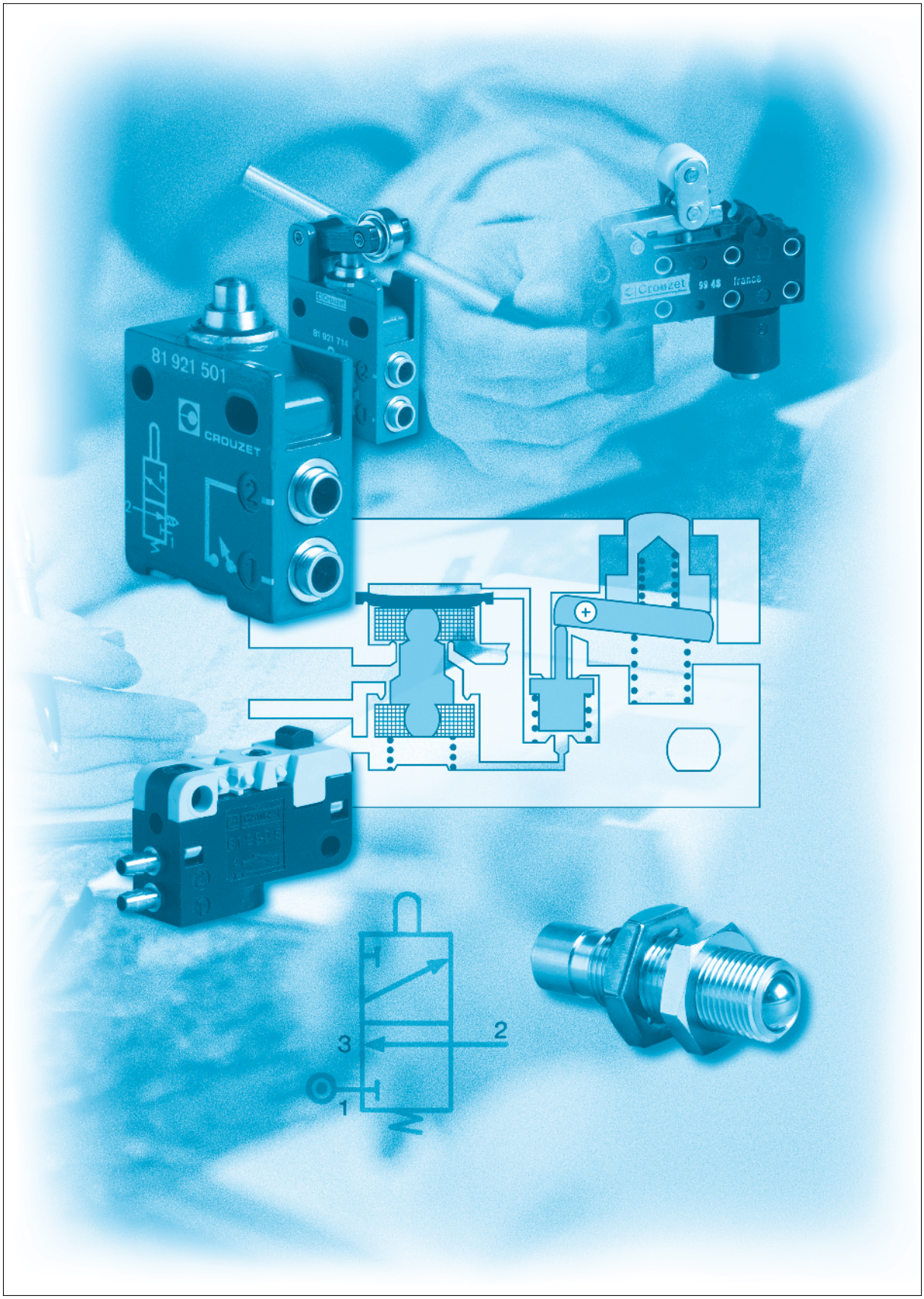
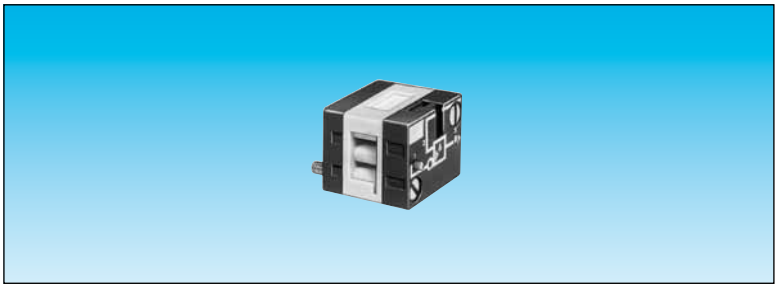
Position detectors



Pressure decay sensor

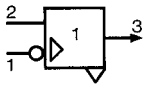
■ **100 % pneumatic**



Also available in **ATEX** version for use in potentially explosive atmospheres in accordance with 94/9/EC Directive

Pressure decay sensor	81 504 025

Symbol

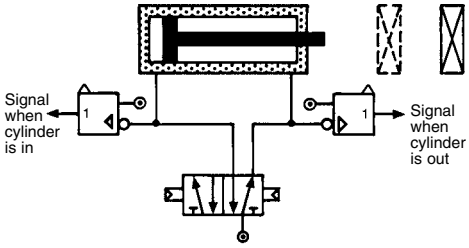


Characteristics

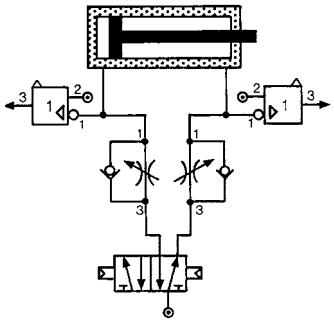
Operating pressure	bar	2 → 8
Flow at 6 bars	Nl/min	200
Tripping point with 6 bar supply	b	0.3
Connection		Sub-base page 54-55
Operating temperature	°C	-5 → +50
Mechanical life	operations	≥10^7
Weight	g	25

Connections

Without flow restrictor



With flow restrictor

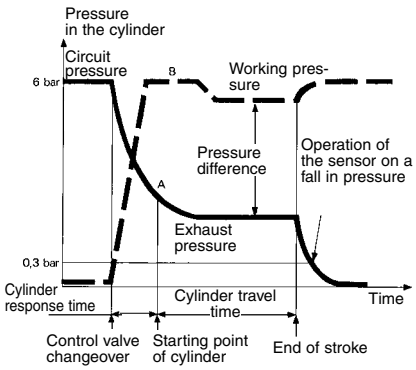


Principle of operation

Fitted in-line between the cylinder and the control valve, the sensor will give an output when the pressure in this line is exhausted and the cylinder is at end of stroke.

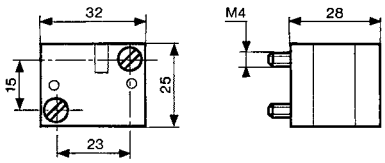
For the correct usage of sensors on a falling pressure, it is recommended that the practical cylinder load is limited to 60% of the theoretical force.

Evolution of pressure within a double-acting cylinder



Dimensions

81 504 025

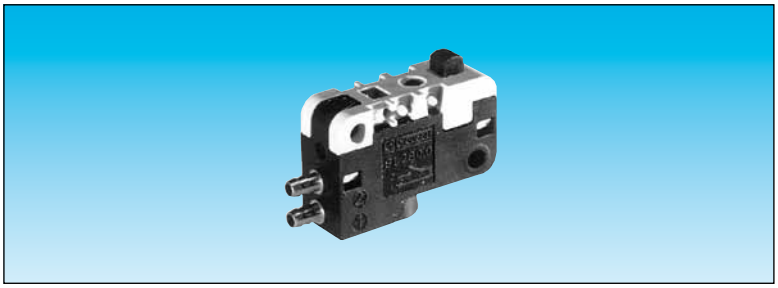


ATEX version products are available in the following catologues: **Pneumatic products for explosive atmospheres** or on our website **www.crouzet.com**

Low force position detector

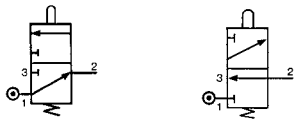
- **100 % pneumatic**
- **Conforme à la nore DIN 41365 Forme A**
- **Faible effort d'actionnement < 50 g à 6 bars**
- **Pas de consommation permanente d'air comprimé**

Also available in **ATEX** version for use in potentially explosive atmospheres in accordance with 94/9/EC Directive



Function			
NO	81 290 501	—
NC	—	81 290 001

Symbol

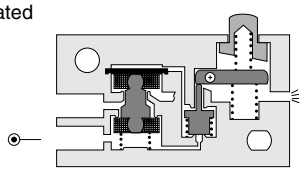


Characteristics

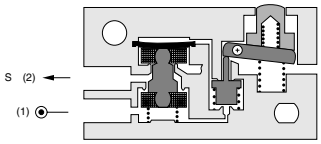
Orifice diameter		mm	2	2
Operating pressure		bar	3 → 8	3 → 8
Flow at 4 bars		Nl/min	100	100
Activation force at 6 bars		N	< 0,5	< 0,5
Permissible fluids (air / inert gas)			●	●
Max/min temperatures	of fluid	°C	-10 → +50	-10 → +50
	operating	°C	-10 → +60	-10 → +60
	storage	°C	-40 → +70	-40 → +70
Mechanical life at 6 bars		operation	10^7	10^7
Response time	on activation	ms	≤ 15	≤ 15
	on release	ms	≤ 15	≤ 15
Barb connection for semi-rigid tubing			2.7 x 4	2.7 x 4
Weight		g	8.5	8.5

Principle of operation NC

Desactivated



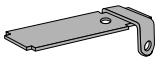
Activated



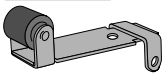
Operation accessories

Unless otherwise requested, flat and roller-ended levers are supplied loose.

161 A
flat R 25.4
70 507 524

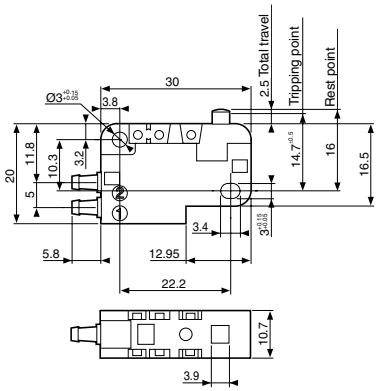


161 E
with roller R 24.1
70 507 529

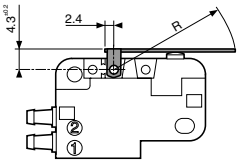


Dimensions

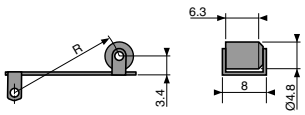
DIN 41635 Form A



161 A
R 25.4 ±0,2



161 E
R 24.1 ±0,2



ATEX version products are available in the following catologues: **Pneumatic products for explosive atmospheres** or on our website **www.crouzet.com**

“Microvalve” series position detectors

■ 100 % pneumatic

81 280

81 281

Version	NO	81 280 010	81 281 010	—	
	NC	81 280 510	81 281 510	81 283 510	
Features		Horizontal output	Vertical output	Rear connection by screw	

Symbol

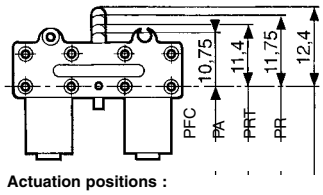
NO

NC

Characteristics

Operating pressure	bar	2 → 8	2 → 8	2 → 8	
Orifice diameter	mm	2.7	2.7		
Flow at 6 bars	Nl/min	200	200	138	
Operating force at 6 bars	N	15	15	15	
Effective travel	mm	1	1	1	
Push-in connection for semi-rigid tubing (NFE 49100)	mm	Ø 4	Ø 4	Ø 4	
Operating temperature	°C	-5 → +50	-5 → +50	-5 → +50	
Mechanical life	operat.	5 x 10^6	5 x 10^6	5 x 10^6	
Weight	g	14	14	20	

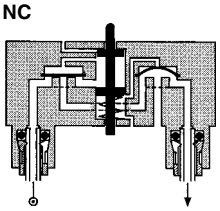
Principle of operation



Actuation positions :

PFC : End of travel position
PA : Operating position (max output kV)
PRT : Release position (max. exhaust kV)
PR : Rest position

NC



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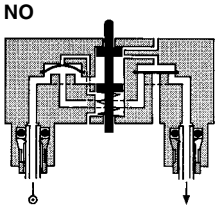
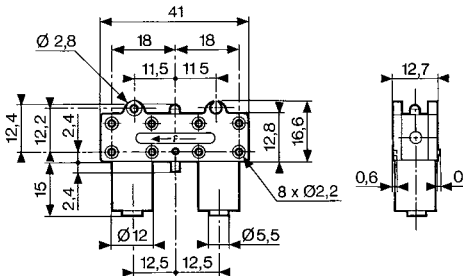
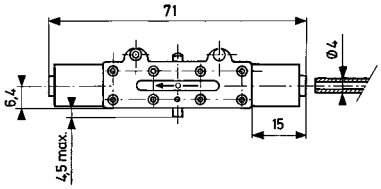


Dimensions

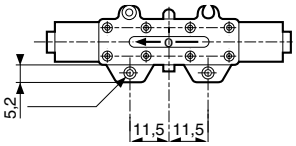
81 281 010 - 81 281 510



81 280 010 - 81 280 510

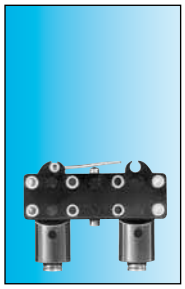
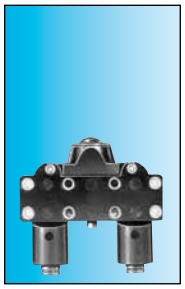
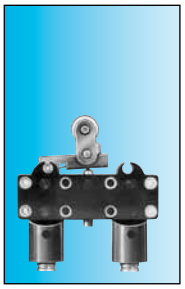
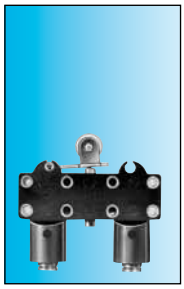
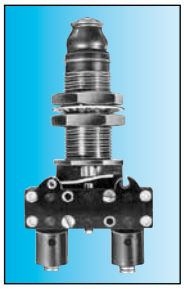


81 283 510



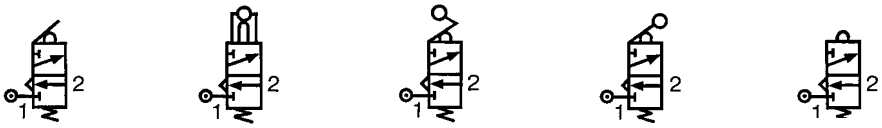
“Microvalve” series position detectors

■ **100 % pneumatic**

Features			Short lever	With ball	Roller trip	With roller	Threaded barrel Ø 16 Plunger
Version	NC	Vertical output	**81 281 502**	**81 281 504**	**81 281 508**	**81 281 509**	**81 737 501**

Symbol

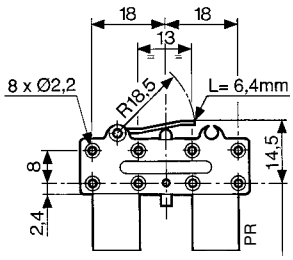


Characteristics

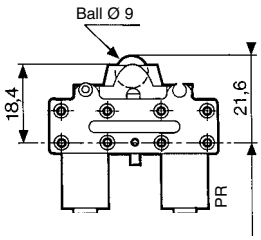
Operating pressure	bar	2 → 8	2 → 8	2 → 8	2 → 8	2 → 8
Orifice diameter	mm	2.7	2.7	2.7	2.7	2.7
Flow at 6 bars	Nl/min	200	200	200	200	200
Operating force at 6 bars	N	15	15	15	15	25
Effective travel	mm	1	1	1	1	1
Push-in connection for semi-rigid tubing (NFE 49100)	mm	Ø 4	Ø 4	Ø 4	Ø 4	Ø 4
Operating temperature	°C	-5 → +50	-5 → +50	-5 → +50	-5 → +50	-5 → +50
Mechanical life	operat.	5 x 10^6	5 x 10^6	5 x 10^6	5 x 10^6	5 x 10^6
Weight	g	16	18	18	18	90

Dimensions

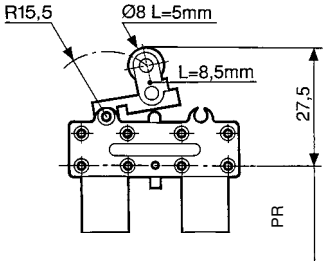
81 281 502



81 281 504



81 281 508



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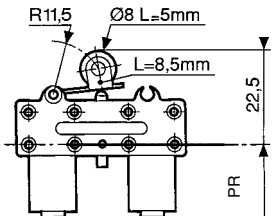
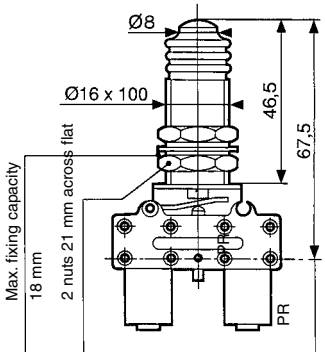


81 737 501



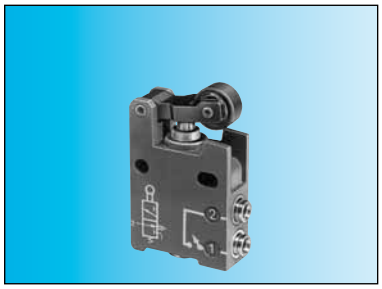
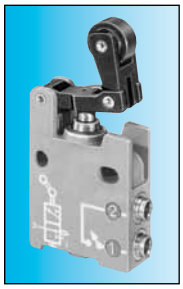
Actuation positions :

PR : Rest position

2

"Miniature" series position detectors

- 100 % pneumatic
- All metal

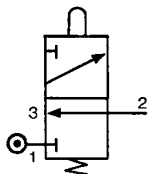



Part numbers

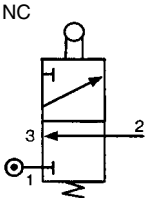
Version	Push-in connection for semi-rigid tubing (NFE 49100)				
		81 921 501	**81 921 701**	**81 921 702**	**81 921 707**
NC	Ø 4 silenced exhaust	—	—	—	—
	M5 connectable exhaust	—	—	—	—
	Ø 4 connectable exhaust *	—	—	—	—
	Ø 6 connectable exhaust *	—	—	—	—
NO	Ø 4 silenced exhaust	—	—	—	—
	Ø 6 silenced exhaust	—	—	—	—
Control		Simple plunger	Lever with plastic roller	Lever with roller bearing	Lever with one-way trip plastic roller

Symbol

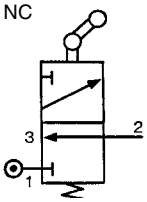
NC



NC



NC

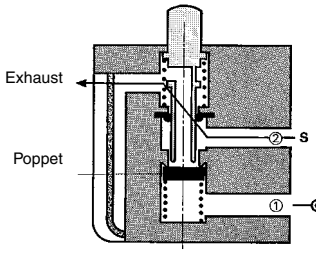


Characteristics

Operating pressure	bar	0.1 → 8	0.1 → 8	0.1 → 8	0.1 → 8
Orifice diameter	mm	2.7	2.7	2.7	2.7
Flow at 6 bars	Nl/min	200	200	200	200
Actuation force at 6 bars	N	18	18	18	18
Circuit function : NC		●	●	●	●
Circuit function: NO		—	—	—	—
Connectable exhaust					
Operating temperature	°C	-5 → +50	-5 → +50	-5 → +50	-5 → +50
Mechanical life	operations	$\geq 10^7$	$\geq 10^7$	$\geq 10^7$	$\geq 10^7$
Weight	g	62	75	80	77

Principle of operation

NC



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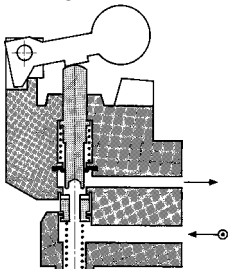
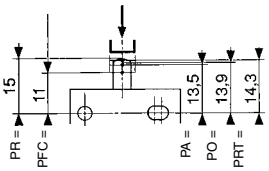


Actuation travel

Vertical attack

Simple plunger

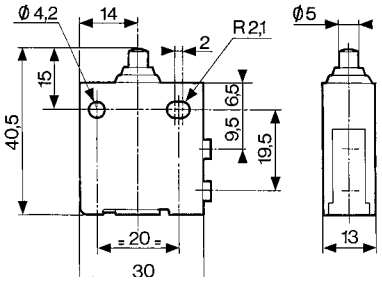


Actuation positions :

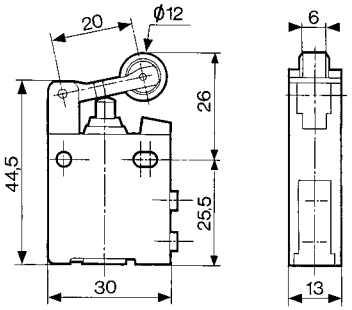
PA : Operating position (max output kV)
PFC : End of travel position
PO : Mid-position closed (no exhaust, no outlet)
PRT : Release position (max exhaust kV)
PR : Rest position

Dimensions

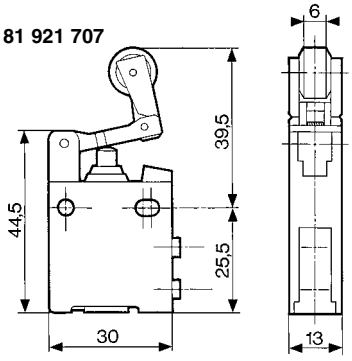
81 921 501



81 921 701 - 81 921 702

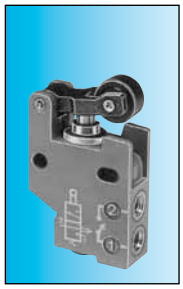
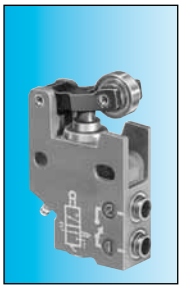
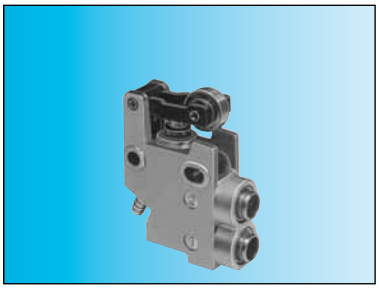


81 921 707



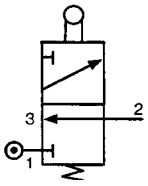
* with barb for tube Ø 2.7 x 4

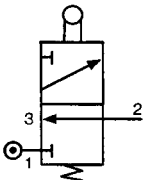
Material: body zamak

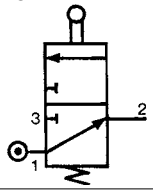




—			
—	—	—	—
81 921 806	—	—	—
—	**81 921 714**	—	—
—	—	**81 921 719**	**81 921 717**
—	—	**81 921 911**	**81 921 912**
—	—	**81 921 901**	**81 921 902**
Lever with plastic roller	Lever with roller bearing	Lever with plastic roller	Lever with roller bearing

NC		NC	NO



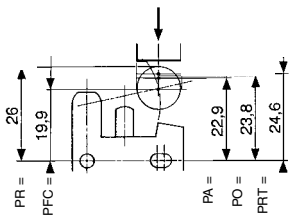




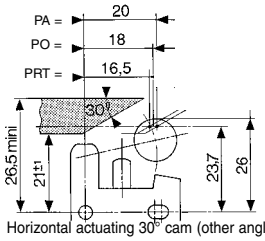
0.1 → 8	0.1 → 8	0.1 → 8	0.1 → 8
2.7	2.7	2.7	2.7
200	200	200	200
18	18	18	18
●	●	●	●
—	—	●	●
		●	●
-5 → +50	-5 → +50	-5 → +50	-5 → +50
$\geq 10^7$	$\geq 10^7$	$\geq 10^7$	$\geq 10^7$
75	80	100	100

Horizontal actuating 30° cam (other angles of attack are also possible, 45° even 90°).

With lever

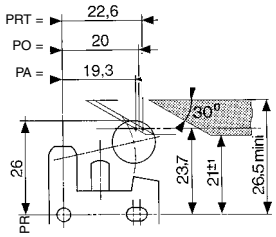


With lever

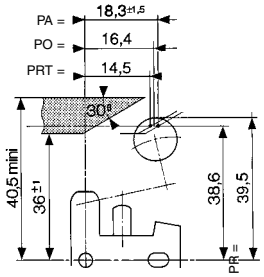


Horizontal actuating 30° cam (other angles of attack are also possible, 45° even 90°).

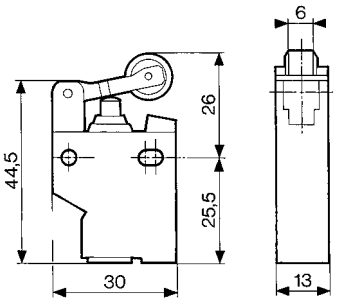
With lever



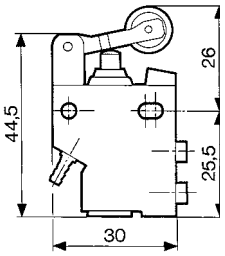
One-way trip lever



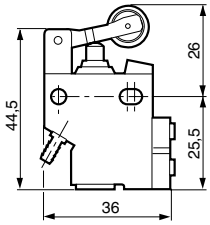
81 921 806



81 921 714



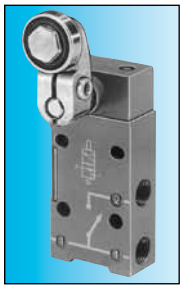
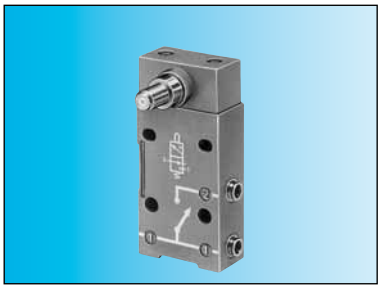
81 921 717 - 81 921 719
81 921 901 - 81 921 902
81 921 911 - 81 921 912



Material: body zamak
Other configuration on demand

"Compact" series position detectors

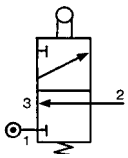
■ 100 % pneumatic
■ All metal

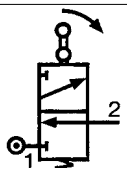



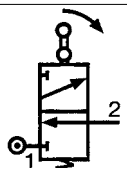
Part numbers

Features	Direct acting	Rotary actuator	Rotary actuator	Rotary actuator
	81 922 401	81 922 205	81 922 010	81 922 210
Version	Roller plunger with unthreaded barrel	Right-hand rotary head with roller lever (CNOMO)	Programmable rotary head without lever	Programmable rotary head without lever

Symbol







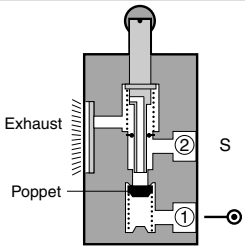
Characteristics

Connection	BSP		—	1/8	—	1/8
	push-in for semi-rigid tubing (NFE 49100)	mm	Ø 4	—	Ø 4	—
Operating pressure		bar	0.1 → 8	0.1 → 8	0.1 → 8	0.1 → 8
Bore diameter		mm	3	3	3	3
Flow at 6 bars		Nm³/h	200	200	200	200
Activation force at 6 bars		daN	2.5	2.5	2.5	2.5
Circuit function: NC			●	●	●	●
Mechanical life		operations	> 10^7	> 10^7	> 10^7	> 10^7
Silenced or connectable (1/8) exhaust			●	●	●	●
Operating temperature		°C	-5 → +50	-5 → +50	-5 → +50	-5 → +50
Weight		g	150	193	175	175

Accessories

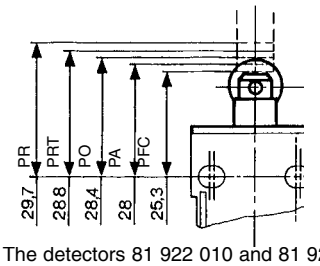
Lever with roller	plastic	79 452 103	—	●	●	●
	bearing	79 452 104	—	●	●	●
Lever with adjustable roller	plastic	79 452 123	—	●	●	●
	bearing	79 452 124	—	●	●	●
Adjustable steel rod lever		79 452 133	—	●	●	●

Principle of operation



Vertical attack

Detectors with roller plunger with unthreaded barrel.



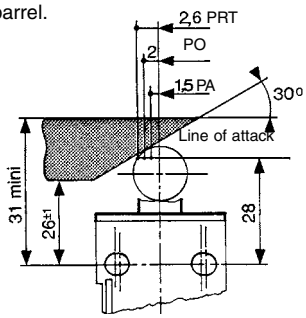
Actuation positions :

PA : Operating position (max output kV)
PFC : End of travel position
PO : Mid-position closed (no exhaust, no outlet)
PRT : Release position (max exhaust kV)
PR : Rest position

The detectors 81 922 010 and 81 922 210 can operate to both left and right.

Horizontal attack

Detectors with roller plunger with unthreaded barrel.

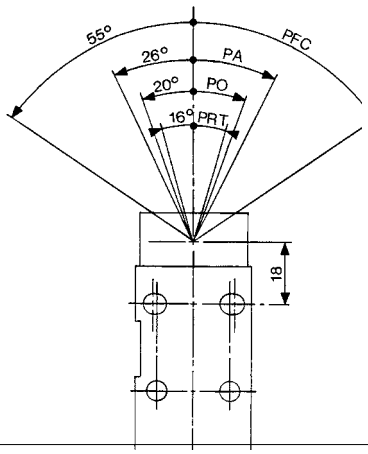


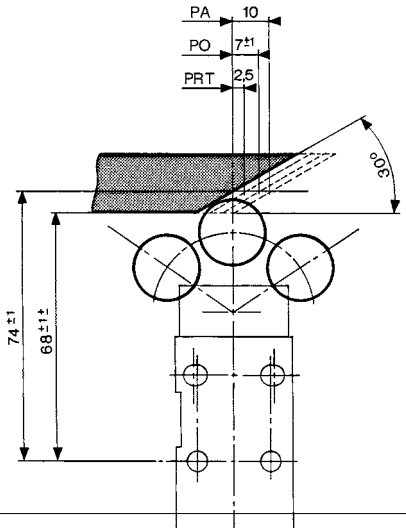
Material: body zamak
Other configuration on demand

Rotary actuator

Detectors with levers

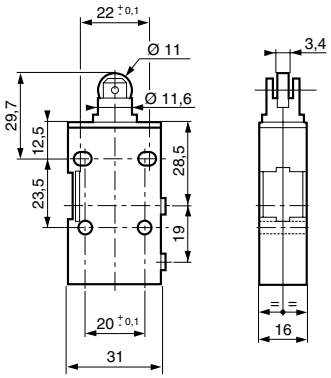
81 922 - 81 922 0 - 81 922 2



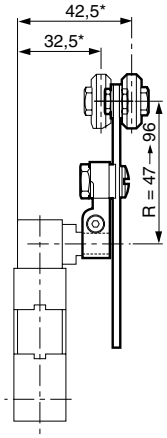


Dimensions

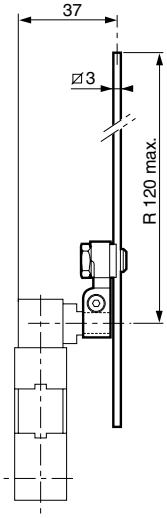
81 922 401



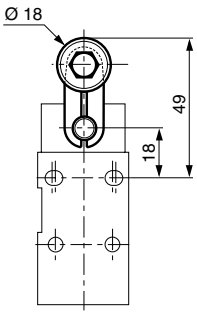
79 452 123 - 79 452 124

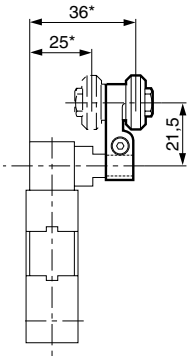


79 452 133



81 922 205 - 81 922 0 - 81 922 2
79 452 103 - 79 452 104

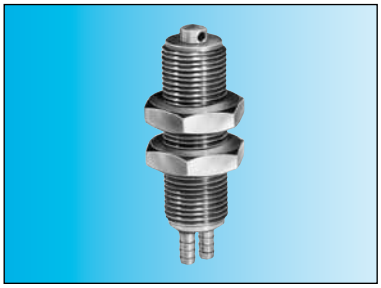


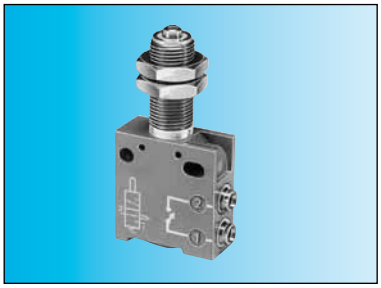


2

"Adjustable stop" series position detectors

- 100 % pneumatic
- All metal

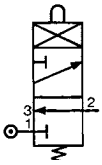


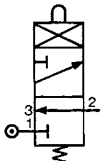


Part numbers

	81 923 001	81 921 505
Push-in connection for semi-rigid tubing (NFE 49100)	Barb for tube 2.7 x 4	Push-in connector for tube Ø 4

Symbol

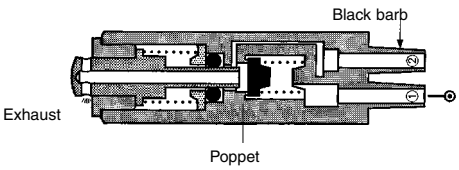


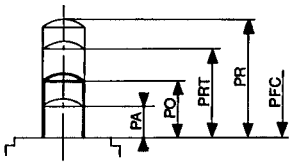


Characteristics

Operating pressure	bar	0,1 → 8	0,1 → 8
Orifice diameter	mm	2	2,7
Flow at 6 bars	Nl/min	130	200
Actuation force at 6 bars	N	16	21
Circuit function: NC		●	●
Max. load: without shock	daN	1000	1000
Will stop a 63 mm Ø cylinder : 6 bar supply		●	●
Operating temperature	°C	-5 → +50	-5 → +50
Mechanical life	operations	$\geq 10^7$	$\geq 10^7$
Weight	g	27	90
Actuation positions			
PA : Operating position (max output kV)	mm	0,4	0,7
PFC : End of travel position	mm	0	0
PO : Mid-point closed (no exhaust, no outlet)	mm	0,9	1
PRT : Release position (max. exhaust kV)	mm	1,5	1,5
PR : Rest position	mm	3	3

Principle of operation





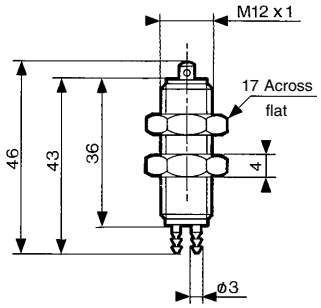
Versions	PO	PA	PFC	PRT	PR
With barb	0.9	0.4	0	1.5	3
Ø 4	1	0.7	0	1.5	3

Values in mm

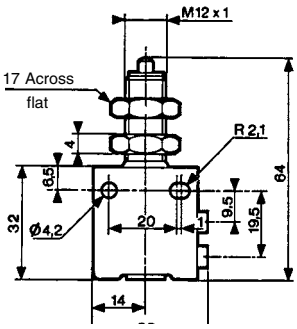
Actuation positions :
PA : Operating position (max output kV)
PFC : End of travel position
PO : Mid-point closed (no exhaust, no outlet)
PRT : Release position (max exhaust kV)
PR : Rest position

Dimensions

81 923 001

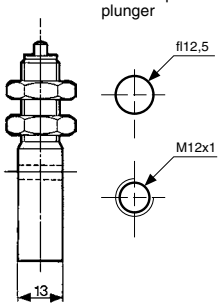


81 921 505



Fixing

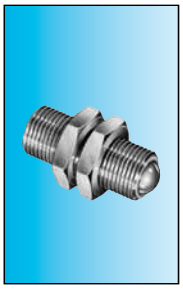
This should be as close as possible to the plunger

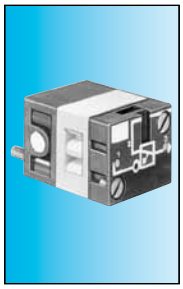


Material: body zamak

Position detectors use with relay

- 100 % pneumatic
- All metal
- Low force operation <N 1
- Very low force Version 30 mN

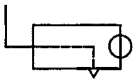


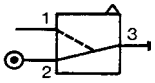


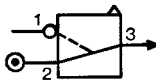
References

	81 512 201	81 512 401	81 502 435	81 505 435
Version	with ball	with wire	Positive	Negative

Symbole



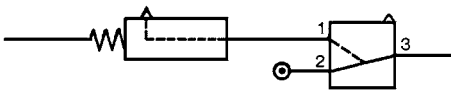




Characteristics

Push-in connection for semi-rigid tubing (NFE 49100)	mm	Ø 4	Ø 4		
Life at 6 bars	operations	10^7	10^7		
Actuation force at 6 bars	N	0,8	0,025		
Fluid used: that delivered by the leak sensor relay..		•	•		
Operating temperature	°C	-5 → +50	-5 → +50	-5 → +50	-5 → +50
Weight	g	24,5	23,5	35	35
Operating pressure	bar			2 → 8	2 → 8
Sensor consumption for relay supply at 6 bar	Nl/			5	5
The distance between relay and sensor must be less than 15 m for a tube Ø 2.7 x 4 mm				•	•
Connection - sub-base see pages 54/55				•	•
Mechanical life	operations			$\geq 10^7$	$\geq 10^7$

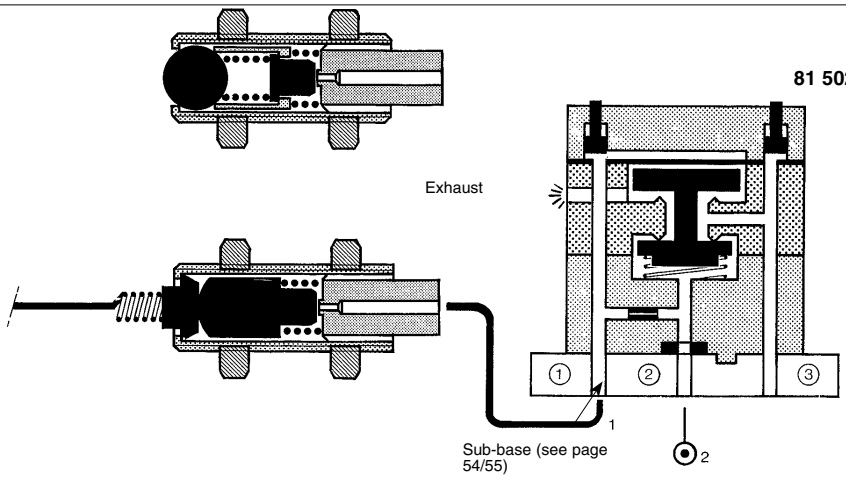
Connection



Principle of operation

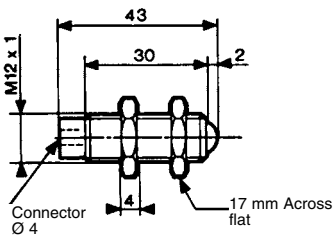
Supplied at industrial pressure, the relay produces a permanent bleed at its input port.

A sensor shutting off this bleed causes the relay to switch.

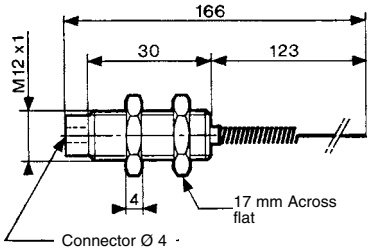


Dimensions

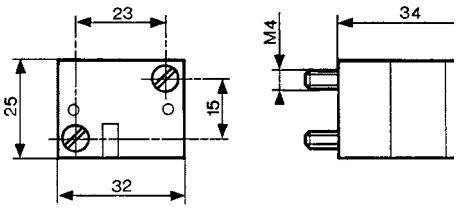
81 512 201



81 512 401



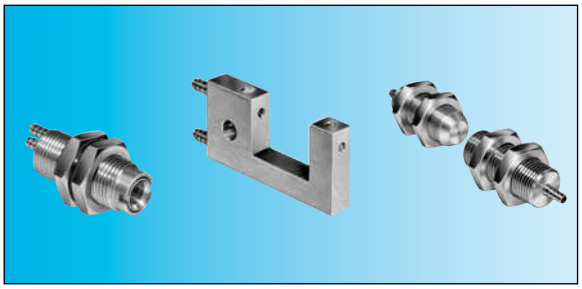
81 502 435 - 81 505 435



Material: brass

Position detectors

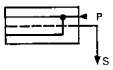
- **100 % pneumatic**
- **All metal**
- **Gap, proximity, paddle**

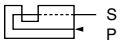


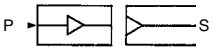
Part numbers

	81 371 401	81 372 201	81 372 401	81 372 901
Detector	de proximité	gap	gap	with palette

Symbol



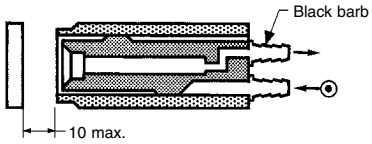


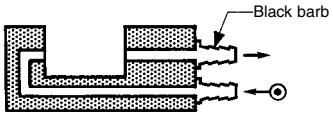


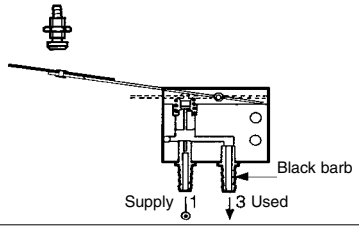
Characteristics

Detection distance		mm	6 → 10	18	100	—
18 mm gap sensor			—	—	—	—
Supply pressure		bar	0.5 → 2.5	0.5 → 2.5	0.5 → 2.5	—
Minimum output pressure		mbar	1	5	5	—
Unlimited life (static component)			●	●	●	—
Operating temperature		°C	- 20 → +70	- 20 → +70	- 20 → +70	—
Consumption at supply pressure of:	0.5 b	Nl/h	800	70	100	—
	2.5 b	Nl/h	2500	2200	700	—
Barb connection for semi-rigid tubing (NFE 49100)		mm	Ø 2.7 x 4	Ø 2.7 x 4	Ø 2.7 x 4	Ø 2.7 x 4
Operating pressure	nozzle		—	—	—	2 → 8
	sensor d. detection 200 mm	bar	—	—	—	2 → 8
	sensor d. detection 100 mm	bar	—	—	—	1 → 4
Flow	nozzle at 2 bars	Nl/h	—	—	—	320
	sensor at 2 bars	Nl/h	—	—	—	320
	at 2 bars	N	—	—	—	0.03
	at 6 bars	N	—	—	—	0.09
Sensor consumption for relay supply at 6 bars		Nl/min	—	—	—	5
Weight		g	36	9	63	14

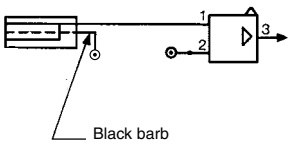
Principle of operation

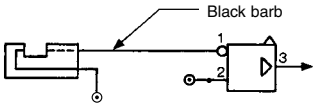


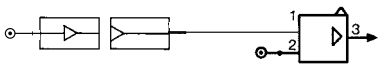




Connection

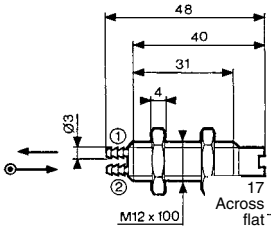




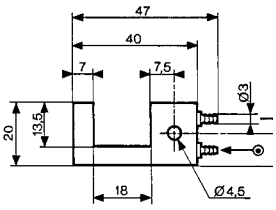


Encombrements

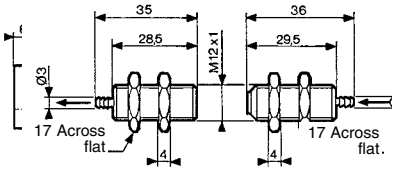
81 371 401



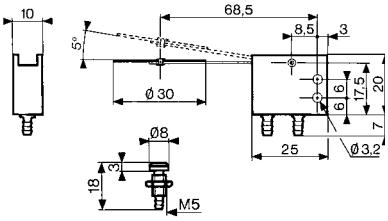
81 371 201



81 372 401



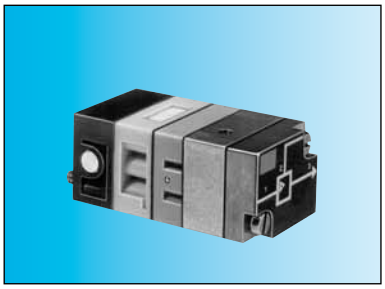
81 372 901

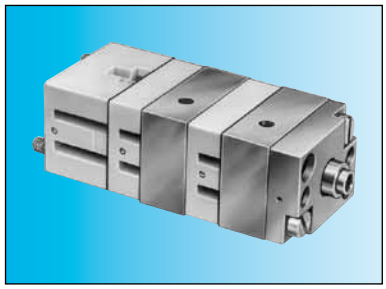


Ampliers for mounting on installation plan

■ Gap sensor

Also available in **ATEX** version for use in potentially explosive atmospheres in accordance with 94/9/EC Directive





Part numbers

Simple amplifiers (for 81 372 201/401)	**81 502 230**	**81 505 230**	—	—
Sensitive amplifiers (for 81 371 401)	—	—	**81 502 320**	**81 505 320**
Version	positive	negative	positive	negative

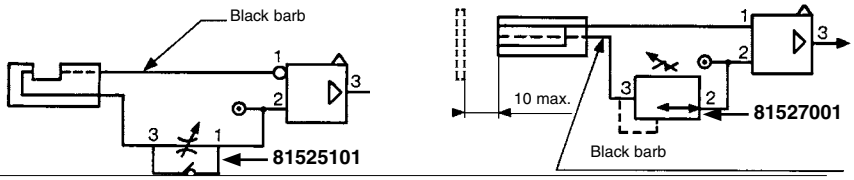
Symbol

Characteristics

Pressure to make	mb	10 → 20	10 → 20	1 → 4	1 → 4
Operating pressure (non-lubricated air)	bar	2 → 8	2 → 8	2 → 6	2 → 6
Orifice diameter	mm	2.5	2.5	2.5	2.5
Average consumption at 4 bars	Nl/min	5	5	5	5
Permissible overload for 1 hour	mb	800	800	800	800
Operating temperature	°C	-5 → +50	-5 → +50	-5 → +50	-5 → +50
Mechanical life	operations	3 x 10^6	3 x 10^6	3 x 10^6	3 x 10^6
Weight	g	150	150	185	185

Connections

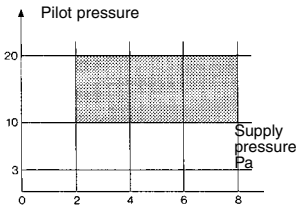
Used for gaps up to 25 mm.
The supply to the sensor should be made via a pressure regulator or one-way flow restrictor (see page 52
Connection - sub-base



Principle of operation

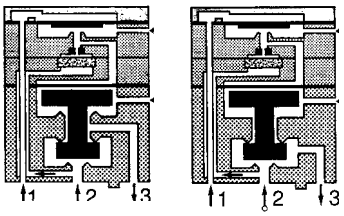
Simple amplifiers

An output at normal industrial pressure is delivered on a low pressure input.
NB: Hysteresis is 20% of the pilot pressure.



81 502 230 — Positive output

81 505 230 — Negative output

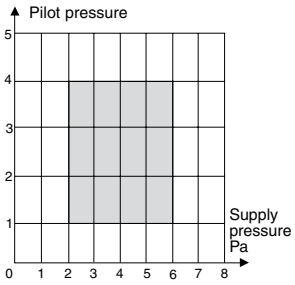


1- pilot
2- supply
3- output

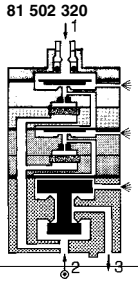
Sensitive amplifiers

An output at normal industrial pressure is delivered on a very low pressure input.

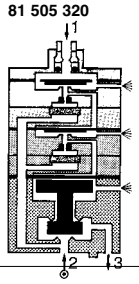
Note: The specifications are given for a supply pressure of 6 bars, and for detection at the mid-point of the gap.



81 502 320

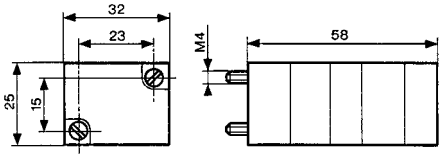


81 505 320

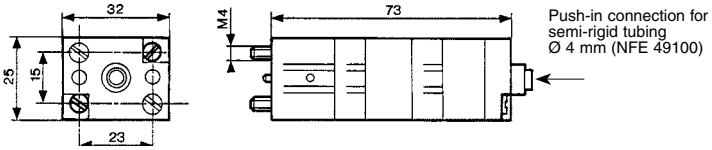


Dimensions

81 502 238 - 81 505 231



81 502 322 - 81 505 321



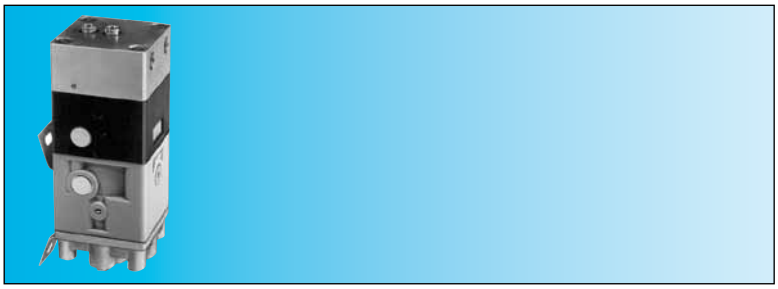
Other information

With gap sensors, use an amplifier with negative output if you require a signal on interruption of the jet.

ATEX version products are available in the following catologues: **Pneumatic products for explosive atmospheres** or on our website **www.crouzet.com**

Amplifier with intégral régulator, positive output

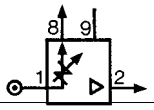
- **Setting Flow**
- **Fixing rail 35mm wide**



Part numbers

Amplifiers with integral regulator	**81 510 001**
Version	Positive output

Symbol



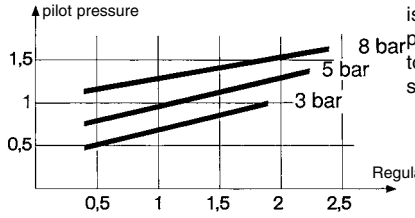
Characteristics

Pressure to make	mb	0.5 → 1.5	—	—
Reduced pressure supplied at port 8	bar	0.5 → 2.5	—	—
Flow through port 8	Nm³/h	0.1 → 2.5	—	—
Consumption of amplifier only	Nl/h	100 → 200	—	—
Permissible overload for 1 hour	mb	300	—	—
Operating temperature	°C	-5 → +50	-5 → +50	-5 → +50
Mechanical life	operations	3 x 10^6	3 x 10^6	3 x 10^6
Weight	g	380	—	—
Detectors (see page 28)		Proximity Ø 12	Gap Ø 18	Proximity Ø 12
Nominal range	mm	81 371 401	81 372 201	81 372 401
Min. total consumption for detection		8	18	100
(0.5 b regulated pressure) Max. total consumption for short response	Nl/h	880	140	—
time (2.5 b regulated pressure) Min. detectable	Nl/h	2750	400	920
dimensions nominal sensing distance	mm	Ø 3	Ø 2 - Ø 1.5	Ø 7 - Ø 6.5
Max. frequency of use 2	mm	2	—	—
Force exerted by the jet on the parts	Hz	5	5	5
to be detected	N	0.02 → 0.7	0.01 → 0.03	0.1

Connection

To use with detectors page 32

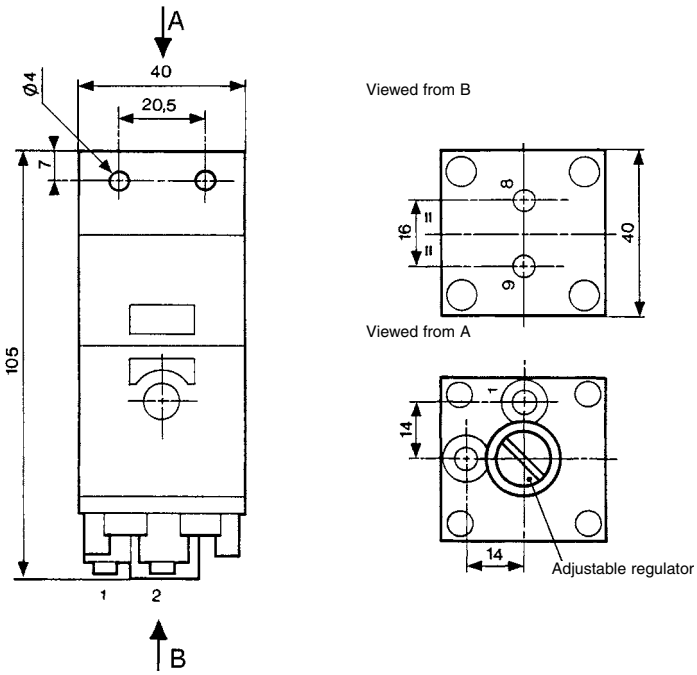
Principle of operation



This amplifier is suitable for providing a supply to associated sensors.

Dimensions

Push-in connection for semi-rigid tubing Ø 4 mm (NFE 49100)



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