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5) Pneumatics

Man/Machine Interface Components		5/1
	Manual Control Valves	5/2
	3/2 Valves and Actuators	5/4
	2-Hand Control	5/6
	Impulse Counters	5/9
	Indicators	5/10
Position Detectors		5/11
	Pressure Decay Sensor	5/12
	Position Detectors	5/13
Pressure Switch Amplifiers		5/23
	Pressure Switches	5/24
	Adjustable Vacuum Switches	5/27
	Leak Sensor Relay	5/28
	Amplifier Relays	5/29
Pneumatic Logic Components		5/31
	Sequencer Modules	5/33
	Sequencer Sub-Bases	5/34
	Logic Elements	5/36
	Memory Elements	5/38
	Timers	5/39
	Timer Components	5/42
	Regulator Accessories	5/43
	Sub-Bases for Logic Elements and Relays	5/44
	Mounting Accessories	5/46
Electro-Pneumatic Miniature Control Valves		5/47
	Control Valve Assembly Options	5/48
	Miniature Solenoid Valves and Sub-Bases	5/50
	Miniature Control Valves and Sub-Bases	5/53

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	Accessories	5/55
	Miniature Power Valve Stations	5/56
	Solenoid Valves	5/58
	3/2 Control Valve and Sub-Base	5/59
	Control Valves (ISO 5599) and Sub-Bases	5/60
Intrinsically Safe Miniature Solenoid Valves		5/63
	Intrinsically Safe Miniature Valves and Sub-Bases	5/64
	Intrinsically Safe Pressure Switches	5/68
Multi-Fluid Solenoid Valves		5/71
	Solenoid Valves for Fluids and Inert Gases	5/72

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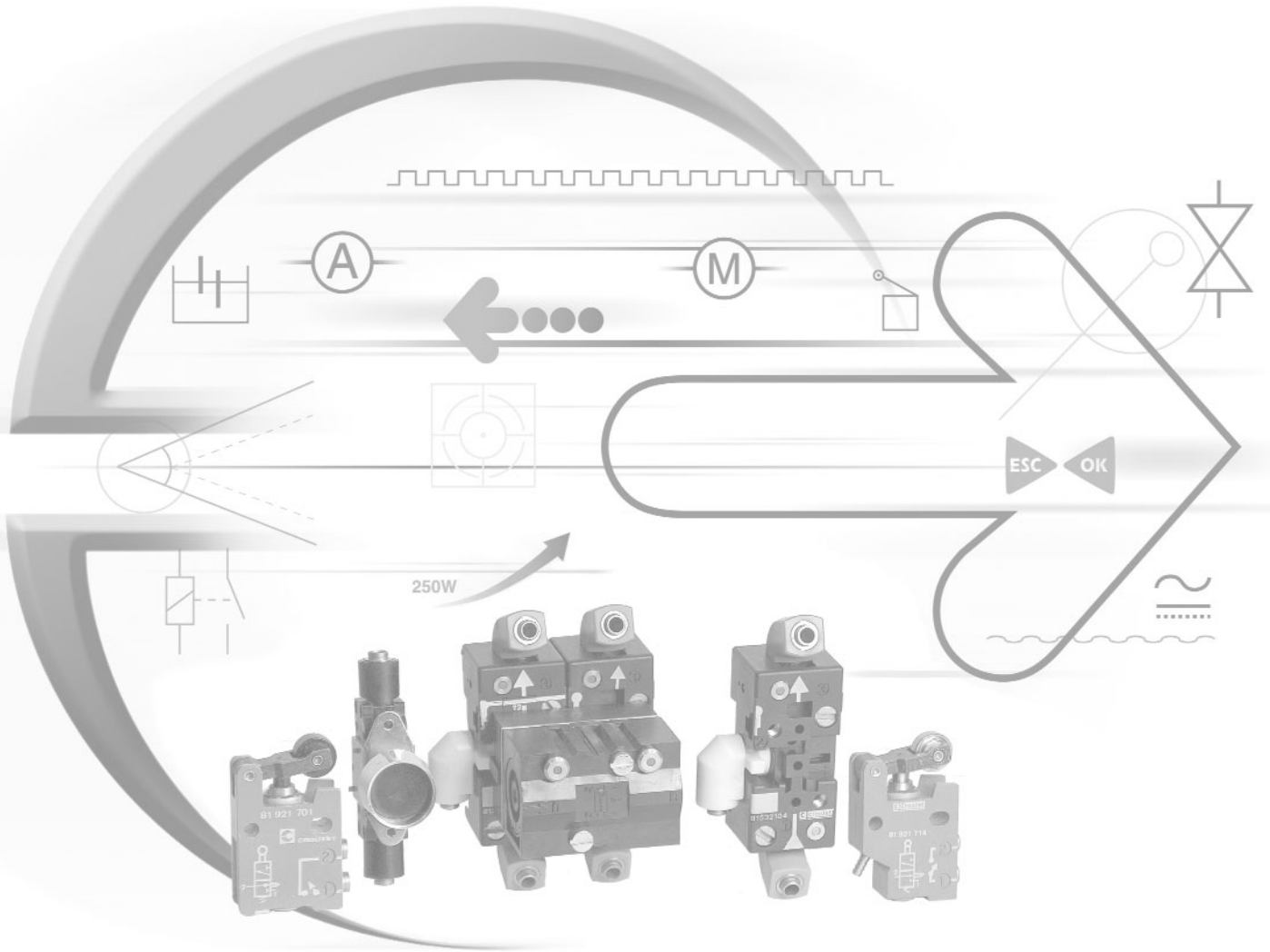
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Index

Part Number	Page	Part Number	Page	Part Number	Page
24679127	5/5	81508110	5/27	81532102	5/44
24679128	5/5	81509080	5/25	81532104	5/44
24679129	5/5	81509085	5/25	81533001	5/46
24679171	5/5	81510001	5/30	81533501	5/46
24679172	5/5	81512201	5/19	81536801	5/46
24679173	5/5	81512401	5/19	81540001	5/36
24679174	5/5	81513001	5/54	81540004	5/36
24679176	5/5	81513011	5/54	81541001	5/37
24679178	5/5	81513052	5/55	81542002	5/44
24679180	5/5	81513052	5/67	81543006	5/60
24679181	5/5	81513055	5/55	81543206	5/60
24679182	5/5	81513058	5/55	81544101	5/59
24679701	5/4	81513059	5/55	81546001	5/72
70507529	5/13	81513060	5/54	81547001	5/72
79215741	5/13	81513064	5/55	81547501	5/72
79215742	5/13	81513065	5/54	81548010	5/73
79450609	5/46	81513075	5/66	81549010	5/73
79450618	5/46	81513076	5/66	81549510	5/73
79451698	5/40	81513100	5/53	81550001	5/33
79451903	5/40	81513200	5/53	81550201	5/33
79451904	5/41	81513501	5/24	81550601	5/33
79451905	5/41	81513502	5/24	81551001	5/35
79452103	5/20	81513510	5/25	81551101	5/34
79452104	5/20	81513516	5/25	81552102	5/34
79452123	5/20	81513522	5/24	81552601	5/34
79452124	5/20	81513527	5/25	815552	5/57
79452133	5/20	81513530	5/68	815553	5/57
79452808	5/42	81513552	5/24	81580101	5/7
79453569	5/52	81513600	5/53	81580202	5/7
79453569	5/67	81514101	5/52	81580503	5/8
81213101	5/59	81514161	5/52	81580504	5/8
81280010	5/3	81516081	5/55	81715511	5/3
81280010	5/13	81516082	5/25	81715512	5/3
81280510	5/3	81516082	5/55	81716511	5/3
81280510	5/13	81516082	5/57	81716512	5/3
81281010	5/3	81516085	5/55	81733511	5/2
81281010	5/13	81516100	5/53	81735011	5/2
81281504	5/15	81516200	5/53	81735511	5/2
81281509	5/13	81517101	5/54	81735512	5/2
81281510	5/3	81517106	5/66	81737501	5/13
81281510	5/13	81517201	5/54	81921501	5/16
81283510	5/14	81517206	5/66	81921701	5/16
81290001	5/13	81519032	5/50	81921702	5/16
81290501	5/13	81519035	5/64	81921707	5/16
81371401	5/22	81519080	5/51	81921714	5/17
81372201	5/22	81519332	5/50	81921806	5/17
81372401	5/22	81519335	5/64	81921911	5/17
81372901	5/22	81519378	5/51	81921912	5/17
81501025	5/37	81519380	5/51	81922010	5/20
81501065	5/37	81519381	5/51	81922205	5/20
81502110	5/27	81519632	5/50	81922210	5/20
81502140	5/26	81519635	5/64	81922401	5/20
81502150	5/26	81519679	5/51	81923001	5/18
81502160	5/26	81519680	5/51	84150201	5/10
81502230	5/29	81519732	5/58	84150202	5/10
81502320	5/29	81519774	5/58	84150203	5/10
81502435	5/28	81519775	5/58	89538201	5/9
81503025	5/37	81519776	5/58	89541007	5/60
81503540	5/39	81519777	5/58	89541037	5/60
81503710	5/40	81519832	5/58	89541047	5/60
81503720	5/40	81520601	5/43	89541067	5/60
81503725	5/40	81521501	5/36	89544001	5/4
81504025	5/11	81522501	5/36	89544501	5/4
81504025	5/37	81523201	5/38	89545005	5/4
81505110	5/27	81523601	5/38	89545105	5/4
81505140	5/26	81525101	5/42	89545205	5/4
81505150	5/26	81526001	5/42	89545305	5/4
81505160	5/26	81527001	5/43	99766002	5/9
81505230	5/29	81529003	5/42		
81505320	5/29	81529004	5/42		
81505435	5/28	81529005	5/42		
81506025	5/37	81529006	5/42		
81506540	5/39	81529007	5/42		
81506710	5/40	81529008	5/42		
81506720	5/40	81529010	5/42		
81506725	5/40	81529025	5/42		
81506940	5/41	81529901	5/43		
81507540	5/41	81531001	5/45		
81507720	5/41	81532001	5/45		

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Man/machine interface components

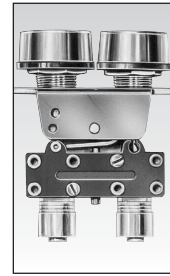
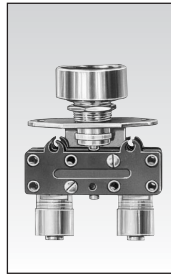


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Manual Control Valves for 1/2" (12mm) hole size



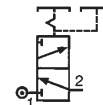
1

Part Number

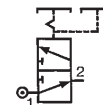
Features		Round push button	Round double push button
Version	NC	black	—
		red	—
		black/red	—
NO		black	81 733 511
		red	—
		black/red	—

Symbol

NC



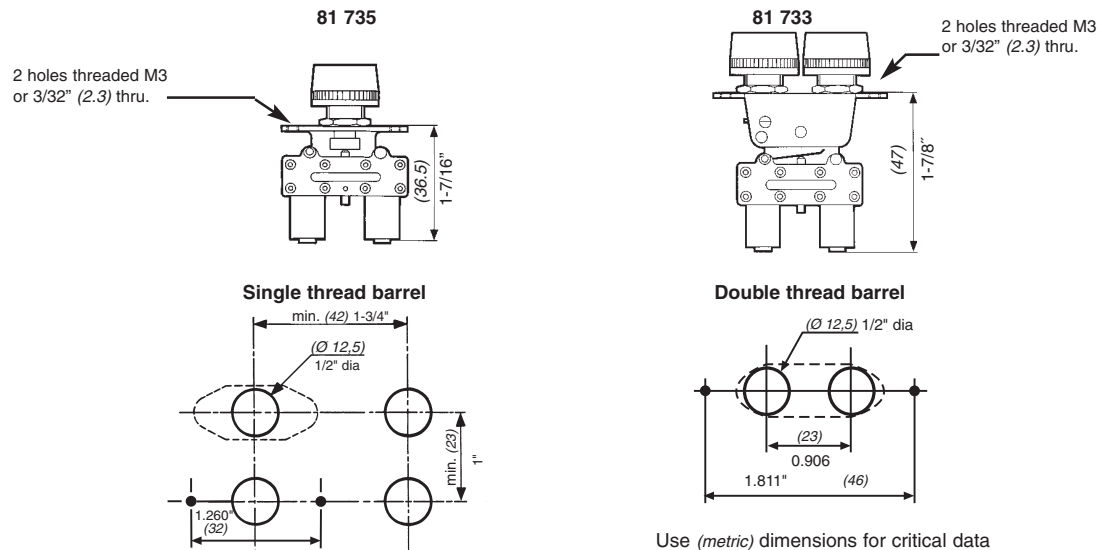
NO



Characteristics

Operating Pressure	PSI (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Internal orifice	inches (mm)	0.106" (2.7)	0.106" (2.7)
Flow @ 90 PSI (6 bar)	cfm (Nm ³ /h)	7 (200)	7 (200)
Valve	NC : black NO : grey	●	●
Operating force	lbs. (N)	2 > 4 (8 > 18)	2 > 4 (8 > 18)
Effective travel	inches (mm)	0.04 (1)	0.04 (1)
Fluid: dry or lubricated air		●	●
Push-in connection for semi-rigid tubing O.D. (NFE 49100)	inches (mm)	5/32" (4)	5/32" (4)
Operating temperature	°F (°C)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)
Mechanical life		1.5 million	1.5 million
Weight	grams	35	35

Dimensions



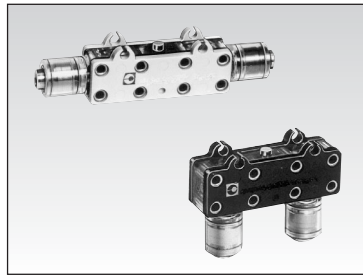
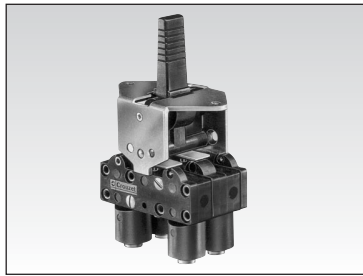
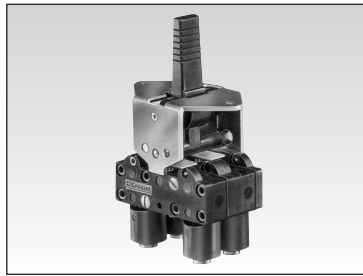
Other Information

on request

Part Numbers. : 81 702 011 / 511 - 81 715 012 - 81 716 011 / 012 - 81 731 011 / 511 - 81 733 011
81 734 011 / 012 / 511 / 512 - 81 735 012 - 81 752 012 / 512

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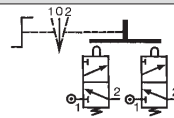
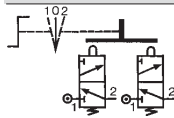


3 position manual
return lever
81 715 511
81 716 512

3 position spring
centered lever
81 715 511
81 715 512

horizontal output
replacement valve
81 280 510

vertical output
replacement valve
81 281 510



30 > 120 (2 > 8)
0.106" (2.7)
7 (200)

2 > 4 (8 > 18)
0.04 (1)

5/32" (4)
+20 >+120 (-5 >+50)
1.5 million
65

30 > 120 (2 > 8)
0.106" (2.7)
7 (200)

2 > 4 (8 > 18)
0.04 (1)

5/32" (4)
+20 >+120 (-5 >+50)
1.5 million
65

30 > 120 (2 > 8)
0.106" (2.7)
7 (200)

3 > 1/8 (15)
0.04 (1)

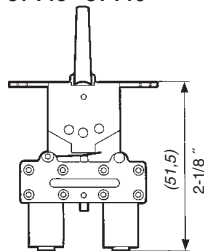
5/32" (4)
+20 >+120 (-5 >+50)
1.5 million
14

30 > 120 (2 > 8)
0.106" (2.7)
7 (200)

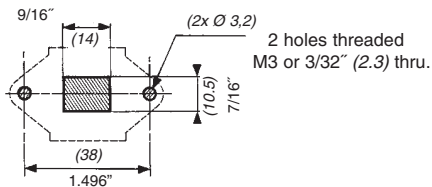
3 > 1/8 (15)
0.04 (1)

5/32" (4)
+20 >+120 (-5 >+50)
1.5 million
14

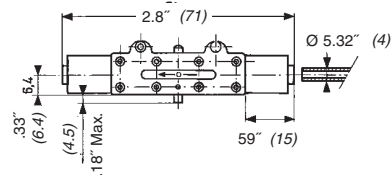
81 715 - 81 716



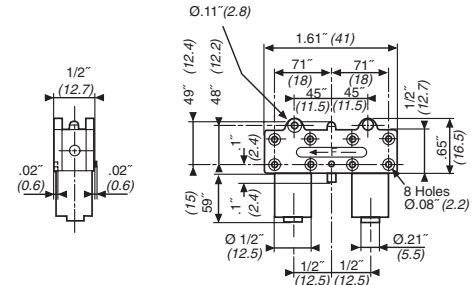
Lever cut-out



81 280 010 - 81 280 510



81 281 010 - 81 281 510



Use (metric) dimensions for critical data

To order, specify:

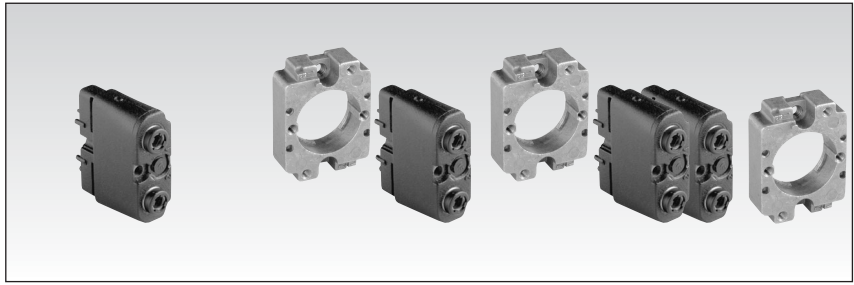
Standard product	1 Part number Example: Round push button in black-81 735 511
Standard product not stocked	

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3/2 valves for manual actuators (Ø 22 mm)

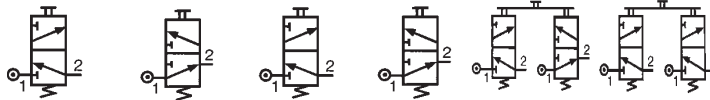


1

Part numbers

3/2 valve supplied with screws for fixing the adaptor	Connection Ø 4 1/8 BSP	89 544 501	89 544 001	—	—	—	—	—
3/2 valve (module and adaptor)	Connection Ø 4	—	—	89 545 105	89 545 005	89 545 305	89 545 205	—
Adaptor for 3/2 valve on actuators Ø 22		—	—	—	—	—	—	24 679 701
Version		NC	NO	NC	NO	NC + NO	NC + NC	

Symbol

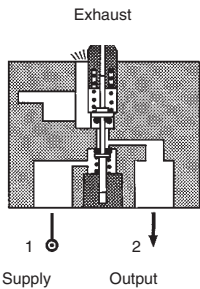


Characteristics

Operating pressure	bar	0 → 10	0 → 10	0 → 10	0 → 10	0 → 10	0 → 10	—
Orifice diameter	mm	2	2	2	2	2	2	—
Flow at 4 bars	NI/min	90	90	90	90	90	90	—
Control force	N	12.6	12.6	12.6	12.6	12.6	12.6	—
Operating temperature in dry air	°C	-10 +60	-10 +60	-10 +60	-10 +60	-10 +60	-10 +60	—
Life	operations	1.5 x 10 ⁶	1.5 x 10 ⁶	1.5 x 10 ⁶	1.5 x 10 ⁶	1.5 x 10 ⁶	1.5 x 10 ⁶	—
Non-connectable exhaust		●	●	●	●	●	●	—
Weight	g	50	50	60	60	110	110	40

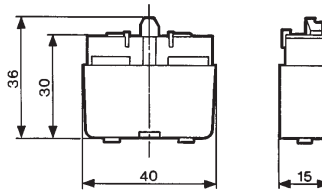
Principle of operation

NC version

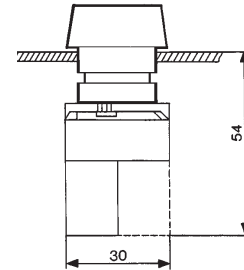


Dimensions

89 544 001 - 89 544 201
89 544 501 - 89 544 701

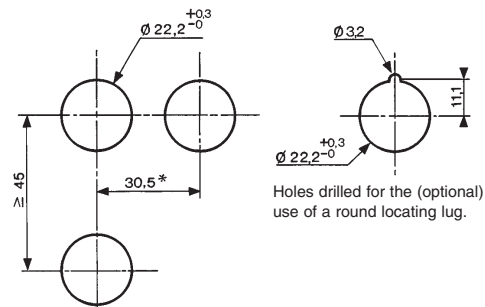


Ø 22 series



Holes drilled in panel for actuators Ø 22

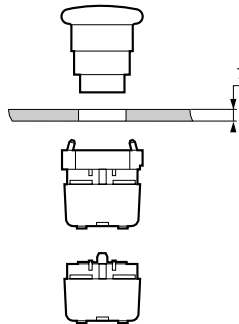
EN 50007



Holes drilled for the (optional) use of a round locating lug.

* > 40 Ø 40 push-buttons
* > 45 for lever type rotary switches

Installation



To order, specify:

Standard products

Standard products, non stocked

1

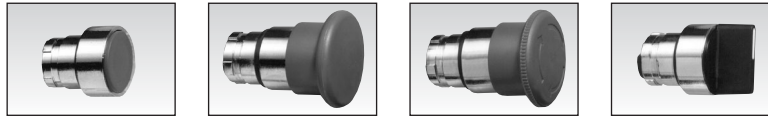
Part number

Example : Valve module 89 544 501

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Actuators (Ø 22 mm) for manually operated valves



Part numbers		1			
Push buttons	Red	24 679 129	24 679 173	24 679 171	—
	Green	24 679 128	—	—	—
	Black	24 679 127	24 679 172	—	—
2-position rotary switches	—	—	—	—	24 679 174
3-position rotary switches	—	—	—	—	—
Function	—	Flush push contact	Emergency stop plastic Ø 40	Emergency stop Ø 40 mm push-turn	Black symmetrical actuator

Symbol				

Position				

Weight	g	30	45	45	45
Dimensions	24 679 127 - 24 679 128			24 679 171 - 24 679 172	
		24 679 129		24 679	



Part numbers		1			
2-position rotary switches	24 679 180	—	24 679 176	24 679 178	24 679 182
3-position rotary switches	—	—	—	—	24 679 181
Function	RONIS key 455 removable in position 0	—	Black symmetrical actuator	Black symmetrical actuator with return	RONIS key 455 remov. in pos. 0 3 positions with spring to centre

Symbol					

Position					

Weight	70	45	45	70	70
Dimensions	24 679 174 - 24 679 176			24 679 180 - 24 679 181	
		24 679 178		24 679 182	

To order, specify:

Standard products **1** Part number
 Example : Actuators Ø 22 mm 24 679 129

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Pneumatic 2-hand control

Conforms to the Machinery Directive



Definition (conforming to EN 574)

A pneumatic 2-hand control device is used with dangerous machinery and requires the simultaneous use of both hands to trigger and maintain machine operation. Such a device must be located outside the dangerous zone, so that the operator cannot enter this zone before the machine has come to a complete standstill.

A pneumatic 2-hand control device is composed of 2 parts :

- 2 manual pushbuttons which require the simultaneous use of both hands.
- A pneumatic relay.

Types of 2-hand control devices

Requirements	Type				
	I	II	III		
			A	B	C
Use of both hands (simultaneous actuation)	●	●	●	●	●
Relationship between input signals and output signal	●	●	●	●	●
Cessation of the output signal	●	●	●	●	●
Prevention of accidental operation	●	●	●	●	●
Prevention of defeat	●	●	●	●	●
Reinitiation of the output signal		●	●	●	●
Synchronous actuation			●	●	●
Use of category 1 (EN 954-1)	●		●		
Use of category 3 (EN 954-1)		●		●	
Use of category 4 (EN 954-1)					●

Category 1 (EN 954-1) : the system should use well tried components and principles.

Category 3 (EN 954-1) : the system must be designed so that a single fault will not cause the loss of the safety function.

Category 4 (EN 954-1) : the system must be designed so that an accumulation of faults must not lead to a loss of the safety function.

Synchronous action

An output signal is only generated if both control actuating devices are actuated within 500 ms.

Resetting the output signal

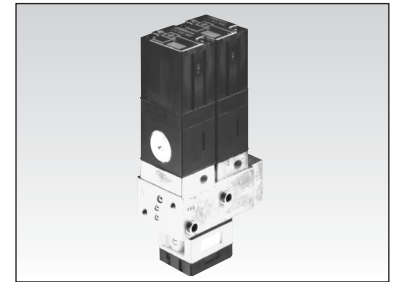
The release of a single control device interrupts the output signal, but a reset is only possible once both control devices have been released.

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Pneumatic relay for two-hand control

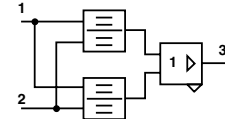
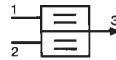
- Conforms to the Machinery Directive
- CE Test Certificate type



Part numbers

Pneumatic relay for two-hand control	81 580 101	81 580 202
EN 574 classification	III A	III B
CE Test Certificate type	0526 520 1690 0197	0526 520 1692 0197

Symbol

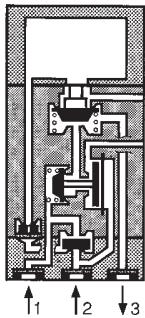


Characteristics

Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Orifice diameter	inches (mm)	0.1" (2.5)	0.1" (2.5)
Max. delay between input signals	s	0.2 max.	0.2 max.
Connection		Sub-base 81 532 001	Semi-rigid tubing Ø 4 (NFE 49100)
Operating temperature	°C	-5 +50	-5 +50
Mechanical life	operations	10 ⁷	10 ⁷
Weight	g	90	320

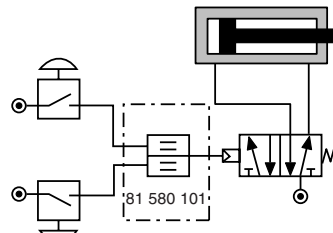
Principle of operation

81 580 101



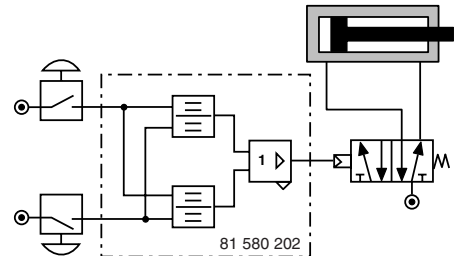
Connections (Typical application with double-acting cylinder)

81 580 101



Components follow current standards

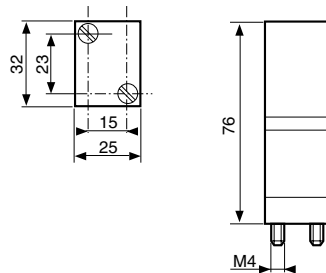
81 580 202



To obtain an output signal it is necessary to give simultaneous input signals 'a' and 'b' with a max. delay of 0.45. The output signal 's' is lost if one or both of the inputs are removed.

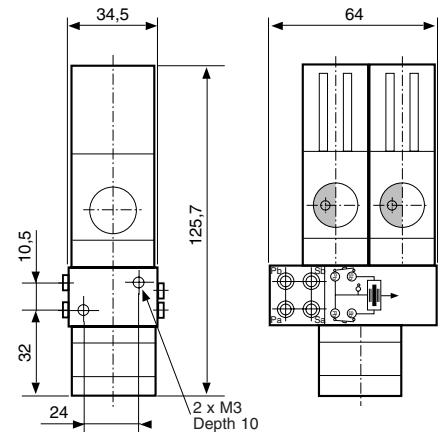
Dimensions

81 580 101



Mounted on sub-base 81 532 001
(See page 5/44 and 5/45 of Pneumatic catalogue)

81 580 202



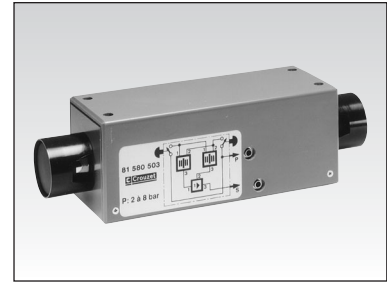
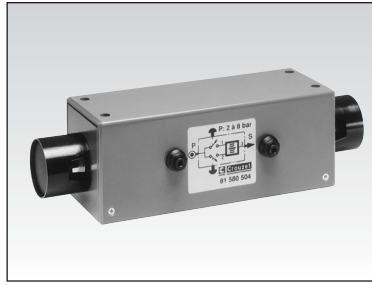
Other information	To order, specify:
	<p>Standard products</p> <p>1 Part number Example : Pneumatic 2-hand control - 81 580 101</p>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Two-hand pneumatic safety start module

- Conforms to the Machinery Directive and standard EN 574
- Including pneumatic relay to classification IIIA or IIIB depending on version



Part numbers

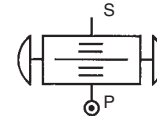
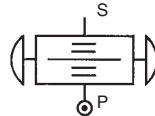
Two-hand pneumatic safety start module
Pneumatic relay (to EN 574)

81 580 504
Type III A

81 580 503
Type III B

1

Symbol

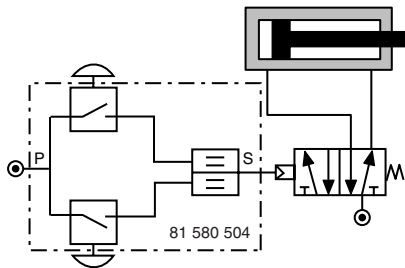


Characteristics

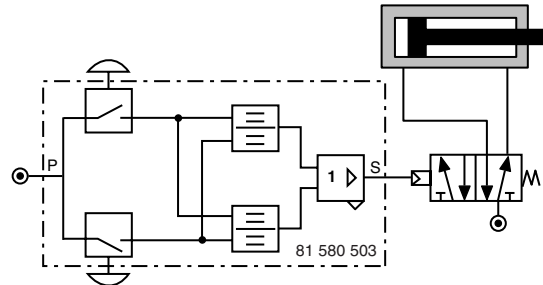
Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Orifice diameter	inches (mm)	0.1" (2.5)	0.1" (2.5)
Max. delay between input signals	s	0.2 max.	0.2 max.
Connection		Semi-rigid tubing Ø 4 (NFE 49100)	Semi-rigid tubing Ø 4 (NFE 49100)
Operating temperature	°C	-5 +50	-5 +50
Mechanical life	operations	1.5 x 10 ⁶	1.5 x 10 ⁶
Weight	g	1000	1410

Connections (Typical application with double-acting cylinder)

81 580 504



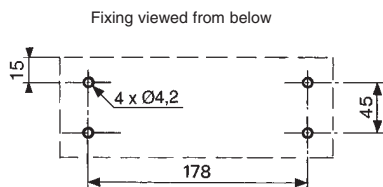
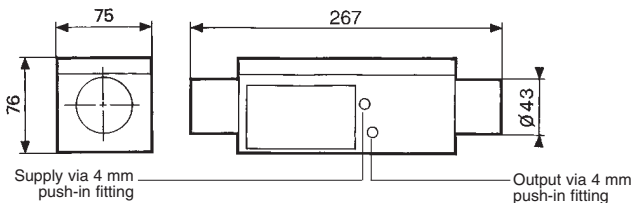
81 580 503



Components follow current standards

Dimensions

81 580 503 - 81 580 504



Other information

To order, specify:

Standard products

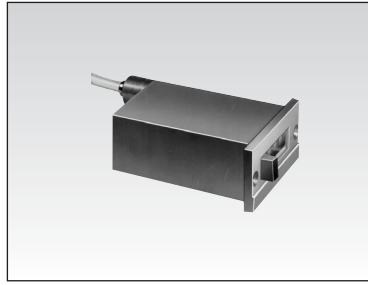
1

Part number
Example : Two-hand pneumatic safety start module - 81 580 503

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

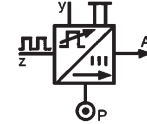
Pneumatic impulse counters



Part numbers

Totalizer	99 766 002	—
Preselection counter	—	89 538 201
Version	4 digits with manual zero reset	5 digits with manual or pneumatic zero reset

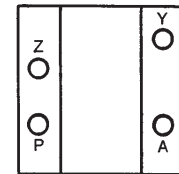
Symbol



Characteristics

Supply pressure	PSI (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Dis-engagement pressure	PSI (bar)	< 2 (< 0.15)	< 2 (< 0.15)
Engagement pressure	PSI (bar)	> 12 (> 0.8)	> 12 (> 0.8)
Reset: Minimum pressure	PSI (bar)	30 (2)	30 (2)
Reset time	ms	150	150
Preselector output valve			•
Circuit pressure	PSI (bar)		30 > 120 (2 > 8)
Signal emitted when the preselector is reached			•
Operating temperature	°F (°C)	+32 > +140 (0 > +60)	+32 > +140 (0 > +60)
Weight	grams	48	136

Connection



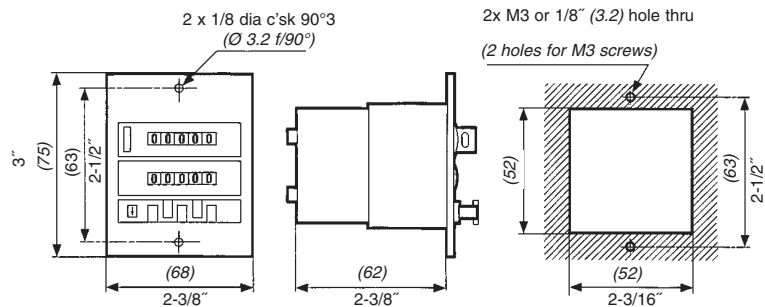
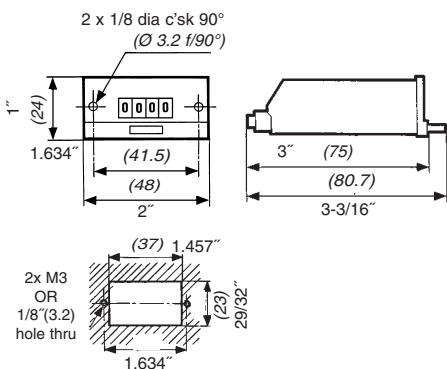
A - Output signal
P - Supply
Y - Reset to zero signal
Z - Input signal

Note: the count pulse must be removed before the reset pulse is applied. The preselected value can be changed during operation without the counter resetting to zero.

Dimensions

99 763 001 - 99 763 002

89 538 201

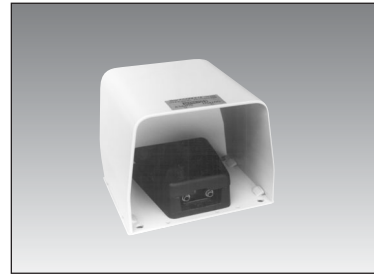


Other information	To order, specify:
	Standard products
	1 Part number
	Example : Pneumatic impulse counter - 99 766 002
	Standard products, non stocked

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Indicators and pedal valves



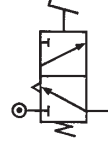
1

Parts numbers

Type

Pneumatic indicators for 7/8" (22mm) cut-out	Red	84 150 201
	Green	84 150 202
	Yellow	84 150 203
	Blue	84 150 204
Pedal valve - Version NC		—

Symbol

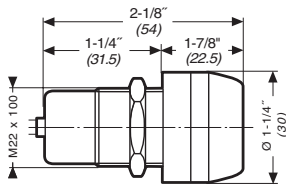


Characteristics

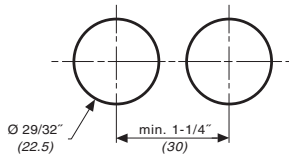
Operating Pressure	PSI (bar)	30 > 120	(2 > 8)
Instant connection for tube O.D.	inches (mm)	5/32"	(4)
Weight	grams	34	

Dimensions

84 150 201 - 84 150 202
84 150 203 - 84 150 204



Cut out for indicators



Use (metric) dimensions for critical data

To order, specify:

Standard products

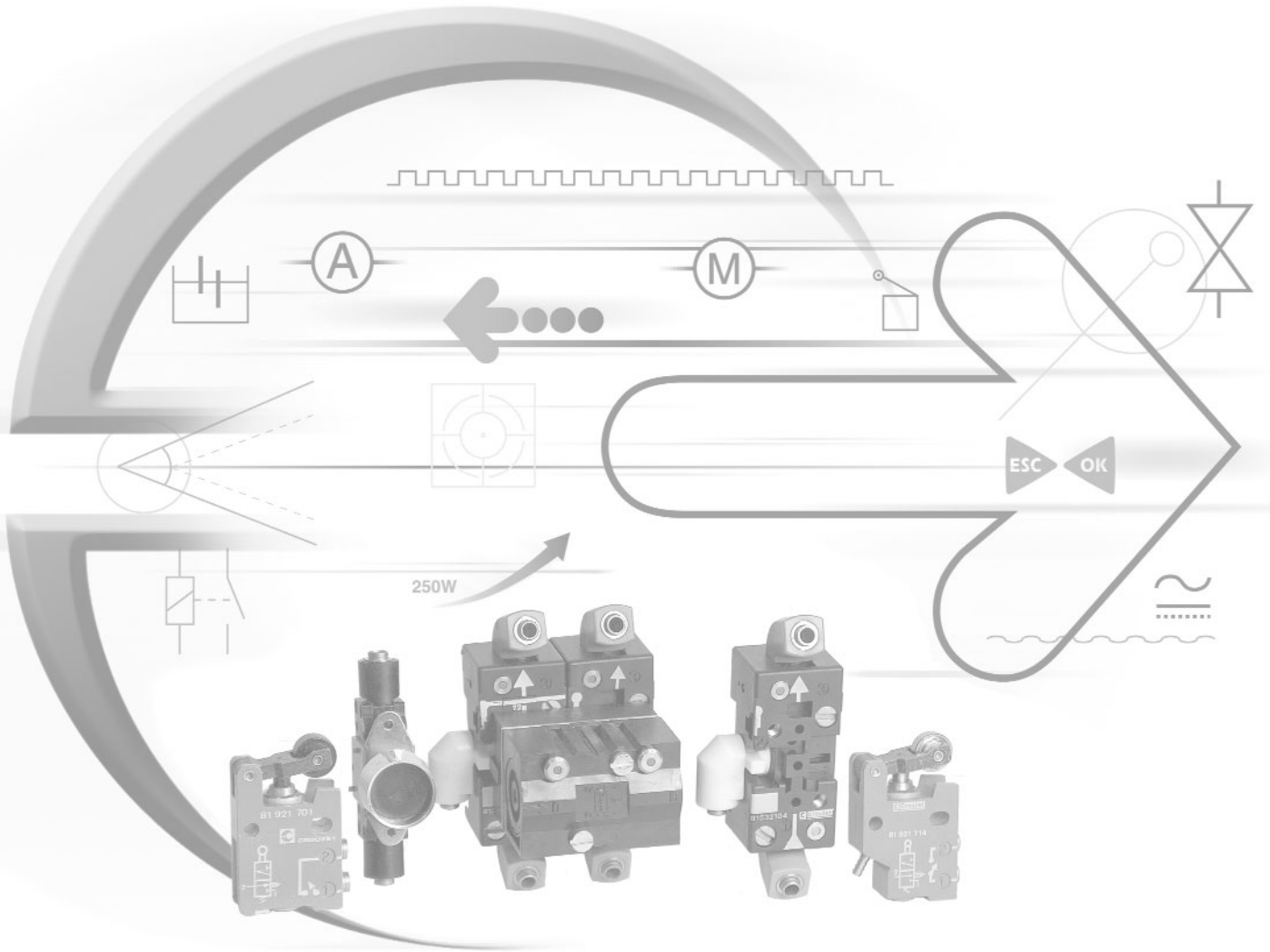


Part number

Example: pneumatic indicator Ø 22 - 84 150 201

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Position Detectors

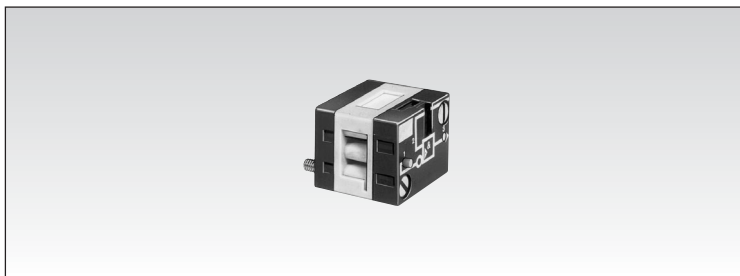


Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Pressure decay sensor



1

Part numbers

Pressure decay sensor

81 504 025

Symbol

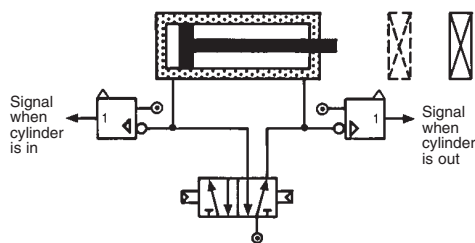


Characteristics

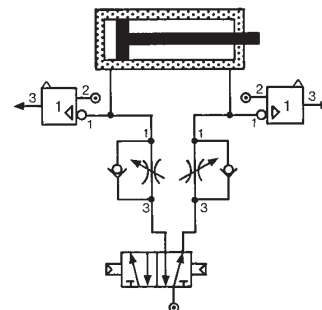
Operating pressure	psi (bar)	30 > 120	(2 > 8)
Flow at 90 psi (6 bars)	cfm(Nl/min)	7	(200)
Tripping point at 90 psi (6 bar) supply	psi (bar)	4.5	(0.3)
Connection		Sub-base page 5/44 - 5/45 or PAC mounting	
Operating temperature	°F (°C)	+25 > +120	(-5 > +50)
Mechanical life	operations	10 million	
Weight	(grams)	25	
Relay Color		Light grey	

Connections

Pressure decay sensor



Position of one-way flow restrictors

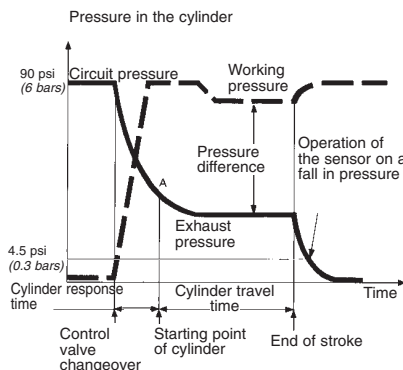


Principle of operation

Mounted 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.

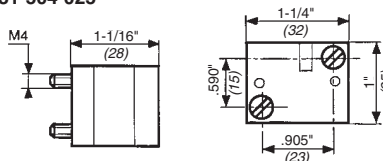
Evolution of pressure within a double-acting cylinder.



Note: Caution should be taken on application because mechanical binding or seal failure of cylinder or valve will cause sensor to give or not give output signal.

Dimensions

81 504 025



Note: Use (metric) for critical data.

To order, specify :

Standard products

1

Part number

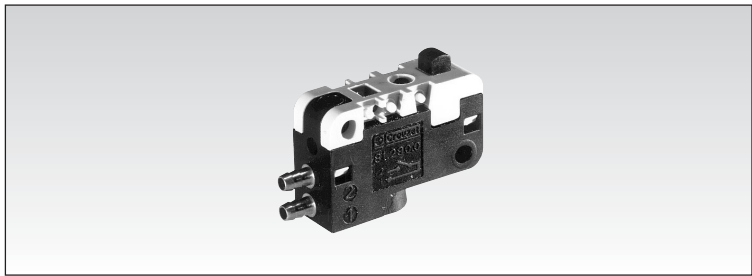
Example : Pressure decay sensor - 81 504 025

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Low force position detectors

- Conforms to standard DIN 43365 Form A
- Low activation force < 1.7 oz. (50 g @ at 6 bars) at 90 psi
- No continuous consumption of compressed air



Part numbers

Function	NO	81 290 501	—
	NC	—	81 290 001

Symbol

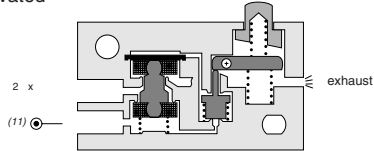


Characteristics

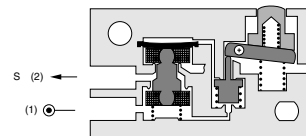
Orifice diameter	inches(mm)	5/64" (2)	5/64" (2)
Operating pressure	psi(bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Flow at 60 psi (4 bars)	cfm(Nl/min)	4.5 (130)	2.5 (>70)
Activation force at 90 (6 bars)	ounces(g)	<1.7 (< 50)	<1.7 (< 50)
Permissible fluid:		air, inert gases	
Max/min. of fluid temperatures	°F(°C)	+20> +120 (-10 > +50)	+20> +120 (-10 > +50)
operating	°F(°C)	+20> +140 (-10 > +60)	+20> +140 (-10 > +60)
storage	°F(°C)	+20> +160 (-40 > +70)	+20> +160 (-40 > +70)
Mechanical life at 90psi (6 bars)	cycles	10 million	10 million
Response on activation	ms	≤ 15	≤ 15
time on release	ms	≤ 15	≤ 15
Barb connection for semi-rigid tubing	inches(mm)	0.106" I.D. x 5/32" O.D. (2.7x4)	0.106" I.D. x 5/32" O.D. (2.7x4)
Weight	grams	8.5	8.5

Principle of NC operation

Deactivated



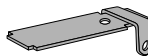
Activated



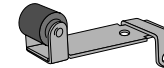
Operation accessories

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

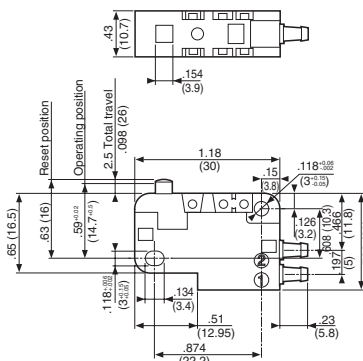
161 A
flat
79 215 741



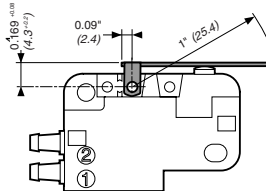
161 G
roller
70 507 529



Dimensions

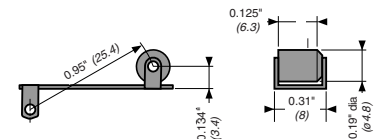


161 A



161 E

79 215 742



Use (metric) dimensions for critical data

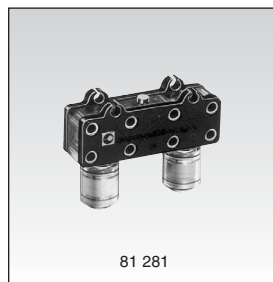
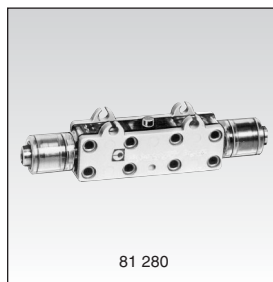
Other information	To order, specify :
On request : Wide range of actuators Connectable exhaust	Standard products 1 Part number 2 Accessory Example : Low force position detector 81 290 501 Flat lever 79 215 741

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



"Microvalve" series position detectors



1

Part numbers

Version	NO (grey body color)	81 280 010	81 281 010	—
	NC (black body color)	81 280 510	81 281 510	81 283 510 not shown
Features		Horizontal output	Vertical output	Rear connection by screw

Symbol

NO



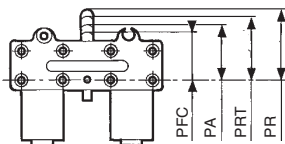
NC



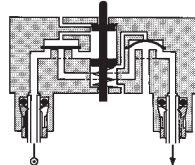
Characteristics

Operating pressure	psi(bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Orifice diameter	inches(mm)	0.106 (2.7)	0.106 (2.7)	0.106 (2.7)
Flow at 6 bars 90 psi (6 bar)	cfm(Nl/min)	7 (200)	7 (200)	4.8 (138)
Operating force 90 psi (6 cm)	oz. (N)	50 (15)	50 (15)	50 (15)
Effective travel	inches(mm)	0.04" (1)	0.04" (1)	0.04" (1)
Push-in connection for O.D. semi-rigid tubing (NFE 49100)	inches(mm)	5/32" (4)	5/32" (4)	5/32" (4)
Operating temperature	°F(°C)	+20 > +120 (-5 > +15)	+20 > +120 (-5 > +15)	+20 > +120 (-5 > +15)
Mechanical life	operations	5 million	5 million	5 million
Weight	grams	14	14	20

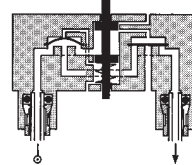
Principle of operation



NC



NO



Actuation positions :

PFC : End of travel position.....	0.423" (10.75)
PA : Operating position (max output kV).....	0.449" (11.4)
PRT : Release position (max. exhaust kV).....	0.463" (11.75)
PR : Rest position.....	0.488" (12.4)

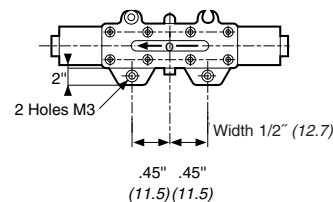
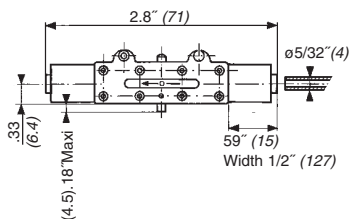
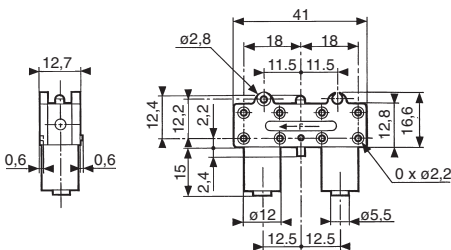
Non-connectable exhaust port is on the "output" side.

Dimensions

81 281 010 - 81 281 510

81 280 010 - 81 280 510

81 283 510



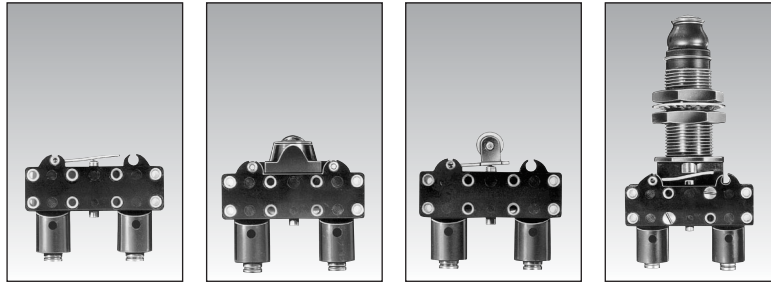
Use (metric) dimensions for critical data

Other information	To order, specify :
	<p>Standard products</p> <p>1 Part number</p> <p>Example : "Microvalve" series position detectors - 81 280 010</p> <p>Standard products, non stocked</p>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

"Microvalve" series position detectors



Part numbers

Features	Short lever	With ball	With roller	Threaded barrel Plunger for 5/8" hole
Version NC Vertical output	81 281 502	81 281 504	81 281 509	81 737 501

Symbol

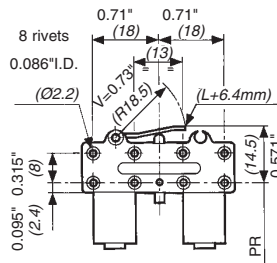


Characteristics

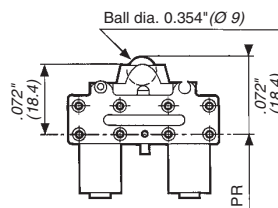
Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Orifice diameter	inches(mm)	0.04 (2.7)	0.04 (2.7)	0.04 (2.7)	0.04 (2.7)
Flow at 90 psi (6 bars)	cfm(Nl/min)	7 (200)	7 (200)	7 (200)	7 (200)
Operating force at 90 psi (6 bars)	oz(N)	50 (15)	50 (15)	50 (15)	83 (25)
Effective travel	inches(mm)	0.04" (1)	0.04" (1)	0.04" (1)	0.04" (1)
Push-in connection for semi-rigid tubing O.D. Inches(NFE 49100)	(mm)	5/32" (4)	5/32" (4)	5/32" (4)	5/32" (4)
Operating temperature	°F (°C)	+20>.+120(-5>+50)	+20>.+120(-5>+50)	+20>.+120(-5>+50)	+20>.+120(-5>+50)
Mechanical life	cycles	5 million	5 million	5 million	5 million
Weight	grams	16	18	18	90

Dimensions

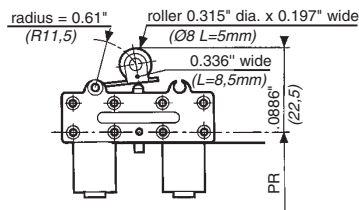
81 281 502



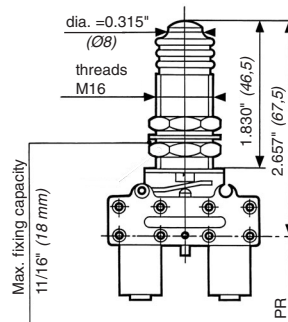
81 281 504



81 281 509



81 737 501



Actuation positions :
PR : Rest position

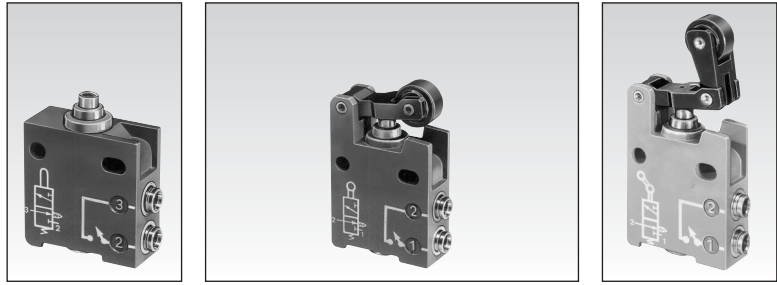
Use (metric) dimensions for critical data

Other information	To order, specify :
	<p>Standard products, non stocked</p> <p>1 Part number Example : "Microvalve" series position detectors - 81 280 002</p>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

"Miniature" series position detectors

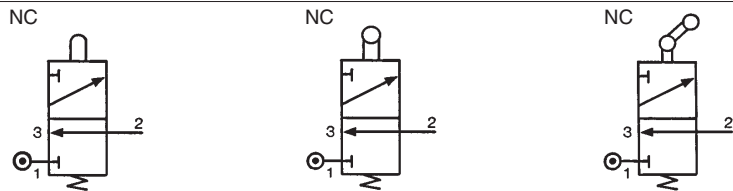


1

Part numbers

Version	Push-in connection for semi-rigid tubing (NFE 49100)				
NC	Ø 4 silenced exhaust	81 921 501	81 921 701	81 921 702	81 921 707
	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

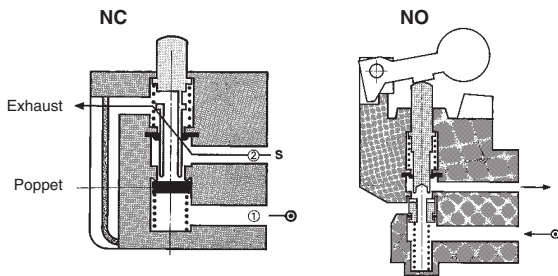
Symbol



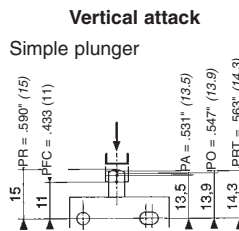
Characteristics

Operating pressure	psi (bar)	2 >120 (0.18>8)	2 >120 (0.18>8)	2 >120 (0.18>8)	2 >120 (0.18>8)
Orifice diameter	inches (mm)	0.106 (2.7)	0.106 (2.7)	0.106 (2.7)	0.106 (2.7)
Flow at 90 psi (6 bars)	cfm (NI/min)	7 (200)	7 (200)	7 (200)	7 (200)
Actuation force at 90 psi (6 bars)	oz (N)	63 (18)	63 (18)	63 (18)	63 (18)
Circuit function : NC		●	●	●	●
Circuit function: NO		—	—	—	—
Operating temperature	°F (°C)	+20>+120 (-5>+50)	+20>+120 (-5>+50)	+20>+120 (-5>+50)	+20>+120 (-5>+50)
Mechanical life	operations	10 million	10 million	10 million	10 million
Weight	grams	62	75	80	77

Principle of operation



Actuation travel

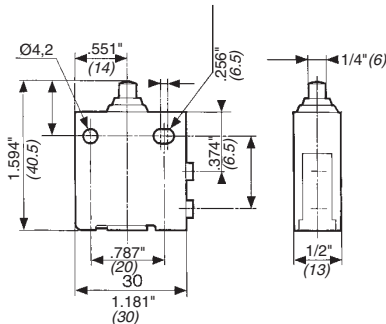


Actuation positions :

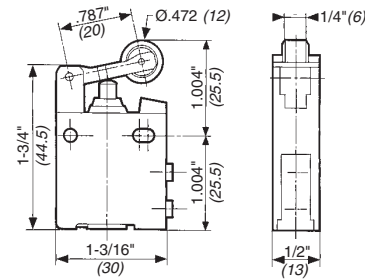
- PA : Operating position (max output CV)
- PFC : End of travel position
- PO : Mid-position closed (no exhaust, no outlet)
- PRT : Release position (max exhaust CV)
- PR : Rest position

Dimensions

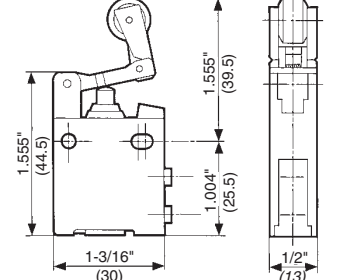
81 921 501



81 921 701 - 81 921 702



81 921 707



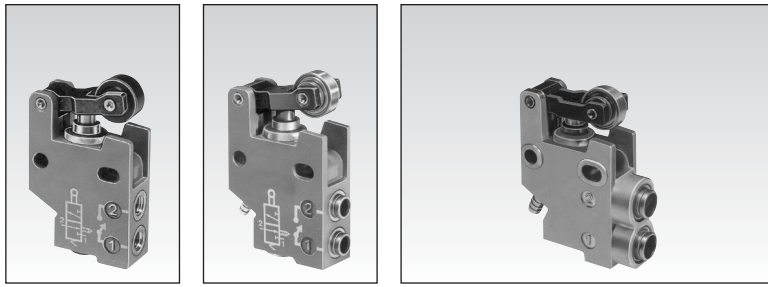
Use (metric) dimensions for critical data

Other information

* with barb for tube 0.106" (2.7) I.D. AND 5/32" (4) O.D.

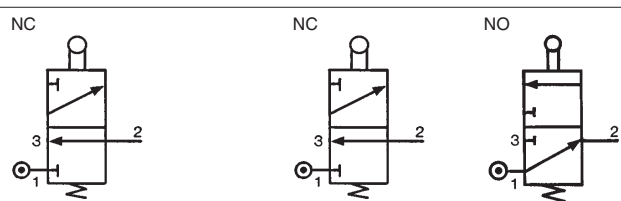
Products and specifications subject to change without notice.

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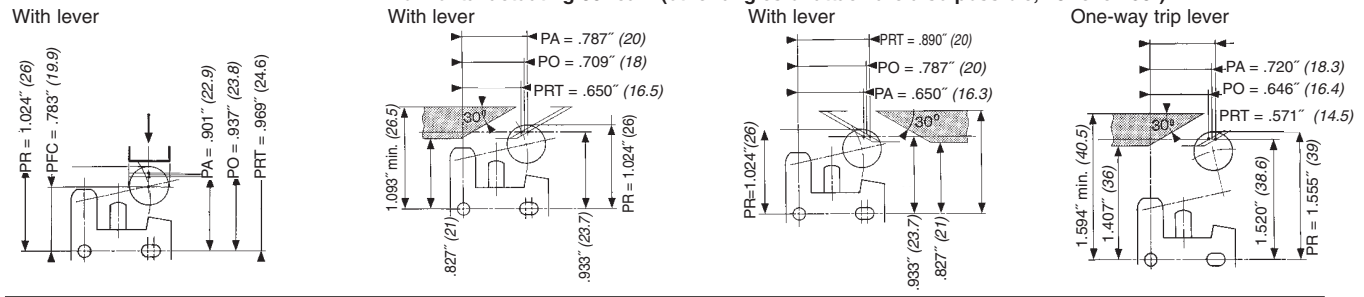
1

—	—	—	—
—	—	—	—
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

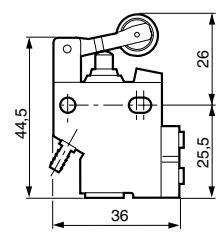
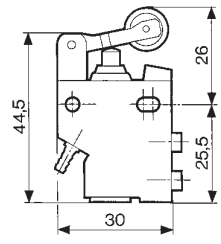
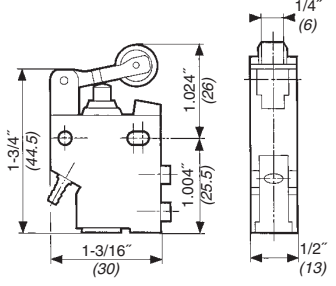


2 > 120 (0.18 > 8)	2 > 120 (0.18 > 8)	2 > 120 (0.18 > 8)	2 > 120 (0.18 > 8)
0.106 (2.7)	0.106 (2.7)	0.106 (2.7)	0.106 (2.7)
7 (200)	7 (200)	7 (200)	7 (200)
63 (18)	63 (18)	63 (18)	63 (18)
—	—	—	—
+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)
10 million	10 million	10 million	10 million
75	80	100	100

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



81 921 806 - 81 921 714 - 81 921 911 - 81 921 912 81 921 714 81 921 717 - 81 921 719
 81 921 901 - 81 921 902
 81 921 911 - 81 921 912



Use (metric) dimensions for critical data

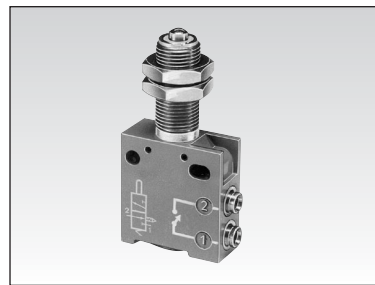
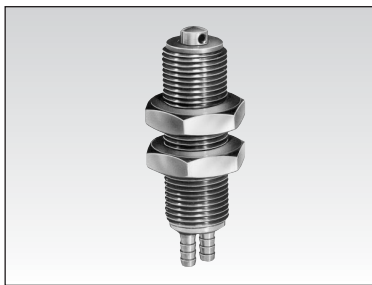
To order, specify :	
Standard products	1 Part number
Standard products, non stocked	Example : "Miniature" series position detectors 81 921 501

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



"Adjustable stop" series position detectors



Part numbers

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

81 923 001

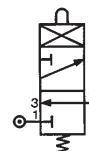
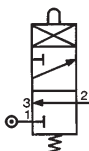
Barb for tube with 5/32" (4mm) O.D. x 0.106" (2.7mm) I.D.

81 921 505

Push-in connector for tube with 5/32" (4mm) O.D.

1

Symbol

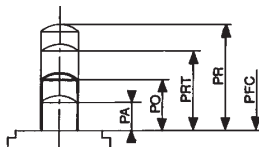
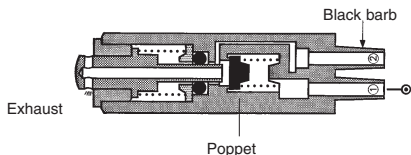


Characteristics

Operating pressure	psi (bar)	2 > 120 (0.1 > 8)	2 > 120 (0.1 > 8)
Orifice diameter	inches (mm)	0.079" (2)	0.106" (2.7)
Flow at 90 psi (6 bar)	cfm (Nl/min)	5 (130)	7 (200)
Actuation force at 90 psi (6 bar)	oz (N)	56 (16)	94 (21)
Circuit function: NC		●	●
Max. load: without shock	lbs (daN)	2,200 (1000)	2,200 (1000)
Will stop a 2 1/2" Ø cylinder @ 90 psi: (6 bar) supply		●	●
Operating temperature	°F (°C)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)
Mechanical life	cycles	10 million	10 million
Weight	(grams)	27	90

Principle of operation

Actuation positions			
PA : Operating position (max output Cv)	inches (mm)	0.016 (0.4)	0.028 (0.7)
PFC: End of travel position	inches (mm)	0 (0)	0 (0)
PO : Mid-point closed (no exhaust, no outlet)	inches (mm)	0.035 (0.9)	0.040 (1)
PRT : Release position (max. exhaust kV)	inches (mm)	0.059 (1.5)	0.059 (1.5)
PR : Rest position	inches (mm)	0.118 (3)	0.118 (3)

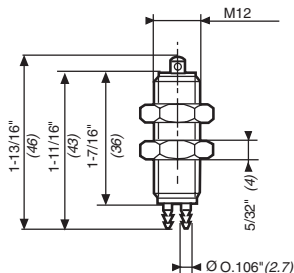


Actuation positions :

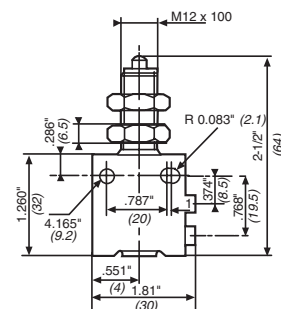
- PA : Operating position (max output Cv)
- PFC : End of travel position
- PO : Mid-position closed (no exhaust, no outlet)
- PRT : Release position (max exhaust Cv)
- PR : Rest position

Dimensions

81 923 001



81 921 505



Mounting

This should be as close as possible to the plunger

(Ø12.5) 1/2" dia. mounting hole

M12 threaded hole

Use (metric) for critical data.

Other information

To order, specify :

Standard products

Standard products, non stocked

1

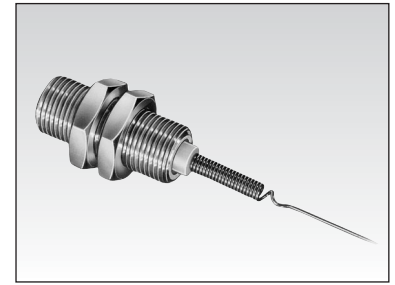
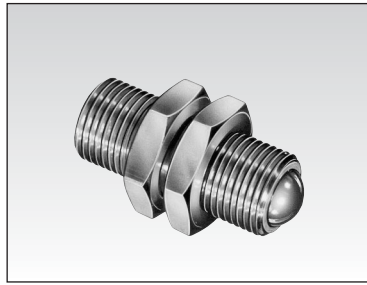
Part numbers

Example : "Adjustable stop" series position detectors - 81 923 001

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Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

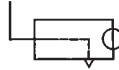
“Sensitive” position detectors



Part numbers

	81 512 201	81 512 401
Version	with ball	with wire
Symbol		

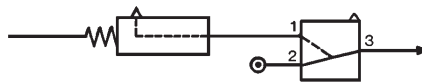
1



Characteristics

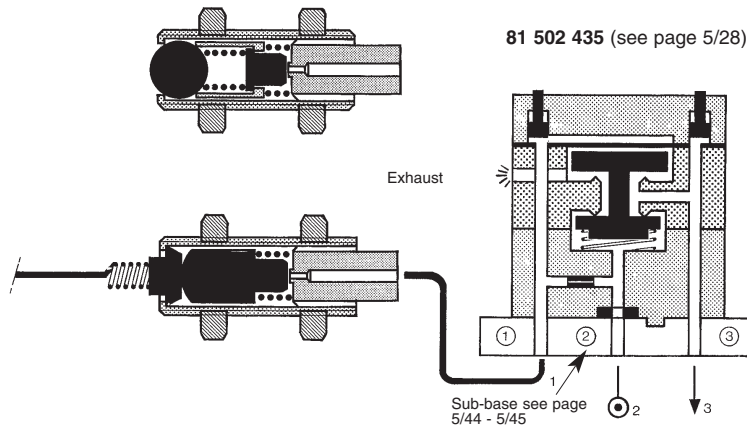
Push-in connection for semi-rigid tubing O.D. (NFE 49100)	inches (mm)	5/32" (4)	5/32" (4)
Life at 90 psi (6 bars)	cycles	10 million	10 million
Actuation force at 90 psi (6 bars)	oz (N)	2.77 (0.8)	0.09 (0.025)
Supply provided by leak sensor relay		●	●
Operating temperature	°F (°C)	+20>+120 (-5>+50)	+20>+120 (-5>+50)
Weight	(grams)	24.5	23.5

Connection



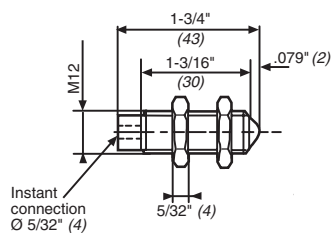
Principle of operation

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.

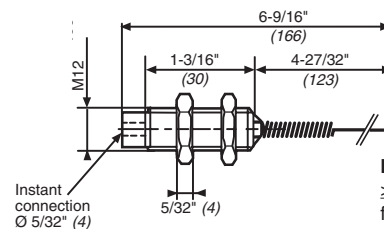


Dimensions

81 512 201



81 512 401



Note:
≥ 8° deflection
for actuation

Note: Clearance hole of Ø 1/2" (12.5) or threaded hole M12 required for mounting.

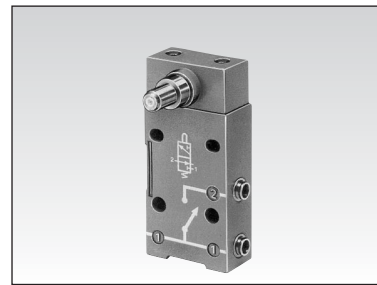
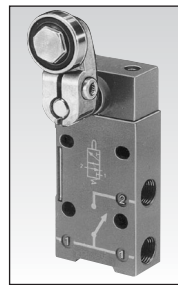
use (metric) for critical data

Other information	To order, specify :
	<p>Standard products</p> <p>1 Part number Example : "Sensitive" position detectors - 891 592 201</p>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

"Compact" series position detectors

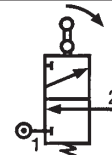
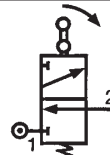
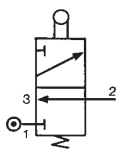


Part numbers

Features	Direct acting 81 922 401	Rotary actuator 81 922 205	Rotary actuator 81 922 010	Rotary actuator 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

1

Symbol



Characteristics

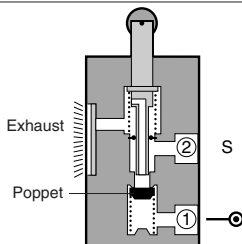
	BSP		—	1/8	—	1/8
Connection	push-in for semi-rigid tubing O.D.(NFE 49100)	inches (mm)	5/32" (4)	—	5/32" (4)	—
Operating pressure		psi (bar)	2 > 120 (0.1>8)	2 > 120 (0.1>8)	2 > 120 (0.1>8)	2 > 120 (0.1>8)
Bore diameter		inches (mm)	0.118 (3)	0.118 (3)	0.118 (3)	0.118 (3)
Flow at 90 psi (6 bars)		cfm (Nm ³ /h)	7 (12)	7 (12)	7 (12)	7 (12)
Activation force at 90 psi (6 bars)		oz (daN)	90 (2.5)	90 (2.5)	90 (2.5)	90 (2.5)
Circuit function: NC			●	●	●	●
Mechanical life		operations	10 million	10 million	10 million	10 million
Silenced or connectable (1/8) exhaust			●	●	●	●
Operating temperature		°F (°C)	+20>+120 (-5>+50)	+20>+120 (-5>+50)	+20>+120 (-5>+50)	+20>+120 (-5>+50)
Weight		(grams)	150	193	175	175

Accessories

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	—	●	●	●

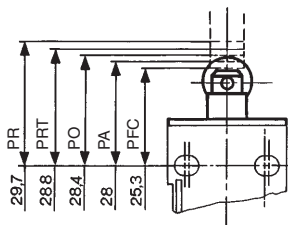
2

Principle of operation



Vertical attack

Detectors with roller plunger with unthreaded barrel.

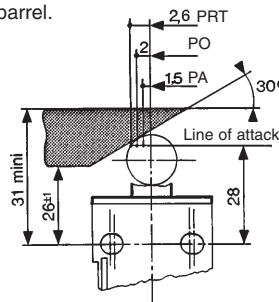


Actuation positions :

- 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

Horizontal attack

Detectors with roller plunger with unthreaded barrel.



Other information

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

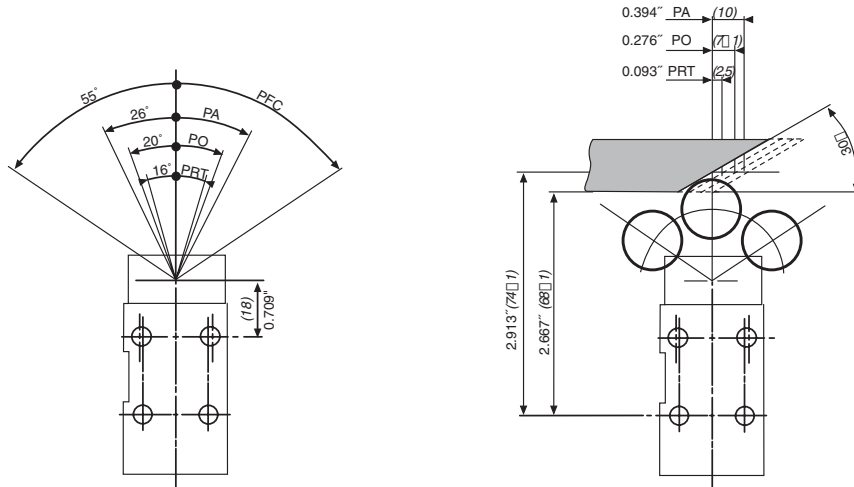
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Rotary actuator

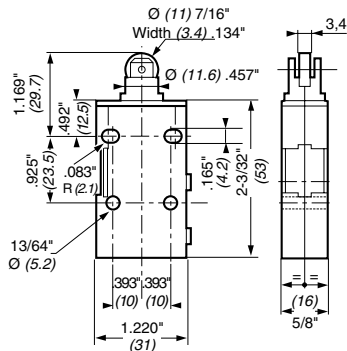
Detectors with levers

81 922 - 81 922 0 - 81 922 2

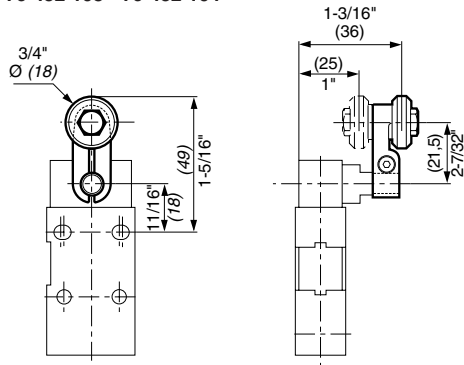


Dimensions

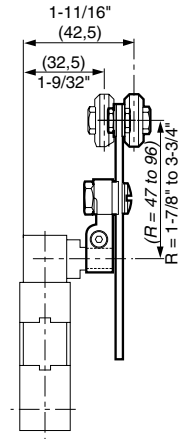
81 922 401



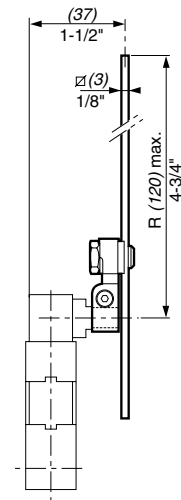
81 922 205 - 81 922 0 - 81 922 2
79 452 103 - 79 452 104



79 452 123 - 79 452 124



79 452 133



Use (metric) dimensions for critical data.

To order, specify :

Standard products

Standard products,
non stocked

1

Part number

2

Accessory

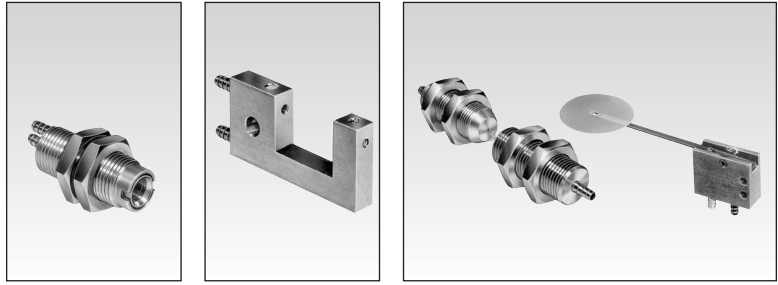
Example : "Compact" series position detectors 81 922 010 - Lever with plastic roller 79 452 103

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Position detectors



Part numbers

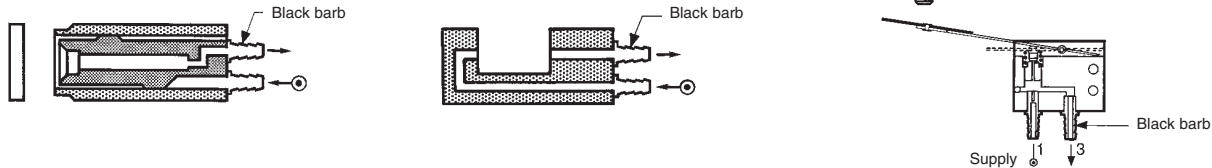
	81 371 401	81 372 201	81 372 401	81 372 901
detector	proximity	fixed gap	adjustable gap	palette
Symbol				

1

Characteristics

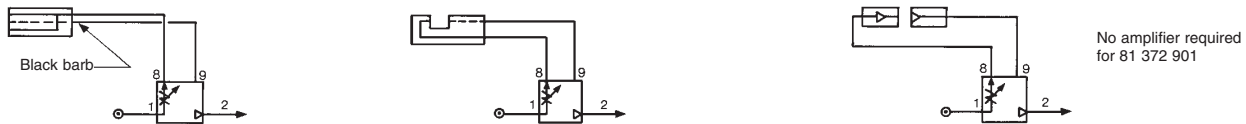
Detection distance	inches (mm)	1/4 > 3/8 (6 > 10)	11/16" (18)	4 (100)	—
Supply pressure	psi (bar)	8 > 40 (0.5 > 2.5)	8 > 40 (0.5 > 2.5)	8 > 40 (0.5 > 2.5)	—
Minimum output pressure	psi (mbar)	0.02 (1)	0.02 (1)	0.02 (1)	—
Unlimited life (static component)		●	●	●	—
Operating temperature	°F (°C)	-5 > +160 (-20 > +70)	-5 > +160 (-20 > +70)	-5 > +160 (-20 > +70)	-5 > +160 (-20 > +70)
Consumption at supply pressure of:	8 psi (0.5 b) 40 psi (2.5 b)	cfm (NI/h) 1.5 (2500)	0.05 (70) 1.30 (2244)	0.06 (100) 0.45 (700)	—
Barb connection for semi-rigid tubing (NFE 49100)	inches(mm)	5/32" O.D. x 0.106" I.D. (2.7 x 4)	5/32" O.D. x 0.106" I.D. (2.7 x 4)	5/32" O.D. x 0.106" I.D. (2.7 x 4)	5/32" O.D. x 0.106" I.D. (2.7 x 4)
Operating pressure	nozzle sensor @ 8" 1" (200 mm) @ 4" (100 mm)	psi (bar) — —	— — —	— — —	30 to 120 (2 to 8) 30 to 120 (2 to 8) 15 to 60 (1 to 4)
Flow	nozzle at 30 psi (2 bar) sensor at 30 psi (2 bar)	cfm (NI/h) —	— —	— —	0.20 (320) 0.20 (320)
Trip force of palette	at 30 psi (2 bar) supply at 90 psi (6 bar) supply	oz (N) —	— —	— —	0.11 (0.03) 0.33 (0.08)
Sensor consumption for relay supply at 90 psi (6 bar)		cfm (NI/min)	—	—	0.18 (5)
Weight	grams	36	9	36	14

Principle of operation

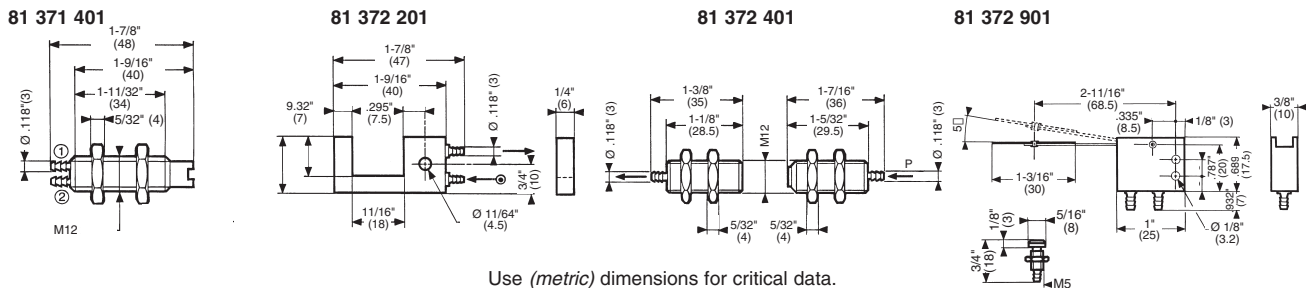


Connection

For use with amplifier on page 5/29



Dimensions

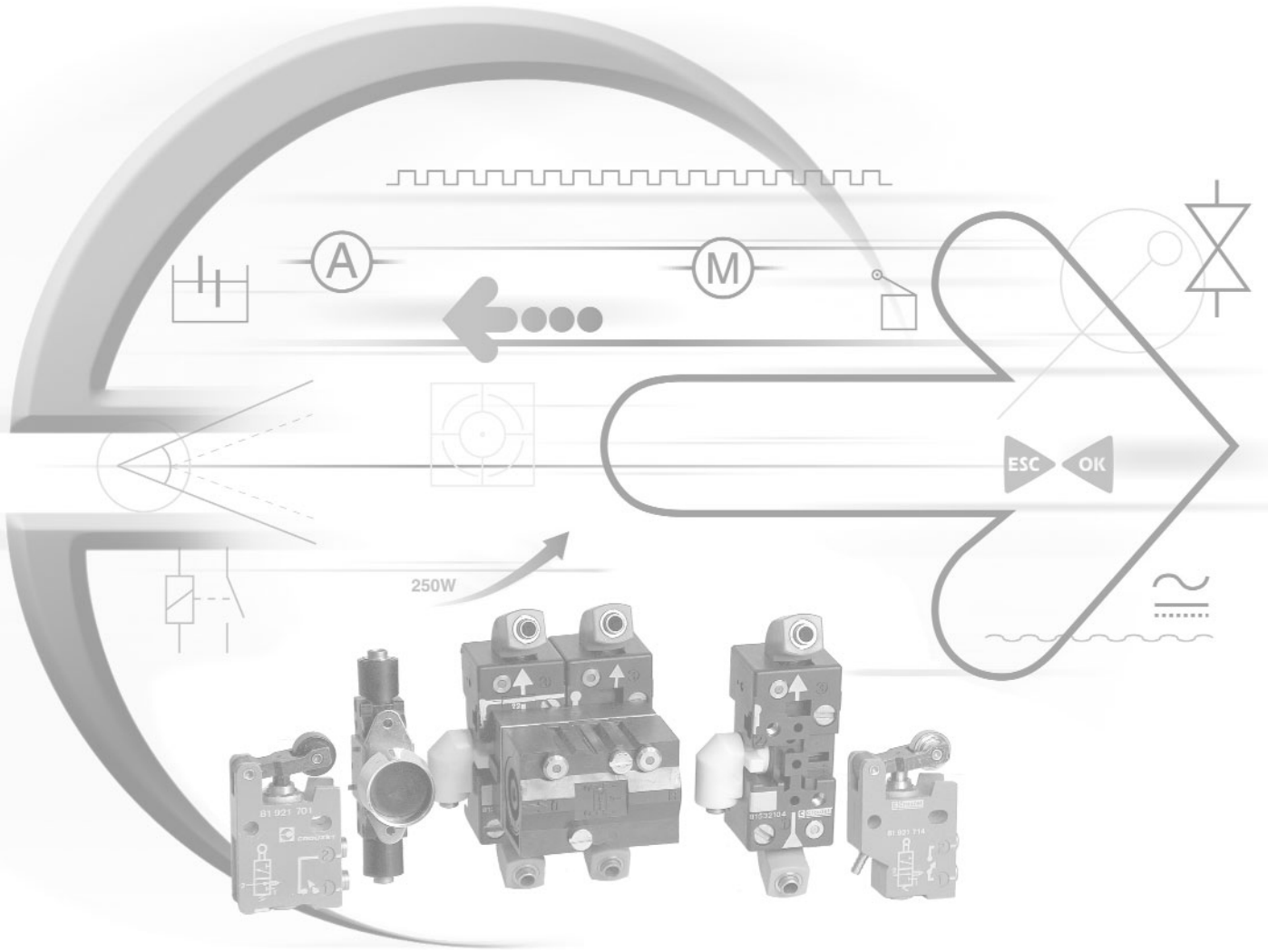


Use (metric) dimensions for critical data.

Other information	To order, specify :
	Standard products 1 Part number
	Example : Position detectors - 81 371 401
	Standard products, non stocked

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Pressure Switches Amplifiers



Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Pressure switches

- Conform to the Low Voltage Directive
- Can be used without enclosure according to IEC 664-1 pollution group III

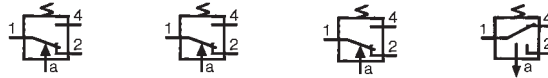


1

Part numbers

Pressure and vacuum switches	81 513 552	81 513 502	81 513 501	81 513 522
Mounting	DIN rail EN 50022	DIN rail EN 50022	DIN rail EN 50022	DIN rail EN 50022
Actuators	Pressure	Pressure	Low pressure	Vacuum
Manual override	with	without	without	without

Symbol



Characteristics

Pneumatic connection	mm	Ø 4 ext.	Ø 4 ext.	Ø 4 ext.	Ø 4 ext.
Push-in connection for semi-rigid tubing (NFE 49100)					
Tapped BSP via connector	IEC 529	—	—	—	—
Protection		IP 20	IP 20	IP 20	IP 20
Permissible fluid: air, inert gases and liquids		●	●	●	●
Adjustment of switching pressure (* adjusted to 0.3)	bar	2 → 8	2 → 8	0.3 → 1.2 *	-0.3 → -0.8
Hysteresis	bar	0.5	0.5	—	—
at 1 bar	bar	0.6	0.6	—	—
at 2 bars	bar	0.8	0.8	—	—
at 4 bars	bar	1	1	—	—
at 6 bars	bar	—	—	●	—
max. 200 mb		—	—	—	●
max. 250 mb		—	—	—	—
Pressure to break		—	—	—	—
Mechanical life (operations)		10 ⁶	10 ⁶	10 ⁶	10 ⁶
Contact rating (V resistive)		5A - 220-230 V	5A - 220-230 V	5A - 220-230 V	5A - 220-230 V
Wire cross-section	mm ²	0.75	0.75	0.75	0.75
Operating temperature	°C	-10+70	-10+70	-10+70	-10+70
Weight	g	48	46	46	46
Standard electrical contact		V4 83 170 4 W2	V4 83 170 4 W2	V4 83 170 4 W2	V4 83 170 4 W2
UL and cUL approval		MH15213 (R)	MH15213 (R)	MH15213 (R)	MH15213 (R)

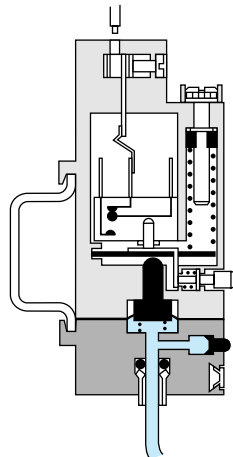
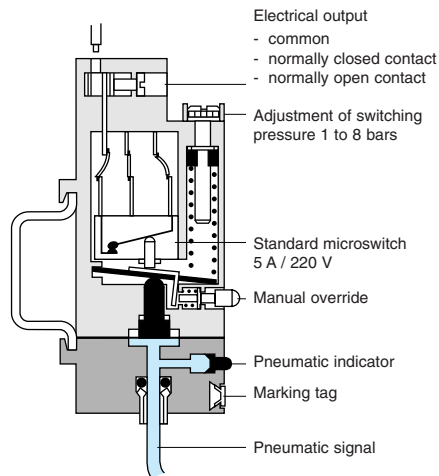
Operation

Pressure operated

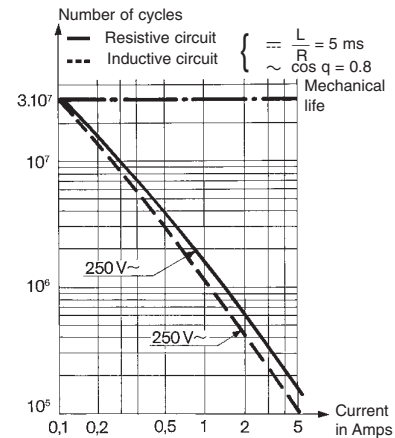
Vacuum operated

Electrical life

(Crouzet microswitch "V4" ref 83 170 4-1-W2)



For continuous vacuum applications, please consult us.

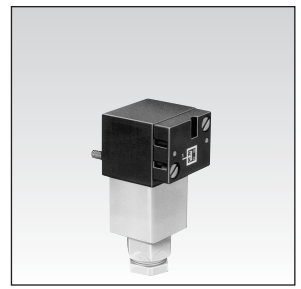
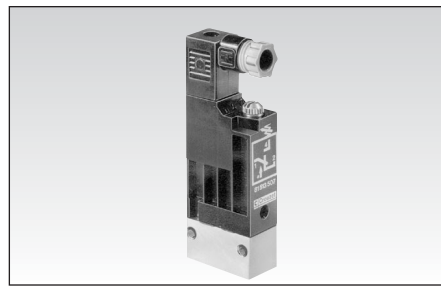
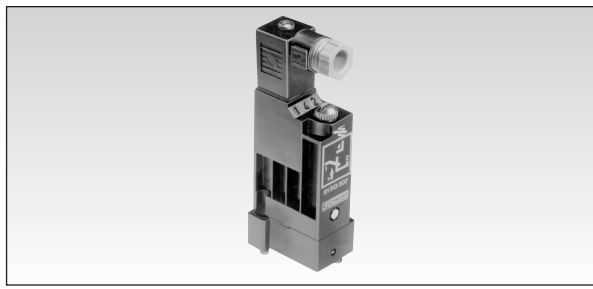


Other information

- On request :
- Microswitch V4 ref. 83 170 0 | W2 high current
 - Microswitch V4 ref. 83 170 9 | W2 low current

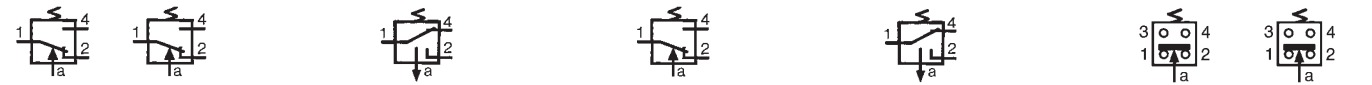
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



1

81 513 516	81 513 510	81 513 527	81 513 533	81 513 523	81 509 080	81 509 085
Base mounted page 5/44	Base mounted page 5/45	Base mounted page 5/44	2 screws M4	2 screws M4	Base mounted page 5/44	Base mounted page 5/45
Pressure without	Pressure with	Vacuum without	Pressure without	Vacuum without	Pressure without	Pressure with



Ø 4 ext.	Ø 4 ext.	Ø 4 ext.	—	—	—	—
IP 54	IP 54	IP 54	1/8 BSP IP 54	1/8 BSP IP 54	Via sub-base IP 54	Via sub-base IP 54
2 → 8	2 → 8	-0.3 → -0.9	2 → 8	-0.3 → -0.8	1.4 ± 0.5	1.4 ± 0.5
0.5	0.5	—	0.5	—	—	—
0.6	0.6	—	0.6	—	—	—
0.8	0.8	—	0.8	—	—	—
1	1	—	1	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
10 ⁶	10 ⁶	10 ⁶	10 ⁶	10 ⁶	0.6 ± 0.2	0.6 ± 0.2
5A - 220-230 V	5A - 220-230 V	5A - 220-230 V	5A - 220-230 V	5A - 220-230 V	10 ⁶	10 ⁶
0.75	0.75	0.75	0.75	0.75	5A - 220-230 V	5A - 220-230 V
-10+70	-10+70	-10+70	-10+70	-10+70	1.5	1.5
56	58	56	65	65	-10+70	-10+70
V4 83 170 4 W2	V4 83 170 4 W2	V4 83 170 4 W2	V4 83 170 4 W2	V4 83 170 4 W2	80	80
MH15213 (R)	MH15213 (R)	MH15213 (R)	MH15213 (R)	MH15213 (R)	83 133 004	83 133 004

Electrical connections

81 513 501 - 81 513 502
81 513 522 - 81 513 552

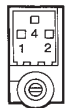
Dimensions

81 513 552 - 81 513 502
81 513 501 - 81 513 522

Pressure switch with connector

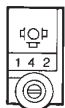
81 513 516 - 81 513 510
81 513 527

81 516 082
81 513 533
81 513 523

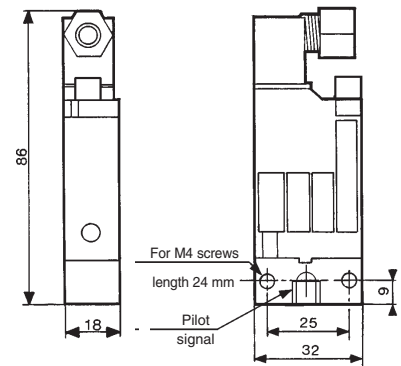
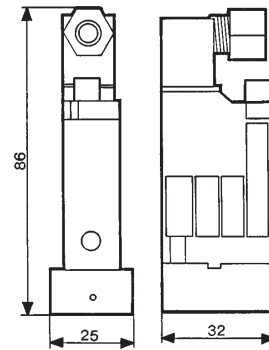
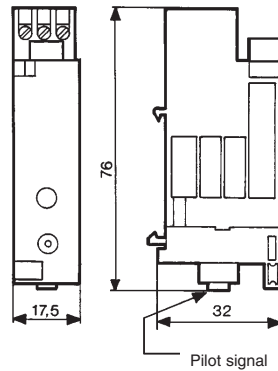


1 - Common
4 - NO contact
2 - NC contact

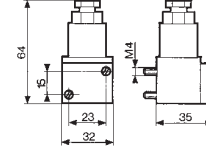
81 513 510 - 81 513 521
81 513 516 - 81 513 527



81 513 533
81 513 523 - 81 513 533



81 509 080 - 81 509 085



To order, specify :

Standard products

1 Part number

Standard products,
non stocked

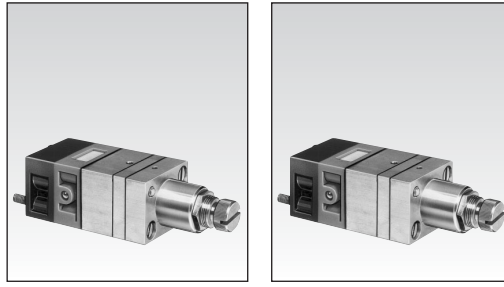
Example : Pressure and vacuum switches 81 513 552

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Adjustable pressure switches (manostats)



Counter balance leakage

Yes

Yes

Part numbers (and adjustment ranges)

Adjustment range	0.7 to 8 psi (50 to 500 mb) 2 to 35 psi (0.1 to 2.5 b) 30 to 120 psi (2 to 8 b)	81 505 140 81 505 150 81 505 160	81 502 140 81 502 150 81 502 160
Version		Positive output (N.C.)	Negative output (N.O.)
Accuracy	0.7 to 8 psi (50 to 500 mb) 2 to 35 psi (0.1 to 2.5 b) 30 to 120 psi (2 to 8 b)	10 % 4 % 4 %	10 % 4 % 4 %

Symbol

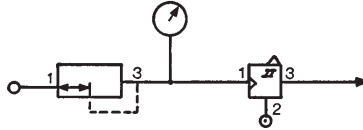


Characteristics

Orifice diameter	inches (mm)	0.1 (2.5)	0.1 (2.5)
Flow at 90 psi (6 bars)	cfm (NI/min)	6 (170)	6 (170)
Hysteresis	0.7 to 8 psi (50 to 500 mb)	0.9 (60 mb)	0.9 (60 mb)
	2 to 35 psi (0.1 to 2.5 b)	1.5 (100 mb)	1.5 (100 mb)
	30 to 120 psi (2 to 8 b)	5 (320 mb)	5 (320 mb)
Connection - sub-base page 5/44-5/45			
Operating temperature	°F(°C)	+20>+120 (-5 >+50)	+20>+120 (-5 >+50)
Mechanical life	operations	3 Million	3 Million
Weight	grams	160	160
Relay color		Light gray	Yellow

Connections

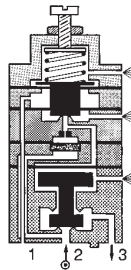
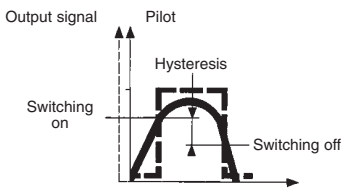
Example of pressure threshold adjustment (mini-regulator - manostat)



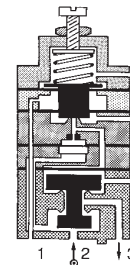
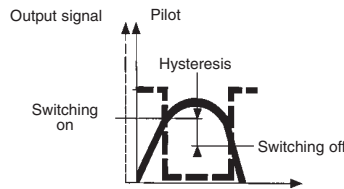
Principle of operation

The manostats provide an on or off output signal when the input signal reaches a predetermined pressure threshold.

Positive output (N.C.)

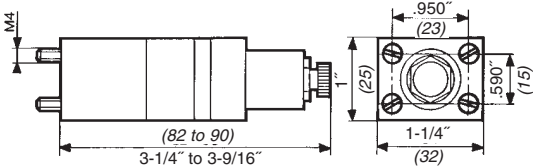


Negative output (N.O.)



Dimensions

81 502 140 - 81 502 150 - 81 502 160
81 505 140 - 81 505 150 - 81 505 160



Use (metric) dimensions for critical data

Other information

Pressure switches with electrical output on request.

To order, specify :

Standard products

1 Part number

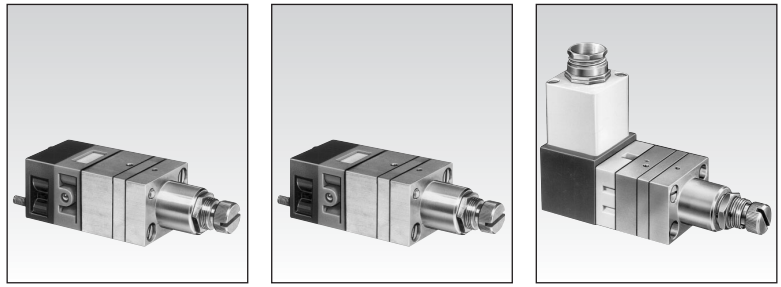
Standard products, non stocked

Example : Adjustable pressure switches (manostats) - 81 505 140

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Adjustable vacuum switches (vacuostat)



Counter balance leakage

Yes

Yes

Part numbers

81 505 110

81 502 110

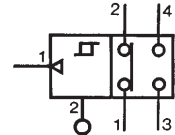
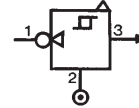
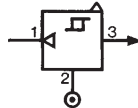
81 508 110

Positive output (N.C.)

Negative output (N.O.)

Electrical output

Symbol

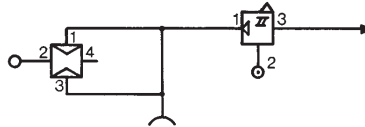


Characteristics

Adjustment range	$\mu\text{hg (bar)}$	3 > 23 (-0.1 > -0.9)	3 > 23 (-0.1 > -0.9)	- 0.1 • -0.9
Flow at 6 bars	cfm (Nl/min)	6 (170)	6 (170)	6 (170)
Hysteresis	$\mu\text{hg (mb)}$	3 (80)	3 (80)	80
Connection - sub-base page 5/44-5/45				
Operating temperature	$^{\circ}\text{F (}^{\circ}\text{C)}$	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	-5 +50
Mechanical life	operations	3 Million	3 Million	3 x 10 ⁶
Weight	grams	160	160	180
Relay color		Light gray	Yellow	

Connections

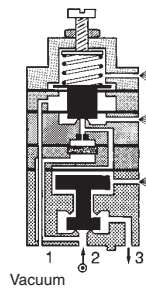
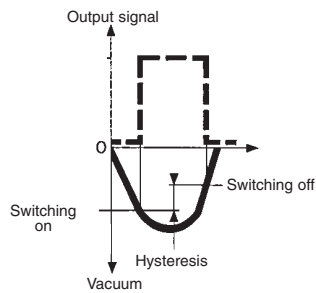
Example of use:
Vacuum handling (vacuum generator, vacuum pad, vacuostats).



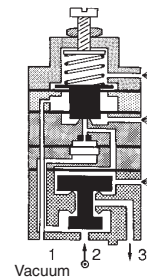
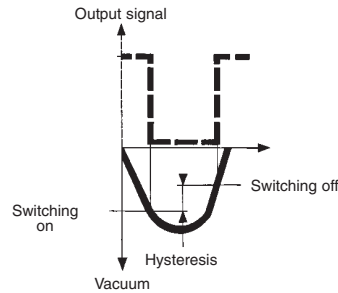
Principle of operation

Vacuostats provide an on or off output signal when the input signal reaches a predetermined pressure threshold.

Positive output (N.C.)

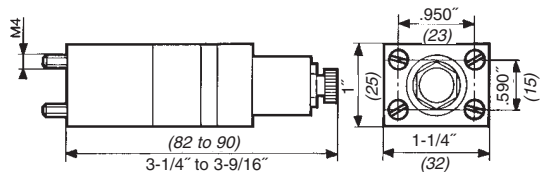


Negative output (N.O.)

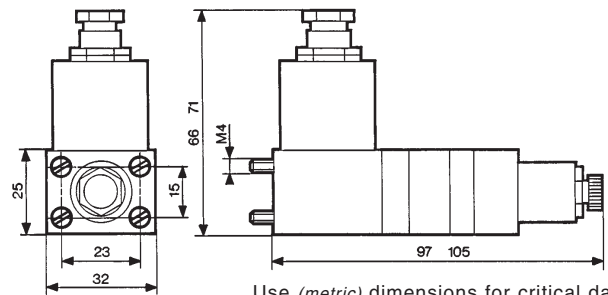


Dimensions

81 502 110 - 81 505 110



81 508 110



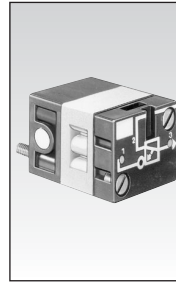
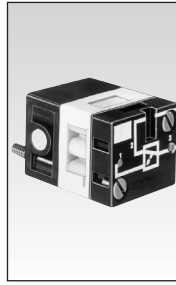
Use (metric) dimensions for critical data

Other information	To order, specify :
	<p>Standard products</p> <p>1 Part number</p> <p>Example : Adjustable vacuum switches (vacuostat) - 81 505 110</p>
	<p>Standard products, non stocked</p>

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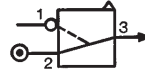
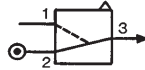
Leak sensor relay



Part numbers

	81 502 435	81 505 435
Output	Positive (N.C.)	Negative (N.O.)
Symbol		

1

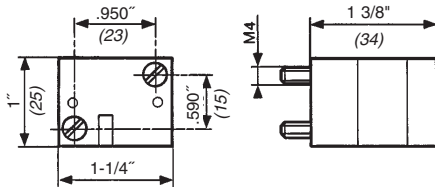


Characteristics

Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Sensor consumption for relay supply at 90 psi (6 bar)	cfm (NI/min)	0.2 (5)	0.2 (5)
The distance between relay and sensor must be less than 45 ft (15 m) using a 5/32" (.06) O.D. tubing		•	•
Connection - sub-base see page 5/44-5/45		•	•
Operating temperature	°F (°C)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)
Mechanical life	operations	10 Million	10 Million
Weight	grams	35	35
Relay color		Yellow	Light gray

Dimensions

81 502 435 - 81 505 435

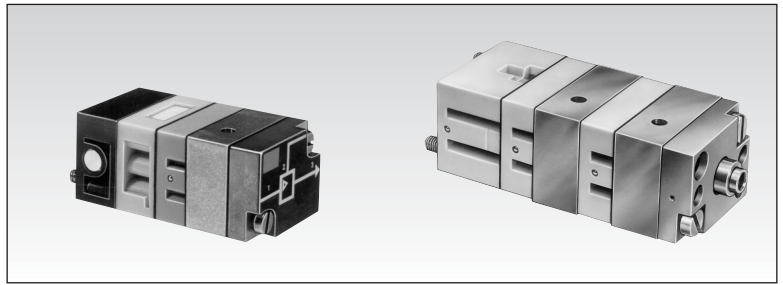


Other information	To order, specify :
Bases for mounting components see page 5/44-5/45	<div style="display: flex; align-items: center;"> <div style="background-color: black; width: 20px; height: 10px; margin-right: 5px;"></div> Standard products </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="background-color: black; width: 15px; height: 15px; margin-right: 5px; display: flex; align-items: center; justify-content: center; font-weight: bold; font-size: 10px;">1</div> Part number Example : Leak sensor relay - 81 502 435 </div>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Amplifier relays



Part numbers

Simple amplifiers	81 502 230	81 505 230	—	—
Sensitive amplifiers	—	—	81 502 320	81 505 320
Version	positive (N.C.)	negative (N.O.)	positive (N.C.)	negative (N.O.)

Symbol

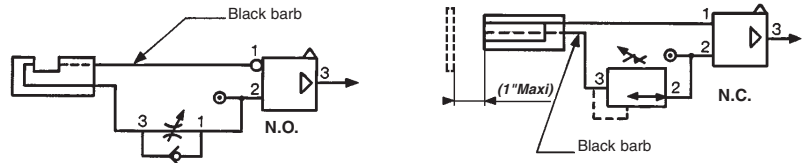


Characteristics

Pressure to make	psi (mb)	0.15-0.30 (10>20)	0.15-0.30 (10>20)	0.15-0.30 (10>20)	0.15-0.30 (10>20)
Operating pressure (non-lubricated air)	psi (bar)	30>120 (2>8)	30>120 (2>8)	30>90 (2>6)	30>90 (2>6)
Orifice diameter	inches (mm)	0.1 (2.5)	0.1 (2.5)	0.1 (2.5)	0.1 (2.5)
Average consumption at 60 psi (mb) (4 bar)	cfm (Nl/min)	0.18 (5)	0.18 (5)	0.18 (5)	0.18 (5)
Permissible overload for 1 hour	psi (mb)	12 (800)	12 (800)	12 (800)	12 (800)
Operating temperature	°F (°C)	+20>+120 (5>+50)	+20>+120 (5>+50)	+20>+120 (5>+50)	+20>+120 (5>+50)
Mechanical life	operations	3 Million	3 Million	3 Million	3 Million
Weight	grams	150	150	185	185
		yellow	light grey	yellow	light grey

Connections

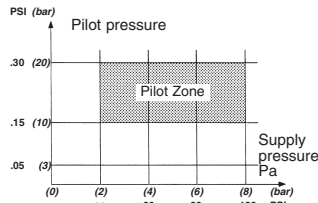
used for gaps up to 1" (25 mm).
The supply to the sensor should be made via a pressure regulator or one-way flow restrictor
Connection - sub-base see page 5/44-5/45.



Principle of operation

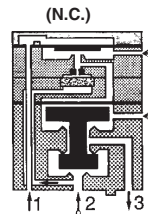
Simple amplifiers

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



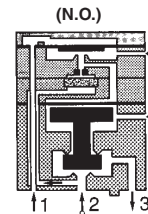
81 502 230

Positive output (N.C.)



81 505 230

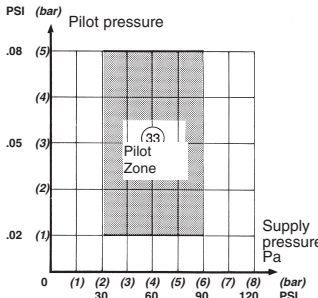
Negative output (N.O.)



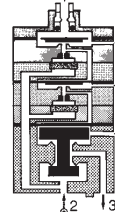
1- pilot
2- supply
3- output

Sensitive amplifiers

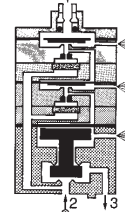
An output at normal industrial pressure is delivered on a very low pressure input.



81 502 320



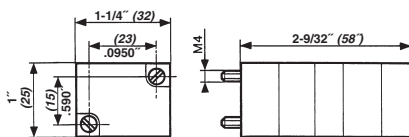
81 505 320



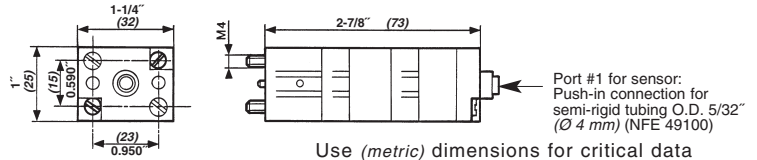
Note: The specifications are given for a supply pressure of 90 psi, and for detection at the mid-point of the gap.

Dimensions

81 502 230 - 81 505 230 - 81 502 234 - 81 505 234



81 502 320 - 81 505 320



Other information	To order, specify :				
With gap sensors, use an amplifier with negative output if a signal on interruption of the jet is required.	<table border="1"> <tr> <td>Standard products</td> <td>1 Part number</td> </tr> <tr> <td>Standard products, non stocked</td> <td>Example : Amplifier relays - 81 502 230</td> </tr> </table>	Standard products	1 Part number	Standard products, non stocked	Example : Amplifier relays - 81 502 230
Standard products	1 Part number				
Standard products, non stocked	Example : Amplifier relays - 81 502 230				

Products and specifications subject to change without notice.

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Amplifier relays

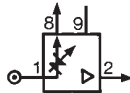


Part numbers

Amplifiers with integral regulator **81 510 001**
 Version Positive output (N.C.)

1

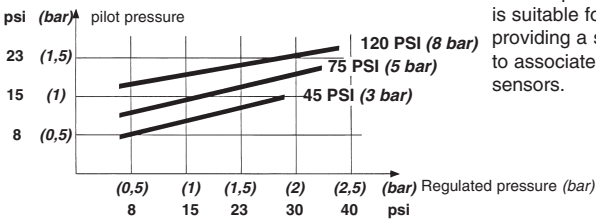
Symbol



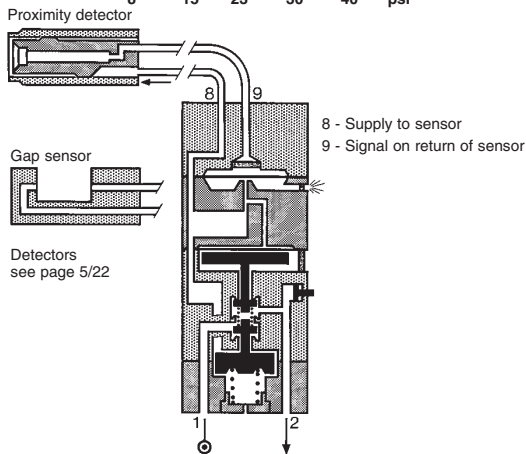
Characteristics

Pressure to make	psi (mb)	0.008 > 0.023 (0.5 > 1.5)		
Reduced pressure supplied at port 8	psi (bar)	8 > 40 (0.5 > 2.5)		
Flow through port 8	cfm (Nm ³ /h)	0.06 > 1.50 (0.1 > 2.5)		
Consumption of amplifier only	(NI/h)	0.06 > 0.12 (100 > 200)		
Permissible overload for 1 hour	psi (mb)	4 (300)		
Operating temperature	°F (°C)	+30 to +120 (-5 to 50)		
Mechanical life	operations	3 Million		
Weight	grams	380		
Detectors		Proximity	Gap	Proximity
		81 371 401	81 372 201	81 372 401
Nominal range	inches (mm)	5/16" (8)	11/16" (18)	4" (100)
Min. total consumption for detection (8 psi (0.5 b regulated pressure))	cfm (NI/h)	0.52 (880)	0.08 (140)	—
Max. total consumption for short response time (40 psi (2.5 b regulated pressure))	cfm (NI/h)	1.65 (2750)	0.25 (400)	0.55 (920)
Min. detectable nominal sensing distance	inches (mm)	0.12 (3)	0.06 (1.5)	1/4" (6.5)
dimensions ±2	inches (mm)	0.08 (2)	—	—
Max. frequency of use	(Hz)	5	5	5
Force exerted by the jet on the parts to be detected	oz. (N)	0.1 > 2.5 (0.02 > 0.7)	0.05 to 0.11 (0.01 > 0.3)	0.36 (0.1)

Principle of operation

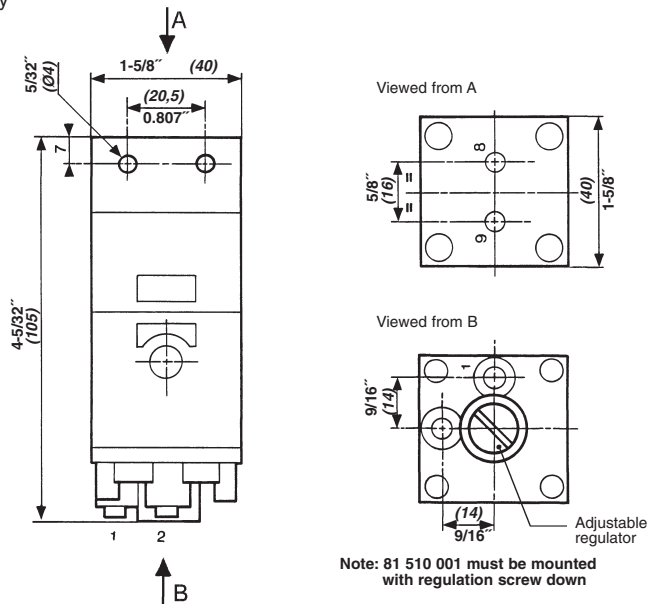


This amplifier is suitable for providing a supply to associated sensors.



Dimensions

Push-in connection for semi-rigid tubing 5/32" O.D. (Ø 4 mm)(NFE 49100)



To order, specify :

Standard products, non stocked

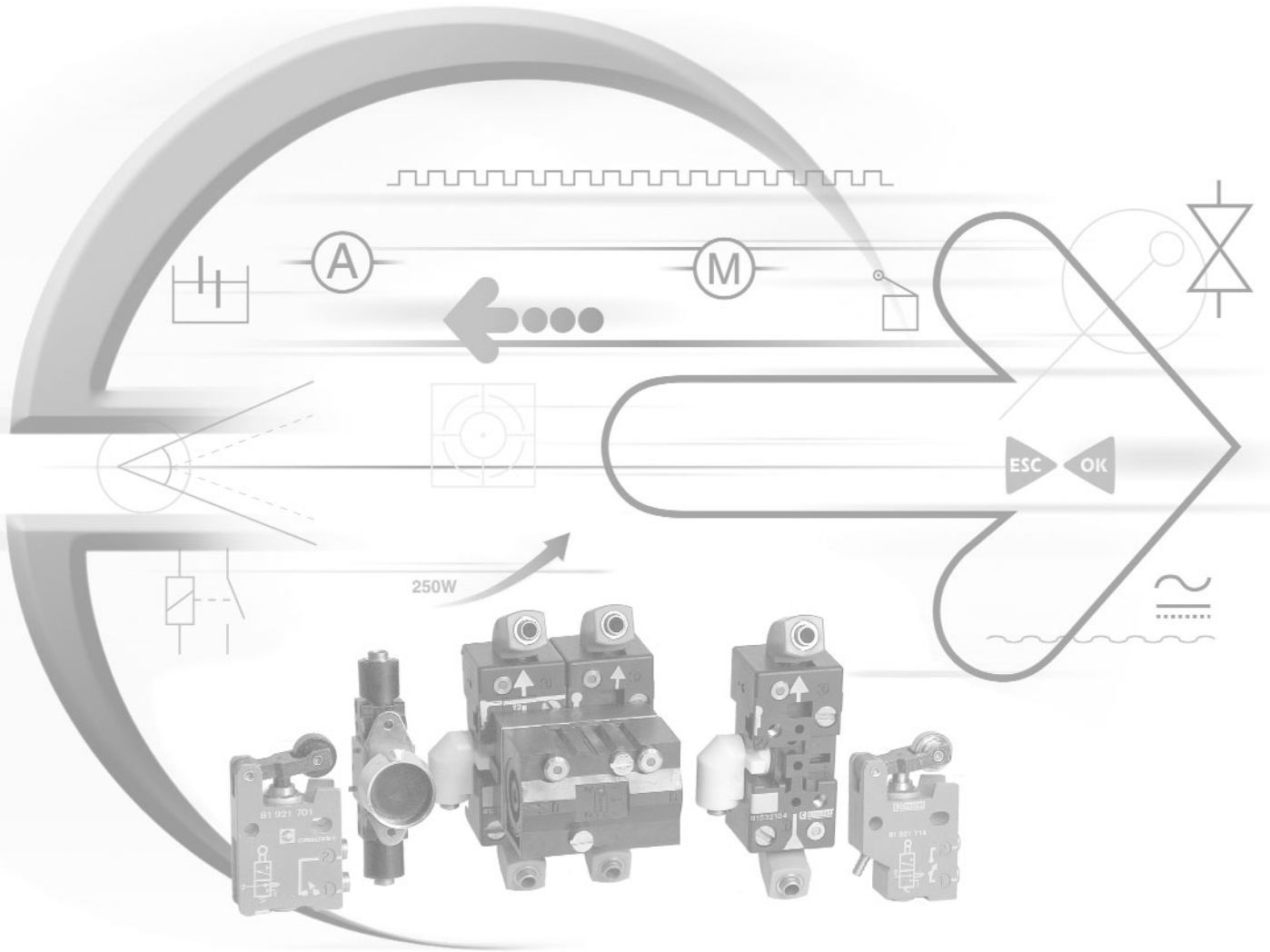
1

Part number

Example : Amplifier relays 81 510 001

Products and specifications subject to change without notice.

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Pneumatic Logic Components



Products and specifications subject to change without notice.

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General characteristics

Operating fluid

- Compressed air or inert gas

Conditions of use

- Operating pressure 30 to 120 PSI (2 to 8 bars).
- Fluid: Filtered air to 50 microns - non lubricated.
- Operating temperature from 20 to 120° F (-5 to 50° C) under 20° F (5° C) the dew point must be below 5° F (10° C) for the application).
- For optimum performance, the elements should be inter-connected by air supply tubing with an internal diameter of ≥ 0.106 " (25mm).

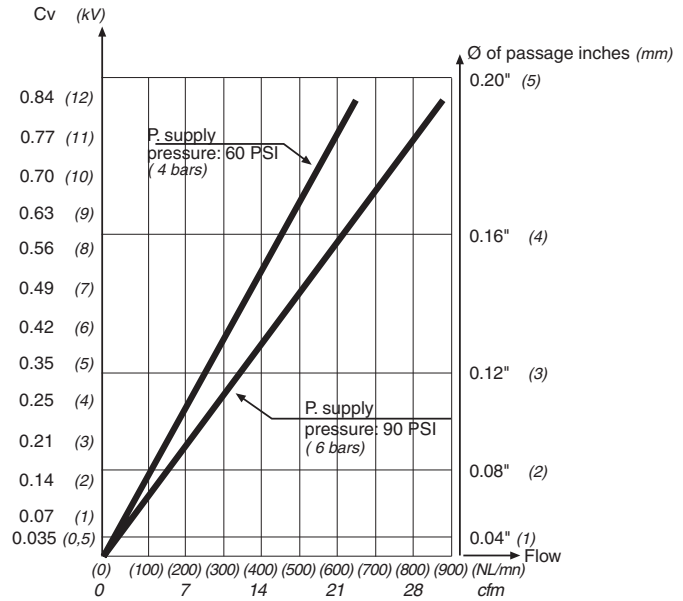
Mounting recommendations

- The elements should be mounted and piped in a clean atmosphere in order to prevent any form of pollution entering the system.
- Minimum torque for element fixing screws: 16"oz (5 cm/kg).
- Maximum torque for element fixing screws: 32"oz (10 cm/kg).

Characteristics common to all elements in the modular system.

- The characteristics have been obtained with a supply pressure at 90 psi (6 bars).
- The flow in cfm (NL/min) is the number of cubic feet (litres) of air at normal atmospheric pressure obtained with the output open to atmosphere and the supply pressure at 60 psi (4 bars).
- The consumption in cfm (NL/min) is the number of cubic feet (litres) of free air necessary for the unit to function.
- Cv (kV) = the flow coefficient of the equipment.
- Mechanical life 10 million and greater.

Flow graphs

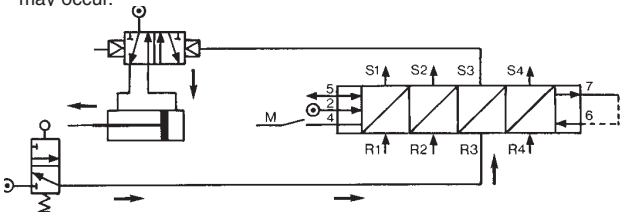


PAC Modules

The principle is to ensure the step by step operation of a sequential cycle.

A system comprises of individual modules which are joined together by means of a sub-base. Each module has a memory which delivers an output signal and receives an input signal.

An indicator on each module allows the operator to monitor the progress of the cycle and identify quickly and easily any faults which may occur.



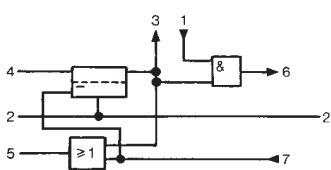
Operation results from the combination of three functions (memory, AND and OR) which constitute each module.

The memory activates the output and gives priority to the reset signal.

The AND element ensures the transition to the next module but only if an input signal is present.

The OR element ensures the resetting of all previously operated modules.

Function diagram

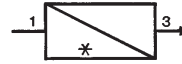
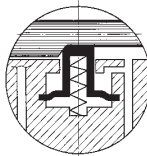


Sequencer module with maintained reset

Brake

This maintains the memory spool in position only when the supply is lost.

Module with auto reset



Brake

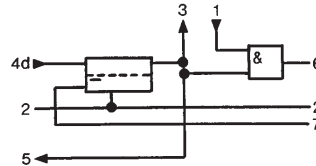
This returns the memory spool to the reset condition only when the supply is lost.

Shift register modules

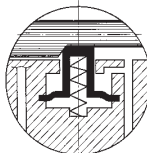
The general principle is to advance the sequencer step by step by command impulses to the inputs of the even steps, alternating with the command impulses to the inputs of the odd steps.

Used for example on a transfer machine to shift the information "bad component" collected at a test-station 'n' steps further along the machine to a reject station.

Function diagram



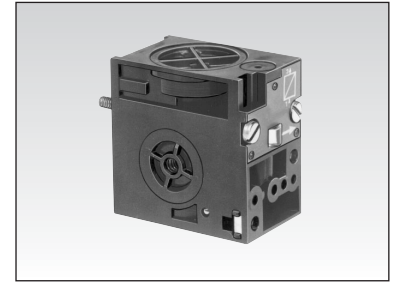
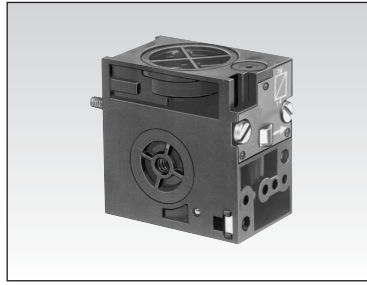
Auto reset sequencer module



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Sequencer modules

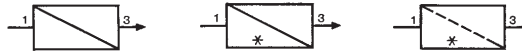


Part numbers

	81 550 001	81 550 201	81 550 601
Versions	PAC sequencer shift register	maintained	Auto Reset
Symbol	—	—	Auto Reset

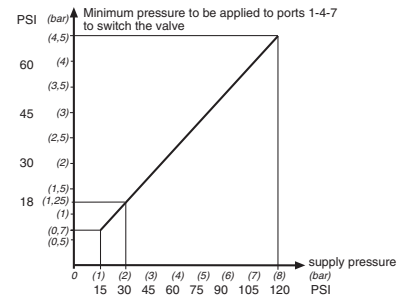
1

Symbol



Characteristics

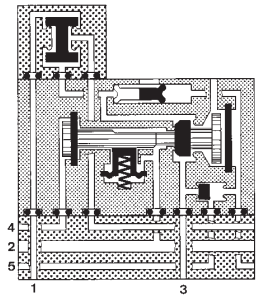
Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Orifice diameter	Inches (mm)	0.106" (2.7)	0.106" (2.7)	0.106" (2.7)
Flow at 90 PSI (6 bars)	cfm (Nl/min)	5.25 (150)	5.25 (150)	5.25 (150)
Connection	sub-base page 5/44 - 5/45	●	●	●
Weight	grams	(70)	(70)	(70)



Principle of operation

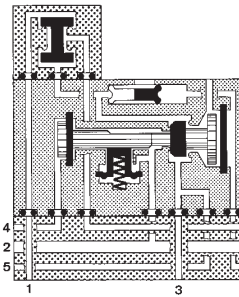
(supplied without logic element. For choice of units see page 5/36 - 5/37 - 5/39 - 5/40 - 5/42)

Programmable Air Controller (PAC) module with maintained reset



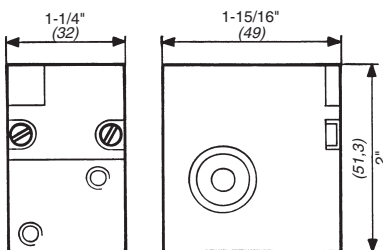
- 1 - Input signal
- 2 - Supply
- 3 - Output signal
- 4 - Start signal
- 5 - In cycle signal
- 6 - End of cycle signal
- 7 - Reset to zero signal

Shift register with maintained reset

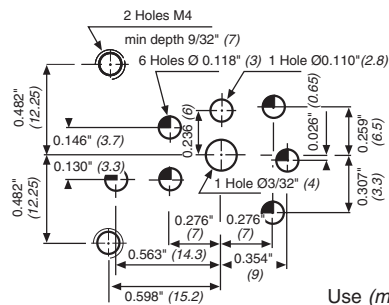


- 1 - Input signal
- 2 - Supply
- 3 - Port plugged
- 4 - Input signal
- 5 - Port plugged
- 6 - Output signal
- 7 - Reset to zero signal

Dimensions



Mounting plan for sequencer



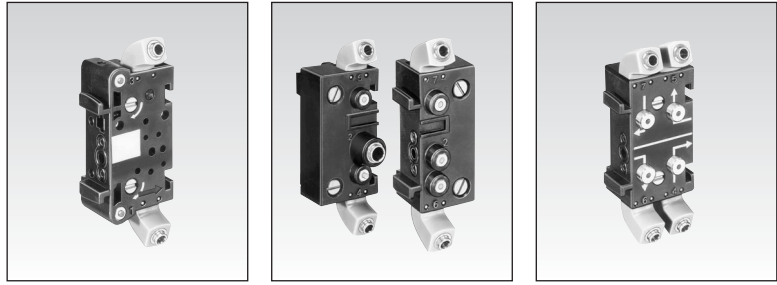
Use (metric) dimensions for critical data.

Other information	To order, specify :			
	<table border="1"> <tr> <td>Standard products</td> <td rowspan="2">1 Part number Example : Sequencer modules 81 550 001</td> </tr> <tr> <td>Standard products, non stocked</td> </tr> </table>	Standard products	1 Part number Example : Sequencer modules 81 550 001	Standard products, non stocked
Standard products	1 Part number Example : Sequencer modules 81 550 001			
Standard products, non stocked				

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Sequencer sub-bases



Part numbers

Front connecting (DIN-omega)

81 551 101

Sub-base (DIN omega)

81 552 102

End bases - 1 pair
entry & exit modules

81 552 601

Diversion base

1

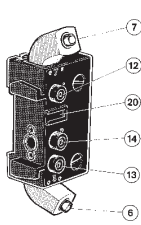
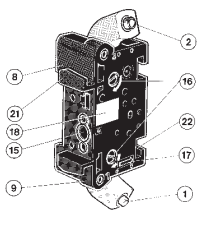
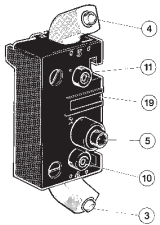
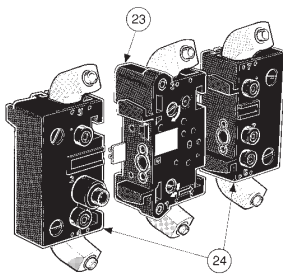
Characteristics

Sub-bases Rotatable connectors
Pressure indicators

Weight	grams	55	135	60
--------	-------	----	-----	----

Sequencer connections

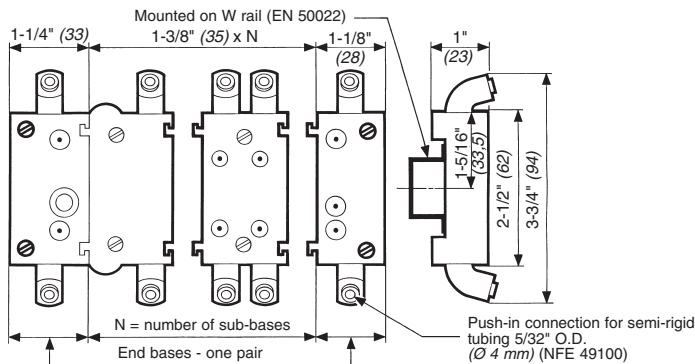
Front connecting



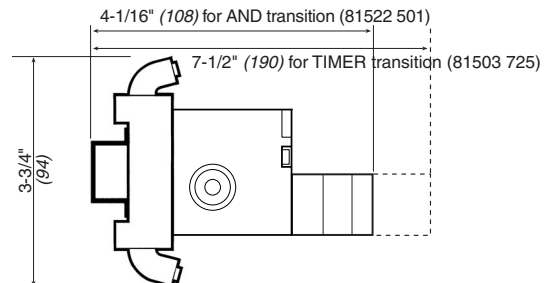
- 1 - Input port (green - port 1) \varnothing 5/32" (4 mm)
- 2 - Output port (red - port 3) \varnothing 5/32" (4 mm)
- 3 - Input port, cycle start (green - port 4) \varnothing 5/32" (4 mm)
- 4 - Output port, in-cycle signal (red - port 5) \varnothing 5/32" (4 mm)
- 5 - Supply port (yellow - port 2) \varnothing 1/4" (6.35 mm)
- 6 - Output port, end of cycle (red - port 6) \varnothing 5/32" (4 mm)
- 7 - Input port, reset to zero (green - port 7) \varnothing 5/32" (4 mm)
- 8 - Output indicator (red)
- 9 - Input indicator (green)
- 10 - Cycle start indicator at port 4 (green)
- 11 - In-cycle indicator at port 5 (red)
- 12 - Input indicator at port 7 (green)
- 13 - End of cycle indicator at port 6 (red)
- 14 - Supply indicator at port 2 (yellow)
- 15 - Interconnecting ports
- 16 - Mounting screws
- 17 - Engraved arrow to indicate direction of sequence
- 18 - Marking tag
- 19 - Marking tag position
- 20 - Marking tag position
- 21 - Mounting tongue
- 22 - Mounting groove
- 23 - Sub-base
- 24 - End bases

Dimensions

Front connecting



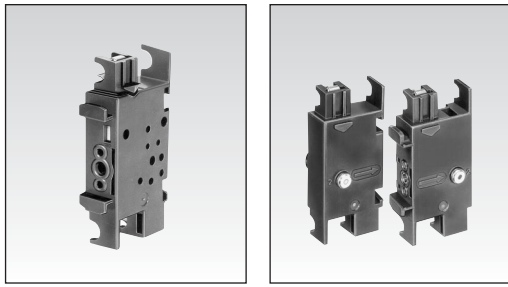
Finished product on DR rail



Use (metric) dimensions for critical data.

Products and specifications subject to change without notice.

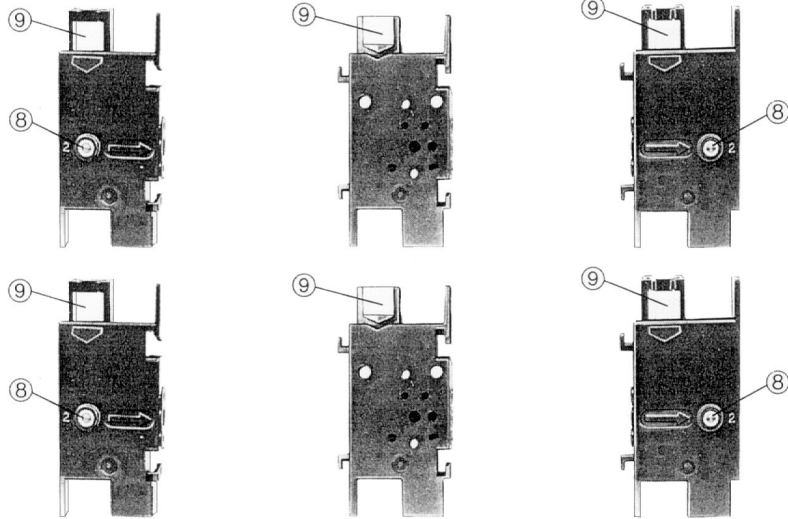
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



81 551 001	81 552 001
Sub-base (with clips)	End bases - one pair entry & exit modules
—	—
40	120

1

Rear connecting

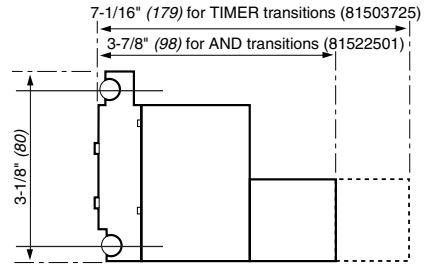
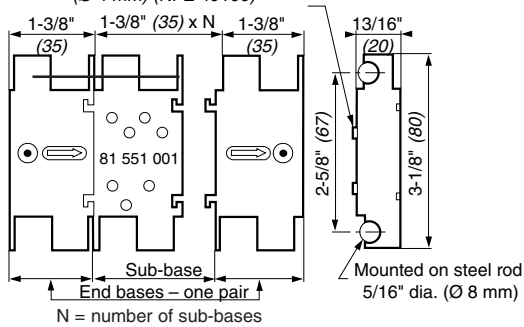


- 1 - Input port (marked port 1)
- 2 - Supply port (Port 2)
- 3 - Output port (Port 3)
- 4 - Cycle start signal port (Port 4)
- 5 - In-cycle signal port (Port 5)
- 6 - End of cycle signal port (Port 6)
- 7 - Reset to zero signal port (Port 7)
- 8 - Indicator at supply port
- 9 - Marking area

Rear connecting

Finished product on 5/16" rods.

Push-in connection for semi-rigid tubing 5/32" O.D.
(Ø 4 mm) (NFE 49100)



Use (metric) dimensions for critical data.

To order, specify :

Standard products

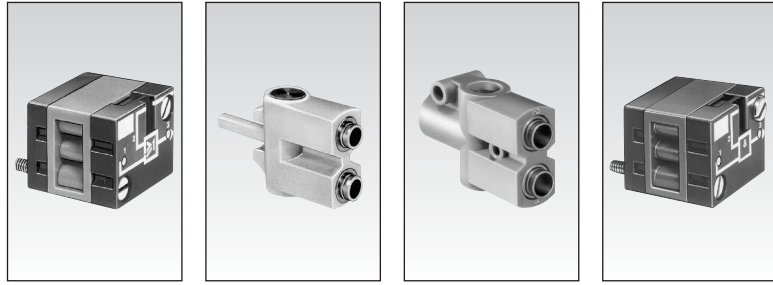
1 Part number
Example : Sequencer sub-bases - 81 551 101

Products and specifications subject to change without notice.

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Logic elements

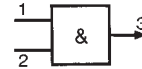
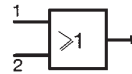


1

Part numbers

Functions	OR	81 521 501	81 540 001	81 540 004	81 522 501
	AND	—	—	—	—
	YES	—	—	—	—
	NOT	—	—	—	—
Version		On sub-base page 5/44 - 5/45	Plug-in Ø 5/32" (4mm)	Plug-in Ø 5/32" (4mm)	On sub-base page 5/44 - 5/45

Symbol



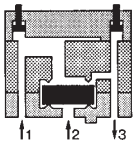
Characteristics

Push-in connection for semi-rigid tubing (NFE 49100) O.D.	Male/Female/Female	—	Ø 5/32" (4 mm)	—	—
	Female/Female/Female	—	—	Ø 1/4" (6.35 mm)	—
Color		Blue	Blue	Blue	Green
Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Orifice diameter	inches (mm)	0.106" (2.7)	0.106" (2.7)	0.157" (4)	0.106" (2.7)
Flow at 90 PSI (6 bars)	cfm (NI/min)	6 (170)	6 (170)	7 (200)	6 (170)
Pressure indicator		•	—	—	•
Switching time	ms	—	—	—	—
Operating temperature	°F (°C)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)
Mechanical life	cycles	10 million	10 million	10 million	10 million
Weight	grams	25	12	25	25

Pilot/pressure curves

P.p : Pilot pressure
P.a : Supply pressure

Principle of operation

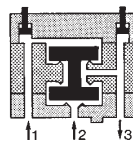


OR element

The output signal "S" is present when a signal at "a" OR "b" is present

$$S = a \text{ OR } b$$

$$S = a + b$$



AND element

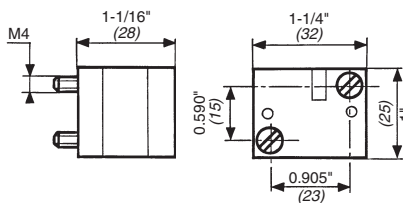
The output signal "S" is present only when signals "a" AND "b" are present simultaneously.

$$S = a \text{ AND } b$$

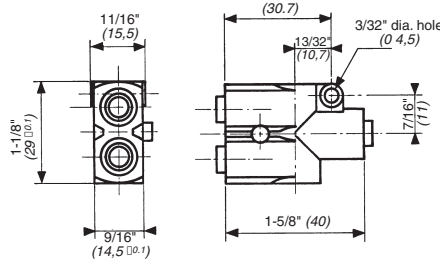
$$S = a \cdot b$$

Dimensions

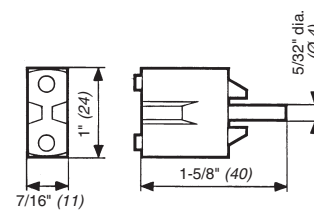
81 521 501 - 81 522 501



81 540 004 - 81 541 010



81 540 001 - 81 541 001



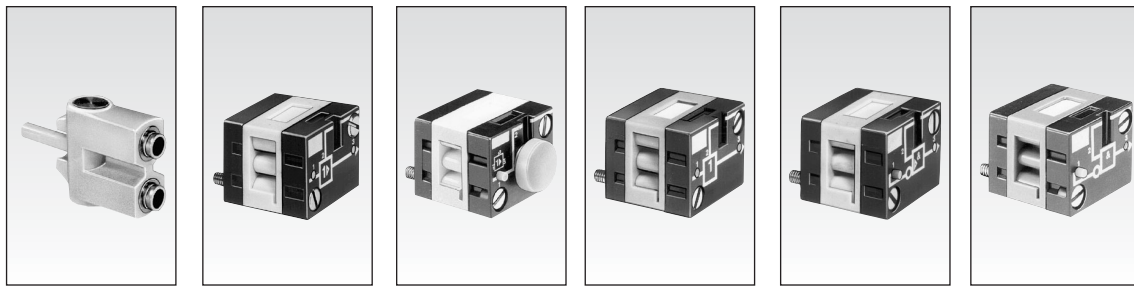
Use (metric) dimensions for critical data.

Other information

See page 4/8 for mounting plan for logic elements.

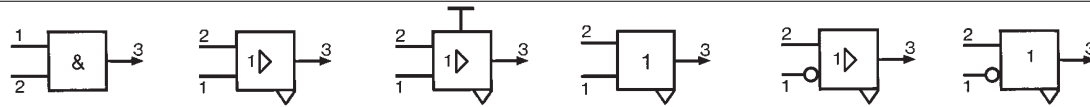
Products and specifications subject to change without notice.

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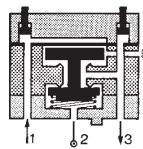
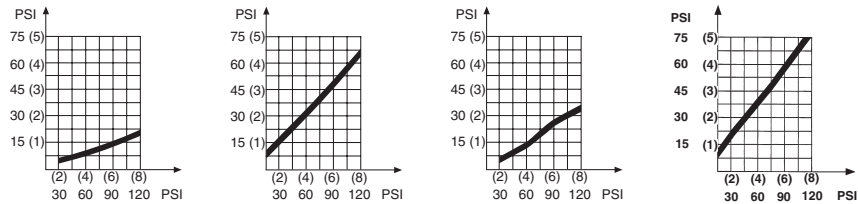


1

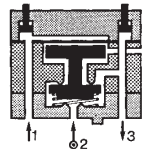
81 541 001	81 501 025	81 501 065	81 503 025	81 504 025	81 506 025
Plug-in Ø 5/32" (4)	Standard On sub-base page 5/44 - 5/45	Manual override On sub-base page 5/44 - 5/45	Low-ratio On sub-base page 5/44 - 5/45	Standard and inhibition On sub-base page 5/44 - 5/45	Low-ratio On sub-base page 5/44 - 5/45



Ø 5/32" (4 mm)	—	—	—	—	—
Green	Yellow	Yellow	Orange	Light grey	Dark grey
30 > 120 (2 > 8)	30 to 120 (2 to 8)	30 to 120 (2 to 8)	30 to 120 (2 to 8)	30 to 120 (2 to 8)	30 to 120 (2 to 8)
0.106" (2.7)	0.106" (2.7)	0.106" (2.7)	0.106" (2.7)	0.106" (2.7)	0.106" (2.7)
5-1/4 (150)	6 (170)	6 (170)	6 (170)	6 (170)	6 (170)
—	•	•	•	•	•
—	<4	<4	<4	<4	<4
+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)
10 million	10 million	10 million	10 million	10 million	10 million
13	30	35	30	30	30



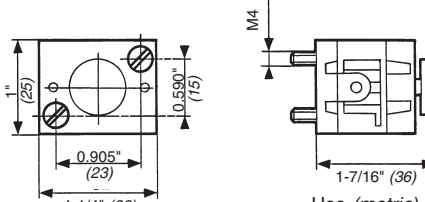
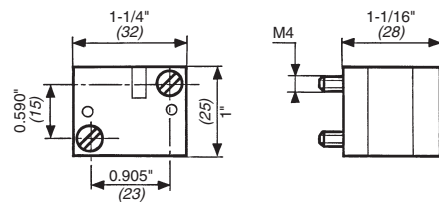
YES element
The output signal "s" is only present when the pilot is present :
 $S = a$ YES b $S = a$



NOT element
The output signal "s" is present only if the input signal "a" is NOT present. The output signal is therefore the inverse of the pilot signal.
 $S = \overline{a}$ NOT a $S = \overline{a}$
If the supply port is connected to a 2nd input "b", the function obtained is called Inhibition.
 $S = \overline{a \cdot b}$ NOT a AND b $S = \overline{a} \cdot b$

81 501 025 - 81 503 025
81 504 025 - 81 506 025

81 501 065



Use (metric) dimensions for critical data.

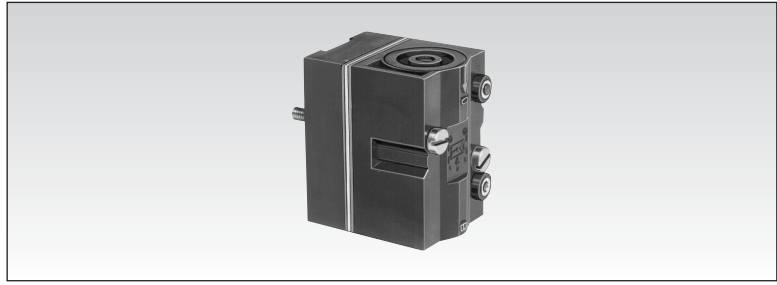
To order, specify :	
1 Standard products	Part number
Standard products, non stocked	Example : Logic elements 81 521 501

Products and specifications subject to change without notice.

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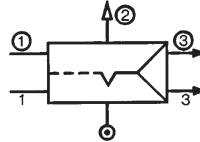
Memory element



Part numbers

Version	81 523 201 With pressure indicator	81 523 601 With pressure indicator and manual override
---------	--	--

Symbol



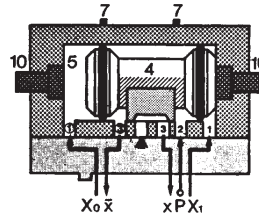
Characteristics

Color		Black	Black
Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Orifice diameter	inches (mm)	0.06" (2.7)	0.06" (2.7)
Minimum memory pilot pressure	psi (bar)	40 (2.5)	40 (2.5)
Flow at 90 PSI (6 bars)	cfm (Nl/min)	7 (200)	7 (200)
Connection - On sub-base page 5/44 - 5/45		●	●
Switch Time	ms	29	25
Weight	grams	90	90

Principle of operation

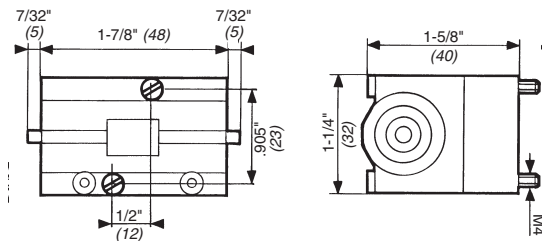
The function is that of a 4/2 valve. The appearance of signal "X1" causes the displacement of the slide valve. The output port "x" is then put under pressure. This state is remembered until the arrival of signal "X0". This signal reverses the slide valve, the output "x" is put under pressure. This state is likewise remembered. The output :

- "x" under pressure indicates that the information in the MEMORY is "X1".
- "x" under pressure indicates that the information in the MEMORY is "X0".

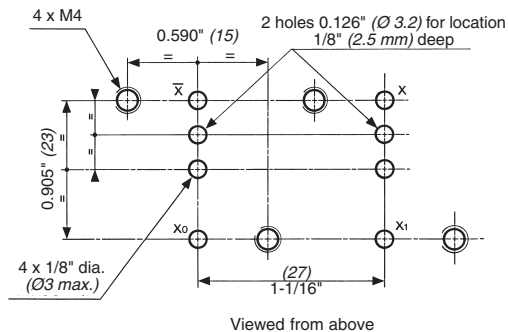


Dimensions

81 523 201 - 81 523 601



Dimensions of logic and memory elements



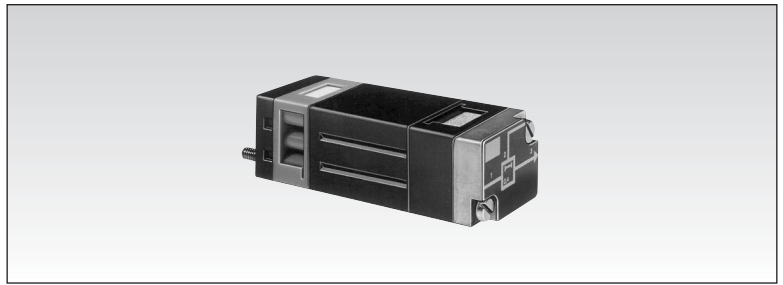
Use (metric) dimensions for critical data.

Other information	To order, specify :
	<p>Standard products</p> <p>1 Part number Example : Memory element - 81 523 201</p>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Timers (with fixed timing)

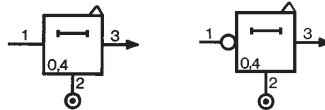


Part numbers

Version	81 503 540	81 506 540
	Positive output (N.C.)	Negative output (N.O.)

1

Symbol

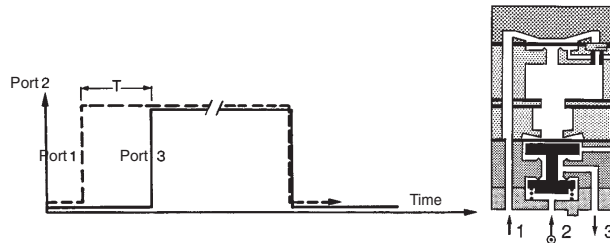


Characteristics

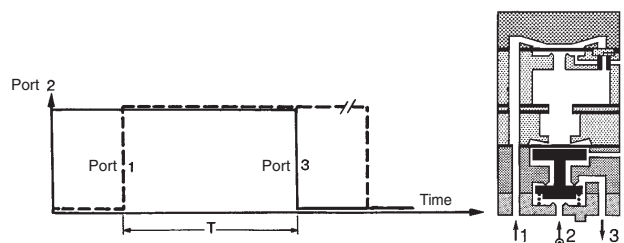
Timing	seconds	0.4	0.4
Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Flow at 90 psi (6 bars)	cfm (NI/min)	6 (170)	6 (170)
Orifice diameter	inches (mm)	0.106 (2.7)	0.106 (2.7)
Accuracy	%	± 5	± 5
Min. reset time	seconds	<0.1	<0.1
Connection - On sub-base page 5/44 - 5/45		●	●
Operating temperature	°F (°C)	+20 > +120 (-5 > +50)	+20 > +120 (-5 > +50)
Mechanical life	operations	10 million	10 million
Weight	grams	106	106
Relay color		orange	dark gray

Principle of operation

with positive output (N.C.)

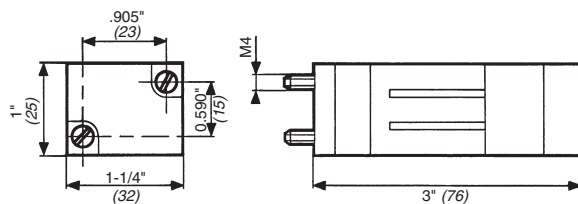


with negative output (N.O.)



Dimensions

81 503 540 - 81 506 540



Use (metric) dimensions for critical data.

Other information	To order, specify :
	<p>Standard products</p> <p>1 Part number</p> <p>Example : Timers (with fixed timing) - 81 503 540</p> <p>Standard products, non stocked</p>

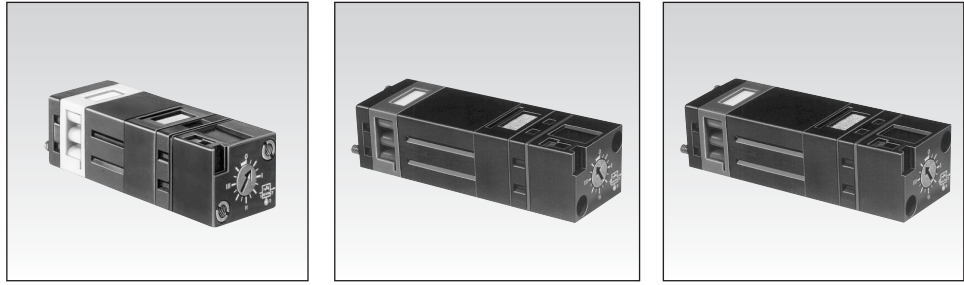
5

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Timers (with adjustable timing)

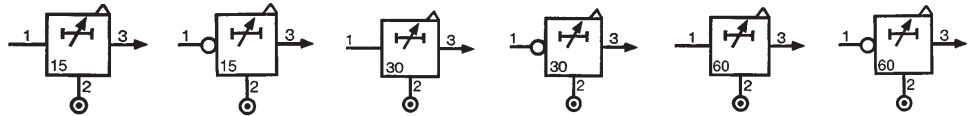


1

Part numbers

	81 503 710	81 506 710	81 503 720	81 506 720	81 503 725	81 506 725
Function positive	●	—	●	—	●	—
negative	—	●	—	●	—	●

Symbol



Characteristics

Timing	s	0.1 • 15	0.1 • 15	0.1 • 30	0.1 • 30	0.1 • 60	0.1 • 60
Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Flow at 6 bars	cfm (Nl/min)	6 (170)	6 (170)	6 (170)	6 (170)	6 (170)	6 (170)
Orifice diameter	inches (mm)	0.406 (27)	0.406 (27)	0.406 (27)	0.406 (27)	0.106 (2.7)	0.106 (2.7)
Accuracy	%	± 5	± 5	± 5	± 5	± 5	± 5
Min. reset time	s	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Connection - On sub-base page 5/44 - 5/45		●	●	●	●	●	●
Operating temperature	°C	-5 +50	-5 +50	-5 +50	-5 +50	-5 +50	-5 +50
Mechanical life	operations	>10 ⁷	>10 ⁷	>10 ⁷	>10 ⁷	>10 ⁷	>10 ⁷
Weight	g	90	90	100	100	120	120

Accessories

Panel mounting adaptor	79 451 698	79 451 698	79 451 903	79 451 903	—	—
Weight	g	53	53	53	—	—

2

Principle

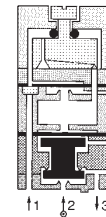
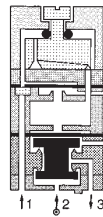
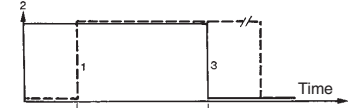
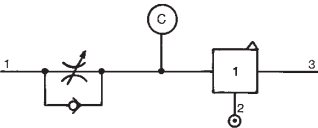
The operation of these pneumatic timers is similar to that of electronic timers (circuit with capacitor/resistor)

Principle of operation

with positive output

with negative output

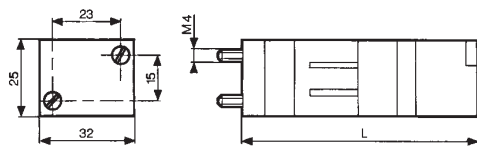
Timing by charging of reservoir



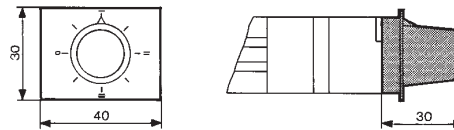
The reservoir fills via the flow restrictor until the switching point of the timer output is reached (positive or negative).

The non-return valve allows the reservoir to be emptied rapidly for the next timing.

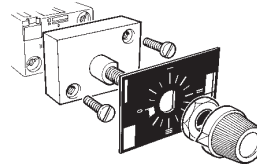
Dimensions



Adaptor 79 451 ...



Part numbers	L (mm)
81 503 710 - 81 506 710	78
81 503 720 - 81 506 720	92
81 503 725 - 81 506 725	125



For panel mounting, a pre-drilled hole Ø 10.5 mm is required

To order, specify :

Standard products

1 Part number

2 Accessory

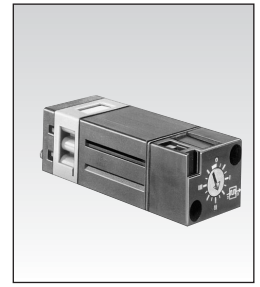
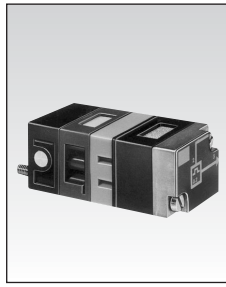
Example : Timers (with adjustable timing) - 81 503 710 - Adaptor 79 451 698

Standard products, non stocked

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Timers



1

Part numbers

Single impulse generator	Fixed	81 507 540	—	—
	Adjustable	—	81 507 720	—
Adjustable frequency generator	—	—	—	81 506 940

Symbol



Characteristics

Timing	seconds	0.4	0.1 > 30	—
Frequency	Hz	—	—	0.02 > 8 Hz
Operating pressure	psi (bar)	30 > 120 (2 > 8)	30 > 120 (2 > 8)	30 > 120 (2 > 8)
Flow at 6 bars	cfm (NI/min)	6 (170)	6 (170)	6 (170)
Orifice diameter	inches (mm)	0.106 (2.7)	0.106 (2.7)	0.106 (2.7)
Accuracy	%	± 5	± 5	± 5
Min. reset time	seconds	<0.1	<0.1	<0.1
Connection - On sub-base page 5/44 - 5/45		●	●	●
Operating temperature	°F (°C)	+20 > +120 (-5 > 50)	+20 > +120 (-5 > 50)	+20 > +120 (-5 > 50)
Mechanical life	cycles	10 million	10 million	10 million
Weight	grams	106	180	68

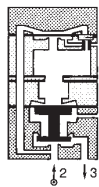
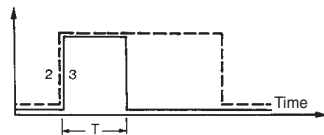
Accessories

Panel mounting adaptors	—	79 451 904	79 451 905
Weight (g)	—	53	53

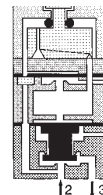
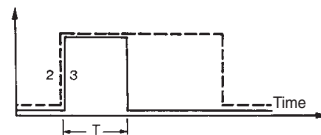
2

Principle of operation

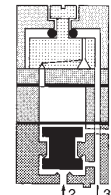
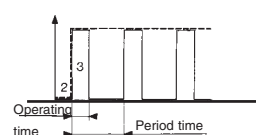
Single impulse generator



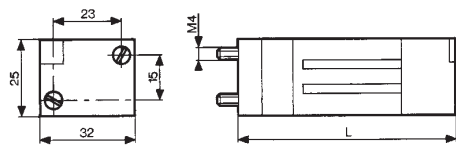
Adjustable impulse generator



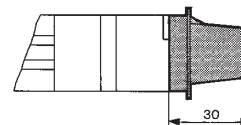
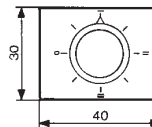
Frequency generator



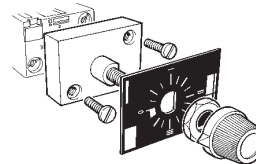
Dimensions



79 451



Part numbers	L (mm)
81 507 540	73
81 507 720	99
81 506 940	72



For panel mounting, a pre-drilled hole Ø 10.5 mm is required

To order, specify :

Standard products

1 Part number

2 Accessory

Standard products, non stocked

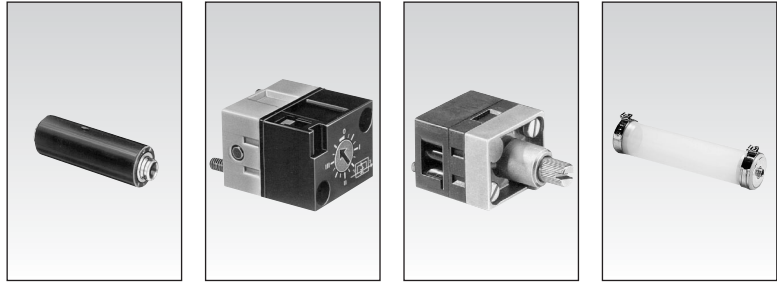
Example : Timer 81 507 720 - Panel mounting adaptor 79 451 904

5

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Timer components

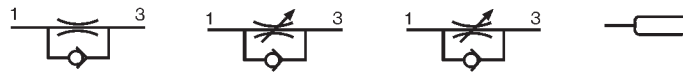


1

Part numbers

One-way in-line fixed flow restrictors	Flow at 4 bars NI/min	Ø orifice (mm)	Color	Part numbers			
				81 529 003	81 529 004	81 529 005	81 529 006
	0.18 → 0.30	0,3	white	81 529 003	—	—	—
	0.35 → 0.50	0,4	yellow	81 529 004	—	—	—
	0.58 → 0.77	0,5	red	81 529 005	—	—	—
	0.80 → 1.06	0,6	green	81 529 006	—	—	—
	1.10 → 1.39	0,7	blue	81 529 007	—	—	—
	1.45 → 1.65	0,8	grey	81 529 008	—	—	—
	2.30 → 2.80	1	black	81 529 010	—	—	—
	2.08 → 0.12	0,25	white	81 529 025	—	—	—
One-way adjustable flow restrictor				—	81 525 101	81 526 001	—
Capacity for timing	10 • 60 s			—	—	—	79 452 808

Symbol

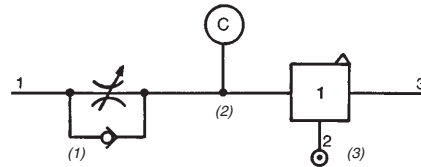


Characteristics

Free flow	cfm	(NI/min)	Depending on orifice	1.06	(30)	7	(200)	—
Orifice diameter	inches	(mm)	Depending on orifice	0 > 0.02	(0 > 0.5)	0 > 0.07	(0 > 1.7)	—
Operating pressure	psi	(bars)	15 > 120	(1 > 8)	15 > 120	(1 > 8)	30 > 120	(2 > 8)
Timing	seconds		—	—	—	—	10 > 60 or 60 > 180	
Capacity	Cu. in.	(cm ³)	—	—	—	—	1.8 (30) > 5.5 (90)	
Connection	Sub-base page 5/44 - 5/45 Push-in connection for semi-rigid tubing (NFE 49100)		mm	Ø 4	—	—	Ø 4	—
Weight	g		8	60	70	40		

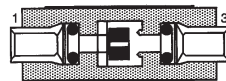
Connections

- For timing circuit
- One-way flow restrictor 81 525 0 - 81 529 0 (1)
 - Reservoir 79 452 808 (2)
 - Relay element 81 503 0 - 81 506 0 (3) page 4/7
- Sub-base page 4/14 - 4/15

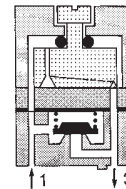


Principle of operation

One-way with fixed flow



One-way with adjustable flow



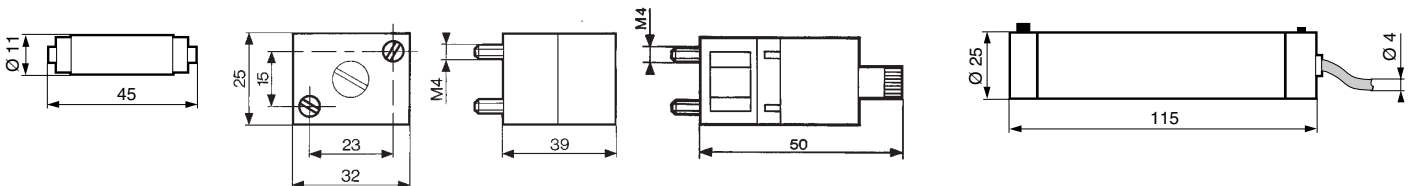
Dimensions

81 529

81 525 101

81 526 001

79 452 808



Other information

One-way flow restrictor with orifice diameter of 1.4 mm on request.

To order, specify :

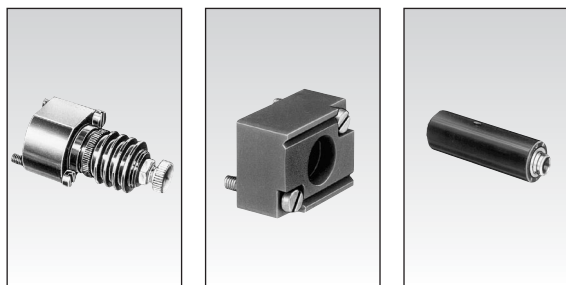
Standard products

1 Part number
Example : Restrictor - 81 529 003

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Regulator accessories

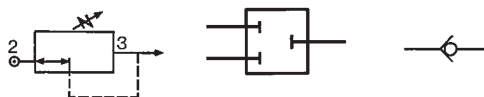


Part numbers

Mini-regulator	81 527 001	—	—
Plug element	—	81 520 601	—
In-line non-return	—	—	81 529 901

1

Symbol



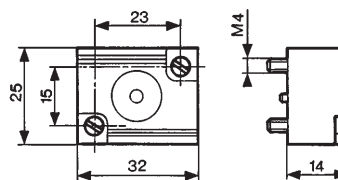
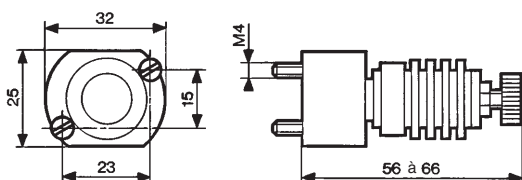
Characteristics

Operating pressure	psi	(bars)	30 > 120 (2 > 8)	—	30 > 120 (2 > 8)
Flow at 6 bars	cfm	(Nl/min)	7 (200)	—	7 (200)
Adjustable output pressure	psi	(bars)	15 > 120 (1 > 8)	—	—
Connection	sub-base page 5/44 - 5/45 Push-in connection for semi-rigid tubing (NFE 49100)		•	•	∅ 4
Weight	g		150	70	70

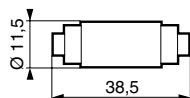
Dimensions

81 530 ...

81 520 601



81 529 901

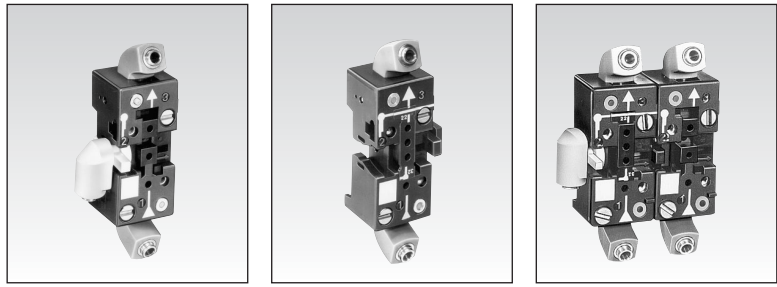


Other information	To order, specify :
81 530 001 / 81 530 101 / 81 530 801 on request.	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: black; margin-right: 5px;"></div> Standard products </div> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="width: 20px; height: 10px; background-color: #ccc; margin-right: 5px;"></div> Standard products, non stocked </div> <div style="margin-left: 20px;"> <p>1 Part number</p> <p>Example : Regulator - 81 527 001</p> </div>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Sub-bases for logic elements and relays



Part numbers

	81 532 104	81 532 102	81 542 002
Two-hand module (page 5/7)	● 1	● 1	—
Pressure decay sensor (page 5/12)	● 1	● 1	—
Pressure switches (page 5/25)	● 1	● 1	—
Manostats - vacuostats (pages 5/26 - 5/27)	● 1	● 1	—
Leak sensor and amplifier relays (pages 5/28 - 5/29)	● 1	● 1	—
Logic elements and timers (pages 5/36 - 5/37 - 5/41)	● 1	● 1	—
Regulator accessories (page 5/42 - 5/43)	● 1	● 1	—
Memory relay (page 5/38)	—	—	● 1

1

Note : The number indicates the qty of logic footprints on the base

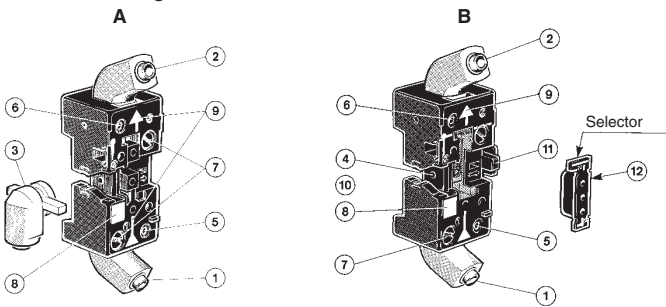
Characteristics

Push-in connection for semi-rigid tubing 5/32" O.D.
(Ø 4 mm) (NFE 49100)

Mounting	rotatable DIN rail 35 mm EN 50022	rotatable DIN rail 35 mm EN 50022	rotatable DIN rail 35 mm EN 50022
Weight grams	56	52	95

Bases for elements and relays

Front connecting

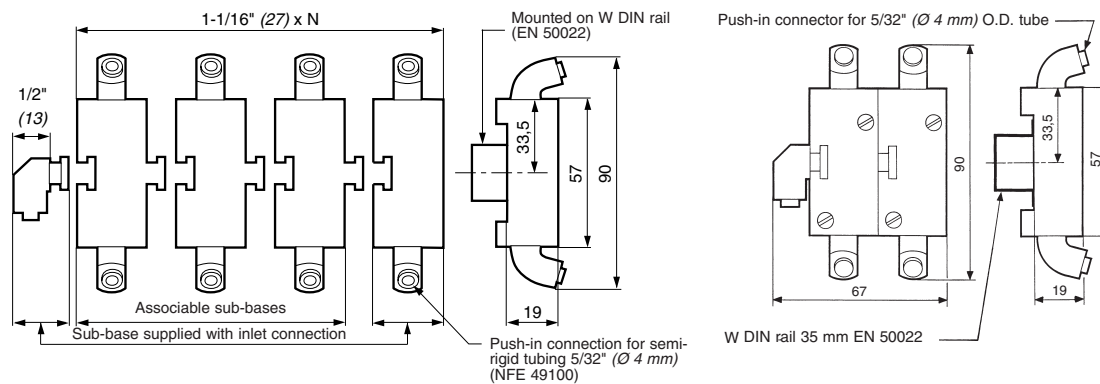


- A - Single sub-base or end base
- B - Associable sub-base
- 1 - Input port (green - port 1)
- 2 - Output port (red - port 3)
- 3 - Input/supply port (yellow - port 2) Ø 5/32" (4 mm)
- 4 - Input port integral to sub-base
- 5 - Input indicator (green)
- 6 - Output indicator (red)
- 7 - 1/4 turn screws
- 8 - Marking tag
- 9 - Arrow indicating flow direction
- 10 - Mounting tongue
- 11 - Mounting groove
- 12 - Selector

Dimensions

81 532 104 - 81 532 102

81 542 002

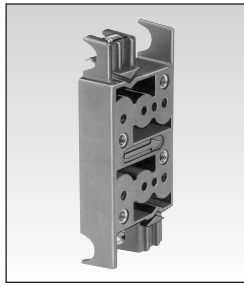
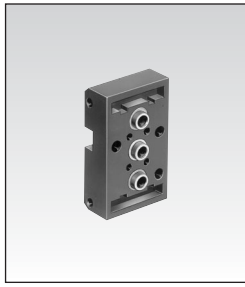


N = number of sub-bases.

Use (metric) dimensions for critical data.

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



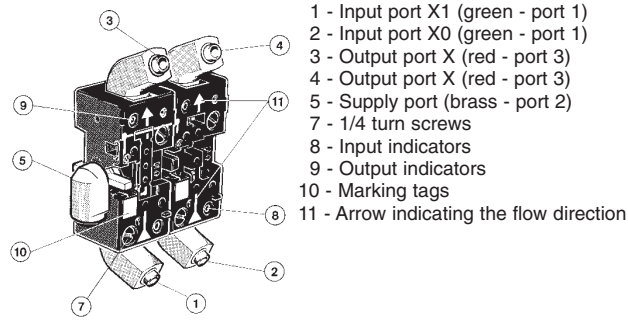
1

81 532 001	81 531 001
● 1	● 2
● 1	● 2
● 1	● 2
● 1	● 2
● 1	● 2
● 1	● 2
● 1	● 2
—	● 1

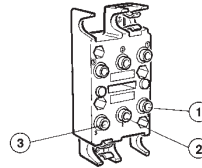
rear	rear
2 M4 screws	Clips for rails 5/16" dia. (Ø 8 mm)
10	35

Memory element sub-base, front and rear connecting

Rear connecting



- 1 - Input port X1 (green - port 1)
- 2 - Input port X0 (green - port 1)
- 3 - Output port X (red - port 3)
- 4 - Output port X (red - port 3)
- 5 - Supply port (brass - port 2)
- 7 - 1/4 turn screws
- 8 - Input indicators
- 9 - Output indicators
- 10 - Marking tags
- 11 - Arrow indicating the flow direction

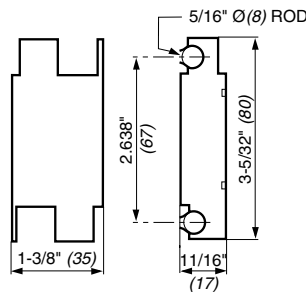
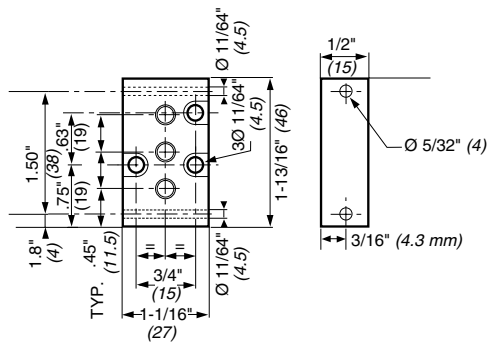


The modular logic elements are mounted by means of 2 screws onto the sub-base. A locating pin on each element prevents incorrect mounting. The piping of an element is achieved via the sub-base. This has 3 push-in connections which accept semi-rigid tubing of Ø 5/32" (4 mm).

- 1 - Input signal
- 2 - Signal port for passive logic elements, air supply for active logic elements.
- 3 - Output signal

81 532 001

81 531 001



Use (metric) dimensions for critical data.

To order, specify :

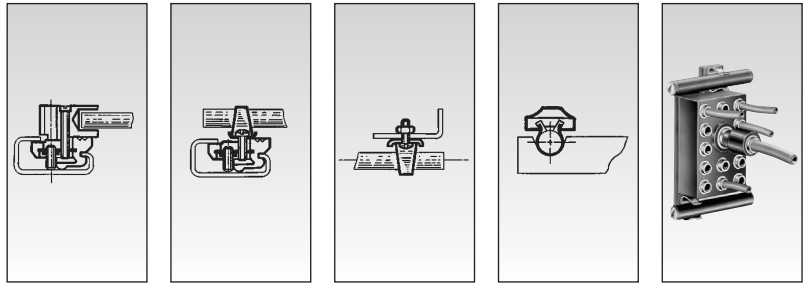
Standard products	1 Part number Example : Sub-bases for logic elements and relays 81 532 104
-------------------	--

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Mounting accessories



Part numbers

Mounting equipment	81 533 501	81 533 001	79 450 609	79 450 618	81 536 801
Hole domino	—	—	—	—	—
Clip domino	—	—	—	—	—
Bar clips Ø 8	—	—	—	—	—
Locking clip	—	—	—	—	—
Supply manifold 13 outputs	—	—	—	—	81 536 801
Nylon tubing	—	—	—	—	—
Ø D1 Ø D2 R min. of curvature	—	—	—	—	—
Natural	2.7	4	18	—	—
Green	2.7	4	18	—	—
Red	2.7	4	18	—	—
Natural	4	6	35	—	—

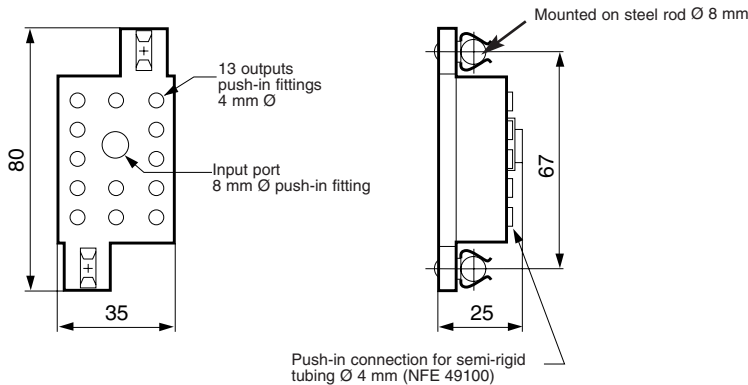
1

Characteristics

Weight (g)	8	4	80	40	80
	For mounting on the end of a zinc-coated mild steel rod Ø 8 mm on an asymmetrical DIN rail	For adjustable mounting on a zinc-coated mild steel rod Ø 8 mm on an asymmetrical DIN rail	Packet of 100 pieces	Packet of 100 pieces	

Dimensions

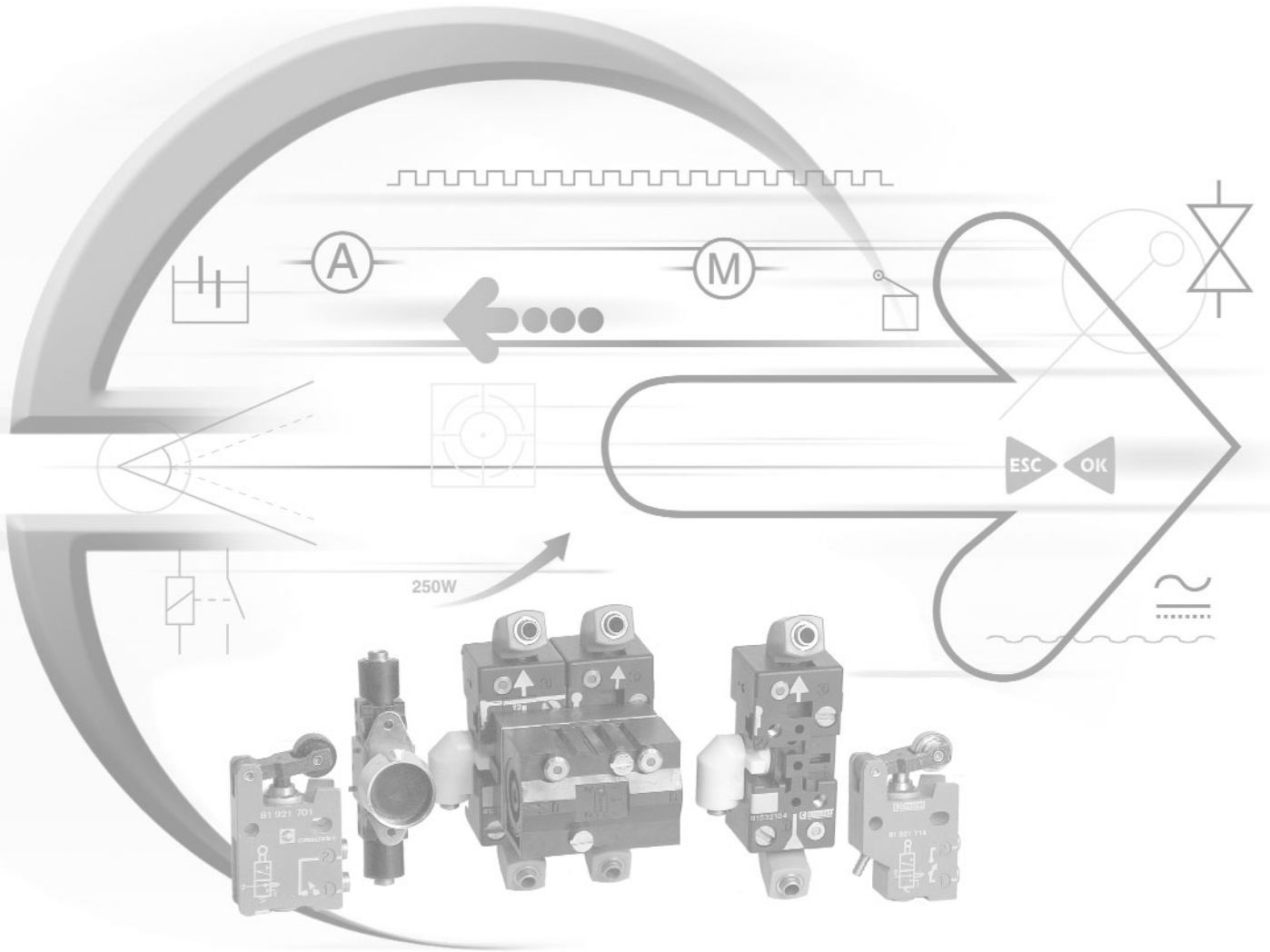
81 536 801



Other information	To order, specify :
Use WEID MULLER plastic labels for marking components part number FW 4734-6.	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: black; margin-right: 5px;"></div> Standard products </div> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="width: 20px; height: 10px; background-color: #ccc; margin-right: 5px;"></div> Standard products, non stocked </div> <div style="margin-left: 20px;"> <p>1 Part number</p> <p>Example : Supply manifold (13 outlets) 81 536 801</p> </div>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Electro-Pneumatic Miniature Control Valves



Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



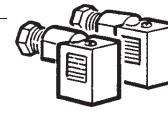
Electro-pneumatic miniature control valves

Mounting

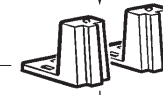
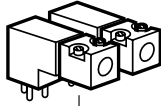
cabinet

machine

Connectors

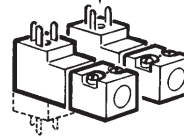
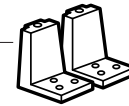


Mini-solenoid valves



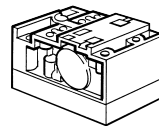
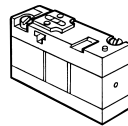
Indicators

- LED seals
- LED



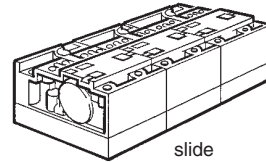
Valve modules

- Poppet
 - 3/2 single pilot
 - 4/2 single pilot
- Slide valve
 - 4/2 double pilot
 - 4/2 single pilot



poppet valve

slide valve



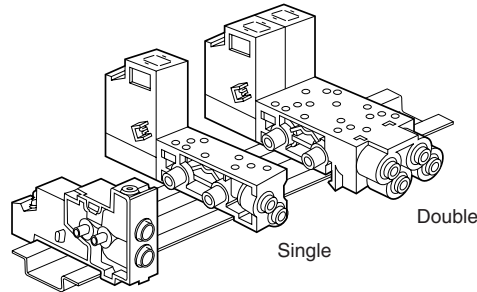
slide valves

Sub-bases

For miniature

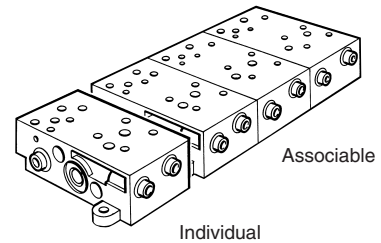
For valve modules

For valve modules



Single

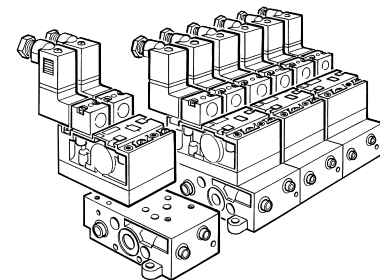
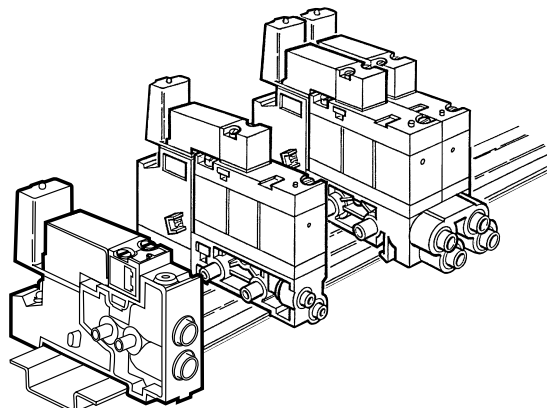
Double



Individual

Associable

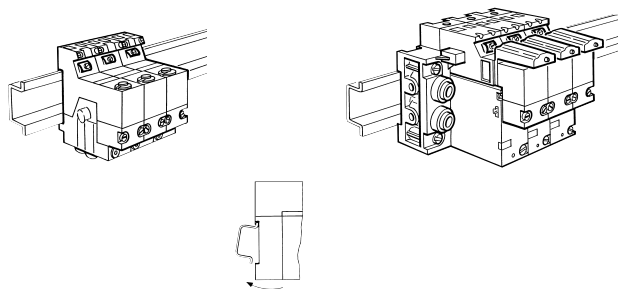
Complete product



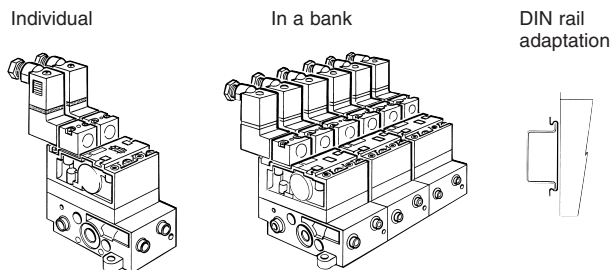
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

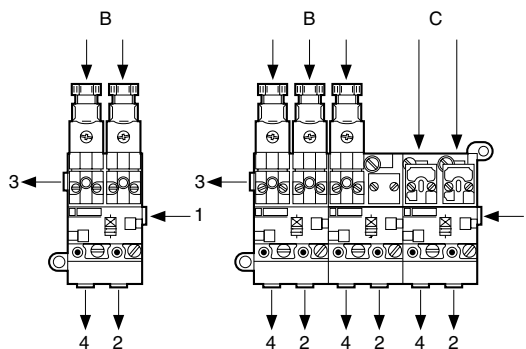
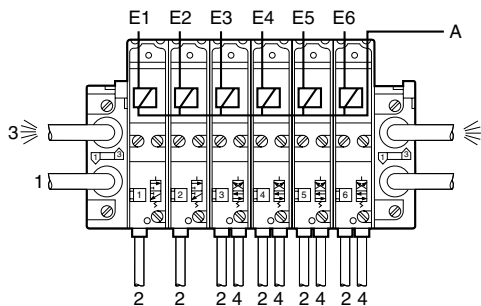
Cabinet mounting (DIN rail)
Simple clip-on installation (no tools required)



Machine mounting



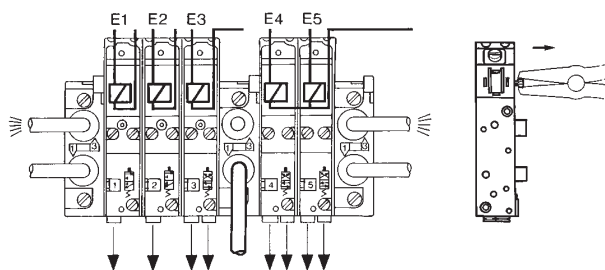
Connection



- | | |
|------------------------------|----------------------|
| A - Common electrical supply | 1 - Common supply |
| B - Electrical pilot | 2 } Pneumatic output |
| C - Pneumatic pilot | 4 } |
| | 3 - Common exhaust |

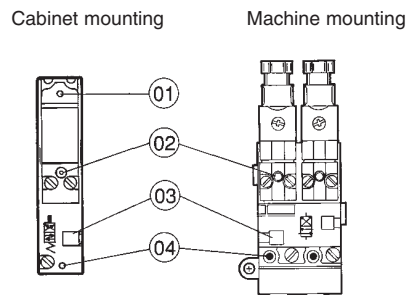
Other options

- Pneumatic**
- Supply at different pressures
- Electrical**
- Supply at different voltages
 - Independent supply to each module is possible if the integral electrical common pin on the sub-base is removed.



Maintenance

- 01 - LED indicator
- 02 - Manual override to produce input
 - Function symbols
 - Terminal marking
 - Port marking
- 03 - Marking tag
- 04 - Pneumatic output indicator

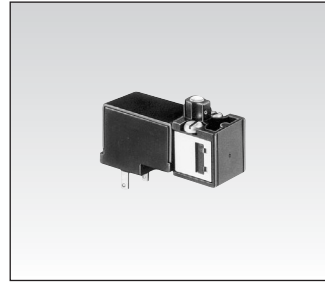


Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Miniature solenoid valves for direct current

- Conform to the Low Voltage Directive
- For mounting on sub-base or footprint in accordance with CNOMO recommendation E 06-36-120N



1

Part numbers (and voltages)

	Consumption	Voltage
	1 W	24 V \equiv
Function		
Version		

81 519 032

3/2 NC
Without manual override

81 519 332

3/2 NC
With manual override by impulse

81 519 632

3/2 NC
With maintained manual override

Characteristics

Operating pressure	psi	(Bars)	15 > 120 (1 > 8)	15 > 120 (1 > 8)	15 > 120 (1 > 8)	15 > 120 (1 > 8)
Orifice diameter	inches	(mm)	.03 (0.8)	.03 (0.8)	.03 (0.8)	.03 (0.8)
Flow at 90 psi (6 bars)	cfm	(NI/min)	1 (30)	1 (30)	1 (30)	1 (30)
Cv (kV)			.02 (0.3)	.02 (0.3)	.02 (0.3)	.02 (0.3)
Switching time milliseconds		(ms)	5 > 15	5 > 15	5 > 15	5 > 15
Mechanical life (cycles)			15 million	15 million	15 million	15 million
Operating temperature	°F	(°C)	+15 > +120 (-10 > +50)	+15 > +120 (-10 > +50)	+15 > +120 (-10 > +50)	+15 > +120 (-10 > +50)
Compressed air or inert gas - oil-free air filtered to 50 μ			●	●	●	●
Duty factor			100 % ED	100 % ED	100 % ED	100 % ED
Insulation class		(IEC 85)	F	F	F	F
Weight	grams		35	35	35	35
Rotatable connector 4 positions in 90° steps			●	●	●	●
Degree of protection with M12 5-pin connector		(IEC 529)	IP 20	IP 20	IP 20	IP 20
Degree of protection with connector 81 516 082		(IEC 529)	IP 65	IP 65	IP 65	IP 65
UL and cUL approval			MH 15085	MH 15085	MH 15085	MH 15085

Mounting plan

according to CNOMO E 06.36.120.N

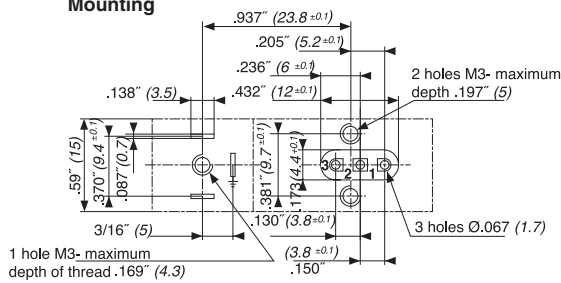
Dimensions

81 519 0

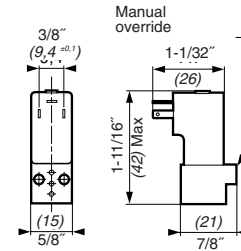
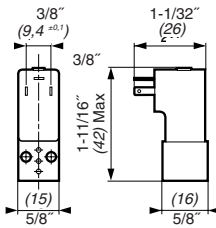
81 519 3

81 519 6

Mounting



- 1 - Supply
- 2 - Output
- 3 - Exhaust



use (metric) dimensions for critical data

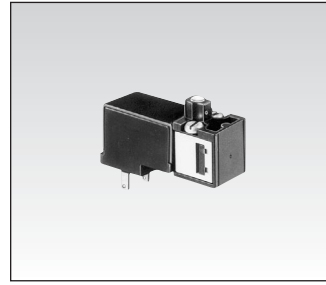
Other information	To order, specify :
Other voltages on request. Other orifice diameters (1.2 mm, 1.5 mm) on request.	<div style="display: flex; align-items: center;"> <div style="background-color: black; width: 20px; height: 10px; margin-right: 5px;"></div> Standard products </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="background-color: black; width: 20px; height: 10px; margin-right: 5px;"></div> 1 Part number </div> <p>Example : Miniature solenoid valves - 81 519 032</p>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Miniature solenoid valves for alternating current

- Conform to the Low Voltage Directive
- For mounting on sub-base or footprint in accordance with CNOMO recommendation E 06-36-120N



Part numbers (and voltages)

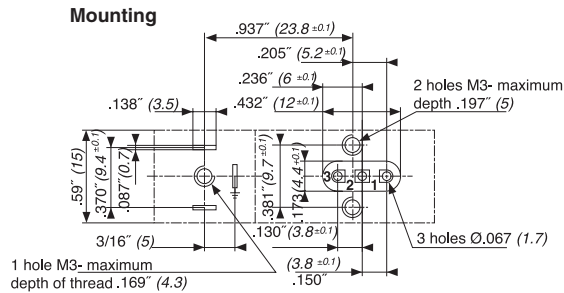
Consumption	Voltage	81 519 080	81 519 380	81 519 680
2.5 VA	24 V ~ 50-60 Hz	—	81 519 381	—
2.5 VA	48 V ~ 50-60 Hz*	—	81 519 378	81 519 678
2.5 VA	110 V ~ 50-60 Hz	—	81 519 379	81 519 679
2.5 VA	220 V- 230 V ~ 50-60 Hz	—	—	—
Function		3/2 NC	3/2 NC	3/2 NC
Version		Without manual override	With manual override by impulse	With manual override by latching (1/4 turn)

Characteristics

			15 > 120 (1 > 8)	15 > 120 (1 > 8)	15 > 120 (1 > 8)	15 > 120 (1 > 8)
Operating pressure	psi	(Bars)	15 > 120 (1 > 8)	15 > 120 (1 > 8)	15 > 120 (1 > 8)	15 > 120 (1 > 8)
Orifice diameter	inches	(mm)	.03 (0.8)	.03 (0.8)	.03 (0.8)	.03 (0.8)
Flow at 90 psi (6 bars)	cfm	(NI/min)	1 (30)	1 (30)	1 (30)	1 (30)
Cv (kV)			.02 (0.3)	.02 (0.3)	.02 (0.3)	.02 (0.3)
Switching time milliseconds		(ms)	5 > 15	5 > 15	5 > 15	5 > 15
Mechanical life (cycles)			15 million	15 million	15 million	15 million
Operating temperature	°F	(°C)	+15 > +120 (-10 > +50)	+15 > +120 (-10 > +50)	+15 > +120 (-10 > +50)	+15 > +120 (-10 > +50)
Compressed air or inert gas - oil-free air filtered to 50 µ			●	●	●	●
Duty factor			100 % ED	100 % ED	100 % ED	100 % ED
Insulation class		(IEC 85)	F	F	F	F
Weight	grams		35	35	35	35
Rotatable connector 4 positions in 90° steps			●	●	●	●
Degree of protection with sub-base (page 5/52)		(IEC 529)	IP 20	IP 20	IP 20	IP 20
Degree of protection with connector 81 516 082 (page 5/55)		(IEC 529)	IP 65	IP 65	IP 65	IP 65
UL and cUL approval			MH 15085	MH 15085	MH 15085	MH 15085

Mounting plan

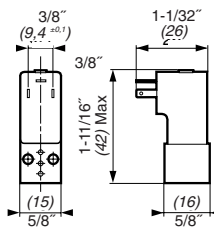
according to CNOMO E 06.36.120.N



- 1 - Supply
- 2 - Output
- 3 - Exhaust

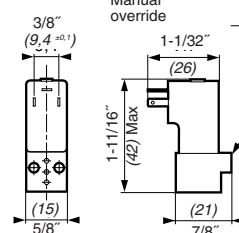
Dimensions

81 519 0



81 519 3

81 519 6



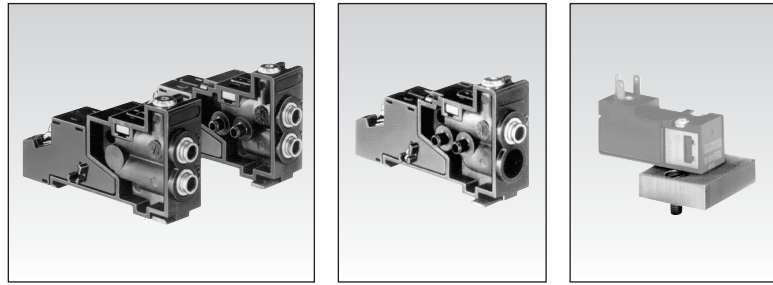
Other information	To order, specify :
Other voltages on request	<div style="background-color: #333; color: white; padding: 2px;">Standard products</div> <div style="display: inline-block; vertical-align: middle;"> 1 Part number Example : Miniature solenoid valves - 81 519 080 </div>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Sub-bases for miniature pilot solenoid valves



1

Part numbers

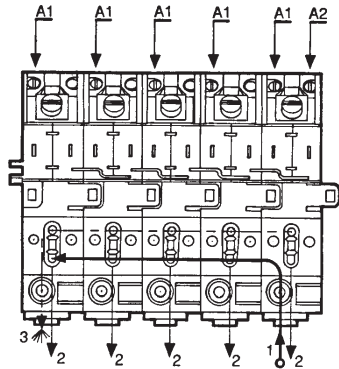
Pair of end bases	81 514 101	—	—
Intermediate sub-base	—	81 514 161	—
Adaptor sub-base for mounting plan CNOMO 06-05-80 / NFE 49066	—	—	79 453 569

Characteristics

Pneumatic indicator on output		•	•	
Common supply		•	•	
Common exhaust		•	•	
Wire size	AWG (mm ²)	14 (3)	14 (3)	
Push-in connection for semi-rigid tubing 5/32" O.D. (Ø 4 mm) (NFE 49100)		•	•	
Mounting		DIN rail EN 50022	DIN rail EN 50022	2 screws M4 provided
UL and cUL approval		MH 15085	MH 15085	—
Weight	(grams)	65	65	50

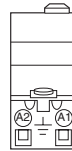
Connection

Pneumatic



- 1 - Supply
- 2 - Output
- 3 - Exhaust

Electrical

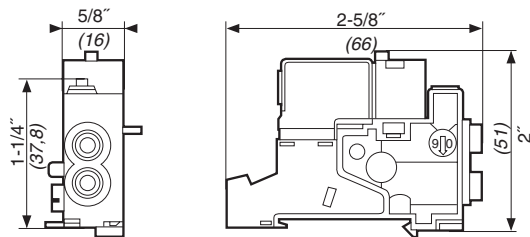


- A1 - Pilot signal
- A2 - Common
- ⊥ - Ground

Dimensions with miniature solenoid valve (page 5/4)

81 514 101 - 81 514 161

79 453 569

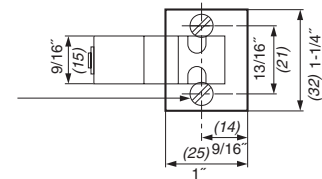
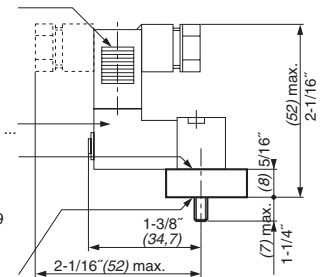


Connector ref 81 516 082 (rotatable in 90° steps) see page 5/55

Miniature solenoid valve 81 519 ... see page 5/50
CNOMO mounting plan E 06-36-120N for mounting miniature solenoid valve 81 519

Mounting on mounting plan CNOMO 06-05-80 NFE 49066

Fixing on CNOMO 06-05-80/ NFE 49-066 mounting plan via 2 cap screws M4 (NFE 25-127)



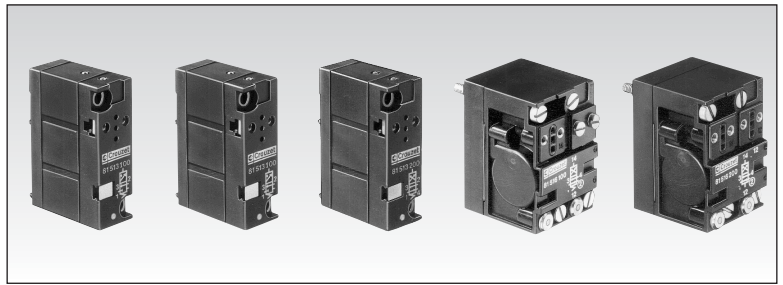
use (metric) dimensions for critical data

Other information	To order, specify :
	<p>Standard products</p> <p>1 Part number Example : Sub-bases for miniature pilot solenoid valves - 81 514 101</p>

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

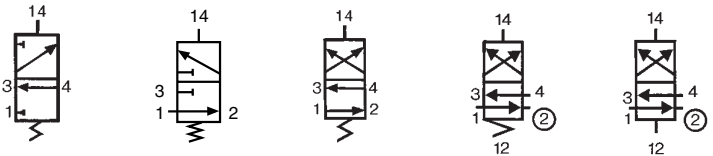
Miniature control valves



Part numbers

	81 513 100	81 513 600	81 513 200	81 516 100	81 516 200
Function	3/2 NC	3/2 NO	4/2	4/2 single pilot spring-return	4/2 double pilot

Symbol

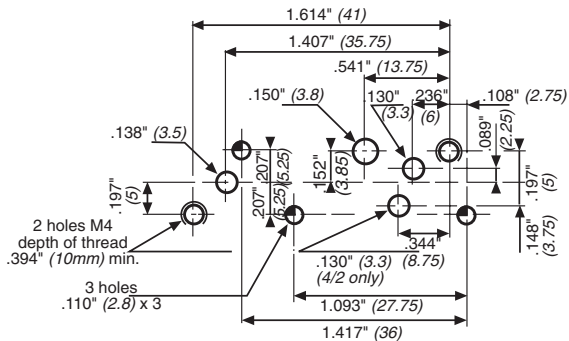


Characteristics

Width	inches (mm)	11/16" (17.5)	11/16" (17.5)	11/16" (17.5)	1-3/8" (35)	1-3/8" (35)
Operating pressure	psi (bars)	45>120 (3>8)	45>120 (3>8)	45>120 (3>8)	50>120 (3.5>8)	50>120 (3.5>8)
Orifice diameter	inches (mm)	1/8" (3)	1/8" (3)	1/8" (3)	5/32" (4)	5/32" (4)
Flow at 90 psi (6 bars) with 5/32" sub-base (page 5/54)	cfm	7 (200)	7 (200)	7 (200)	10.5 (300)	10.5 (300)
Operating temperature	°F (°C)	+15>120 (-10>+50)	+15>120 (-10>+50)	+15>120 (-10>+50)	+15>120 (-10>+50)	+15>120 (-10>+50)
Cv (kV) with 5/32" sub-base (page 5/54)		.15 (2.2)	.15 (2.2)	.15 (2.2)	.28 (4)	.28 (4)
Switching time of the relay only (Milliseconds)		5	5	5	10	10
Mechanical life (cycles)		15million	15million	15million	10million	10million
Weight (grams)		38	38	38	106	106

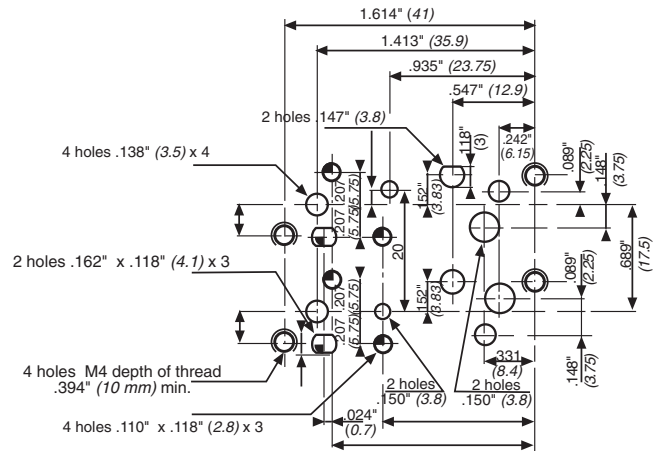
Mounting plan for poppet minivalve

81 513 100 - 81 513 200 - 81 513 600



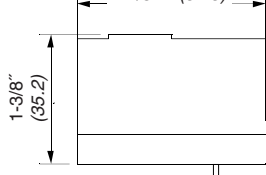
Mounting plan for slide mini valve

81 516 100 - 81 516 200

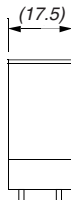


Dimensions

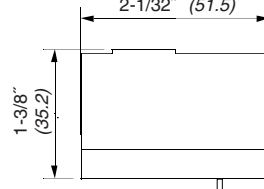
81 513



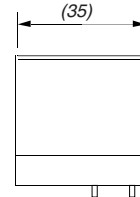
11/16"



81 516



1-3/8"



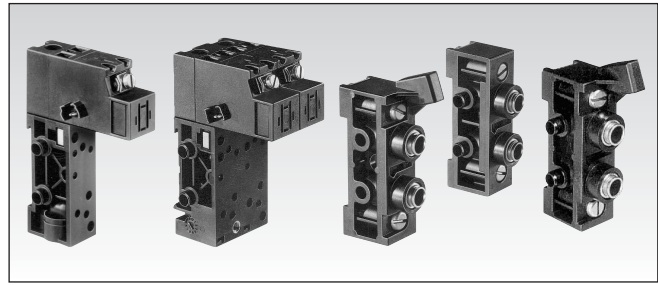
use (metric) dimensions for critical data

Other information	To order, specify :
On request :	Standard products
Miniature power valve supplied mounted on a sub-base and equipped with its own control solenoid valve	1 Part number
	Example : Miniature control valve - 81 513 100
	Standard products, non stocked

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Sub-bases and end bases for miniature control valves



1

Part numbers

Mounting			Cabinet	Cabinet	Cabinet	Cabinet
Version			17.5 mm	35 mm	—	—
Push-in connection for semi-rigid tubing (NFE 49100)	Sub-bases	Ø 4 mm	81 513 060	81 517 101	—	—
		Ø 6 mm	81 513 065	81 517 201	—	—
	End bases (pair)	Ø 6 mm	—	—	81 513 011	—
		Intermediate supply module	Ø 6 mm	—	—	—

Characteristics

Torque capacity	mm ²	3	3	—	—
UL and cUL approval		MM15085	MM15085	—	—
Mounting		DIN rail 35 mm	DIN rail 35 mm	DIN rail 35 mm	DIN rail 35 mm
		EN 50022	EN 50022	EN 50022	EN 50022
Weight	g	55	110	86	44

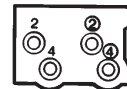
Connections

Pneumatic

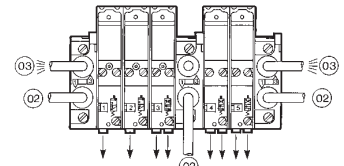
81 513 011 - 81 513 001



- 2 - Pneumatic output 4/2 (NO)
- 4 - Pneumatic output 3/2 or 4/2 (NC)



- ② Output at rest (NO)
- 2 Output at rest *
- ④ Output at rest *
- 4 Output operating (NC)



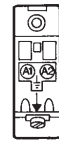
Note :

- Each sub-base can accept
- sub-base 81 513 060-065 : 1 relay 3/2 or 4/2, width 17.5 mm
- sub-base 81 517 101-201 : 1 bistable relay 4/2 (width 35 mm) or 2 relays 3/2 or 4/2 (width 17.5 mm)

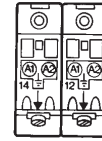
- ② 2 Supply ports
- ③ 2 Exhaust ports

Integral push-in connections Ø 6 mm

Electrical



- A1 - Pilot signal
- A2 - Common

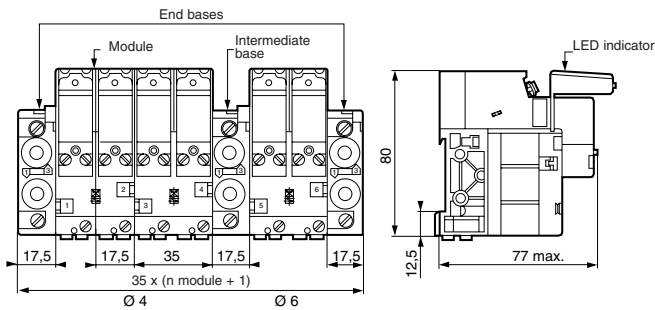


- A1 - Operating control signal (14)
- A2 - Common
- A1 - Rest control signal (12)
- A2 - Common



Degree of protection : IP20 when assembled.

Dimensions with miniature control valves (page 5/53) + miniature solenoid valves (page 5/50) + indicators (page 5/55)



Other information

To order, specify :

Standard products



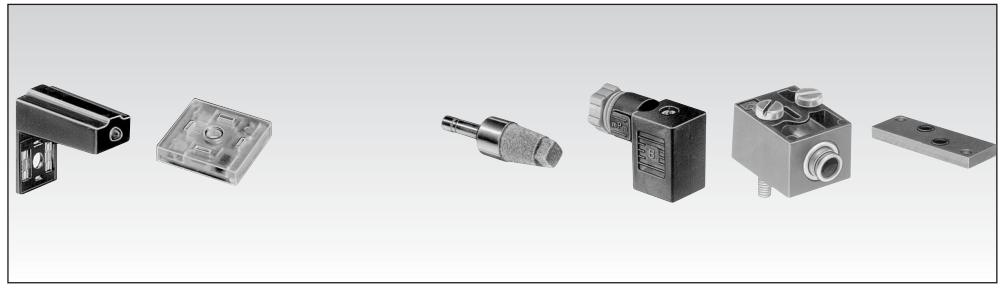
Part number

Example : Miniature control valve - 81 513 060

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

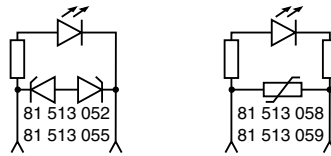
Accessories



Part numbers

Visual indicators*	24 V - 50-60 Hz \equiv	81 513 052	—	—	—	—	—	—
	48 V - 50-60 Hz \equiv	81 513 055	—	—	—	—	—	—
	110 V - 50-60 Hz \equiv	81 513 058	—	—	—	—	—	—
	230 V - 50-60 Hz (-10% +6 %)	81 513 059	—	—	—	—	—	—
Version	With anti-surge and indication	—	—	—	—	—	—	—
LED seal	12 to 24 V - DC - AC	—	81 513 064	—	—	—	—	—
Exhaust silencer	Plug-in Ø 6	—	—	81 537 001	—	—	—	—
	Plug-in Ø 8	—	—	81 537 201	—	—	—	—
Connector for solenoid valve	Without manual override	—	—	—	81 516 082	—	—	—
	With manual override by impulse	—	—	—	—	81 516 081	—	—
Push-in connection for semi-rigid tubing Ø 4 mm (NFE 49100)		—	—	—	—	—	—	—
Blanking plate		—	—	—	—	—	—	81 516 085

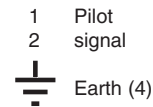
Symbol



Characteristics

Consumption	W	—	0.24	—	—	—	—	—
Temperature	°C	—	- 10 to + 50	—	—	—	—	—
Connection	mm	—	—	—	—	—	Instantané Ø 4 ext.	—
Mounted between the pilot solenoid valve and the body of the module		•	•	—	—	—	—	—
Supplied in multiples of 5		•	—	—	—	—	—	—
Supplied in multiples of 10		—	•	—	•	•	•	•
Packet of 10 pieces		—	—	—	—	—	—	•
Weight	g	6	2	30	10	5	3	—

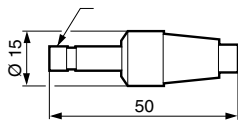
Connection



Dimensions

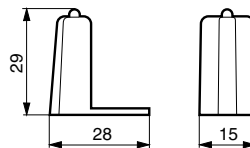
81 537 001 - 81 537 201

Mounted by plugging into push-in connector for semi-rigid tubing (NFE 49100)

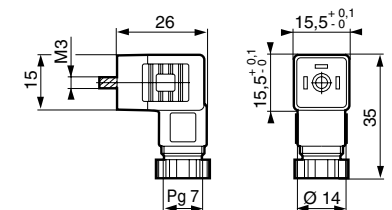


81 513 052 - 81 513 055

81 513 058 - 81 513 059



81 516 082

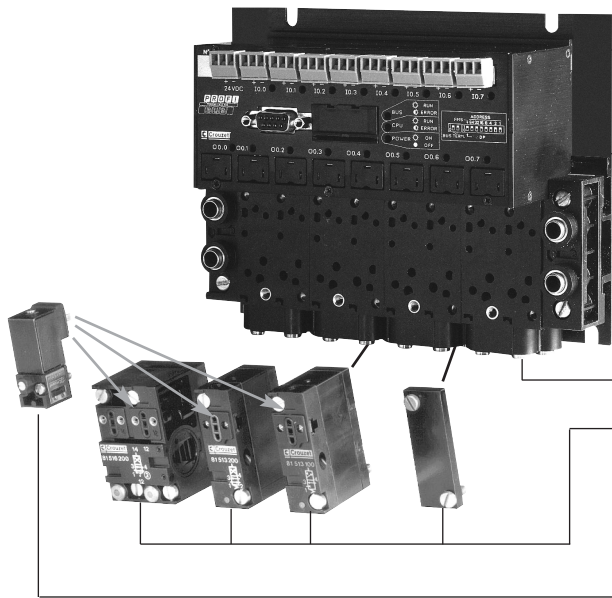


Other information	To order, specify :
* Other voltages available on request	Standard products 1 Part number Example : LED seal - 81 513 064

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

To order, specify :



Reference for the station configuration
 81 555 2 station with 8 inputs / 8 outputs
 81 555 3 station with 16 inputs / 16 outputs

Communications protocol
 Profibus
 C-Bus
 Device Net

Dimension of connectors for output ports
 push-in connectors for Ø 4 mm
 push-in connectors for Ø 6 mm

Reference for valve modules and corresponding quantity
 81 513 100 valve module 3/2 NC (1 mounting position)
 81 513 200 valve module 4/2 monostable (1 mounting position)
 81 516 100 valve module 4/2 monostable (2 mounting positions)
 81 516 200 valve module 4/2 bistable (2 mounting positions)
 81 516 085 blanking plate (1 mounting position)

Reference for pilot solenoid valves and corresponding quantity
 81 519 032 without manual override
 81 519 332 with pulsed manual override
 81 519 632 with maintained manual override

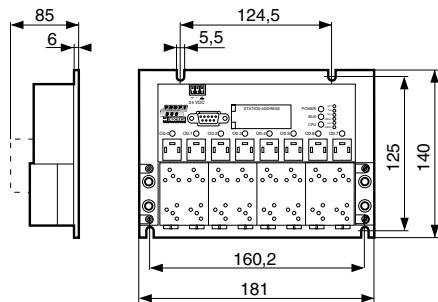
Example of an order :

1 station with 8 inputs / 8 outputs 81 555 2, Profibus DP protocol, push-in connectors Ø 6 mm, 7 valve modules 81 513 100, 1 blanking plate 81 516 085, 7 pilot solenoid valves without manual override 81 519 032.

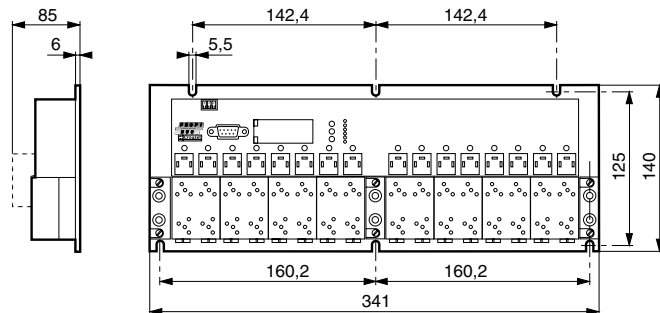
Note : Disks containing the configuration files and programming manuals should both be ordered separately.

Dimensions

81 555 2--



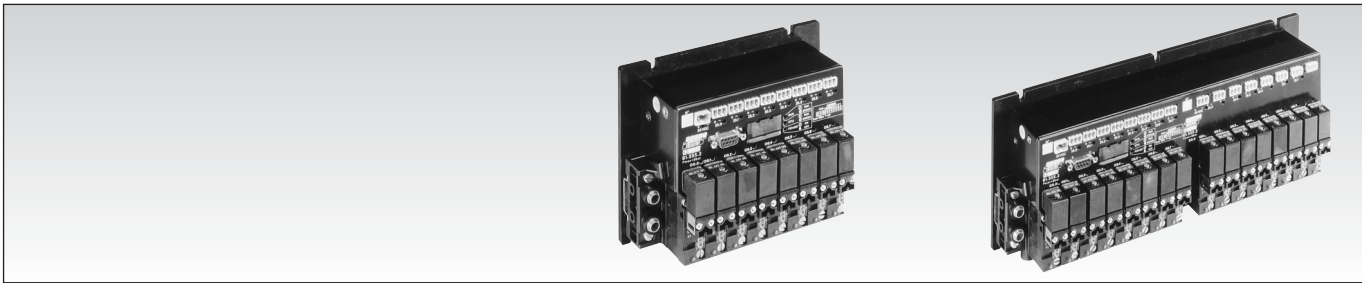
81 555 3--



Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Miniature power valve stations



Part numbers

	81 555 2--	81 555 3--
Number of inputs (electrical)	8	16
Number of outputs (pneumatic)	8	16

Electrical characteristics

Power supply	VDC	24 -10 % +15%	24 -10 % +15%
Ripple max.	Un	5 %	5 %
Consumption per pilot solenoid valve	mA	40	40
Max. sensor consumption	mA	500	500
Dielectric strength acc. to IEC1131-2	KV DC	0,8	0,8
Electromagnetic compatibility IEC 801-2-3-4 and IEC 255-4		Level 3	Level 3
Power supply connection		Phoenix 3-pin plug connector 3.81 mm pitch	Phoenix 3-pin plug connector 3.81 mm pitch
Input connections (electrical)		Phoenix 3-pin plug connector 3.81 mm pitch	Phoenix 3-pin plug connector 3.81 mm pitch
Type of inputs		2 or 3-wire sensors for Un = 24 VDC	2 or 3-wire sensors for Un = 24 VDC
Operating voltage for each input	VDC	Level 1 : 11 to 30 Level 0 : 0 to 5	Level 1 : 11 to 30 Level 0 : 0 to 5
Current consumption for each input	mA	In : 12 ± 5	In : 12 ± 5
Insulation resistance for each input	DC	800	800

Pneumatic characteristics

Number of valve positions at 17.5 mm intervals		8	16
Connection of common supply of pressurised medium		2 push-in connectors for 6 mm o.d. tubing	3 push-in connectors for 6 mm o.d. tubing
Connection of common exhaust		2 push-in connectors for 6 mm o.d. tubing	3 push-in connectors for 6 mm o.d. tubing
Output connections		2 push-in connectors for 4 or 6 o.d. tubing per mounting position	2 push-in connectors for 4 or 6 o.d. tubing per mounting position
Working pressure	bars	3.5 to 8 bars for 81 516 power valves 3 to 8 bars for 81 513 power valves	3.5 to 8 bars for 81 516 power valves 3 to 8 bars for 81 513 power valves
Working medium		Compressed air or inert gas oil-free air filtered to 50 µ	Compressed air or inert gas oil-free air filtered to 50 µ

General characteristics

Class of protection IEC 529		IP 20	IP 20
Operating temperature IEC 68-2-14	°C	-5 to +50	-5 to +50
Storage temperature IEC 68-2-1-2	°C	-15 to +50	-15 to +50
Vibration resistance IEC 68-2-6	HZ	10 to 57 / 0.5 g / amplitude 0.0375 mm	10 to 57 / 0.5 g / amplitude 0.0375 mm
Weight (not fitted with valve modules)	g	750	1 406

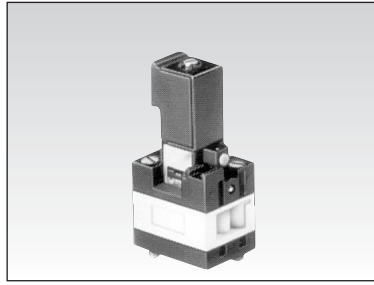
PROTOCOL	PROFIBUS	CBUS	DEVICE NET
Disk containing configuration files	79 453 656	-	79 453 660
Programming manual	French	79 453 630	79 453 633
	English	79 453 631	79 453 634
	German	79 453 632	79 453 635
Other versions	Profibus DP Profibus FMS (DIN 19245) Sinec L2 TF (Siemens)	Modbus	
Type of link	RS 485	RS 485	as standard Device Net
Connection	SUB D 9 connector	SUB D 9 connector	Phoenix plug connector 5.08 mm pitch / 5-pin
Speed selection	Automatic recognition	with 2 switches	with 2 switches
Speeds (K bits / sec)	9,6 19,2 93,75 187,5 500	2,4 4,8 9,6 19,2	125 250 500
Transmission distance (m)	1200 1200 1200 1000 200	1200 1200 1200 1200	500 200 100
Setting station addresses	with 7 switches	with 5 switches	with 6 switches
Max. number of stations	127	31	54

Other informations	To order, specify :
Other communication protocol : please consult us.	<div style="display: flex; align-items: center;"> <div style="background-color: black; width: 20px; height: 10px; margin-right: 5px;"></div> Standard products </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="background-color: black; width: 20px; height: 10px; margin-right: 5px;"></div> 1 Part number </div> <p style="margin-top: 5px;">Example : See page 5/56.</p>
Other configurations : please consult us.	

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Solenoid valves

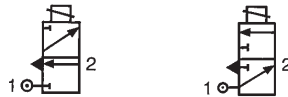


1

Part numbers and voltages

Function		3/2 NC	3/2 NO
Mounting		On sub-base (p.5/44)	On sub-base (p.5/44)
Solenoid valves	24 Vdc (+10% -15%)	81 519 732	81 519 832
with impulse	24 Vac - 50/60 Hz (+10% -15%)	81 519 774	—
manual	48Vac - 50/60 Hz (+10% -15%)	81 519 775	—
override	110 Vac - 50/60 Hz (+10% -15%)	81 519 776	—
	220 Vac - 50/60 Hz (+10% -15%)	81 519 777	—

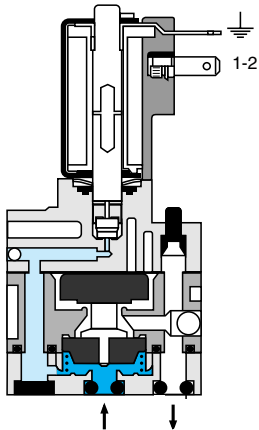
Symbol



Characteristics

Operating pressure	psi (bar)	30>120 (2 > 8)	30>120 (2 > 8)
Orifice diameter	inches (mm)	0.106 (2.7)	0.106 (2.7)
Flow at 90 psi (6 bars)	cfm (Nl/min)	6 (170)	6 (170)
Rotatable coil 4 positions in 90° steps		●	●
Degree of protection (with connector 81 516 082 not supplied) (see page 5/11)	IEC 529	IP 65	IP 65
Mechanical life	cycles	15 million	15 million
Consumption	W	1	1
	VA	2.5	2.5
Operating temperature	°F (°C)	(-5 > +50)	(-5 > +50)
Weight	(grams)	70	70
UL and cUL approval		MH15085	MH15085

Principle of operation



Connections

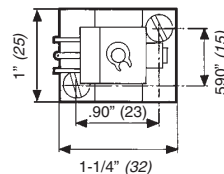
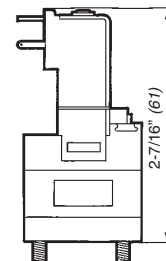
- Pneumatic { 1 - Supply
2 - Output
- Electrical { 1 - 2 - Pilot signal
Ground

Electrical connection by connector 81 516 062 (see page 5/55)

Dimensions

81 519

On separate sub-base



use (metric) dimensions for critical data

Other information

To order, specify :

Standard products

1

Part number
Example : Solenoid valve 81 519 777

Standard products,
non stocked

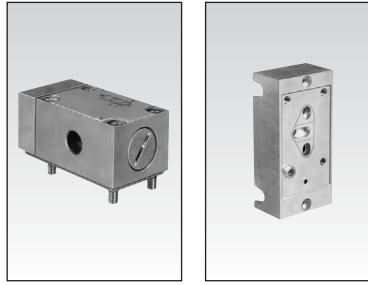
1

Part number
Example : Solenoid valve 81 519 775

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

3/2 control valve and sub-base



Part numbers

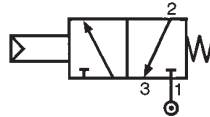
3/2 control valve with pneumatic pilot
 Sub-base - push-in connection for semi-rigid tubing 5/16" O.D.
 (Ø 8 mm) (NFE 49100)

81 213 101

81 544 101

1

Symbol



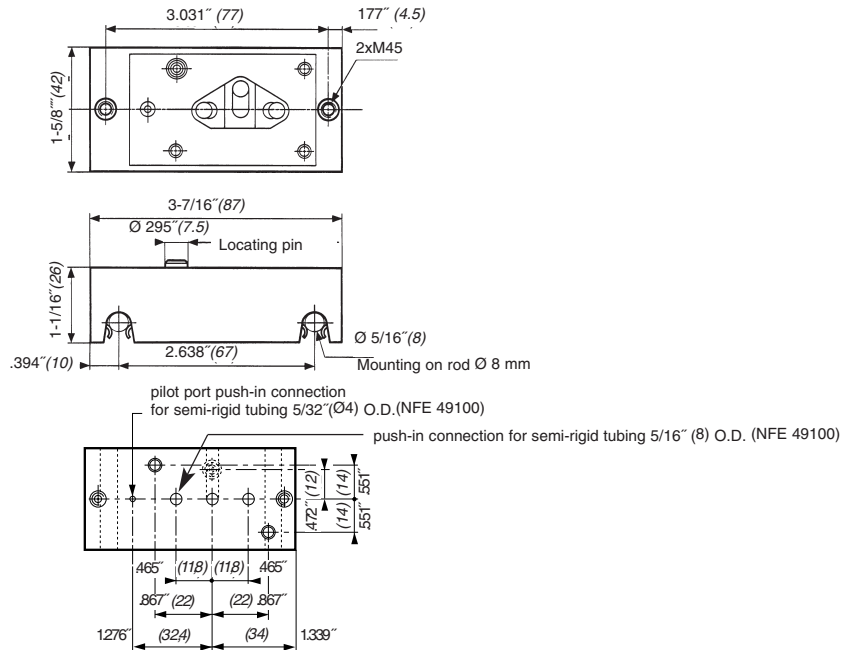
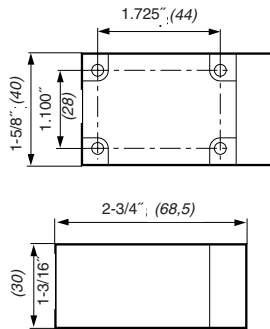
Characteristics

Pilot pressure	psi (bar)	30>120 (2 > 8)	—
Operating pressure	psi (bar)	30>150 (2 > 12)	—
Orifice diameter	inches (mm)	1/4" (6)	—
Flow at 90 psi (6 bars) upstream	cfm (NL/min)	26 (750)	—
Life at 60 psi (4 bars)	cycles	10 million	—
Weight	grams	350	220

Dimensions

81 213 101

81 544 101



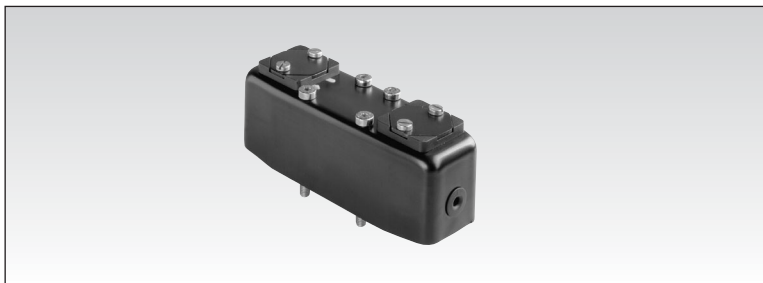
use (metric) dimensions for critical data

Other information	To order, specify :
	<p>Standard products</p> <p>1 Part number</p> <p>Example : 3/2 control valve and accessories - 81 213 101</p>

Products and specifications subject to change without notice.

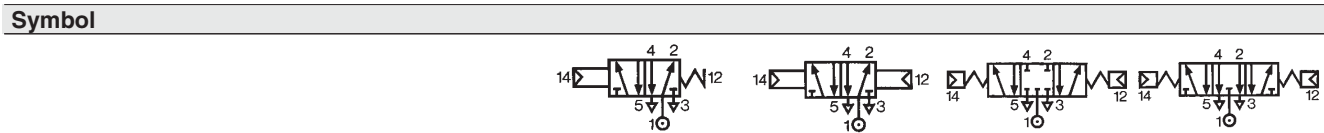
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Control valves, ISO 5599-size 1 footprint



Part numbers	89 541 007	89 541 037	89 541 047	89 541 067
Pneumatic pilot	Air pilot	Double air pilot	Double air pilot	Double air pilot
Function	spring return	5/2	closed center	open center
	5/2	5/2	5/3	5/3

1

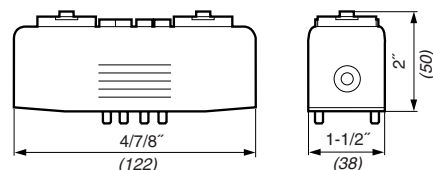


Characteristics

Operating pressure with internal pilot supply	psi (bar)	45>150(+3 > +10)	45>150(+3 > +10)	45>150(+3 > +10)	45>150(+3 > +10)
Operating pressure with external pilot supply	psi (bar)	vacuum to 180(-0.950>12)	vacuum to 180(-0.950>12)	vacuum to 180(-0.950>12)	vacuum to 180(-0.950>12)
Pilot pressure	psi (bar)	45>150(3>10)	45>150(3>10)	45>150(3>10)	45>150(3>10)
Operating temperature	°F (°C)	+15>+150(-10>+70)	+15>+150(-10>+70)	+15>+150(-10>+70)	+15>+150(-10>+70)
Flow at 90 psi(6 bars) (ANR)	cfm (NL/min)	50(1400)	50(1400)	50(1400)	50(1400)
Life (cycles)		30 million	30 million	30 million	30 million
Mounting plan : ISO standard 5599-01		●	●	●	●
Weight	(grams)	415	415	415	415

Dimensions

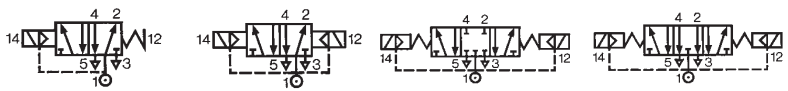
89 541-



Products available to order (please consult us)

Electro-pneumatic control	Air pilot	Double air pilot	Double air pilot	Double air pilot
Function	spring return	5/2	closed center 5/3	open center 5/3

Symbol



Dimensions

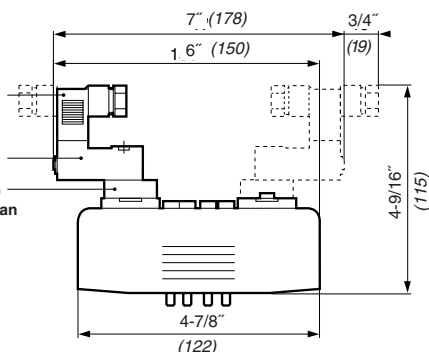
On request

Connector Ref : 81 516 082
see page 5/55

Miniature solenoid valve

Ref : 81 519 ...
see page 5/50

Adaptor sub-base Ref 79 453 569
for CNOMO 06.05.80 mounting plan



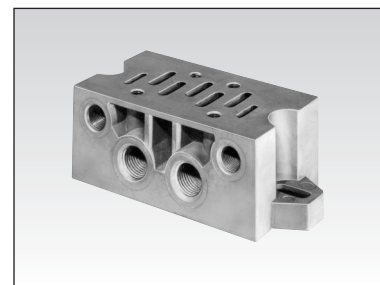
use (metric) dimensions for critical data

Other information	To order, specify :
For characteristics of pilot solenoid valve, see page 5/50	<input type="checkbox"/> Standard products 1 Part number Example : Pneumatic control valve - 81 541 007
	<input type="checkbox"/> Made to order products, please consult us

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Sub-bases for ISO size 1 control valves 5/2 and 5/3



1

Part numbers

Single sub-base (with clips) _____
 Single sub-base with side connections _____

81 543 006

81 543 206

Characteristics

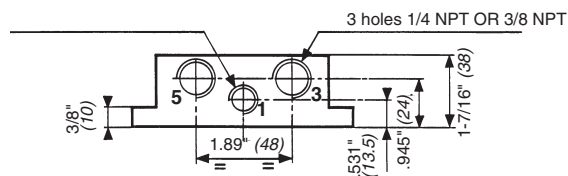
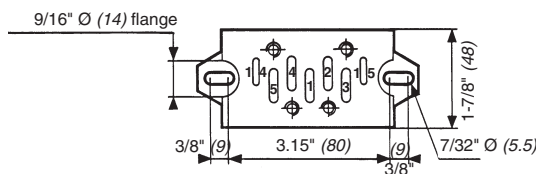
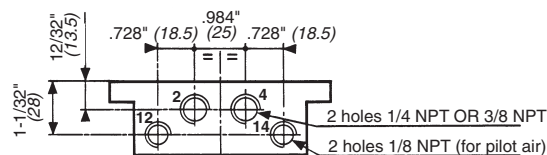
Connection push-in for semi-rigid tubing (NFE49100)
 tapped hole _____

Ø 6 mm
 950

Ø 8 mm
 950

Dimensions

89 543 102



- Port
- 1= supply
 - 2= output port at rest
 - 3= exhaust port 2
 - 4= output port on actuation
 - 5= exhaust port of 4
 - 12= rest pilot
 - 14= actuation pilot

use (metric) dimensions for critical data

Other information	To order, specify :				
	<table border="1" style="width: 100%;"> <tr> <td style="background-color: #e0e0e0;">Standard products</td> <td>1 Part number Example : Sub-bases for ISO control valves - 81 543 002</td> </tr> <tr> <td style="background-color: #e0e0e0;">Standard products non-stocked</td> <td></td> </tr> </table>	Standard products	1 Part number Example : Sub-bases for ISO control valves - 81 543 002	Standard products non-stocked	
Standard products	1 Part number Example : Sub-bases for ISO control valves - 81 543 002				
Standard products non-stocked					

Products and specifications subject to change without notice.

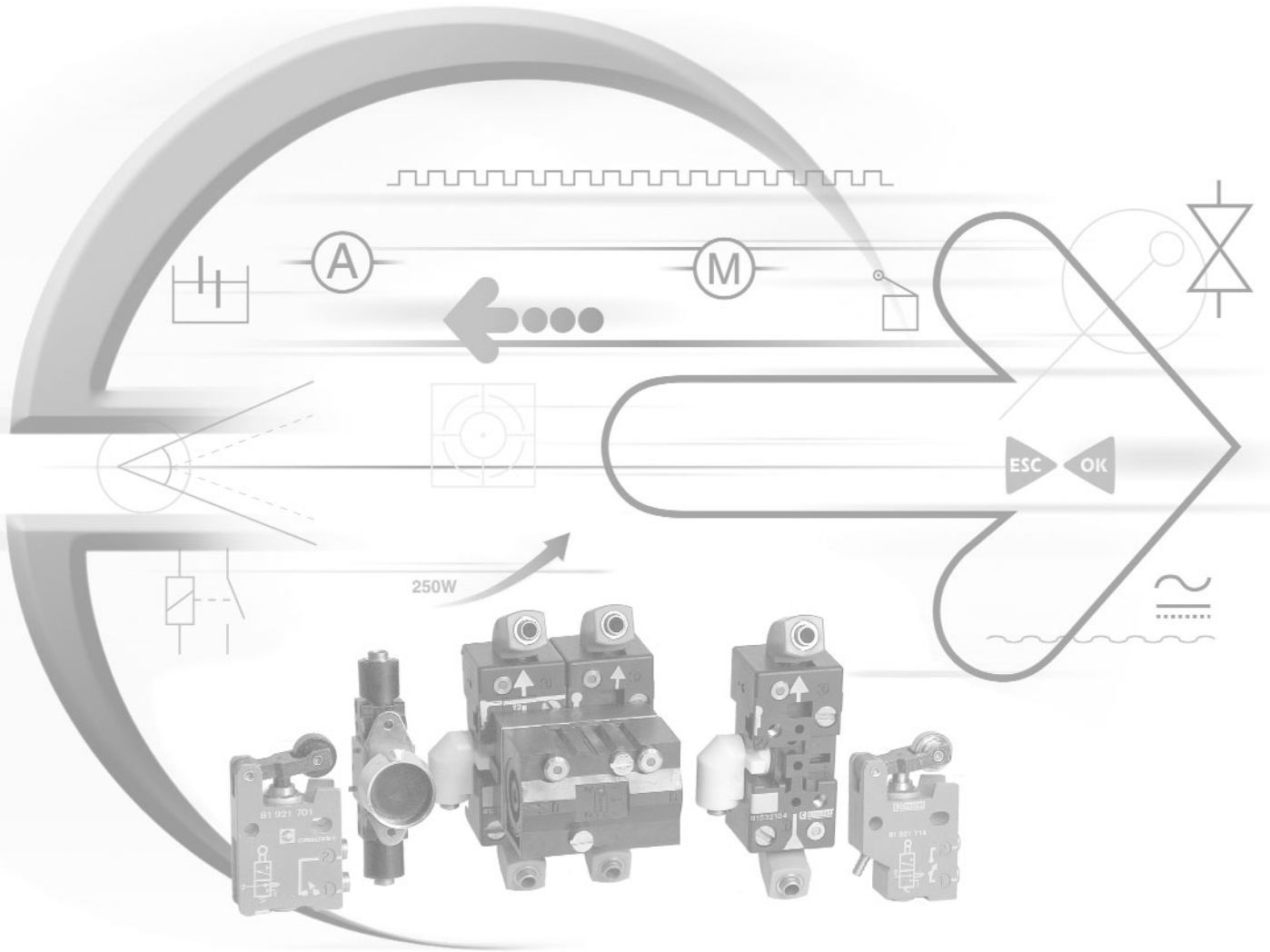
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com





Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Intrinsically Safe Miniature Solenoid Valves



Products and specifications subject to change without notice.

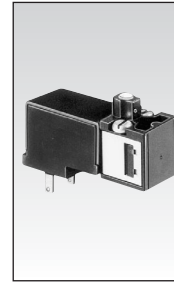
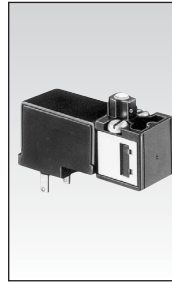
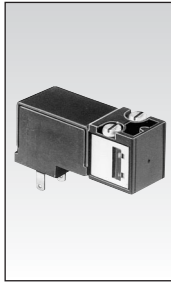
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Ex Intrinsically safe miniature solenoid valves EEx ia II C T6

LCIE approval
no. 93 C 6014X

For mounting on sub-base or footprint in
accordance with CNOMO recommendation
E 06-36-120N



Part numbers (and voltages)

	Voltage	max. power consumption			
U nominal					
Supply voltage (barrier output or interface) between 5 and 18 Vdc inc.	12 Vdc	0.70 W			
U nominal					
Supply voltage (barrier output or interface) between 12 and 28 Vdc inc.	24 Vdc	0.70 W	81 519 035	81 519 335	81 519 635
Function			3/2 NC	3/2 NC	3/2 NC
Versions	Without manual override		●	—	—
	With manual override		—	impulse	latched (1/4 turn)

1

Symbols



Characteristics

Permitted fluids	filtered 10 µ, lubricated (ASTM2) or not	air or inert gases	air or inert gases	air or inert gases
Operating pressure	bars	1 → 7	1 → 7	1 → 7
Orifice diameter	mm	0.5	0.5	0.5
Flow at 6 bars	NL/min	12	12	12
Flow coefficient	KV	0.12	0.12	0.12
Temperature	operating	- 10 + 50	- 10 + 50	- 10 + 50
	fluid	- 10 + 30	- 10 + 30	- 10 + 30
Switching time	ms	8 to 15	8 to 15	8 to 15
Mechanical life	operations	≤ 1.5 x 10 ⁷	≤ 1.5 x 10 ⁷	≤ 1.5 x 10 ⁷
Construction	Stainless steel, brass NBR, PA 66	●	●	●
Weight	g	35	35	35
Duty factor		100% ED	100% ED	100% ED
Insulation class	IEC 85	F	F	F
Degree of protection (IEC 529)	with connector 81 516 082 (see page 5/67)	IP 65	IP 65	IP 65
	with sub-bases 81 513.../81 517... (see page 5/66)	IP 20	IP 20	IP 20

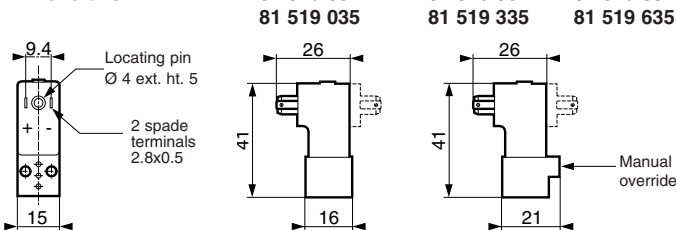
Pneumatic connections

Geometry of footprint		see below	see below	see below
via miniature pilot sub base	81 514 101	see page 5/52	see page 5/52	see page 5/52
On modules	81 513 100/200/600	see page 5/53	see page 5/53	see page 5/53
	81 516 100/200	see page 5/53	see page 5/53	see page 5/53

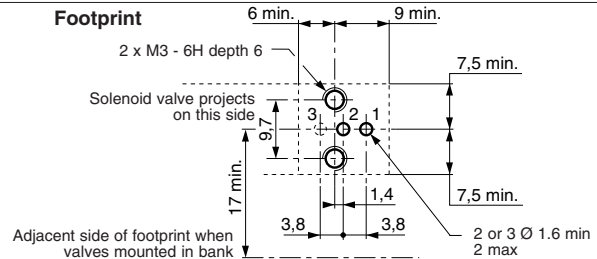
Electrical connections

2 spade terminals on coil	90° rotatable	see below	see below	see below
via connector 81 516 082	90° rotatable	see page 5/67	see page 5/67	see page 5/67
via miniature pilot sub base	types 81 513.../81 514...	see page 5/52	see page 5/52	see page 5/52
via miniature sub base	types 81 513.../81 517...	see page 5/66	see page 5/66	see page 5/66

Dimensions



Footprint



Other information

Note: Our intrinsically safe miniature solenoid valves have a locating pin which prevents their mounting on our standard sub-bases. They must be used only with our sub-bases approved to EEx ia II C T6 as shown on page 6/6. To achieve EEx ia II C T6 when using a plug type connector, only our connector 81 516 082 (approved for use with our miniature solenoid valves 81 519...) must be used.

To order, specify :

Standard products

1

Part number

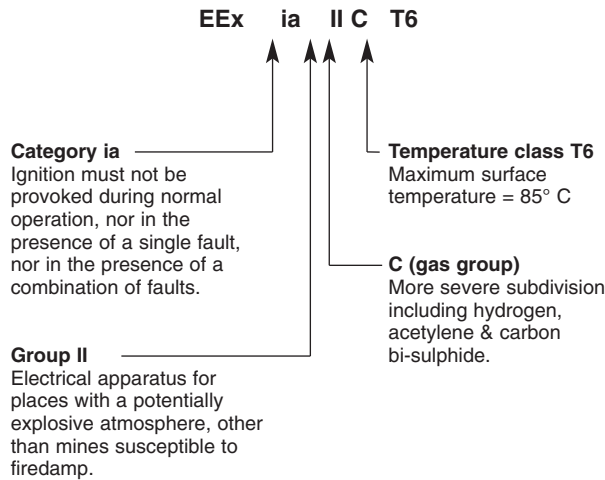
Example : Intrinsically safe miniature solenoid valve - 81 519 034

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

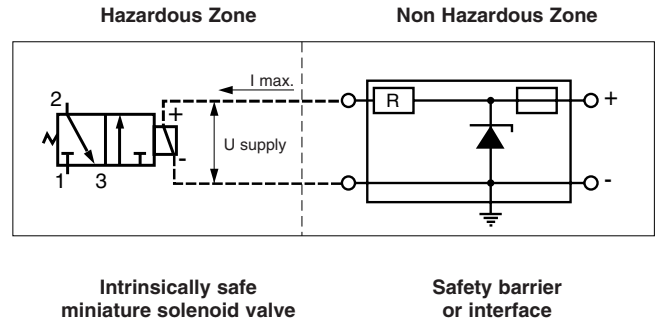
General information

Low consumption (0.7W), CROUZET 3/2 miniature solenoid valves comply with European Standards EN 50014 and EN 50020 relating to equipment operating in potentially explosive atmospheres. These intrinsically safe products are recommended for the chemical, petrochemical, gas and mining industries, etc.



Important :

These intrinsically safe miniature solenoid valves must be individually connected to an approved safety barrier. Placed in a safe zone, these barriers make it possible to supply intrinsically safe miniature solenoid valves installed in a hazardous zone.



Safety description (to LCIE approval no. 93 C 6014 X)

	81 519 034 /334	81 519 035 /335
U source EEx	≤ 18 V	≤ 28 V
I max. / coil	≤ 74 mA	≤ 37 mA

U supply = source of intrinsically safe supply to the miniature solenoid valve.

I max. / coil = maximum current across the coil.

The electrical connection between the safety barrier (or interface) and the miniature solenoid valve can be made with ordinary wires or cables. The inductance of the connecting line between the safety barrier and the solenoid valve must be less than 0.5 mH.

Recommended barriers and interfaces

These CROUZET recommended safety barriers and interfaces can be obtained from the manufacturers indicated below. When ordering, specify that they are to be used to supply miniature solenoid valves (type 81 519) EEx ia II C T6, LCIE no. 93.C6014 X.

For 12 Vdc miniature solenoid valves part numbers : 81 519 034 / 81 519 334

Manufacturer	Barrier reference	Interface reference	Approval laboratory	Gas group	Authorized zones	V supply barrier / interface
GEORGIN	BZC 13/100/1/179	AVB 131	LCIE	II C	all zones	12 Vdc +/- 10%
MEASUREMENT TECHNOLOGY LTD	MTL 715 +		LCIE	II C	all zones	220 Vac +/- 10%
STAHL	9004/01-168-050-00	ICS 1000 9451/12-01-10	BASEEFA	II C	all zones	12 Vdc +10% -15%
			PTB	II C	zones 1 and 2	12 Vdc +10% -15%
			BVS	II C	zones 1 and 2	24 Vdc +10% -15%

For 24 Vdc miniature solenoid valves part numbers : 81 519 035 / 81 519 335

Manufacturer	Barrier reference	Interface reference	Approval laboratory	Gas group	Authorized zones	V supply barrier / interface
GEORGIN	BZC 24/63/1/4A	AVB 109	LCIE	II C	all zones	24 Vdc +/- 10%
MEASUREMENT TECHNOLOGY LTD	MTL 728 + MTL 708 +		LCIE	II C	all zones	220 Vac +/- 10%
		MTL 2241	BASEEFA	II C	all zones	20 to 26.6 Vdc
		MTL 3021	BASEEFA	II C	all zones	21 to 35 Vdc
PEPPERL & FUCHS	Z 428 EX		BASEEFA	II C	all zones	180 to 260 Vac
		KHD3-ISD/EX148-90A	BASEEFA	II C	all zones	20 to 35 Vdc
STAHL	9004/01-280-025-00	ICS 1000 9451/12-02-10	BASEEFA	II C	all zones	20 to 35 Vdc
			PTB	II C	zones 1 and 2	20 to 28 Vdc
			BVS	II C	zones 1 and 2	20 to 30 Vdc
A PUISSANCE 3		ELVA-15/130+A230	LCIE	II C	all zones	230 V 50 Hz general power supply + 24 Vdc control

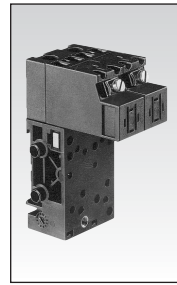
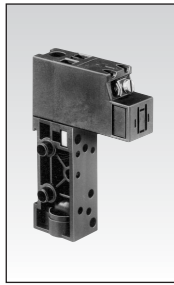
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Sub-bases for intrinsically safe miniature solenoid valves EEx ia II C

LCIE approval
no. 93 C 6014X



1

Part numbers

Sub-bases for use with :		for tube Ø ext (mm)		
Miniature solenoid valves	intermediate sub-base	4	—	—
81 519...	end bases	4	—	—
Miniature control valves	intermediate sub-base,	4	81 513 075	—
81 513...	width 17.5	6	81 513 076	—
Miniature control valves	intermediate sub-base,	4	—	81 517 106
81 516...	width 35	6	—	81 517 206
Sub-base width	mm		1 sub-base 17.5	1 sub-base 35

Function

Pneumatic and electrical connections	miniature solenoid valves 81 519 034 /035 /334 /335	—	—
	miniature control valves 81 513 100 /200 /600	1 footprint	2 footprints
	miniature control valves 81 516 100 /200	—	1 footprint

Characteristics

Permitted fluids	lubricated (ASTM2) or not	air or inert gases	air or inert gases
Operating pressure	bars	0 to 8	0 to 8
Temperature	operating °C	-10 to +50	-10 to +50
	of fluid °C	-10 to +30	-10 to +30
Sub-base fixing	by clip	—	—
	by end bases	81 513 011	81 513 011
Rail mounting	by rail EN 50022 width 35 mm	●	●
Construction	NBR, PA 66 fireproof, brass	●	●
Integral pressure indicator		—	—
Weight	g	55	105
Degree of protection		IP 20	IP 20

Pneumatic connections

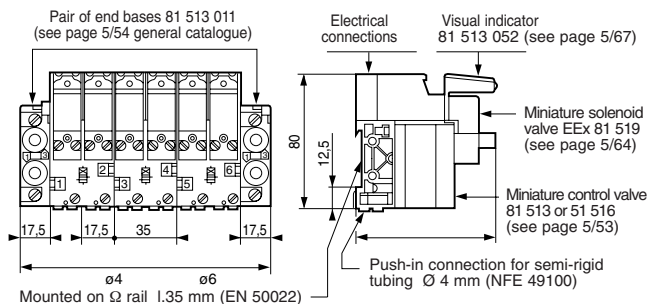
Port 1 function	common supply	—	—
Port 3 function	common exhaust	—	—
Port 2 function	miniature solenoid valve 81519...	—	—
	miniature control valve 81 513 200 /600	output at rest (NO)	output at rest (NO)
Port "2" function	miniature control valve 81 513 200 /600	—	output at rest (NO)
	miniature control valve 81 516...	—	output at rest (NO)
Port 4 function	miniature control valve 81 513 100 /200	output operating (NC)	output operating (NC)
	miniature control valve 81 516...	—	output operating (NC)
Port "4" function	miniature control valve 81 513 100 /200	—	output operating (NC)
Integral push-in fittings (NFE 49100)		●	●

Electrical connections

Integral electrical connections	number	1	2
Screw clamp terminals	clamping capacity : 3 mm ²	number 2 (A1 and A2)	2 (A1 and A2)

Dimensions

Associable sub-bases for miniature control valves EEx 81 513... and 81 516...



Other information

Note :

Sub-bases **81 513 075 / 076** and **81 517 106 / 206** must be used with end bases **81 513 011** and intermediate module **81 513 001** (if required).

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

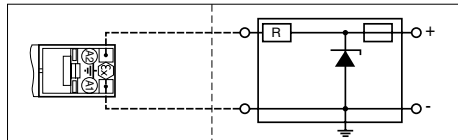


General information

CROUZET intrinsically safe sub-bases conform to European Standards EN 50014 and EN 50020 relating to equipment operating in potentially explosive atmospheres.

These sub-bases must be individually connected to an approved safety barrier. (See recommended barriers & interfaces on page 5/65.)

Hazardous Zone Non Hazardous Zone



Sub-base for intrinsically safe miniature solenoid valve

Safety barrier

A1 = - terminal
A2 = + terminal

Distinctive features of the EEx sub-base :

- No integral electrical common
- No provision for earth pin
- There is provision for the locating pin for each intrinsically safe miniature solenoid valve 81 519.

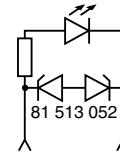
Note :

In order to satisfy the safety conditions of EEx ia II C T6 our intrinsically safe miniature solenoid valves 81 519 ... must be used ONLY with the sub-bases shown on page 5/66. These sub-bases cannot be used for mounting our standard range of 81 519 ... miniature solenoid valves (non approved).

Part numbers

Visual indicator	24 V - 50-60 Hz ~	81 513 052	—	—
Connector for solenoid valve		—	81 516 082	—
Adaptor sub-base for CNOMO 05-8 footprint		—	—	79 453 569

Symbol

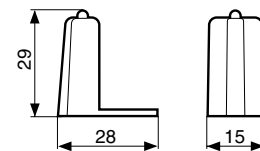


Characteristics

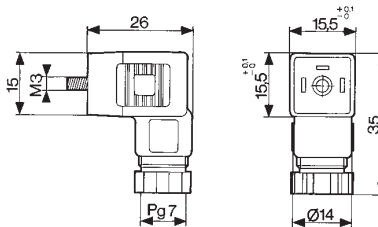
Mounts between pilot solenoid valve and sub-base		•	—	—
Supplied in multiples	of 5 of 10	•	•	—
Packet of 10 pieces		—	—	—
Fixing		—	—	2 screws
Weight	g	6	10	M4x10
Connection			1 Control 2 signal	—
			⊥	Earth (4)

Dimensions

81 513 052



Note :
When using LED indicators only our indicator 81 513 052 (approved for use with our miniature solenoid valves 81 519...) should be used to achieve EEx ia II C T6.



Note :
When using plug connectors, only our connectors 81 516 082 (approved for use with our miniature solenoid valves 81 519 ...) should be used to achieve EEx ia II C T6.

79 453 569

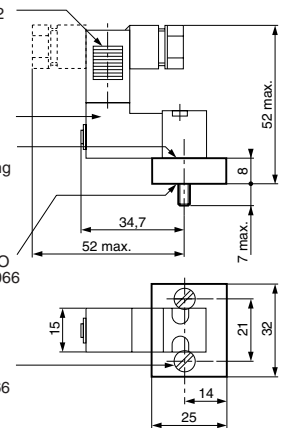
Connector ref. 81 516 082 (rotatable in 90° steps)

Miniature solenoid valve 81 519... see page 5/64

CNOMO footprint E 06-36-120N for mounting miniature solenoid valve 81 519

Mounting on CNOMO 06-05-80 / NFE 49-066 footprint

Fixing onto CNOMO 06-05-80/NFE 49-066 footprint by 2 cap screws M4x10 (NFE 25-127)



To order, specify :

Standard products

1 Part number

Example : Sub-base for miniature solenoid valve - 81 514 166

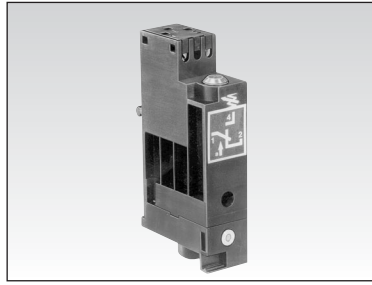
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Intrinsically safe pressure switches EEx ia II C T6

LCIE approval
no. 93 C 6015X



- Conform to the Low Voltage Directive
- Can be used without enclosure according to IEC 664-1 pollution group III

Part numbers

Fixing		81 513 530	
		DIN rail 35 mm	
		EN 50022	
Function	control	pressure	
Version	manual override	with	

1

Symbol



Characteristics

Permitted fluids	air, inert gases and liquids		●
Adjustable switching pressure (* set at 0.3)	bar	2 to 8	
Hysteresis	at 1 bar	0.5	
	at 2 bars	0.6	
	at 4 bars	0.8	
	at 6 bars	1	
Pressure indicator			●
Temperature	operating	° C	- 10 + 50
	of fluid	° C	- 10 + 30
Mechanical life	operations	10 ⁶	
Maximum voltage	V	60 Vdc	
Construction	POM, brass, AU4G		●
Weight	g	48	
Degree of protection	IEC 529	IP 20	

Pneumatic connections

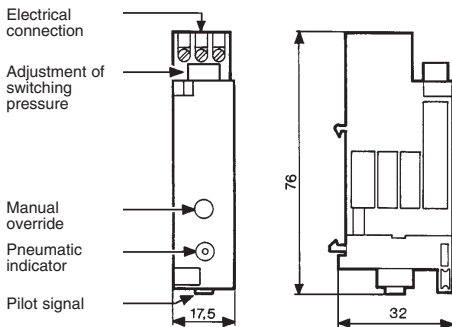
Connection	Push-in connection for semi-rigid tubing Ø 4 mm (NFE 49100)	●
	Tapped holes 1/8 BSP	—

Electrical connections

Integral electrical connections		●
Screw terminals	number	3 (1-2-4)
Wire cross-section	mm ²	0.75
Terminal capacity	mm ²	3

Dimensions

81 513 530



Other information

On request :

- Low pressure version from 0.2 to 1.2 bars
- Vacuum version adjustable from -0.3 to -1 bar

To order, specify :

Standard products



Reference

Example : Intrinsically safe pressure switches -
81 513 530

Products and specifications subject to change without notice.

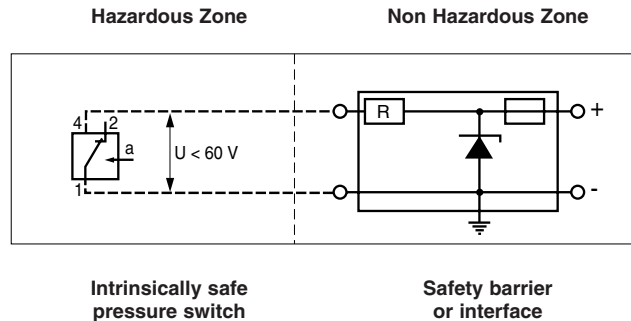
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

General information

CROUZET intrinsically safe pressure switches conform to European Standards EN 50014 and EN50020 relating to equipment operating in potentially explosive atmospheres.

These intrinsically safe products are recommended for the chemical, petro-chemical, gas and mining industries, etc.

These intrinsically safe pressure switches must be individually connected to an approved safety barrier. Placed in a safe zone, these safety barriers make it possible to supply intrinsically safe pressure switches installed in a hazardous zone.



1 = common
2 = NC contact
4 = NO contact

The electrical connection between the safety barrier (or interface) and the pressure switch can be made with ordinary wires or cables.

The maximum intrinsically safe supply voltage must not exceed 60V.

Recommended barriers and interfaces

These CROUZET recommended safety barriers and interfaces can be obtained from the manufacturers indicated below. Specify when ordering that they are to be used to supply intrinsically safe pressure switches (type 81 513) EEx ia II C T6, LCIE no. 93.C6015 X.

For CROUZET intrinsically safe pressure switches

Manufacturer	Barrier reference	Interface reference	Approval laboratory	Gas Group	Authorised zones
GEORGIN	BZC 24/20/1/275	RD 11	LCIE	II C	all zones
		RD 21	LCIE	II C	
MEASUREMENT TECHNOLOGY LTD	MTL 787 S + MTL 707 +		LCIE	II C	all zones
		MTL 2210 B	BASEEFA	II C	
		MTL 3011	BASEEFA	II C	
		MTL 4013	BASEEFA	II C	
PEPPERL & FUCHS GB LTD	Z 428 EX		BASEEFA	II C	all zones
		KHD2-RW1/EX1	PTB	II C	
		KHA6-RW1/EX1	PTB	II C	
STAHL	9001/01-252-060-14		PTB	II C	all zones
		ICS PAK 9250	PTB	II C	
		ICS 1000 9201/04-...-24	PTB	II C	

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



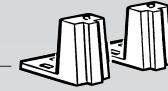
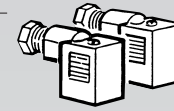
Mounting

Cabinet

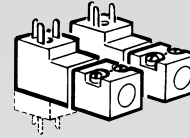
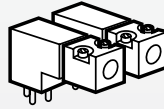
Machine

Connectors EEx ia II C T6

When using plug connectors, only our connectors 81 516 082 (which have been approved for use with our miniature solenoid valves 81 519 ...) should be used, to comply with EEx ia II C T6.

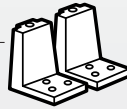


Miniature solenoid valves EEx ia II C T6



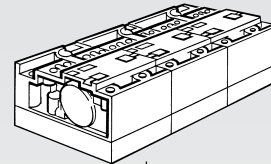
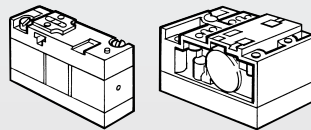
Indicators EEx ia II C T6

When using LED indicators, only our indicators 81 513 052 (which have been approved for use with our miniature solenoid valves 81 519...) should be used, to comply with EEx ia II C T6.



Valve modules

- Poppet
 - 3/2 monostable (17.5 mm)
 - 4/2 monostable (17.5 mm)
- Slide valve
 - 4/2 bistable (35 mm)
 - 4/2 monostable spring-return (35 mm)

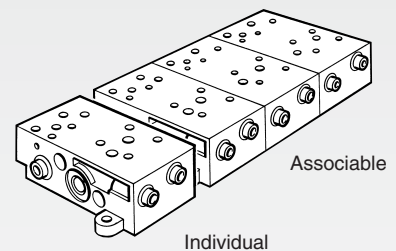
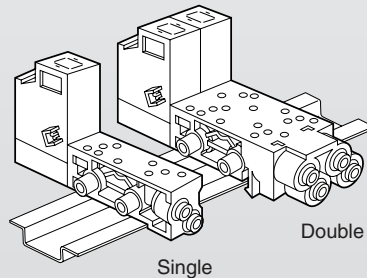


Sub-bases EEx ia II C T6

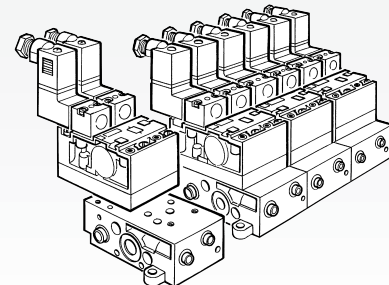
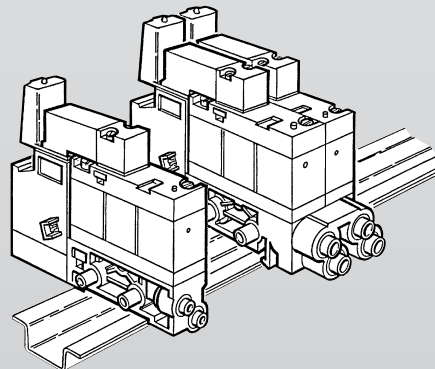
For miniature solenoid valves

For valve modules

For valve modules

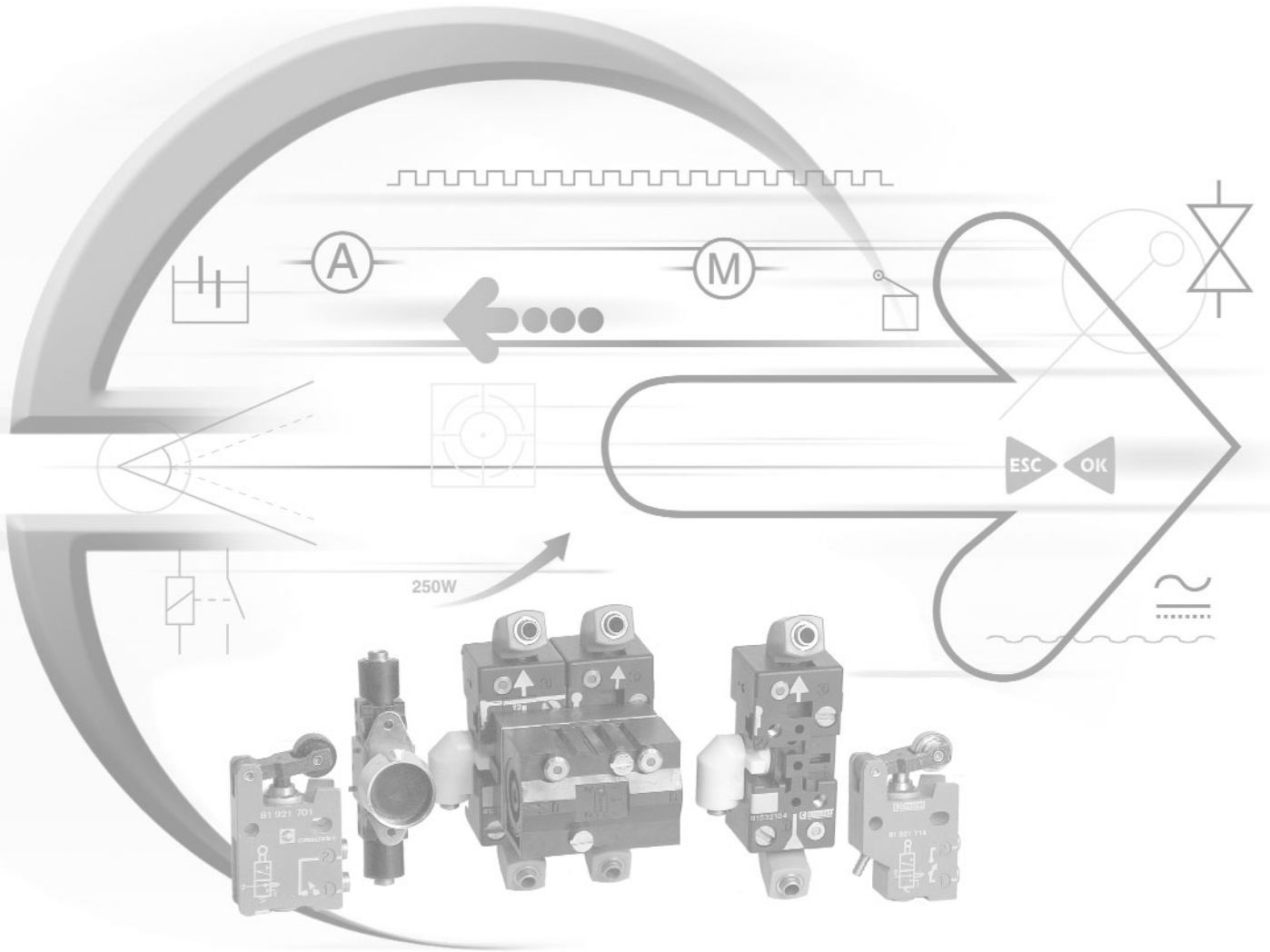


Complete product EEx ia II C T6



Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Multi-Fluid Solenoid Valves



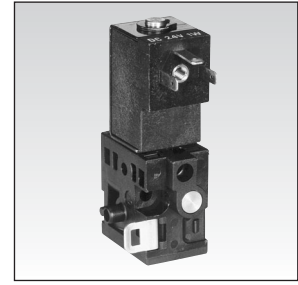
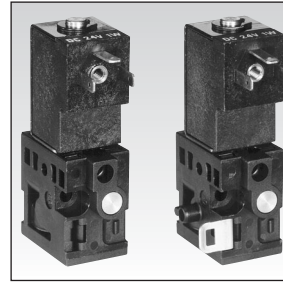
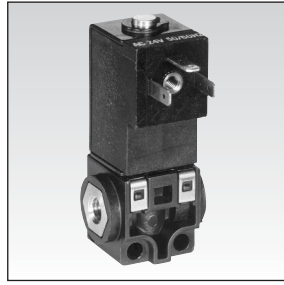
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Standard 2/2 miniature solenoid valves for fluids and inert gases

- Variable orientation coil
- Low power consumption : 1 W
- Quick to fit together, no tools needed



Mounting

Individual

Bank end valves (1 pair)

Intermediate valve

Part numbers

Orifice diameter	CV	(KV)	Adjustment range psi	(bar)	Power
(0.8 mm)	.2	(0.3)	15>30	(1>8b)	1W

NC
81 546 001

NC
81 547 001

NC
81 547 501

1

Standard features

Voltage	24V ---
Electrical connections	2.8 x 0.5 blade terminals (W7D5) at 9.4 mm centres
Fluid connection	tapped holes M5
Manual override + pressure indicator	without

General characteristics

Response time	5 to 15 ms
Operating temperature	- 5 °C +50 °C
Viscosity range	up to 30 cst
Vibration resistance	up to 5 g
Air flow rate (at 2 bars)	15 to 40 NI/mn
Maximum switching rate	30 Hz
Weight	Individual mounting: 32.5 g Bank end/inner valves: 35 g
Body material	Glass-reinforced polyamide 6.6
Mechanical life (operations)	1.5 x 10 ⁷
UL and cUL approval	MH 15085

Accessories for 2/2 miniature solenoid valves

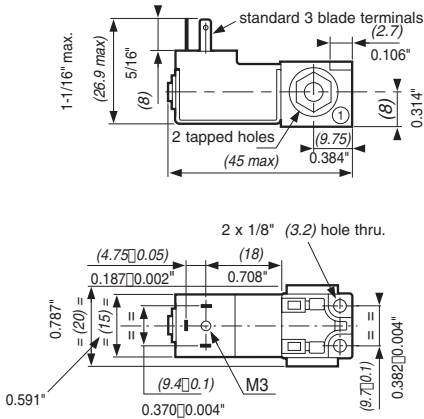
Connector for solenoid valve (see page 5/11)	81 516 082
Visual indicators (see page 5/67)	24 V-50/60 Hz CC: 81 513 052 48 V-50/60 Hz AC: 81 513 055 110 V-50/60 Hz AC: 81 513 058 220 V-50/60 Hz AC: 81 513 059
LED seal (see page 5/67)	12-24 V ~ ---: 81 513 064

2

Dimensions

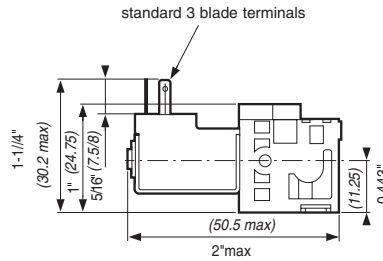
Individual

81 546 0



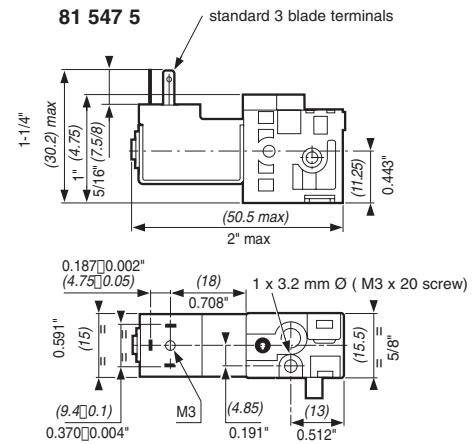
Bank end valves (1 pair)

81 547 0



Intermediate valve

81 547 5



Use (metric) dimensions for critical data

Other information

To order, specify :

For options see page 5/74

Standard products

1 Part number

2 Accessory

Standard products, non stocked

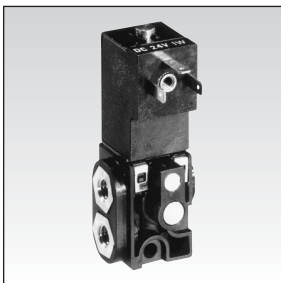
Example : Standard 2/2 miniature solenoid valve 81 546 001 - LED seal 81 513 064

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Standard 3/2 miniature solenoid valves for fluids and inert gases

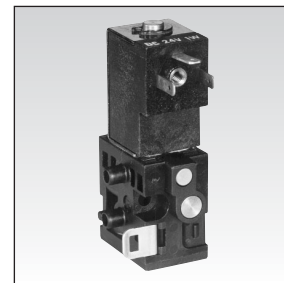
- All connections on one face
- Small size



Individual



Bank end valves (1 pair)



Intermediate valve

Part numbers

Orifice diameter	CV (KV)	psi	Adjustment range	Power
(0.8 mm)	.2 (0.3)	15>120	(1>8 bar)	1W
(0.8 mm)	.2 (0.3)	15>120	(1>8 bar)	2W

NC
81 548 010

NC
81 549 010

NC
81 549 510

Standard features

Voltage	24V ---
Electrical connections	2.8 x 0.5 blade terminals (W7D5) at 9.4 mm centres
Fluid connection	tapped holes M5
Manual override	by impulse
Pressure indicator	without

General characteristics

Response time	5 to 15 ms
Operating temperature	- 5 °C +50 °C
Viscosity range	up to 30 cst
Vibration resistance	up to 5 g
Air flow rate (at 2 bars)	15 to 40 NI/min
Maximum switching rate	30 Hz
Weight	Individual mounting: 32.5 g Bank end/inner valves: 35 g
Body material	Glass-reinforced polyamide 6.6
Mechanical life (operations)	1.5 x 10 ⁷
UL and cUL approval	MH 15085

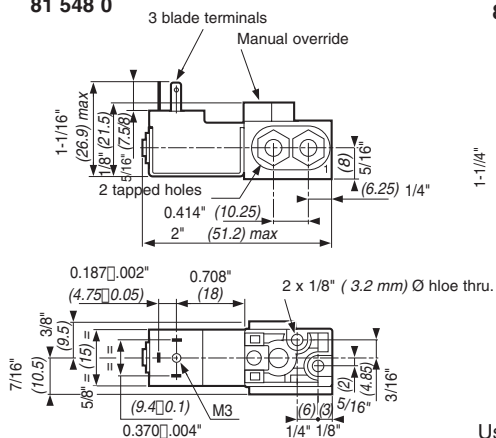
Accessories for 3/2 miniature solenoid valves

Connector for solenoid valve (see page 5/11)	81 516 082
Visual indicators (see page 5/55)	24 V-50/60 Hz DC: 81 513 052 48 V-50/60 Hz AC: 81 513 055 110 V-50/60 Hz AC: 81 513 058 220 V-50/60 Hz AC: 81 513 059
LED seal (see page 5/55)	12-24 V ~ ---: 81 513 064

Dimensions

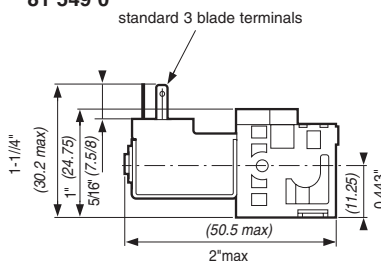
Individual

81 548 0



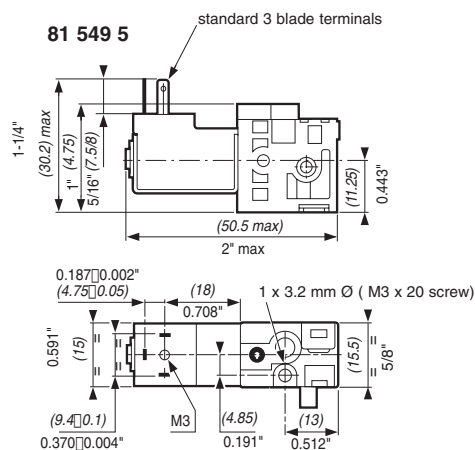
Bank end valves (1 pair)

81 549 0



Intermediate valve

81 549 5



Use (metric) dimensions for critical data

Other information	To order, specify :						
For options see page 5/74	<table border="1"> <tbody> <tr> <td>Standard products</td> <td>1 Part number</td> <td>2 Accessory</td> </tr> <tr> <td>Standard products, non stocked</td> <td colspan="2">Example : Standard 3/2 miniature solenoid valve 81 548 010 - LED seal 81 513 064</td> </tr> </tbody> </table>	Standard products	1 Part number	2 Accessory	Standard products, non stocked	Example : Standard 3/2 miniature solenoid valve 81 548 010 - LED seal 81 513 064	
Standard products	1 Part number	2 Accessory					
Standard products, non stocked	Example : Standard 3/2 miniature solenoid valve 81 548 010 - LED seal 81 513 064						

Products and specifications subject to change without notice.

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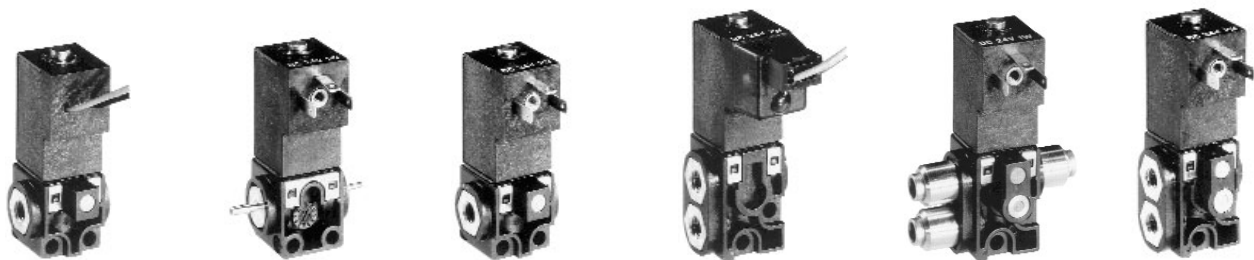
Miniature solenoid valves for fluids and inert gases

2/2 miniature solenoid valves for fluids

3/2 miniature solenoid valves for fluids

Mounting	Single	Bank end valves	Intermediate valve	Single	Bank end valves	Intermediate valve
Type	81 546 0	81 547 0	81 547 5	81 548 0	81 549 0	81 549 5
Functions						
NO	Please consult us for more information on the options available					
NC	●	●	●	●	●	●
Bore diameter						
Ø 0.8 mm (1 • 8 bar)	●	●	●	●	●	●
Ø 1.2 mm (- 0.9 • 3 bar)	○	○	○	○	○	○
Ø 1.5 mm (0 • 2 bar)	○	○	○	○	○	○
Voltage						
6 V $\overline{=}$	○	○	○	○	○	○
12 V $\overline{=}$	○	○	○	○	○	○
24 V $\overline{=}$	●	●	●	●	●	●
48 V $\overline{=}$	○	○	○	○	○	○
24 V \sim 50/60 Hz	Please consult us					
48 V \sim 50/60 Hz	Please consult us					
110 V \sim 50/60 Hz	Please consult us					
220-230 V 50/60 Hz	Please consult us					
Electrical connections						
Blade terminals 2.8 x 0.5 mm	●	●	●	●	●	●
Latch-in connector	Only with a 24 V DC miniature solenoid valve					
Output via moulded connector lead (0.30 m)	Only with a 24 V DC miniature solenoid valve					
Fluid connections						
M5 tapped hole	●	●	●	●	●	●
Plain ends	○	○	○	○	○	○
Push-in connector Ø 4 mm	○	○	○	○	○	○
Manual override						
without	●	●	●	○	○	○
by impulse	○	○	○	●	●	●
maintained	○	○	○	○	○	○
Pressure indicator						
with (except for Ø 1.2 mm items used in vacuum applications)	○	○	○	○	○	○
without	●	●	●	●	●	●

- Characteristics of standard miniature solenoid valves (see 5/72 and 5/73)
- Options available for the entire range



Output via moulded connector lead (0.3 m)

Barbs

Manual override by impulse

Latch-in connector
Accessory for connection option
Part no : 79 452 899
(wire length : 0.30 m)

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

Maintained manual override, no indicator

To order, specify :

Standard products, non stocked

1

Function

2

Orifice diameter

3

Voltage

4

Electrical connection

5

Fluid connection

6

Manual override

7

Pressure indicator

Example : 81 548 0 - NO Ø 0.8 - 48 VAC - Blade terminals 2.8 x 0.5 mm M5 - Manual override by impulse - With pressure indicator

Products and specifications subject to change without notice.

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Quality

The quality of CROUZET pneumatic and electro-pneumatic components is one of our very first considerations, from product design through to commercialisation and eventually delivery to customers. All CROUZET services are designed in accordance with the company's Quality Assurance Manual and the International Standards Directives **ISO 9001**.

The production site where our pneumatic and electro-pneumatic components are manufactured (la Plaine factory in Valence) has **ISO 9001** approval, which ensures the very highest level of quality.

Standards and approvals

Our pneumatic and electro-pneumatic components are designed according to IEC international recommendations, European standards (EN) and some in line with American standards (UL-CSA).

Unless otherwise indicated, as specified in the "characteristics" table, our electro-pneumatic components comply with standards IEC 536 (class I) and IEC 664-1 (Category II).

Proof of conformity with these standards and recommendations is demonstrated by the "approval" (the mark or certificate of conformity issued by an authorised body) or by the manufacturer's declaration of conformity (drawn up in accordance with the ISO / IEC 22 guide).

Rules and regulations

EC directives

■ Our pneumatic components are compatible with European standard EN 983 (safety of machinery : safety of fluid power systems and their components) and can therefore be used within the scope of the European Community's machinery directive 89/392/EEC.

■ Our electro-pneumatic components are compatible with the European Community's low voltage directive 73/23/EEC and with European standards :

- EN 60 204 (safety of machinery : electrical equipment of machines), in accordance with International standard IEC 204-1
- EN 983 (safety of machinery : safety of fluid power systems and their components)

They can therefore be used within the scope of the European Community's machinery directive 89/392/EEC.

They conform to the European Community's EMC directive 89/336/EEC.

■ Our two-hand controls conform to the European directive 93/44/EEC and can be used within the scope of the machinery directive 89/392/EEC.

Our two-hand safety start modules conform to the draft European directive EN 574.

Protection of the environment

The modern concept of protection of the environment is an integral part of the manufacture of our pneumatic and electro-pneumatic components, from product design through to packaging.

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