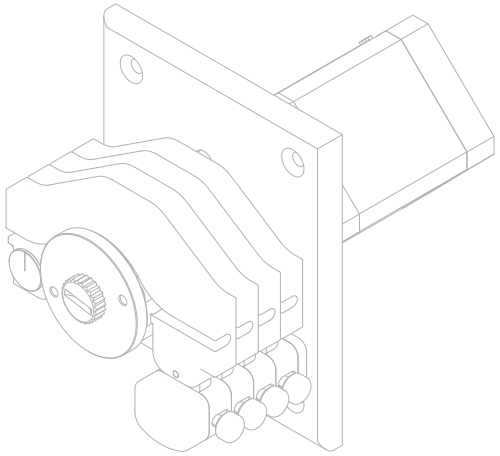
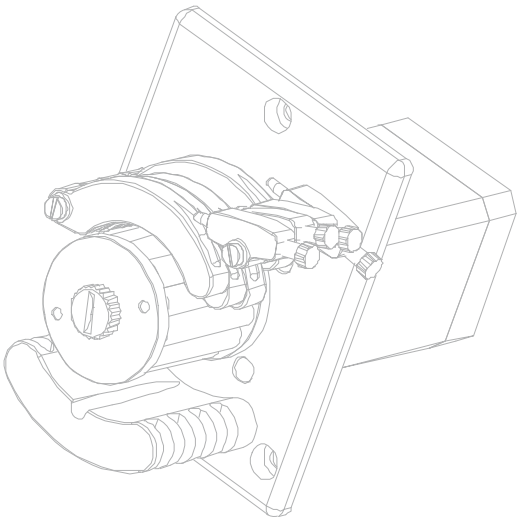
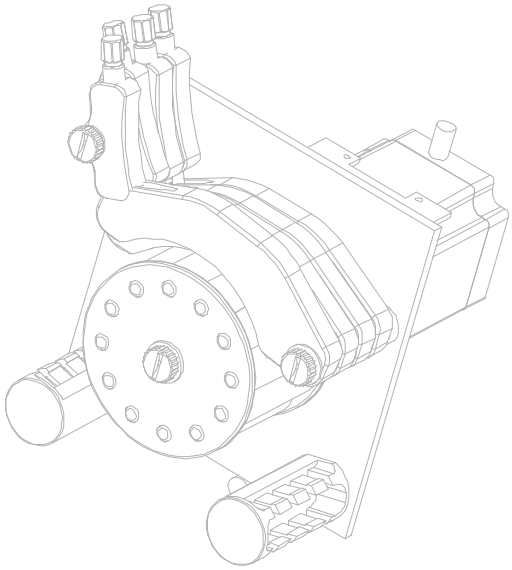
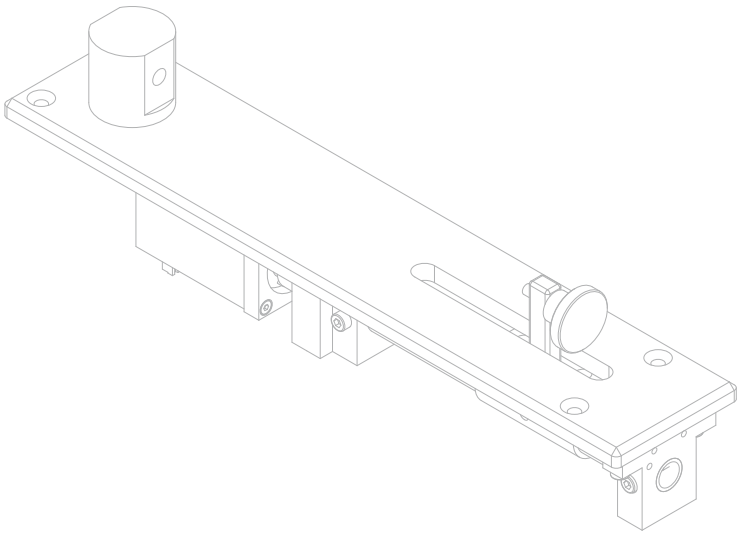


Built-in Pumps & Accessories



- Peristaltic pumps
- Syringe pumps
- Stepper motor controller
- Tubing





SPETEC®

Peristaltic pumps and syringe pumps for incorporation as OEM Version

Spetec also offers an OEM version of its peristaltic pumps. These are custom-built, i.e. each pump is adapted to the visual design requested by the customer and constructed accordingly. Only a few basic components remain identical, such as the roller heads, pressure bracket or tubing holder. All the models are driven using stepper motors in order to achieve the greatest possible stability in terms of pump speed and flow rate, as well as the lowest possible pulsation level.

Spetec's syringe pumps are used to meter fluids in the milliliter to nanoliter range. Syringe pumps are now used in many other applications and in particular wherever precise metering is required. Modern syringe pumps are also used in the field of medical and pharmaceutical research. The Precision Syringe built-in syringe pump is suitable for metering and transporting aqueous, acidic and alkaline media, among other applications.

Contents

Individuality is where our strength lies

Spetec does not offer traditional series. Instead, a few basic components and parts are used that are manufactured in large quantities for many customers. The visual appearance, on the other hand, is always designed to customer requirements. In essence, this concerns the color and form of the mounting plate on which the actual pump is fitted. It is also possible to influence the color and shape of many other individual components.

The result is a custom product bearing the signature of the device's manufacturer and which perfectly matches the design of the overall unit.

A number of key benefits are brought together:

- **Low costs**
- **Simple installation during final assembly of the devices**
- **Custom styling**

The basic purpose of a pump is to move fluids from A to B. But this is not enough for manufacturers of analysis equipment and other devices that require fluids to be transported.

Alongside technical characteristics such as pulsation, precision and stability, other factors also play a role: for example an attractive, individual appearance of the pumps.

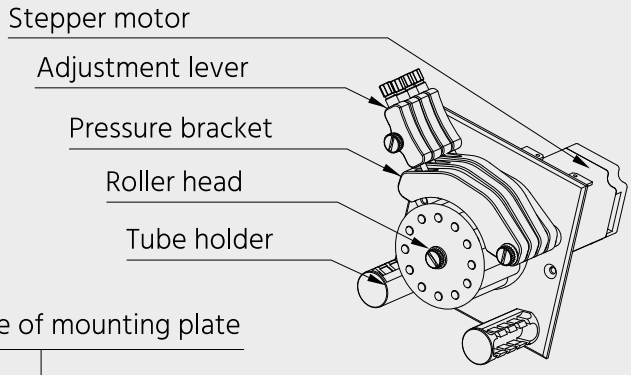
And that is exactly what Spetec aims for.

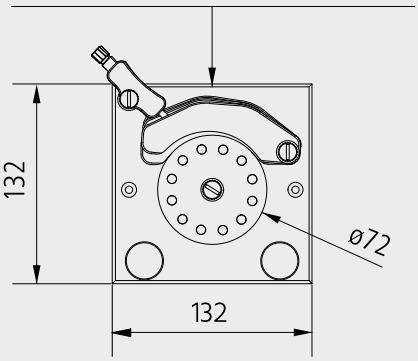
Precision Standard

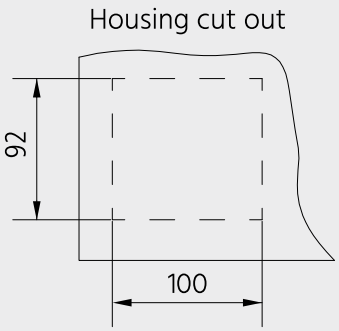
The large roller head with 12 rollers allows these pumps to meet the most stringent requirements in respect of low pulsation and consistency of fluid delivery.

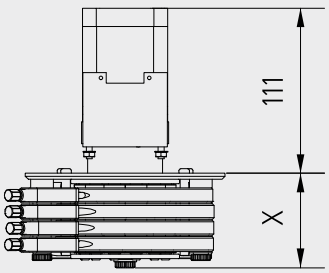
Precision Standard
Example view

Technical data	
Number of channels	1 – 6
Roller head diameter	72 mm
Speed	0 – 80 rpm (optionally up to 120 rpm)
Drive	Stepper motor 1.8°
Intermediate shaft	Mounted on 2 ball bearings
Main materials	PVC, PP, stainless steel, powder-coated aluminum
Bridge distance	152 mm
Dosing range	0 – 45 ml/min (per channel)
Inner diameter tubing	0.13 – 3.18 mm
Compression level adjustment	Via adjustment lever





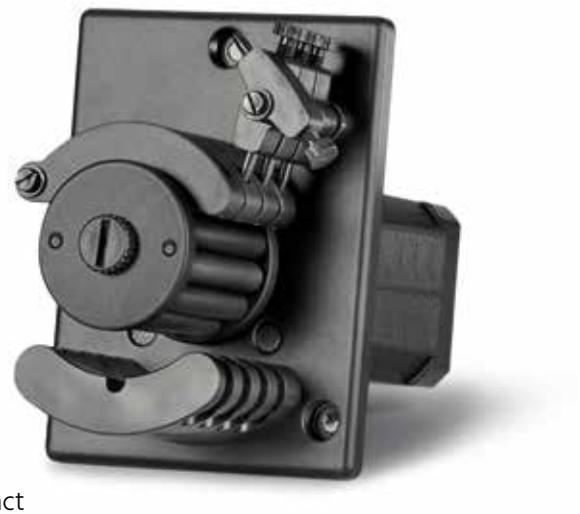




Kanal	X
1	30
2	40
3	50
4	60
5	70
6	80

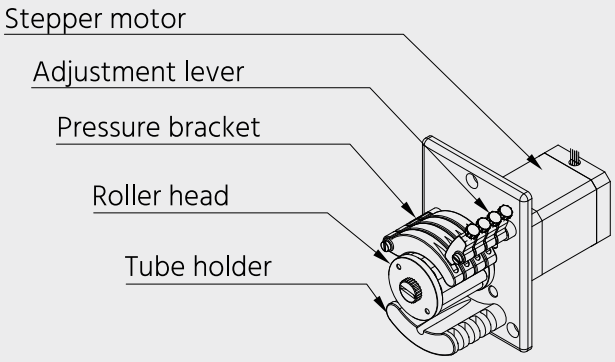
Precision Compact

This is a smaller version of the standard pump with a scale of 2:1. It has extremely similar properties in respect of delivery accuracy.

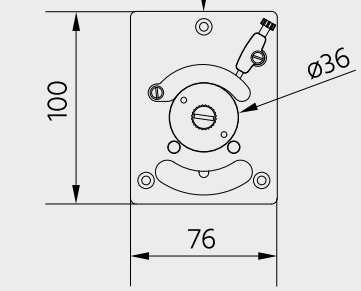


Precision Compact
Example view

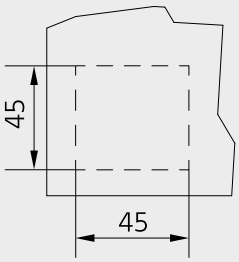
Technical data	
Number of channels	1 – 4
Roller head diameter	36 mm
Speed	0 – 100 rpm (optionally up to 120 rpm)
Drive	Stepper motor 1.8°
Intermediate shaft	Mounted on 2 ball bearings
Main materials	PVC, PP, stainless steel, powder-coated aluminum
Bridge distance	95 mm
Dosing range	0 – 8.5 ml/min (per channel)
Inner diameter tubing	0.13 – 1.85 mm
Compression level adjustment	Via adjustment lever

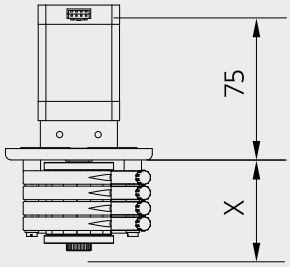


Minimum size of mounting plate



Housing cut out





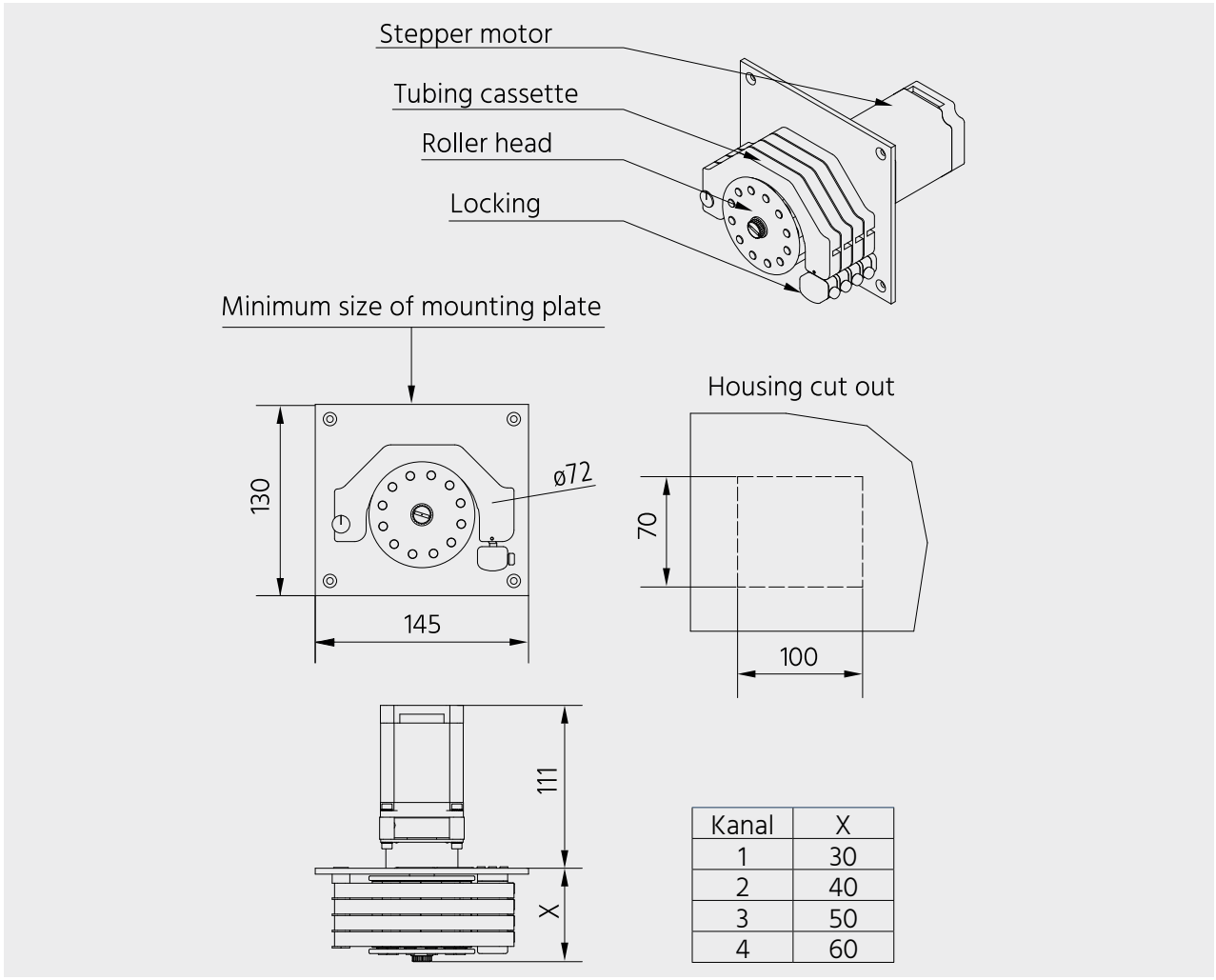
Kanal	X
1	30
2	38
3	46
4	54

EasyClick Standard

The dimensions of the EasyClick Standard are similar to those of the Precision Standard. But they work in entirely different ways. With the EasyClick variant, the tubing is placed in a cartridge and automatically tensioned using a click-in mechanism. Adjustment using an adjusting lever is no longer necessary.

EasyClick Standard
Example view

Technical data	
Number of channels	1 – 4
Roller head diameter	72 mm
Speed	0 – 80 rpm (optionally up to 120 rpm)
Drive	Stepper motor 1.8°
Intermediate shaft	Mounted on 2 ball bearings
Main materials	PVC, PP, stainless steel, powder-coated aluminum
Bridge distance	95 mm
Dosing range	0 – 21 ml/min (per channel)
Inner diameter tubing	0.13 – 1.85 mm
Compression level adjustment	Automatic



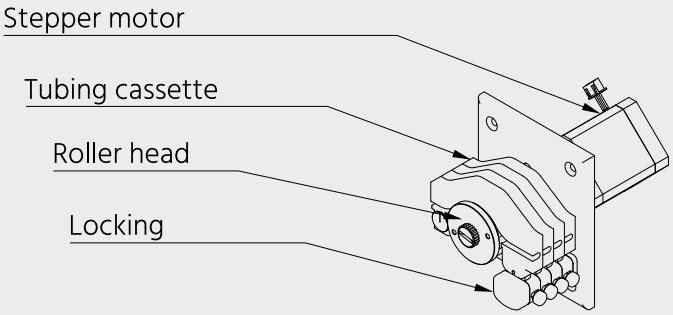
Kanal	X
1	30
2	40
3	50
4	60

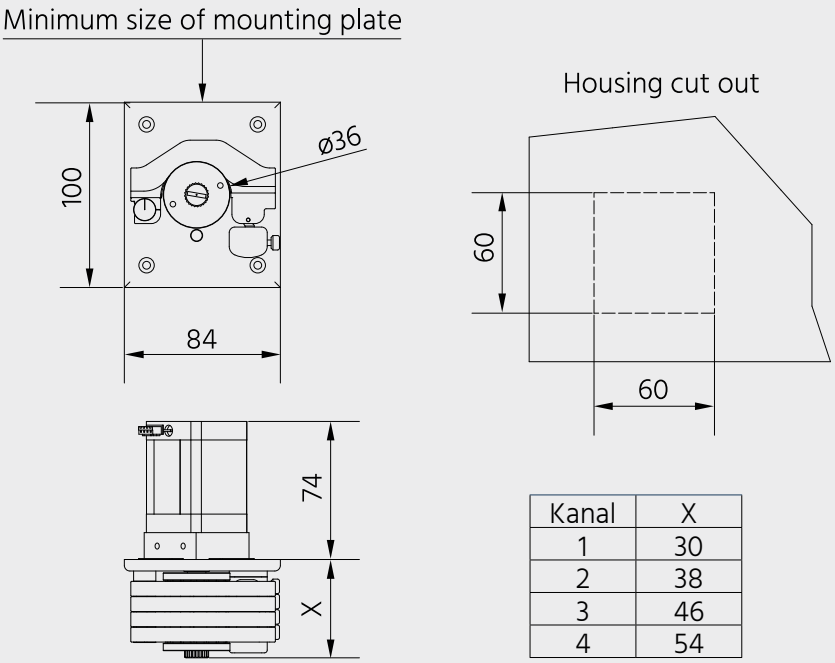
EasyClick Compact

The dimensions of the EasyClick Compact are similar to those of the Precision Compact. But they work in entirely different ways. With the EasyClick variant, the tubing is placed in a cartridge and automatically tensioned using a click-in mechanism. Adjustment using an adjusting lever is no longer necessary.

EasyClick Compact
Example view

Technical data	
Number of channels	1 – 4
Roller head diameter	36 mm
Speed	0 – 100 rpm (optionally up to 120 rpm)
Drive	Stepper motor 1.8°
Intermediate shaft	Mounted on 2 ball bearings
Main materials	PVC, PP, stainless steel, powder-coated aluminum
Bridge distance	72 mm
Dosing range	0 – 5.8 ml/min (per channel)
Inner diameter tubing	0.13 – 1.42 mm
Compression level adjustment	Automatic





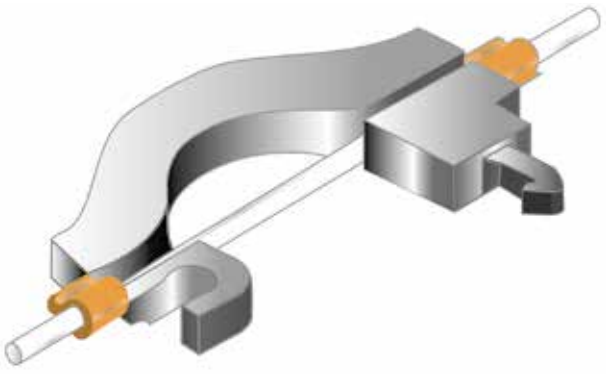
Kanal	X
1	30
2	38
3	46
4	54

EasyClick Connector

Many of the peristaltic pumps currently in use are based on one similar principle. The tubing that is to be inserted is clamped into place using the attached stopper/bridge and is then tensioned using a special pressure clip and adjusting lever. The knurled screw in the adjusting lever can be used to vary the setting of the pressure clip. Although this method gives users great flexibility, it also means that the compression level has to be adjusted depending on the wear at the tubing.

As in many other areas of technology, the trend in the use of peristaltic pumps is to ensure the greatest possible simplicity of operation coupled with the greatest possible product reliability.

These two properties are perfectly combined in our EasyClick connector: Instead of the clip used in its predecessor, the new version is equipped with a pressure cartridge in which the user can easily place the tubing. The cartridge can then simply be fixed in position by means of a special click-in spring mechanism. This mechanism also ensures that the tubing is automatically adjusted during pump operation, with the result that there is no longer any need for manual readjustment by the user.



Pressure cartridge
Example view

Features

- Easy to install
- Customer-specific design
- No readjustment of the compression level during operation

EasyClick Compact
Example view

Precision Syringe

The Precision-SY built-in syringe pump is a classic OEM product. The pump was specially developed for use in equipment where high precision in the milliliter to nanoliter range is required when introducing samples or reagents. It is specially matched to the requirements of the analysis equipment, i.e. the shape and color of the mounting plate are tailored to customer requirements. This means that there is no single model in the traditional sense. Instead, you, the customer, can define a tailored product that is perfectly matched to your equipment.

The core elements of the pumps are a stepper motor, a spindle, a linear guideway, a syringe holder and replaceable syringes. Thanks to the high stepper motor resolution of 25,600 steps per revolution, individual steps during the movement sequence are barely perceptible. A connecting element that forms a rigid connection between the spindle and the syringe plunger transmits the drive force from the stepper motor, thus delivering the feed motion for filling or emptying the syringe. Metering syringes with volumes between 0.05 ml and 10 ml are used.

The Precision-SY OEM syringe pump is optionally available with our stepper motor controller SMC01, the corresponding control software and connection kit.

OEM syringe pump:
Example view

Technical data

Mechanical data	
Dimensions LxWxH	230 x 50 x 62 mm
Approx. weight	600 g
Maximum stroke	63.5 mm
Minimum feed rate	0.273 nm/s
Maximum feed rate	1.367 mm/s
Smallest step resolution	0.0273 µm per step
Accuracy	±0.5%
Reproducibility	±0.5%
Transverse force	100 N
Main materials	Powder-coated/anodized aluminum, stainless steel, PEEK
Syringe holder	1/4 – 28 UNF thread (adjustable holder as option)
Pressure plate	6 – 32 UNC thread (adjustable holder as option)
Drive	Stepper motor 1.8°

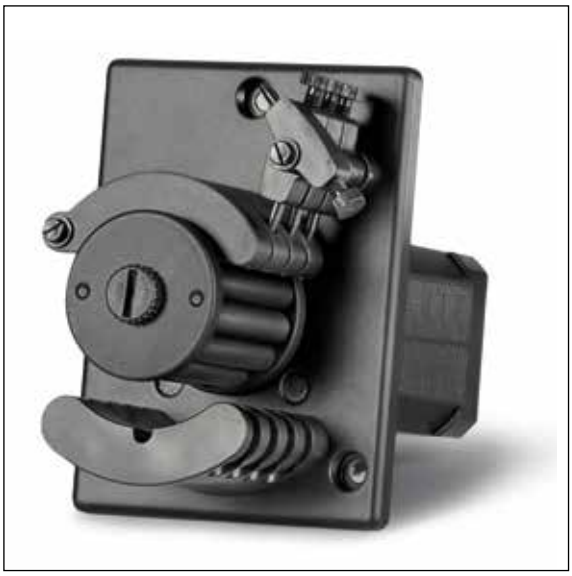
Data for sensors	
End position/reference position	Hall effect sensor
Incremental encoder	Optional

Data communication	
Data protocol	RS485 / USB

Control options	
Spetec PC software, Symax Control	Standard application. Manual control and predefined movement sequences possible
Spetec PC software, SMC01	Predefined commands but no predefined movement sequences Time-based control possible
Customer's PC software	Control via stepper motor controller SMC01 or control board.

Examples of built-in pumps

Precision Standard Roller head ø: 72 mm



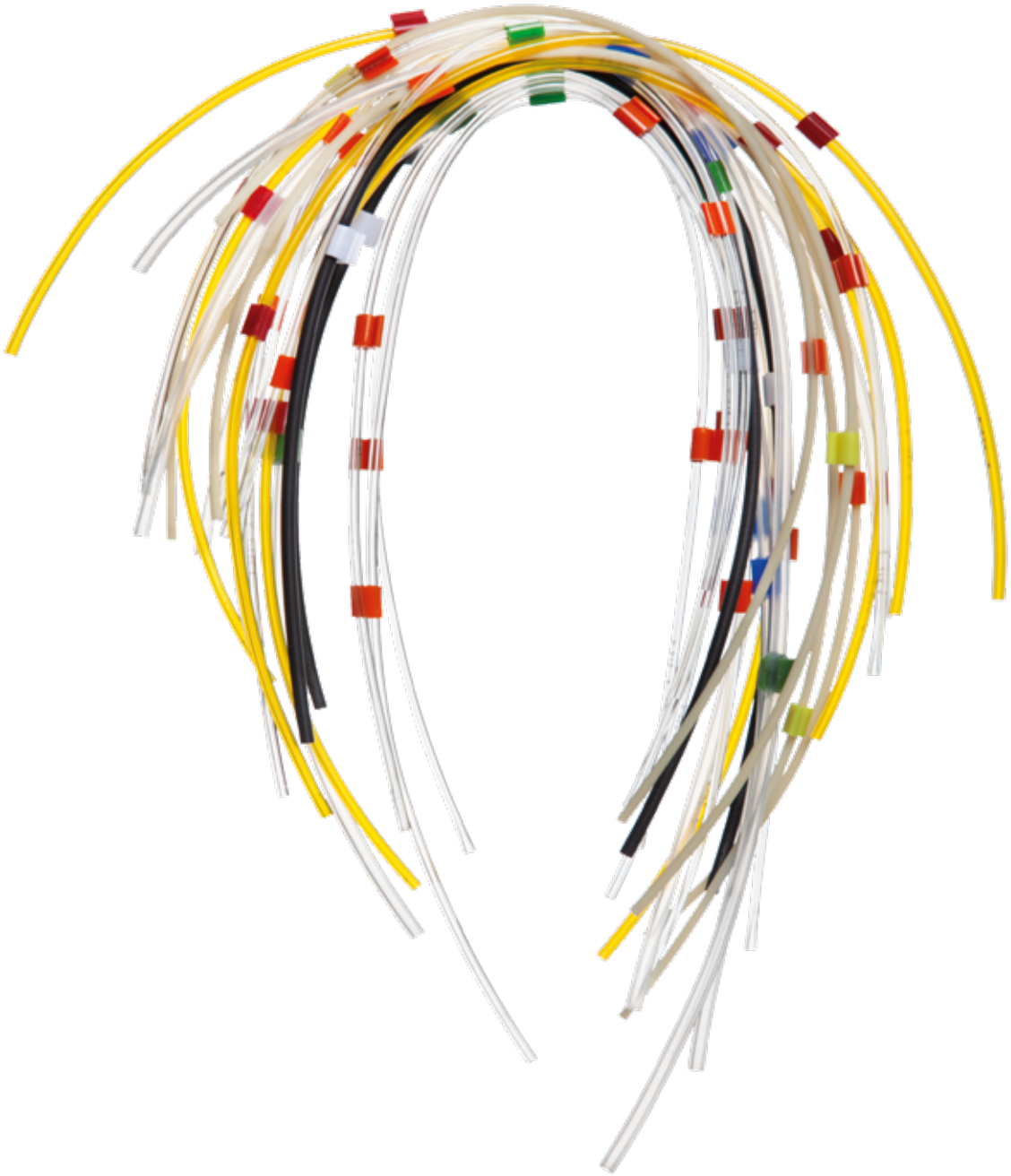
Precision Compact Roller head ø: 36 mm

EasyClick Standard Roller head ø: 72 mm

EasyClick Compact Roller head ø: 36 mm

Precision Syringe

Tubing



Variety is where our strength lies!
We offer a wide range of tubing in various materials, lengths, diameters and bridge configurations. You can also purchase tubing unassembled by the meter.

Do you need special lengths with unusual bridge intervals? We would be happy to send you an offer with short delivery times.

Materials:
- PVC Standard
- Solvent Flex
- PU Longlife
- Fluorinated rubber (comparable to Viton®)
- Santoprene® (comparable to Pharmed®, Mediprene®)
- Silicone

Request our separate brochure.

Stepper motor controller SM04

The optionally available Spetec stepper motor controller SM04 is an in-house development intended for Spetec pumps and can be fixed directly to the pump. It is designed for operating two-phase stepper motors with 1.8° and 0.9° step angles. Using the Spetec SM04, a single full step can be subdivided into 64 microsteps. This corresponds to 12,800 steps per revolution. This ensures that the equipment runs extremely smoothly and silently. Control is via an analogue voltage signal for the speed setting and one digital signal each for on/off and switching the direction of rotation. Operation takes place with a voltage of 24V. The SM04 is primarily used in combination with our peristaltic pumps.

Features

- On-chip temperature monitoring
- Current adjustment across the entire speed range, resulting in reduced heating of the stepper motor
- Simple speed control via analog input
- Quieter running through 1/64th microstep control
- Board can be operated without ventilation
- Compact assembly

Technical data

Stepper motor controller SM04	
Supply voltage	24V
Power supply	1.65A max.
Input for speed	0 – 5V, analog
Corresponding to speed	0 – 100 rpm
Max. speed	250 rpm
Speed range	Optionally selectable via DIP switch
Input for enable	TTL signal
Input for reverse rotation	TTL signal
Input for high speed	TTL signal

Stepper motor controller SMC01

The optionally available Spetec stepper motor controller SMC01 is a versatile control board for 2-phase stepper motors with a step angle of 1.8°. It can be operated in two different modes. The signal control mode is intended for use in simple systems. Various analogue and digital signals are used to control on/off, direction of rotation and speed. Interface mode is intended for operation at a PC or in a more complex system with its own bus system.

The SMC01 is supplied with the SMC01-Control operating software. This software allows you to query, set, configure and also control some of the parameters of the SMC01. This permits optimum stepper motor operation. The SMC01 is primarily used in combination with our Precision Syringe built-in syringe pump.

Features

- Two different operating modes can be set, signal control and command control (via USB adapter or RS485 port)
- SMC01 software for simple configuration and control
- Many settings can be configured from a PC
- Simple sequencing possible at the PC in the case of USB operation
- RS485 port to permit integration in more complex systems with interface control
- On-chip temperature monitoring
- Quieter running thanks to adjustable microsteps up to 1/128
- Board can be operated without ventilation
- Compact assembly

Technical data

Stepper motor controller SMC01 (optional)	
Supply voltage	24V
Power supply	1.65A max.
Motor emergency stop switch	Yes, via break contact
Signal control operating mode	
Input for speed	0 – 5V
Speed	0 – 100 rpm
Speed max.	250 rpm
Input for enable	TTL signal
Input for reverse rotation	TTL signal
Input for high speed	TTL signal
Comments: The SMC01 can be used with default settings or with a configured customer-specific setting.	
Command control operating mode (with separate USB adapter or RS485 port)	
Settings and control	Via commands from PC
Data communication	RS485/USB
Digital inputs/outputs	4, TTL level
Load switching	1 (24V, max. 100mA)
Analog inputs	2 channels
Script control	Via SMC01-Control software

SPETEC® GmbH
Am Kletthamer Feld 15
85435 Erding
Germany

Tel. +49 8122 95909-0
Fax. +49 8122 95909-55

Email: spetec@spetec.de
www.spetec.de

V9 2025