPES	6, 12, 24, 48, 96, 384, 1536, 3456 wells including evaporation curtain
ADDITIONAL FUNCTIONS	Customized patterns for specific well plates, slides or dishes
WELL PLATE HEIGHT	3 - 51 mm 18 - 75 mm (DWP)

Note:  
Dispensing times may vary depending on media type, micro valve type and dispensing volume.

## MEDIA MANAGEMENT

DISPENSING PRESSURE	0.05 – 1.0 bar
FLUID SUPPLY	Syringe: 3; 5; 10; 60 ml Bottle: 50; 250; 500 ml
MEDIA	buffer, cell media, cells, 100% DMSO, proteins, beads, etc.
FILTER (OPTIONAL)	Built-in filter in SMLD 300GC micro valves Preliminary suction filter for media containers
WASTE CONTAINER	Waste tray with optional drain

# GYGER – SWISS INVENTORS. DEFYING THE IMPOSSIBLE, SINCE 1959

More than 50 years ago the production of gramophone needles went from steel to the much stronger sapphire. Hence, large industrial companies faced a sheer impossible challenge of manufacturing and fully automating production. Driven by his passion for precision and his unyielding will to make his mark our founder Fritz Gyger Senior set off on an endeavor, which would mark the dawning of our success story. From the small cellar of his house he put all his heart, determination and perseverance into the invention and development of the cam-controlled needle polishing machine for gramophone needles.

In 1978 our high-end-performance diamond gramophone needles with patented Gyger grinding geometry went into serial production. Today, two generations later, it is still this unbroken curiosity, our love for perfection and our inventors' hearts that drive us to challenge and defy the impossible.





At the present our products have their main area of use where micro technical thresholds are reached. Nearly impossible requirements regarding miniaturization, quality and integration density are the drivers for our innovative solutions. Our core fields of expertise are micro fluidic and dosing products. The modular GYGER micro valve generation SMLD-300 marks yet another milestone in this development.

Heading towards the future, we are eager and proud to be your partner for the insurmountable and the unsolvable. Because, as history has proven, we resist the temptation of giving in to the impossible. GYGER – Swiss Inventors. Defying the impossible, since 1959.





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**Gyger et al.**

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(43) **Pub. Date:** Feb. 24, 2011

(54) **MICRO-VALVE**

(76) Inventors: **Fritz Gyger, Gwatt (CH); Reto Gyger, Gwatt (CH)**

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(21) Appl. No.: **12/448,863**

(22) PCT Filed: **Jan. 10, 2008**

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§ 371 (c)(1),  
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(30) **Foreign Application Priority Data**

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*F16K 1/42* (2006.01)  
*B21K 1/24* (2006.01)  
(52) **U.S. Cl.** ..... **251/333; 251/359; 29/890.122**  
(57) **ABSTRACT**

The invention relates to a micro-valve (1) comprising a valve ball (2), a valve seat (3) and a nozzle (14). In said valve, the valve seat (3) comprises a sealing region (5) and an outlet region (6) and guide means (40) are provided on the valve seat. The guide element is configured in the valve seat (3) in the form of a guide region (4) or a one-piece guide element (40) located in the vicinity of the valve seat (3). The micro-valves according to the invention exhibit substantial improvements with respect to dynamics, life cycle and stream pattern. In first embodiments, increased wear-resistance is achieved by the integration of guide means, in the form of a guide region (4), into the valve seat, optimizing the dimensions of the transition angle, guide angle and discharge angle. In versions comprising a one-piece guide element (40), wear is reduced by the fact that the ball primarily carries out a sealing function and a guide function to a lesser degree.

