

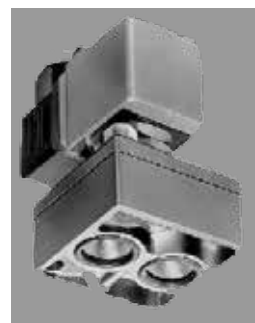


aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
**pneumatics**  
process control  
sealing & shielding



## 2/2 & 3/2 Solenoid Valves

High Pressure Pneumatic Applications - 40 bar



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# 2/2 & 3/2 Solenoid Valves for High Pressure pneumatic applications - 40 bar

## Product offering:

- 2/2 valves and 3/2 way valves - pilot operated
- Pipe mounting (G 1/2- 3/4) or sub-base mounting
- 1.5 (2) - 40 bar
- Normally open or closed
- Internal or external pilot pressure supply

## Customer Value Proposition:

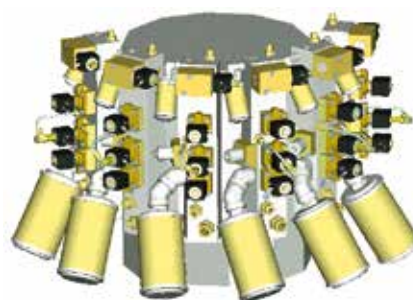
- Safety of operation
- Reliability
- Response time stability
- Repeatability
- No leakage
- Integrated non return valve (421version)

The use of high pressure gases became a necessity in the new technologies developed during the last years.

The control of these fluids can be done through the solenoid valves specially designed by Parker Lucifer for high pressure applications (maximum 50 bar).

The **life expectancy of several millions** of cycles, with **response time of few milliseconds**, allows the use of these valves on intensive applications and on high technology machines, as the plastic bottle blowing machines, or the laser cutting machines.

Parker Lucifer also develops special valves or adapted blocks upon specific customers needs. Please contact your agent for more information.



# Application Example

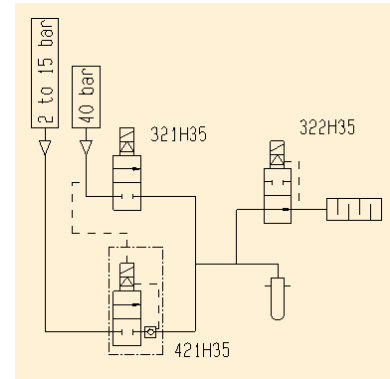
## Plastic Bottle Blowing

Three 2-way solenoid valves permit to control the required blowing functions to produce plastic bottles.

In a first phase the N.O. valves (322 H 35) and N.C. valves (421 H 35) are energised. The pressure in the circuit is therefore established to a pre-determined level (2 to 15 bar). During the same time the 3/2 valve (331 B 31) maintains the mould closed with a 40 bar pressure.

In a second phase, the N.C. valve 321H35 is energised and the pressure increases up to 40 bar. Independently from the position of the 421H35 valve, the 321H35 valve assures by design that the 40 bar pressure is maintained and cannot go back into the "low pressure" circuit.

In a third phase, the N.O. valve 322H35 is de-energised and permits the discharge of the circuit down to 0 bar.



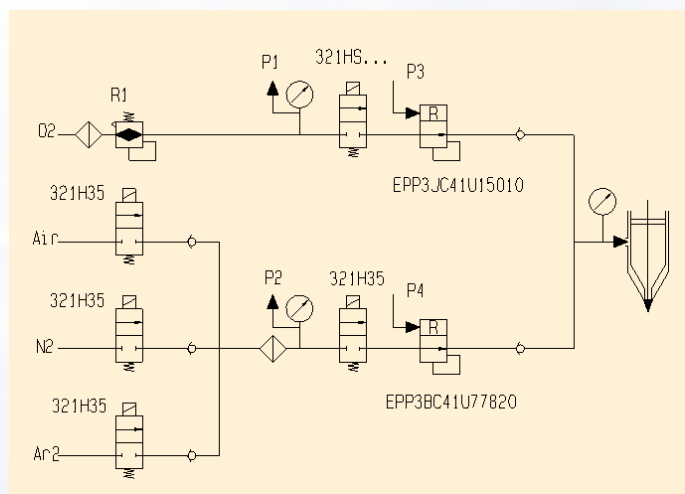
**Fig.1**

Three valves (F type) are grouped on a common block to assure the above mentioned operation.

## Laser Cutting

For this application, few 2/2 Normally closed valves control the gas inlet, in order to assure the different phases and options of the laser cutting. The valves 321H35 are used for inert gases as Air, Argon, Nitrogen. A special model 321HS... is used for oxygen applications.

Electronic pressure regulators type EPP... regulate the pressure from 0 to 20 bar, according to cutting conditions.



# Application Example

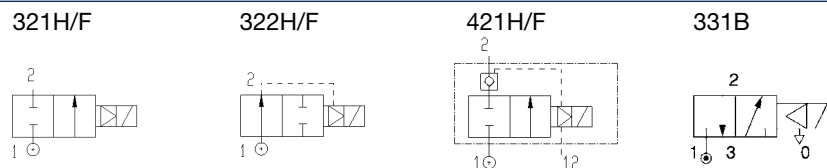
## Main Technical Specifications

### Function

2/2 pilot operated: Normally closed (with internal pilot pressure) 321H/F type  
 Normally closed (with external pilot pressure) 421H/F type  
 Normally open (with internal pilot pressure) 322H/F type

3/2 pilot operated: normally closed (with internal pressure) 331B type

### ISO diagram



### Mounting

- For direct pipe mounting G 1/2" or 3/4" (2/2 Valve type H); G 1/4 (3/2 Valve type B)
- For sub-base mounting (type F)

### Nominal diameter

15 mm (type H), 14 mm (type F)

### Pressures

For the version with external pilot pressure, the pilot pressure must always be higher than the controlled pressure

### External Leakage

0 Ncc/min.

### Internal Leakage

< 20 Ncc/min.

### Fluids

Dry lubricated or non lubricated air, Argon, Nitrogen.  
 Oxygen on request

### Proof pressure

200 bar

### Filtration

< 1 µm

### Life expectancy

> 2 10<sup>6</sup> cycles (dry and clean air)  
 > 8 10<sup>6</sup> cycles (lubricated air)

### Temperatures

Ambient / fluid mini: -10 °C  
 Ambient / fluid maxi: +50 °C

### Materials specifications

Body/cover:	2/2 Valves: Brass - 3/2 Valves: Aluminium
Pilot seals :	PUR
Main seals :	FKM (Viton®) with isolating diaphragm from PUR
Tube and plunger :	Stainless steel
Coil :	Encapsulation from PA66 + 30% fiber glass

### Options

Δp maxi 50 bar on request

### Response Time

Depends on application

### Mounting Position

Indifferent

### Specials

Parker Lucifer also develops special valves or adapted blocks upon specific customers needs.  
 Please contact your agent for more information.



Port size	Orifice	Flow Factor (l/min)	Admissible differential pressure (bar)			Fluid Temp.	Seal Material (C°)	Reference Nos				Dim. Ref. N°
G	mm	Gaz Qn	Min.	Max. DC	Max. AC	Gaz Max.		Global Ref. No.	Valve	Housing	Coil	

### 2/2 Valves - Direct Pipe Mounting

Normally CLOSED

1/2"	15	3150	1.5	40	40	50	FKM	-	<b>321H35</b>	2995	see table	1
3/4"	15	3550	1.5	40	40	50	FKM	-	<b>321H36</b>	2995	see table	1

### 2/2 Valves - Direct Pipe Mounting

Normally OPEN

1/2"	15	3150	1.5	40	40	50	FKM	-	<b>322H35</b>	2995	see table	2
3/4"	15	3550	1.5	40	40	50	FKM	-	<b>322H36</b>	2995	see table	2

### 2/2 Valves - Direct Pipe Mounting

External Pilot

Normally CLOSED

1/2"	15	3150	2	40	40	50	FKM	-	<b>421H35</b>	2995	see table	3
3/4"	15	3550	2	40	40	50	FKM	-	<b>421H36</b>	2995	see table	3

### 2/2 Valves - Sub-base Mounting

Normally CLOSED

-	14	2100	1.5	40	40	50	FKM	-	<b>321F35</b>	2995	see table	4
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### 2/2 Valves - Sub-base Mounting

Normally OPEN

-	14	2100	1.5	40	40	50	FKM	-	<b>322F35</b>	2995	see table	5
---	----	------	-----	----	----	----	-----	---	---------------	------	-----------	---

### 2/2 Valves - Sub-base Mounting

External Pilot

Normally CLOSED

-	14	2100	2	40	40	50	FKM	-	<b>421F35</b>	2995	see table	6
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### 3/2 Valves - Direct Pipe Mounting

Normally CLOSED

1/4"	8	750	1	40	40	50	PUR	-	<b>331B31</b>	2995	see table	7
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### 3/2 Valves - Sub-base Mounting

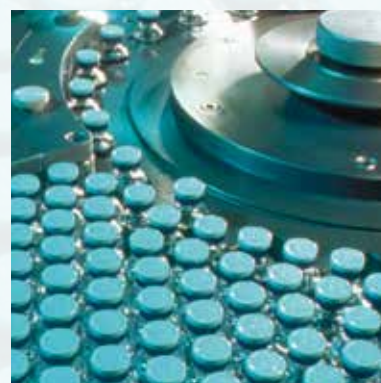
Normally CLOSED

-	8	750	1	40	40	50	PUR	-	<b>331F31</b>	2995	see table	-
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### Available electrical parts:

You will find standard available coil details on the next pages. Due to the innovative sleeve design it is also possible to use all listed Parker valves with special solutions, like water tight (IP67) or explosion proof designs.

Please consult your local agent for more details.



# Electrical Parts Availability

## 32 mm Electrical Parts Availability

### 481865 Series - Standard Coil Mono-Frequency, F Class, IP65

Encapsulated in synthetic material, connector for 2P+E DIN 43650 A Plug, IP65 insulation class to be considered with connector plug only. This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

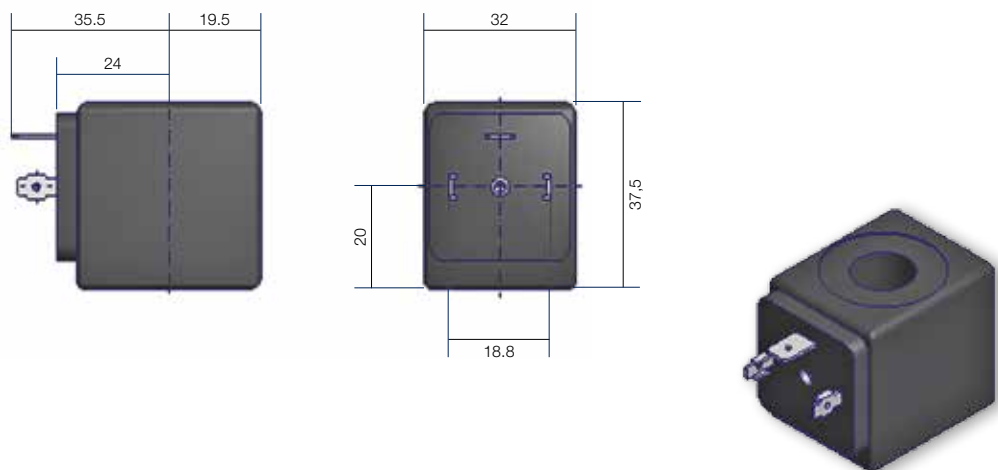
Voltage V	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
24/50	8 W	481865A2	-	-40°C to +50°C	F Class 155°C	8
48/50	8 W	481865A4	-	-40°C to +50°C	F Class 155°C	8
110/50	8 W	481865A5	-	-40°C to +50°C	F Class 155°C	8
220-230/50	8 W	4818653D	-	-40°C to +50°C	F Class 155°C	8
380/50	8 W	481865A9	-	-40°C to +50°C	F Class 155°C	8
24/60	8 W	481865B2	-	-40°C to +50°C	F Class 155°C	8
230/60	8 W	481865J3	-	-40°C to +50°C	F Class 155°C	8
115/60	8 W	481865K8	-	-40°C to +50°C	F Class 155°C	8
12 DC	9 W	481865C1	-	-40°C to +50°C	F Class 155°C	8
24 DC	9 W	481865C2	-	-40°C to +50°C	F Class 155°C	8
48 DC	9 W	481865C4	-	-40°C to +50°C	F Class 155°C	8
110V DC	9 W	481865C5	-	-40°C to +50°C	F Class 155°C	8

**Voltage**

**Tolerances:** -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

**Duty:** Continuous duty coil (100%ED)

**Weight:** 130 g (without plug)



All dimensions are in mm

Dimensional Drawing N° 8

## 32 mm Electrical Parts Availability

### 483510 Series - Standard Bi-Frequency Coil, F Class, IP65

Encapsulated in synthetic material, connector for 2P+E DIN 43650 A Plug, IP65 insulation class to be considered with connector plug only.

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

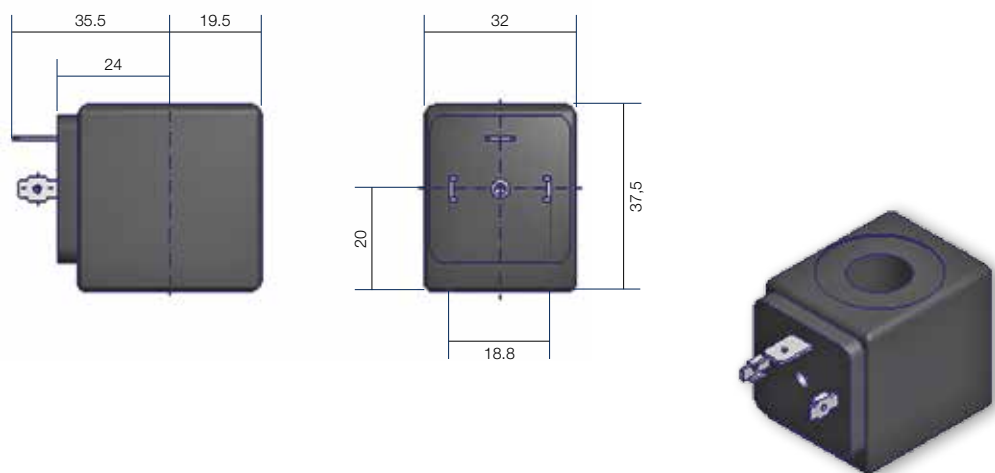
Voltage V	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
12/50-60	9 W	<b>4835101W</b>	-	-40°C to +50°C	F Class 155°C	8
24/50-60	9 W	<b>483510P0</b>	-	-40°C to +50°C	F Class 155°C	8
48/50-60	9 W	<b>483510S4</b>	-	-40°C to +50°C	F Class 155°C	8
110-115/50 120/60	9 W	<b>483510S5</b>	-	-40°C to +50°C	F Class 155°C	8
220-240/50 240/60	9 W	<b>483510S6</b>	-	-40°C to +50°C	F Class 155°C	8

**Voltage**

**Tolerances:** -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

**Duty** Continuous duty coil (100%ED)

**Weight:** 130 g (without plug)

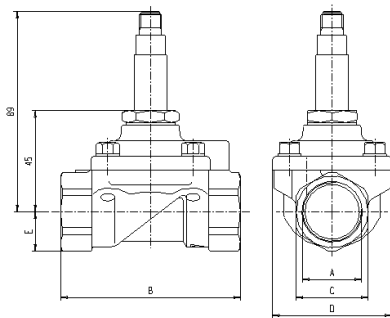


All dimensions are in mm

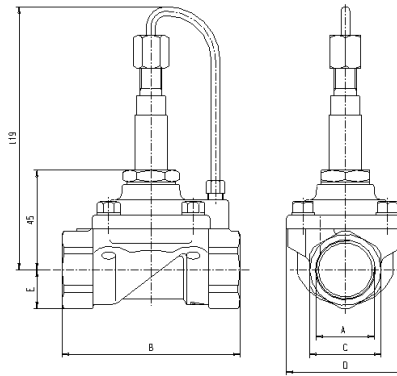
Dimensional Drawing N° 8

# Dimensions

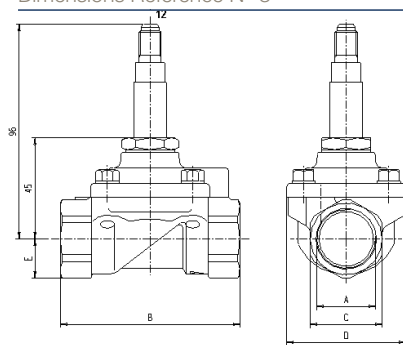
Dimensions Reference N° 1



Dimensions Reference N° 2

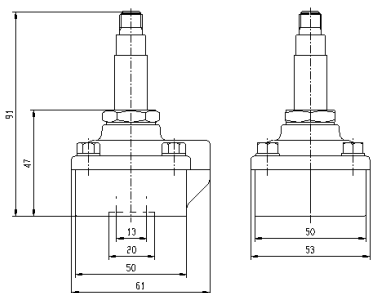


Dimensions Reference N° 3

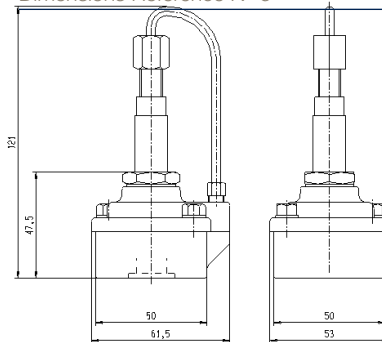


A	B	C	D	E
G3/4"	80	32	53	17.5
G1/2"	75	27	53	13.5

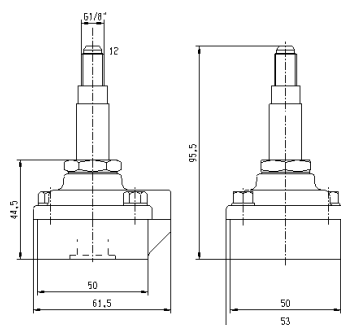
Dimensions Reference N° 4



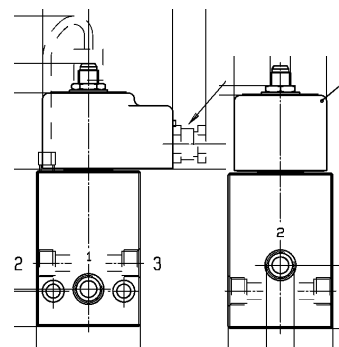
Dimensions Reference N° 5



Dimensions Reference N° 6



Dimensions Reference N° 7





## A collection of various bottles and containers, including a large yellow bottle, a blue bottle, and several smaller pink and white bottles, arranged on a white surface. The bottles are of different shapes and sizes, some with caps and some without. The background is a plain, light-colored surface.

[illegible]

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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 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
- ENI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



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