



aerospace  
 climate control  
 electromechanical  
 filtration  
**fluid & gas handling**  
 hydraulics  
 pneumatics  
 process control  
 sealing & shielding

<b>Basic</b>	1/4" 1/2"
<b>Comfort</b>	1/4" 1/2"
<b>Comfort</b>	1/2" HP 1" 2"



# Proportional Pressure Regulation

Lucifer® Programmable EPP4 regulators  
 High Pressure, 1" and 2" Comfort range



ENGINEERING YOUR SUCCESS.

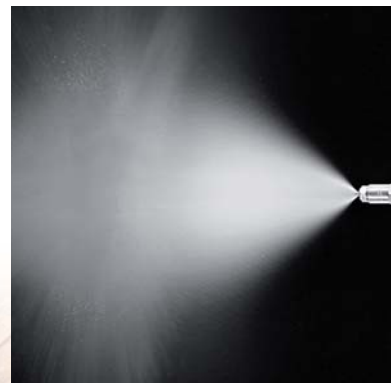
# Market and/or Sub Market Description

- Robotics
- Paper industry
- Machine tools
- Mobile
- Buildings
- Textile
- Instrumentation
- Semi conductor



# Description of Applications

- Welding
- Speed and brake control
- Sanding
- Cutting
- Humidification
- Tension regulation
- Painting
- Presses
- Polishing
- Adaptative suspension control



# Value Propositions for Lucifer® EPP4 Comfort Proportional Pressure Regulators



- All parameters fully adjustable through the PC software Calys
- Easy to use software
- Long life expectancy
- Compact and light
- Limited inventory for distributors
- Low power
- Flexible remote display positioning
- Proven expertise of Parker, a pioneer in pressure regulation technology



## Calys Software

Calys is a unique software in house developed to configure all the parameters of the EPP4 Comfort range.

Calys is an option of the EPP4. It will be sent via email if you order cable reference 496449 wich permits the communication between the EPP4 and a PC.

### Calys offers many capabilities:

- It enables the distributors to keep a main generic EPP4 reference in stock, and adjust it to the needs of each customer application. They can switch for example from 0-10 V to 4-20 mA, or from 0-7 bar pressure range to 0-5 bar.
- Engineers designing a pneumatic system are able to monitor precisely all the important values (electrical or pneumatical) directly on their laptop.
- After sales technicians are able to receive via email all the parameters measured by the EPP4 installed on a machine wherever its location.

This way maintenance operations can be done remotely at distance.



See more detailed technical description of Calys in the "Options" part on page 8.

# Lucifer® EPP4 Comfort Technical Data

<b>Fluids:</b>	Lubricated or non lubricated air and neutral gases Recommended filtration: 50 µm												
<b>Temperature range:</b>	Ambient: 0 to +50 °C Fluid: 0 to +50 °C												
<b>Inlet pressure range:</b>	1 to 12 bar - 1 to 14 bar - 1 to 21 bar (the inlet pressure must always be at least 1 bar above the regulated pressure)												
<b>Outlet pressure range:</b>	0.05 to 10 bar, 0.1 to 1 bar, 0.1 to 20 bar												
<b>Hysteresis:</b>	≤ 100 mbar if P inlet ≤ 10 bar ≤ 200 mbar if P inlet > 10 bar												
<b>Air consumption at constant control signal:</b>	None												
<b>Supply voltage:</b>	24 V DC ± 15 % (Max. ripple 1 V)												
<b>Power consumption:</b>	Max. 6 W with 24 V DC and constant changes of the control signal < 2 W without change of control signal												
<b>Control signal:</b>	Analog 0 - 10 V; standard for 0 - 10 bar; adjustable Analog 4 - 20 mA; standard for 0 - 10 bar; adjustable												
<b>Outlet sensor signal:</b>	Analog 0 - 10 V ; standard for 0 - 10 bar; adjustable Analog 4 - 20 mA ; standard for 0 - 10 bar; adjustable Digital 0/24 V for alarm features: <ul style="list-style-type: none"> <li>■ Adjustable pressure error (+/-)</li> <li>■ Adjustable delay ON</li> <li>■ Adjustable delay OFF</li> <li>■ Adjustable logic (+/-)</li> </ul>												
<b>Max. flow:</b>	G1/2": 150 m³/h - G1": 1 000 m³/h - G2">2 700 m³/h												
<b>Indicative response time:</b>	With a volume of 330 cm³ at the outlet of the regulator												
	<table border="1"> <thead> <tr> <th></th> <th>G1/2"</th> <th>G1"</th> <th>G2"</th> </tr> </thead> <tbody> <tr> <td>Filling 2 to 8 bar:</td> <td>~120 msec</td> <td>~250 msec</td> <td>~250 msec</td> </tr> <tr> <td>Emptying 8 to 2 bar:</td> <td>~190 msec</td> <td>~400 msec</td> <td>~400 msec</td> </tr> </tbody> </table>		G1/2"	G1"	G2"	Filling 2 to 8 bar:	~120 msec	~250 msec	~250 msec	Emptying 8 to 2 bar:	~190 msec	~400 msec	~400 msec
	G1/2"	G1"	G2"										
Filling 2 to 8 bar:	~120 msec	~250 msec	~250 msec										
Emptying 8 to 2 bar:	~190 msec	~400 msec	~400 msec										
<b>Safety position:</b>	In case of control signal failure or if it is less than 50mV, the regulated pressure drops automatically to 0 bar atmospheric pressure (for pressure ranges from 0-10bar, 100mV for pressure range over 10 bar). In case of voltage supply failure, the regulated pressure will be kept constant.												
<b>Electrical connection:</b>	M12 - 8 pin; male connector power supply/control signal M12 - 5 pin; male connector communication												
<b>Life expectancy:</b>	> 20 Mio changes of control signal steps												
<b>Mounting position:</b>	Indifferent (recommended position: upright; electronic part on top)												
<b>Resistance to vibrations:</b>	30 g in all directions												
<b>Protection index:</b>	IP 65												
<b>Assembly:</b>	Silicone free												
<b>Electromagnetic compatibility:</b>	In accordance with EN 61000-6-1: 2001 EN 61000-6-2: 2001 EN 61000-6-3: 2001 + A11 2004 edition (01/07/07) EN 61000-6-4: 2001												
<b>Installation and setting instructions:</b>	See our "Notice 408193" and appendix supplied with the product.												

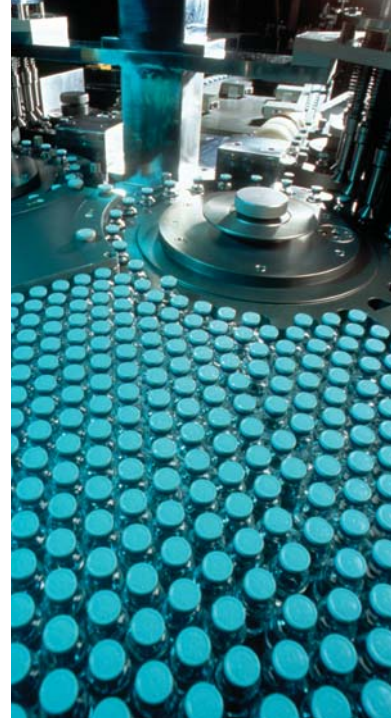
**Note:** Parker reserves the right to change specifications without notification.

# Description of Operation

## Pneumatic Technology

Construction is made with a full aluminium body.

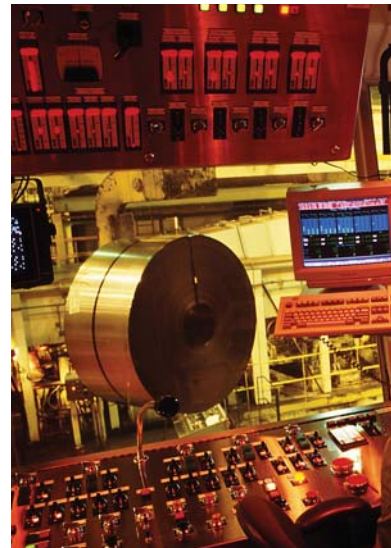
The piston is fabricated in a special polyacetal and is equipped with high performance dynamic seals, specially developed by Parker Lucifer for this application.



## Electronic Technology

The Comfort version uses the board of the EPP4 Basic range for the regulation functions and a second board for specified options.

Technology used is fully digital. The cancellation of potentiometers allows customers to realise an easy, safe and precise set-up in their production.



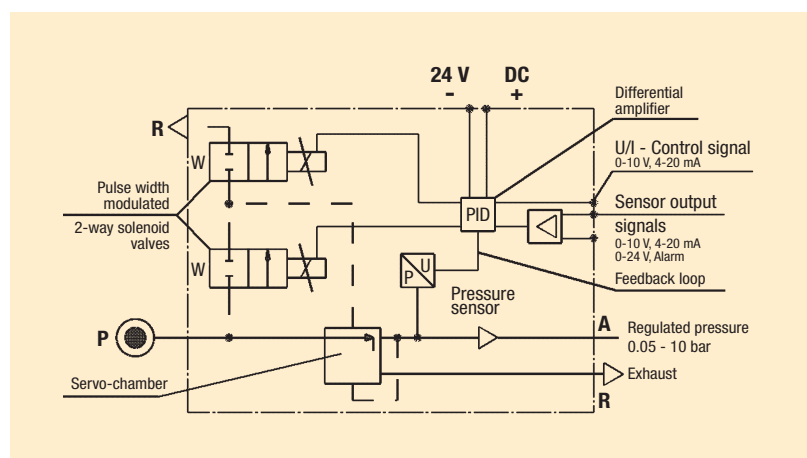
## Block Diagram

The controller receives both the control signal (set pressure) and the feedback signal from the sensor (outlet pressure).

Any difference between the two amplifier inputs results in a corresponding output (PID regulation) which drives the appropriate 2-way pulse which modulated solenoid valve so that the piston moves to correct the pressure.

The same feedback signal from the sensor is used for the output feedback in voltage and current.

The digital signal (alarm) is activated when the conditions (out of pressure or time tolerance) are met.



# Lucifer® EPP4 Comfort References

Codes	Pipe	Max inlet pressure (bar)	Pressure range (bar)		Control signal (see options)	Dimensional Drawing
P4CG4101D001	G1/2	15	0	12	0-10V	1
P4CG4201D005	G1/2	21	0	16	0-10V	2
P4CG4201D003	G1/2	21	0	20	0-10V	2
P4CG4201D004	G1/2	21	0	20	4-20mA	2
P4CG6101C009	G1	12	0	3.5	4-20mA	3
P4CG6101C011	G1	12	0	5	0-10V	3
P4CG6101C010	G1	12	0	6	4-20mA	3
P4CG6101C001	G1	12	0	10	0-10V	3
P4CG6101C002	G1	12	0	10	4-20mA	3
P4CG6201D003	G1	21	0	20	0-10V	3
P4CG9101C012	G2	12	0	4	4-20mA	4
P4CG9101C010	G2	12	0	6	4-20mA	4
P4CG9101C001	G2	12	0	10	0-10V	4
P4CG9101C002	G2	12	0	10	4-20mA	4

Other specific settings or specialties are available, please contact us.



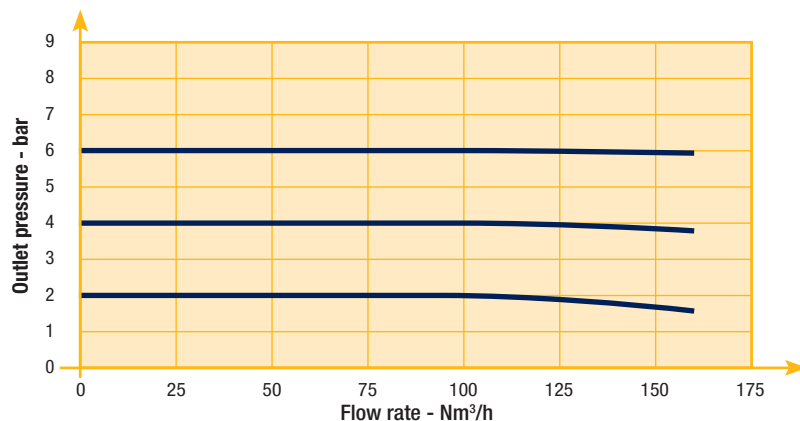
If you need more informations on the rest of the Lucifer® EPP4 range, please consult:

- 8683UK -> EPP4 Basic 1/4"
- 8684UK -> EPP4 Basic 1/2"
- 2201UK -> EPP4 Comfort 1/4" & 1/2"

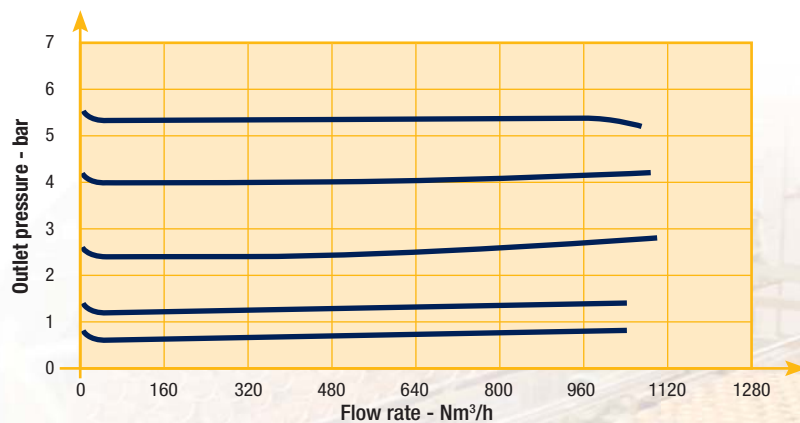
# Lucifer® EPP4 Comfort Technical Characteristics



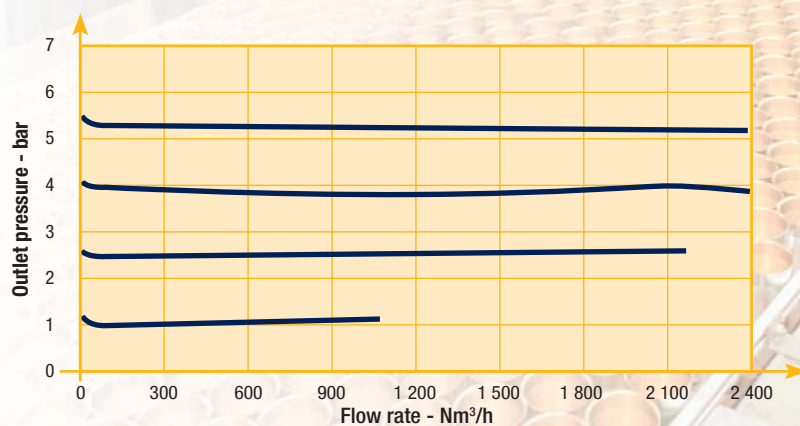
## Flow Curve 1/2"



## Flow Curve 1"



## Flow Curve 2"

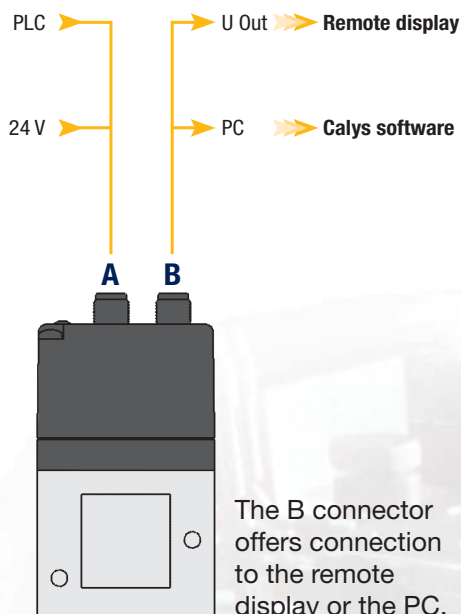


# Lucifer® EPP4 Comfort Options

## Additional Features

The EPP4 Comfort offers **two main options** - a **remote display** and a **software** to easily set the regulator's parameters.

These are the key feature options for a comfortable use.



- A remote display connected to the pressure regulator offers flexible monitoring.
- A panel mounting kit is available to install the remote display.
- Calys is an easy-to-use software package designed to allow the user to match his regulators performance directly to his specific application.
- A power supply and control signal cable.





# Lucifer® EPP4 Comfort Options

## Remote Display

This option includes the Remote Display and 1.5 meter connecting cable.

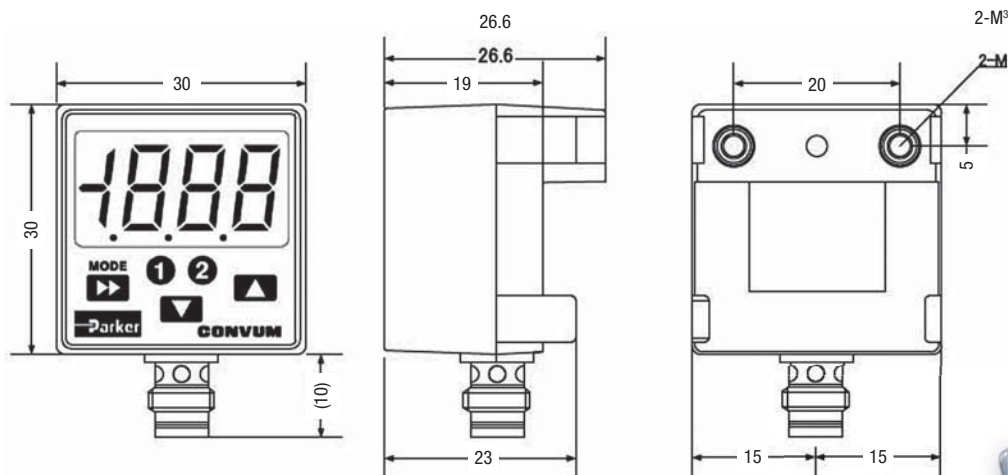
Compact and highly readable remote LED display:

- Bar and PSI scales
- Security lock
- 1.5 m cable
- Mounting brackets



**Order the Remote Display under reference 496490**

## Panel Mounting Kit



**Order the Panel Mounting Kit under reference 496610**

# Lucifer® EPP4 Comfort Options

## Calys Software

Calys is a software to set all relevant parameters of the Lucifer® EPP4 Comfort.

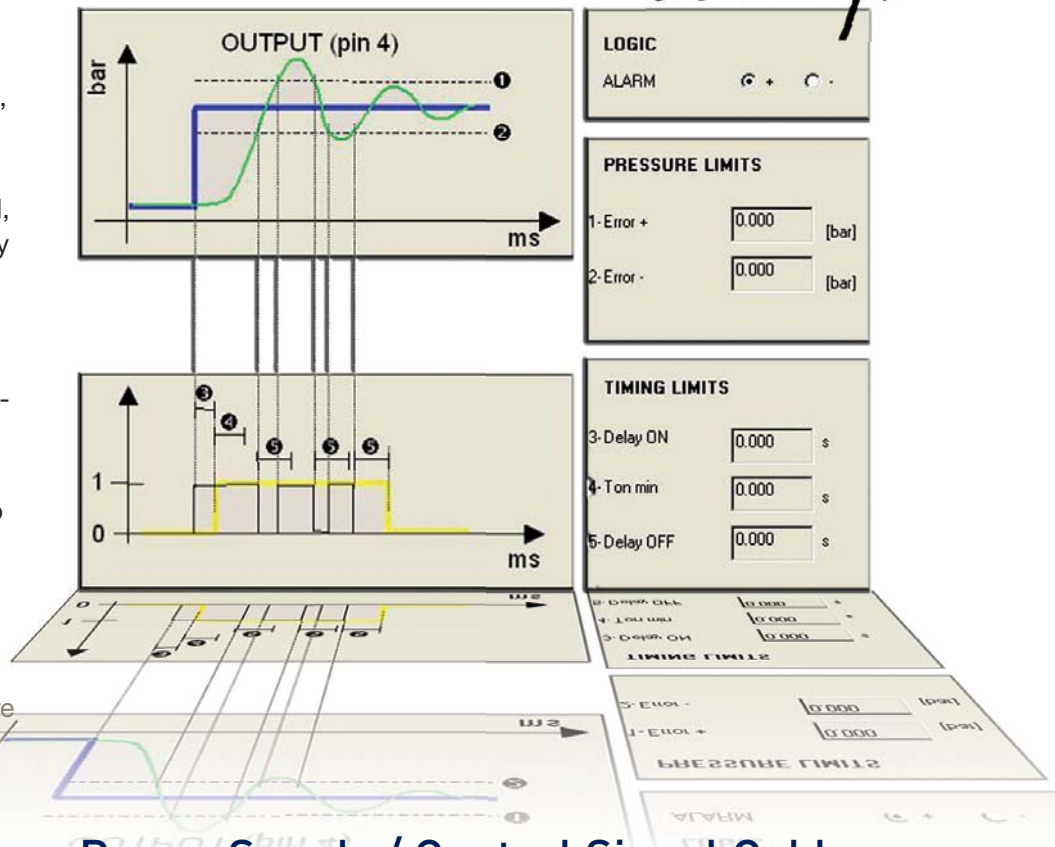
The cable 496449 (option) is needed to let the EPP4 communicate with any configured PC, this software is supplied free of charge with each cable unit.



Calys offers the following features:

- Live monitoring (control signal, regulated pressure, supply voltage,...)
- Recording of the main parameters (control signal, regulated pressure, supply voltage,...) in an Excel file
- Free calibration for the inputs and outputs
- Adjustable alarm (positive-negative, pressure limits, delays)
- Configuration files easy to duplicate
- Complete and interactive help file
- Data in 4 different pressure units
- Menus in 4 languages (English, German, French and Italian)
- Cable 496449 with RS-232 and USB connection

*calys*



## Power Supply / Control Signal Cable

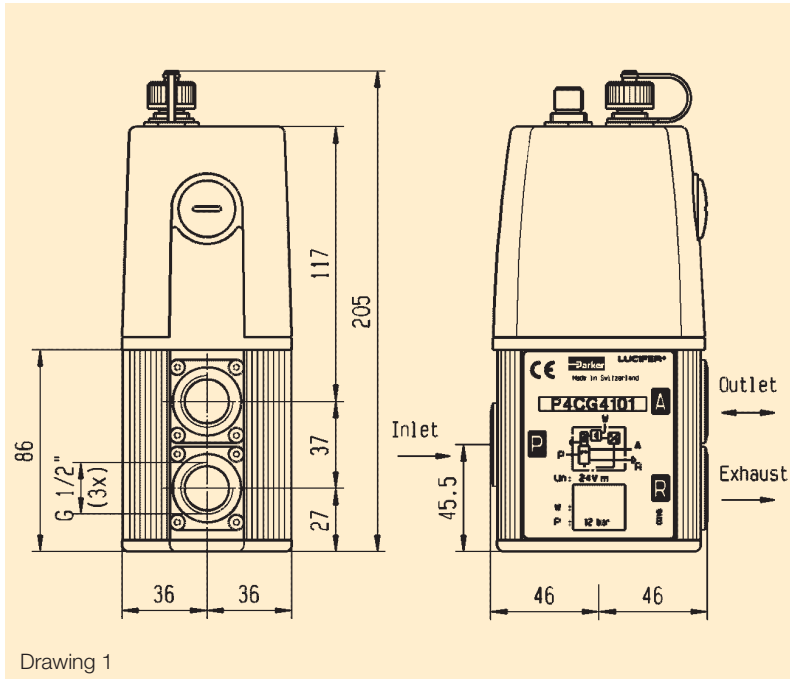
- 2 m cable with moulded M12-8 pins connector

**Order the PC software (including cable) under reference 496449**

**Order the power supply / control signal cable under reference 496796**

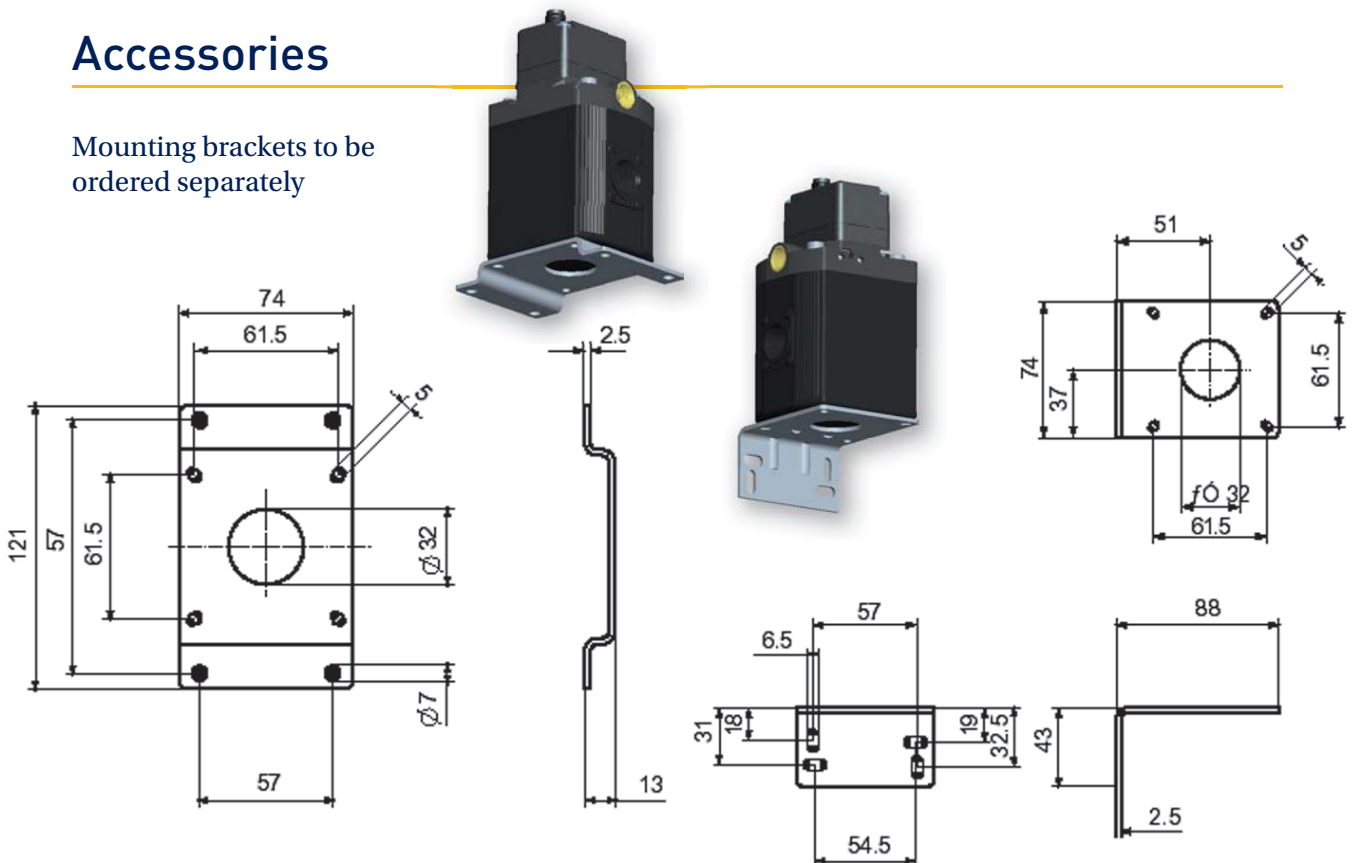
# Lucifer® EPP4 Comfort Range 1/2"

## Dimensions



## Accessories

Mounting brackets to be ordered separately

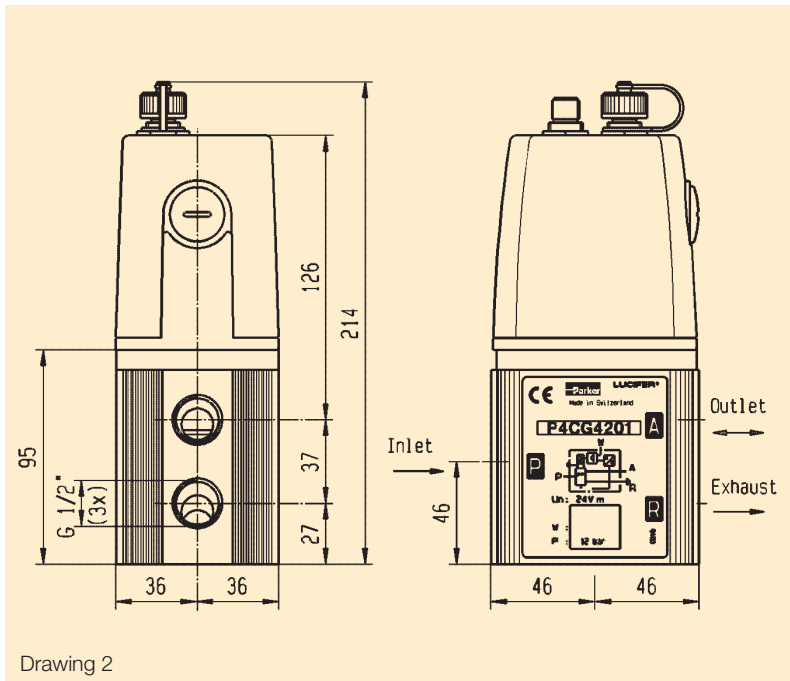


Order reference 491366

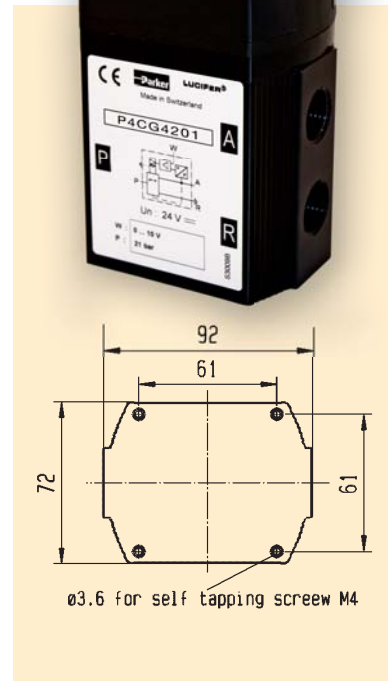
Order reference 491367

# Lucifer® EPP4 Comfort Range 1/2"

## Dimensions

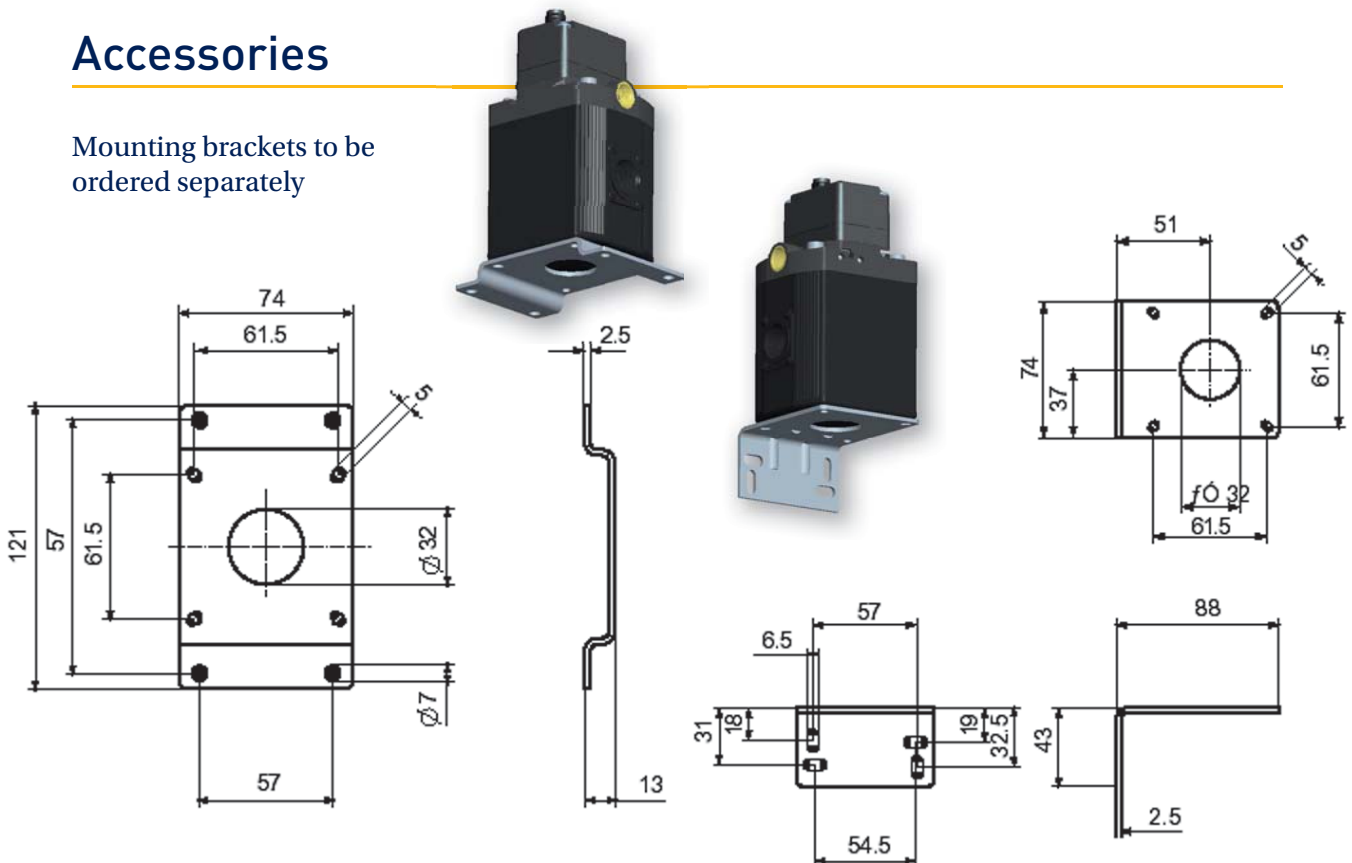


Drawing 2



## Accessories

Mounting brackets to be ordered separately

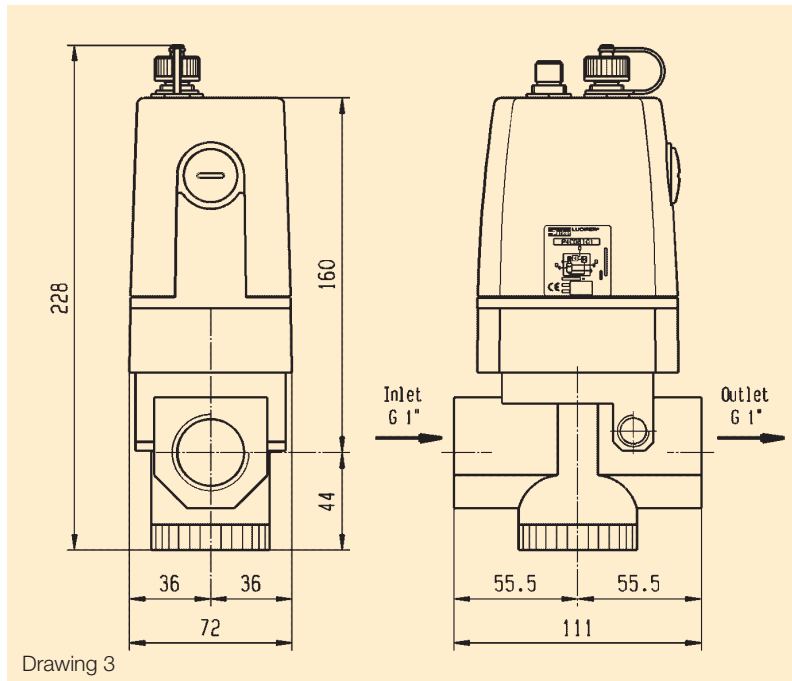


Order reference 491366

Order reference 491367

# Lucifer® EPP4 Comfort Range 1"

## Dimensions

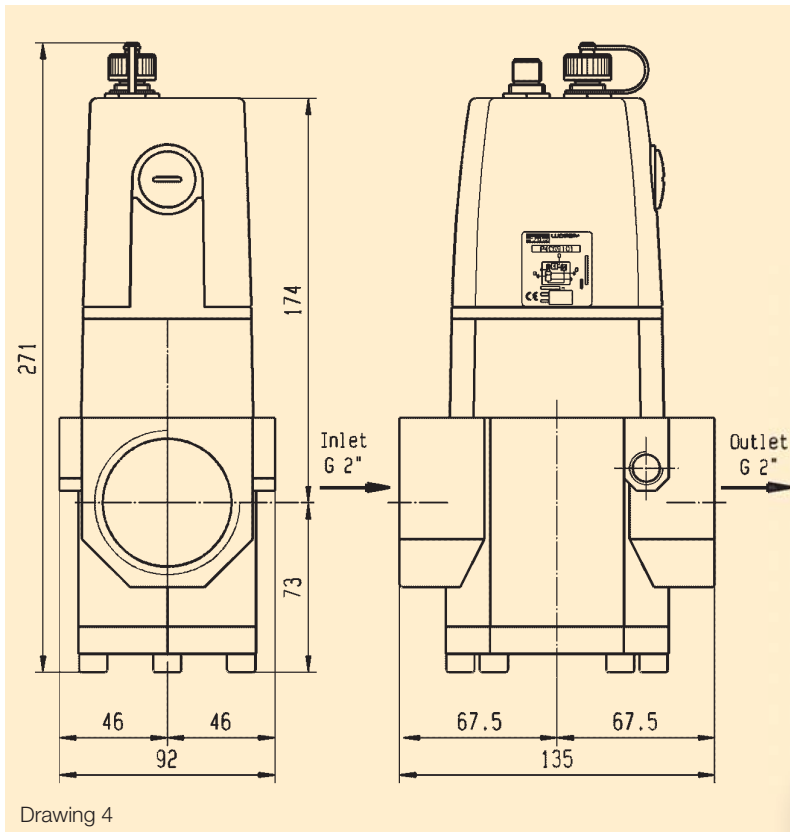


Drawing 3



# Lucifer® EPP4 Comfort Range 2"

## Dimensions



### WARNING - USER RESPONSIBILITY

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.



## AEROSPACE

### Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



## CLIMATE CONTROL

### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

### Key Products

- CO<sub>2</sub> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



## ELECTROMECHANICAL

### Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

### Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



## FILTRATION

### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



## FLUID & GAS HANDLING

### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## HYDRAULICS

### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

### Key Products

- Diagnostic equipment
- Hydraulic cylinders
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## PNEUMATICS

### Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

### Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



## PROCESS CONTROL

### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



## SEALING & SHIELDING

### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



ENGINEERING YOUR SUCCESS.

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