

## **GEMÜ C53 iComLine**

Motorized control valve



## GEMÜ C53 iComLine control valve



**Control valve for a variety of applications in the semiconductor industry such as chemical blending and dispensing of DI water**



**High-performance linear actuator with stepper motor**



**Diaphragm globe valve based on the GEMÜ iComLine series**



**Tried and tested plug diaphragm design**



**All media wetted parts are made of PFA or PTFE**



**1 million qualified control operating cycles**



**Cleanroom manufacturing (HP version), complies with SEMI F 57**

# Maximum flexibility for flow control



## Motorized actuator

- Adjustable valve stroke (adaptation possible at the factory)
- Can be integrated in customized multi-port valve blocks

## PD (plug diaphragm)

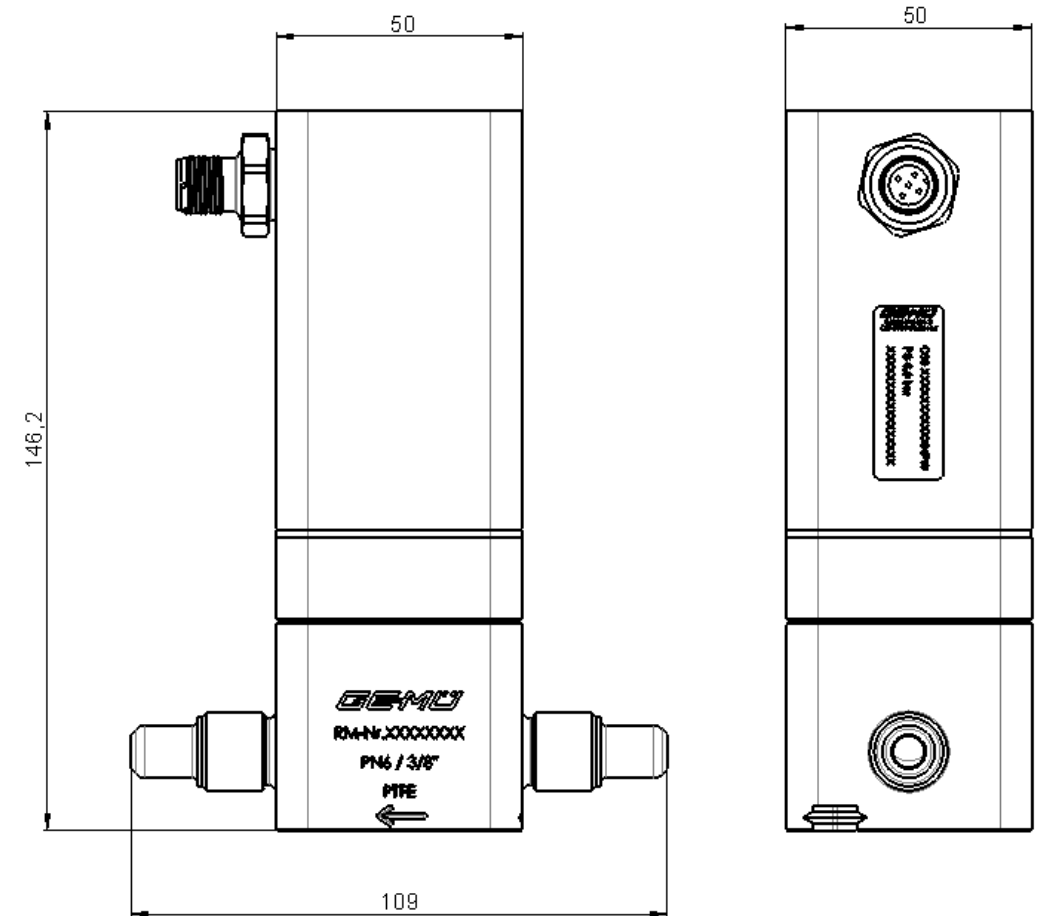
- Tried-and-tested sealing concept
- Equal-percentage and linear control possible
- Customized control cone design possible

## Valve body

- Common connection sizes and connection types available
- High purity fluoroplastics for use in semiconductor manufacturing

# Technical specifications

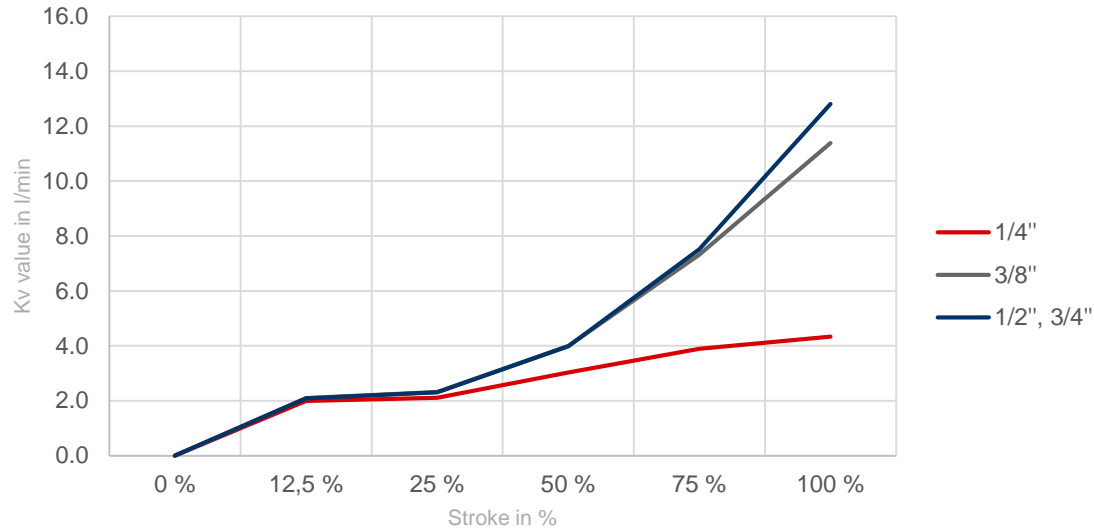
- **Media temperature:** 10 – 150 °C
- **Ambient temperature:** 0 – 40 °C
- **Operating pressure:** 0 to 6 bar
- **Connection sizes:** 1/4" | 3/8" | 1/2" | 3/4"
- **Actuator material:** PVDF, natural
- **Body materials:** PTFE TFM™ | PFA
- **Seal material:** PTFE TFM™ (regulating cone)
- **Supply voltage:** 24 V DC
- **Analogue inputs:** Current signal 4 – 20 mA | Voltage signal 0 – 10 V
- **Actuating speed:** max. 2 mm/s
- **Valve stroke:** 4 mm (adaptation possible at the factory)



Dimensions in mm

# Kv values

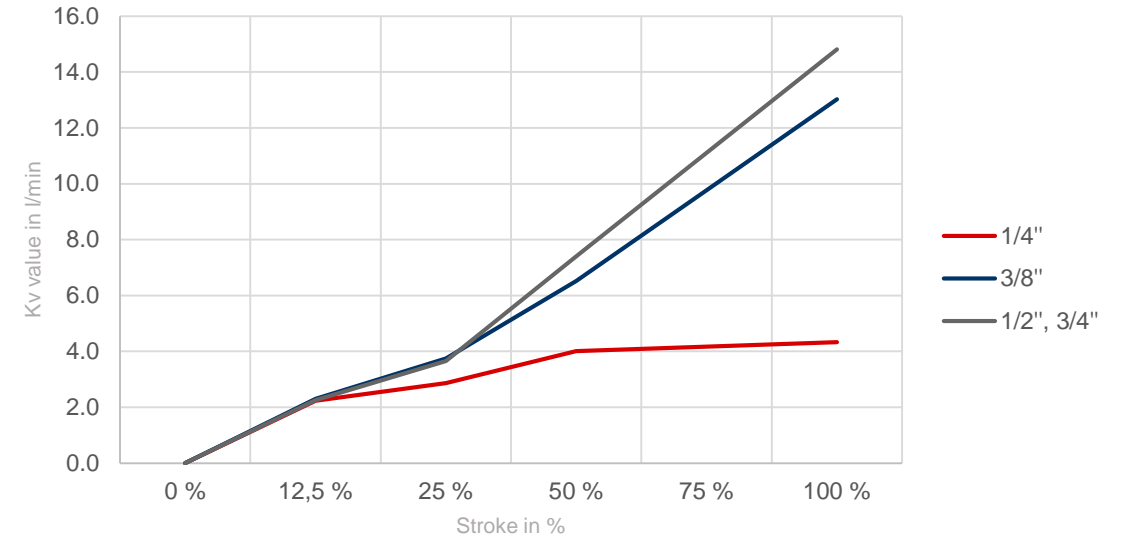
**Equal-percentage control characteristics with the code R3234 regulating cone**



**Kv values in l/min**

Stroke	Connection size			
	1/4"	3/8"	1/2"	3/4"
0%	0	0	0	0
12.5%	2	2.1	2.1	2.1
25%	2.1	2.3	2.3	2.3
50%	3	4	4	4
75%	3.9	7.3	7.5	7.5
100%	4.3	11.4	12.8	12.8

**Linear control characteristics with the code R3235 regulating cone**

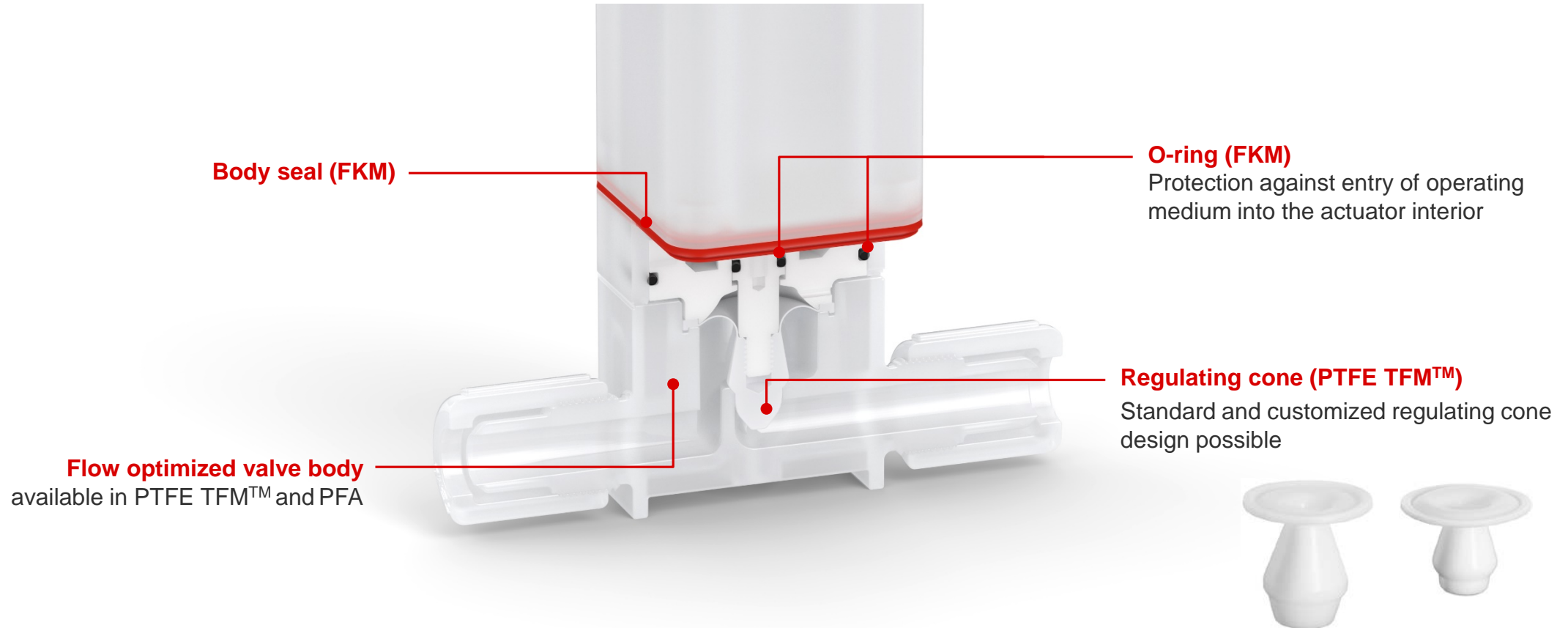


**Kv values in l/min**

Stroke	Connection size			
	1/4"	3/8"	1/2"	3/4"
0%	0	0	0	0
12.5%	2.2	2.3	2.3	2.3
25%	2.9	3.7	3.7	3.7
50%	4	6.5	7.4	7.4
75%	4.2	9.8	11.1	11.1
100%	4.3	13	14.8	14.8

Further Kv value characteristics on request

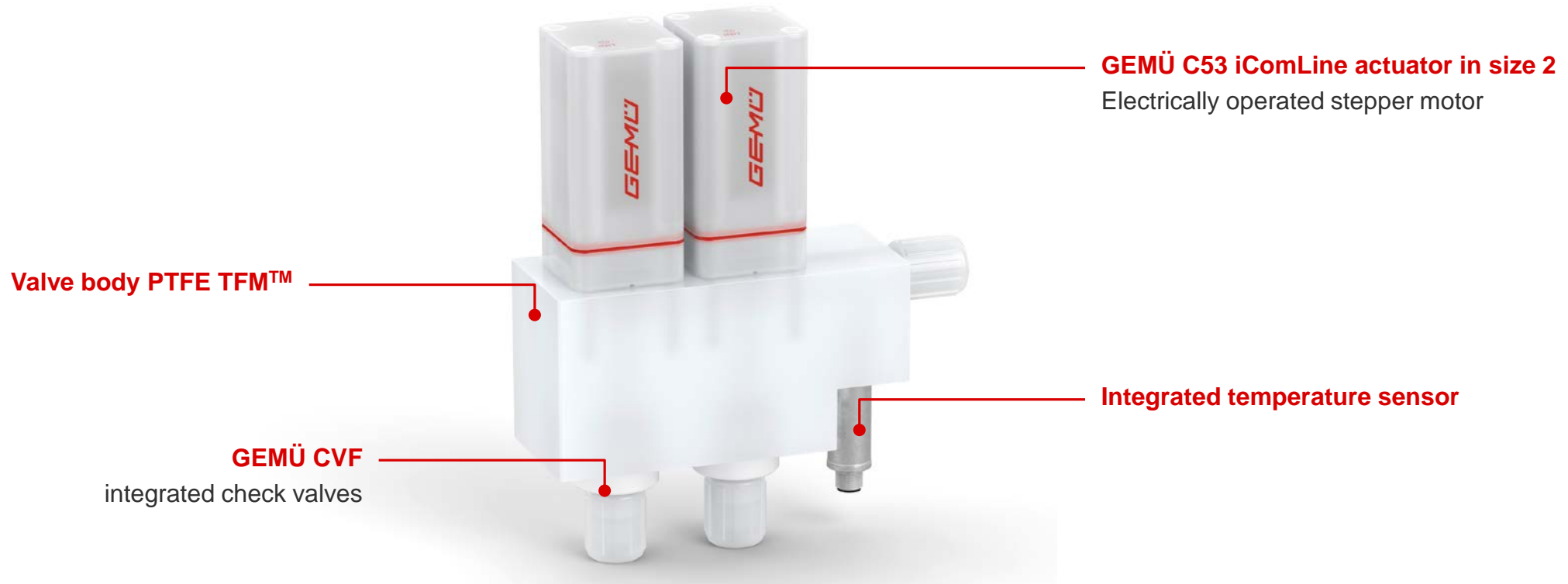
# Tried and tested functional principle



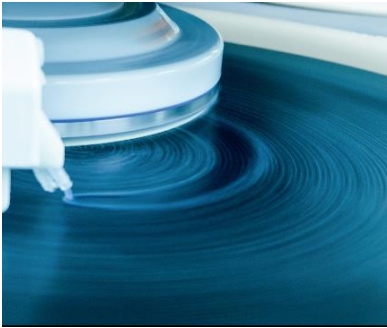
# Customized GEMÜ M-block solutions

## M-Block GEMÜ PC50 iComLine

The illustration shows an exemplary GEMÜ PC50 iComLine valve block with motorized actuators, check valves and an integrated temperature sensor, which is used for temperature control of DI water in FOUP cleaners.



# Application Areas



## Volume flow control:

In semiconductor production, different amounts of substrate and chemicals are often applied to the wafers. In the past, different supply lines with pneumatically operated valves with different flow rates were used for this purpose. In conjunction with pressure and flow measurement technology, the GEMÜ C53 iComLine can control different flow rates within a single valve making the various lines sometimes not required.

**GEMÜ C53 iComLine is therefore suitable for controlling different volumes!**



## Pressure measurement and flow control:

The application and removal of the various layers has a significant influence on the subsequent performance of microchips. In order to guarantee this evenly and precisely, they must be continuously applied with a constant amount of substrate. The use of different valve, measuring and control components can lead to flow fluctuations in the process tool.

**The GEMÜ C53 iComLine ensures a constant volume flow in conjunction with measurement technology components. Depending on customer requirements this is achieved using pressure or flow measurement technology.**



## Precise Dosing:

The importance of the efficient use of the process media used in semiconductor manufacturing is increasing. Therefore, online chemical monitoring systems with dosing functions are increasingly used to meet the growing demand for precise metal plating in packaging applications at wafer level.

**GEMÜ C53 iComLine is capable of controlling very small quantities of chemicals!**





# Further valves for the semiconductor industry

Diaphragm valves



**GEMÜ CleanStar**

Diaphragm globe valves



**GEMÜ iComLine**

M-block valves



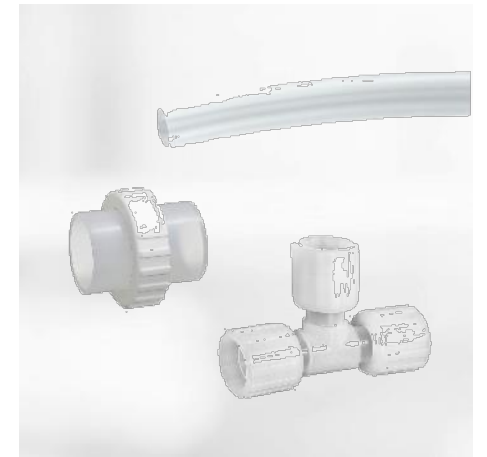
**GEMÜ PC50 iComLine**

Measurement devices



**GEMÜ HydraLine and  
GEMÜ SonicLine**

Fittings and tubes



**GEMÜ FlareStar and  
GEMÜ TubeStar**

Thank you for your attention.  
Contact us for individual technical support.

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