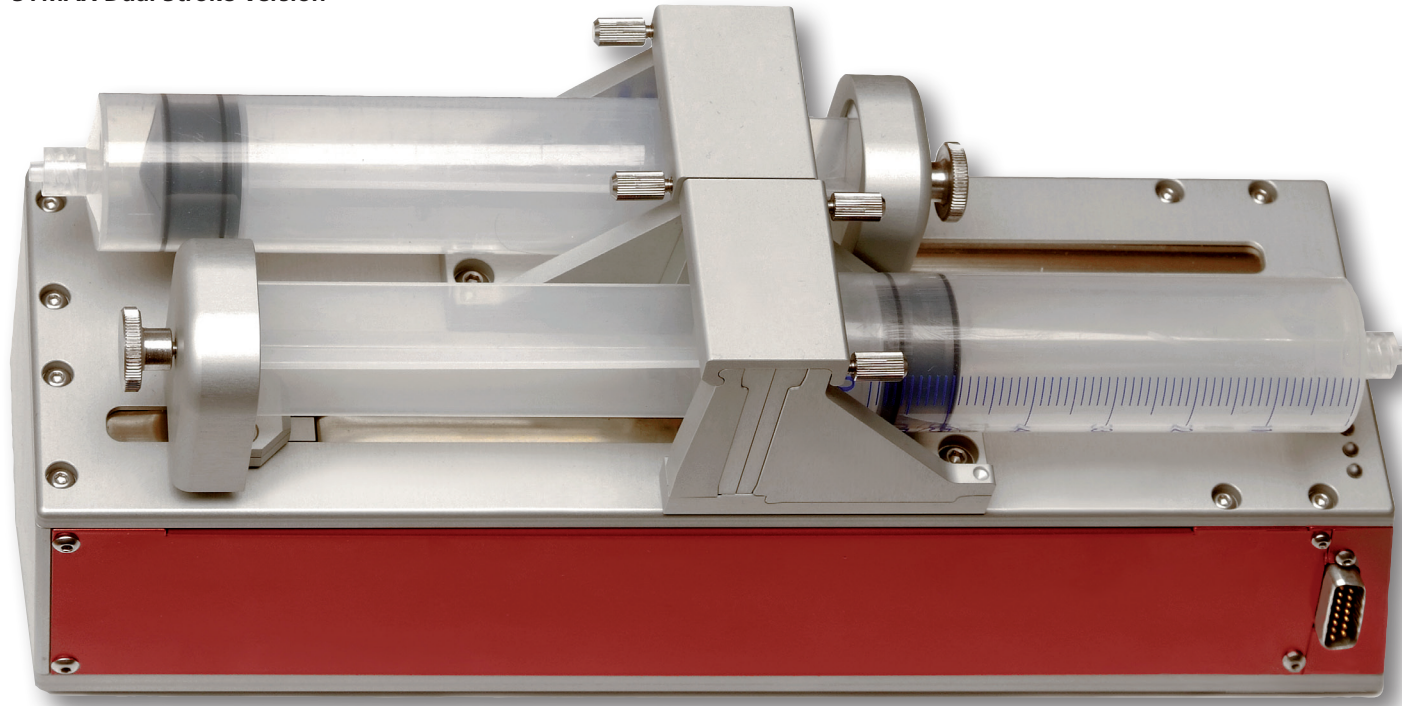
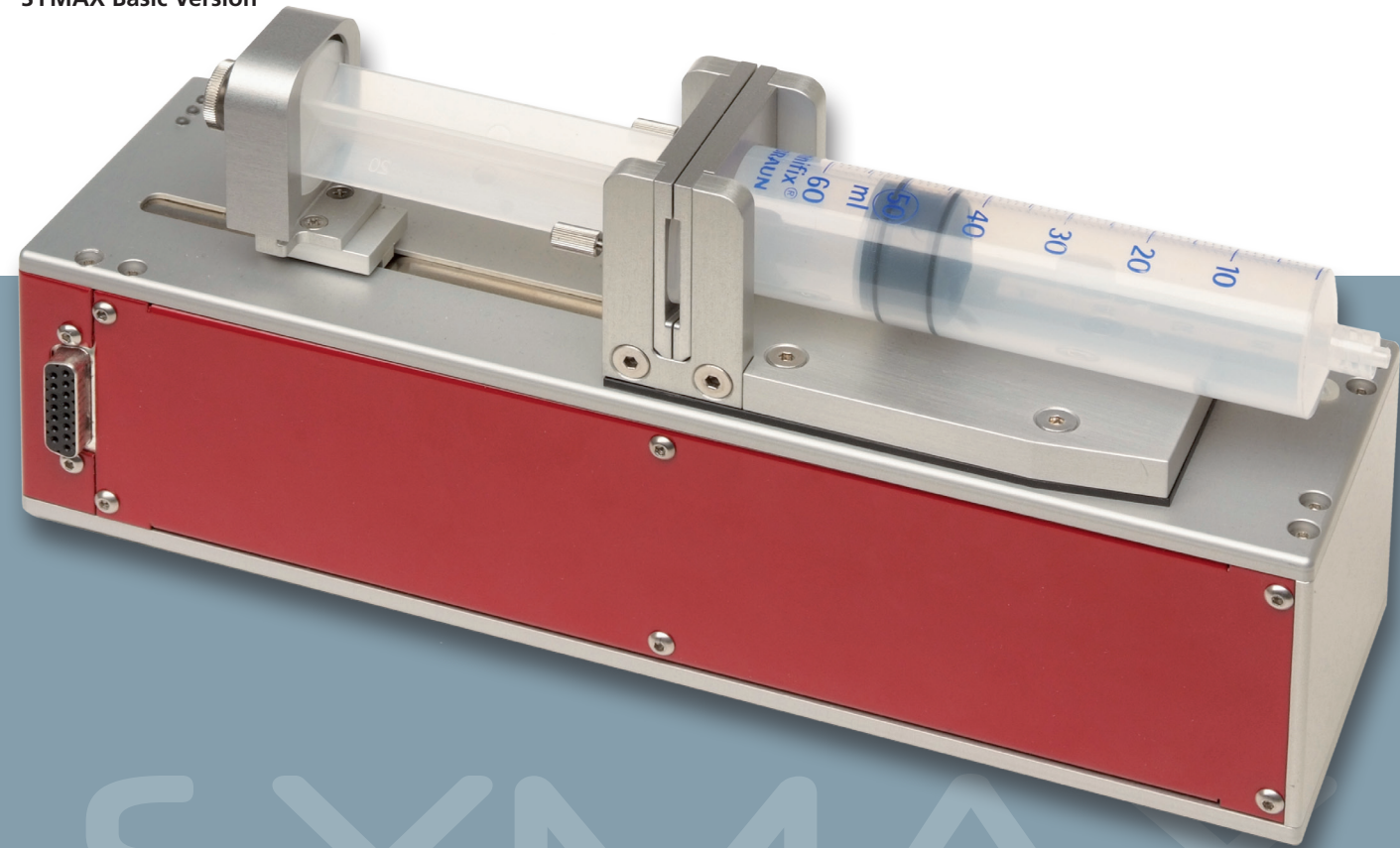


# SYMAX Versions

SYMAX Dual Stroke Version

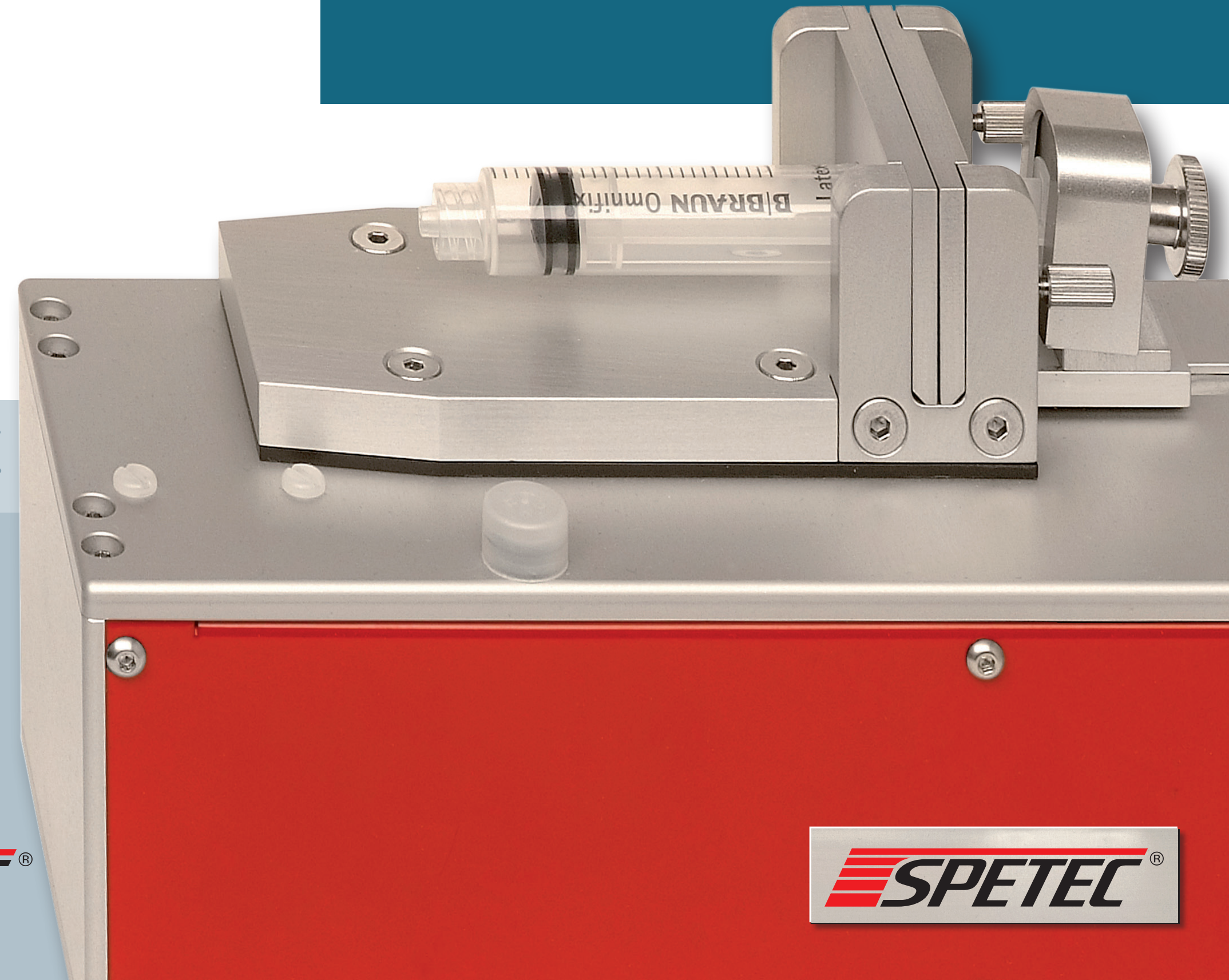


SYMAX Basic Version



# SYMAX

## Syringe Pump



# SYMAX

SPETEC® GmbH  
Berghamer Str. 2  
D-85435 Erding  
Phone: +49-8122-99533  
Fax: +49-8122-10397  
E-mail: [spetec@spetec.de](mailto:spetec@spetec.de)  
[www.spetec.de](http://www.spetec.de)

The SPETEC logo, featuring the word "SPETEC" in a bold, italicized font with a red and black horizontal bar above it.

The SPETEC logo, featuring the word "SPETEC" in a bold, italicized font with a red and black horizontal bar above it.

# SYMAX

# SYMAX Spetec Syringe Pump

The Spetec Syringe Pump is used to meter fluids in micro or nano litre quantities.

The main elements are the stepper motor drive without wear components such as a clutch or gearbox, precision carriage, syringe holder set and replaceable syringes. Due to the high resolution of 25 600 steps per rotation, individual steps are hardly noticeable.

Both disposable and non-metallic precision syringes with any syringe volumes can be used. The smallest delivery volume per individual step is 3 nano liters for standard syringes. The maximum feed rate is approx. 0.75 ml/sec.

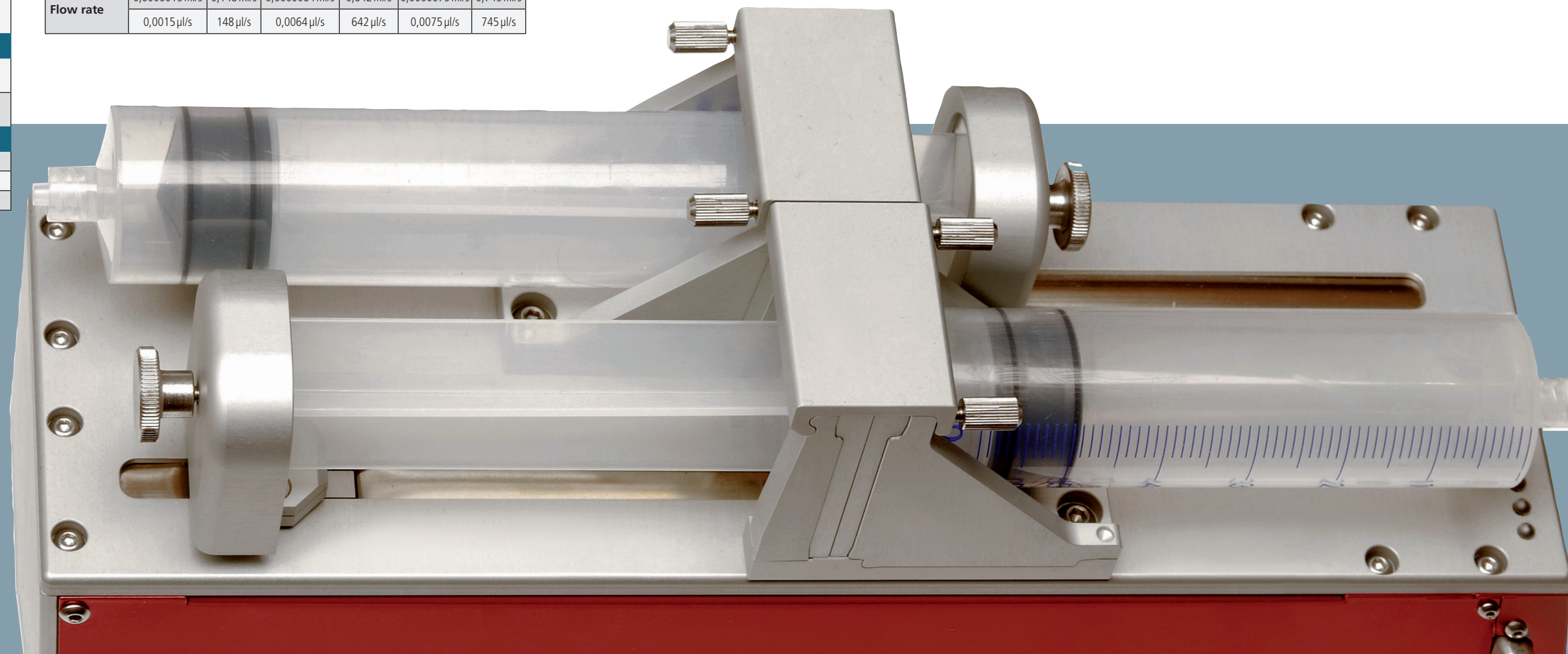
The Spetec Symax Syringe Pump can be equipped as dual-stroke version. This means that two syringes are mounted in opposing directions on the motor unit and are powered by the same linear drive.

While one of the two syringes is being emptied, the second syringe is being filled simultaneously. Switching from one syringe to the other one is accomplished by a software controlled 3-way valve. This eliminates the wait time for the filling cycle.

## SYMAX Technical Data

Mechanical Data	
Dimensions LxWxH (without syringe holder)	270 x 85 x 75 (mm)
Weight (without syringe holder)	1.720 g
Maximum stroke	89 mm
Minimum advance rate	12,1 nm/s
Maximum advance rate	1,21 mm/s
Smallest step resolution	24,22 nm
Expandable	Up to 6 modules can be connected in series
Electrical Data	
Power Supply	Input: 100–240V / 50–60Hz Output: 24V / 2,4A
Current draw per syringe	Standby current: 210 mA Operating current: 420 mA
Operating Conditions	
Temperature range	+10 to 40°C
Humidity	20 % to 80 % non-condensing
Data communication	RS 485 / USB

Metering Data						
Minimum dosage amount	Standard Syringes					
	5 ml		40 ml		50 ml	
		3 nl = 0,003 µl = 0,000003 ml	13 nl = 0,013 µl = 0,000013 ml	15 nl = 0,015 µl = 0,000015 ml		
Flow rate	min	max	min	max	min	max
	0,0000015 ml/s	0,148 ml/s	0,000064 ml/s	0,642 ml/s	0,000075 ml/s	0,745 ml/s
	0,0015 µl/s	148 µl/s	0,0064 µl/s	642 µl/s	0,0075 µl/s	745 µl/s



# SYMAX Configuration and Options

## Configuration:

- Freely selectable syringes with corresponding syringe holder
- Custom syringe versions according to customer requirements
- Set of different syringe holders
- Stepper Motor
- Controlled via PC software
- Automatic filling cycle (switching via controlled 3-way valve)
- Several syringes can be addressed individually

## Application:

- Metering of micro volumes
- Long-term testing
- Decanting of fluids with very high precision

## Options

- Software controlled 3-way valve for switching between syringe 1 and syringe 2 on dual stroke version
- Foot switch to start the metering process
- USB-RS485 Interface
- Syringe set for syringe with volume of 5 ml
- Syringe set for syringe with volume of 50 ml
- Acid resistant version for use in the laboratory. The mechanical parts on the top, including the cover plate, are made out of Peek plastic.

SYMAX  
DUAL STROKE

# SYMAX Software

## PC-Software:

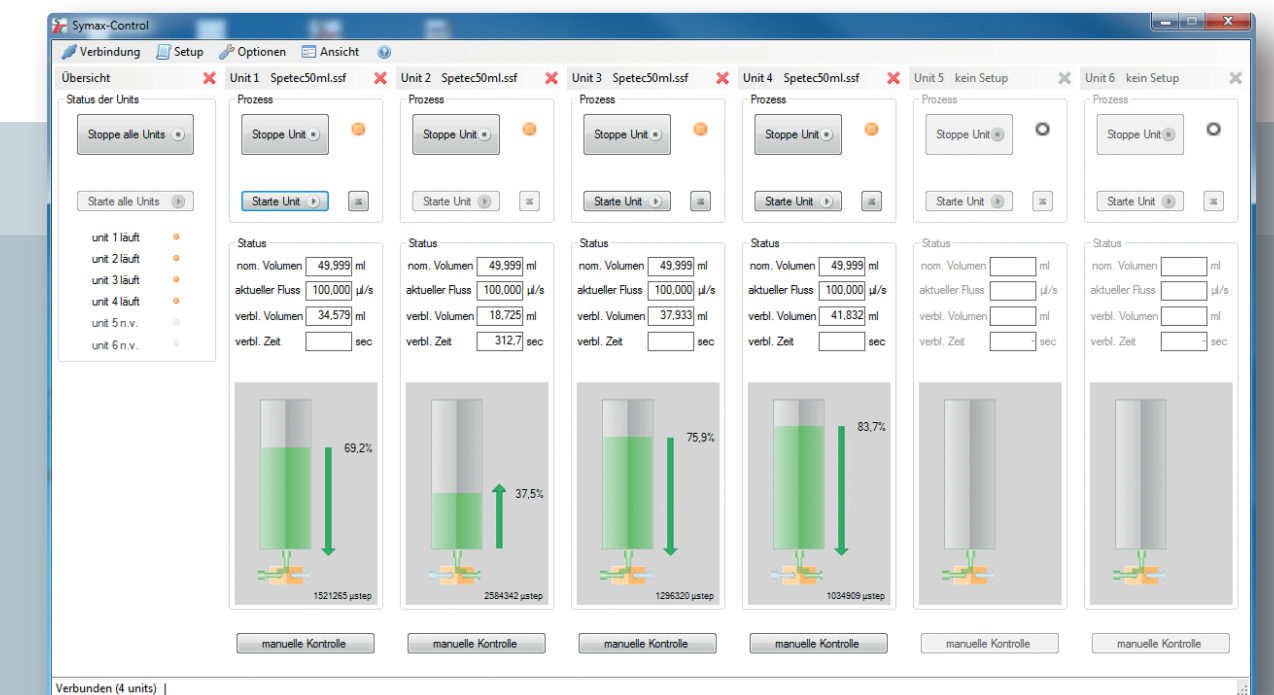
- Individual settings, can be saved as necessary
- Metering of specific volumes per unit of time
- Setting of absolute amounts and metering through trigger signal
- Freely selectable metering speed
- Volume calculation for individual syringes
- Display of remaining and syringe volumes
- Manual Start/Stop/Filling
- Moving to reference value
- Feedback signal to indicate metering complete
- German, English languages

## Interfaces:

- Can be operated with any USB interface; Requires Win XP or Win7
- Open protocol for machine operation upon request
- RS485 interface for machine control
- Three trigger inputs for preset setups (start/stop/filling) and one output (fill/meter) upon request

## Settings:

- Three preset syringe sets
- Individually configurable syringe set
- Setting of a custom flow rate for the metering and filling process
- Continuous metering for a specific time (continuous flow)
- Setting an individual dose (absolute amount)
- Automatic repetition cycle with individual setting of the interval time and repetition rate
- Individual setting of the syringe fill level
- Adjustable configuration of a magnet valve
- Up to 6 syringes can be operated and adjusted with one software interface
- Manual control screen in order to move the syringe to the desired position by hand (purging of the syringe)
- Software update via the internet



SYMAX