

Intrinsically Safe Miniature Solenoid Valves

EC Crouzet

Products and specifications subject to change without notice.

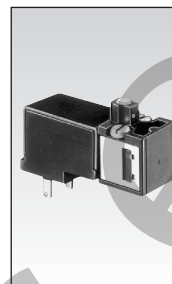
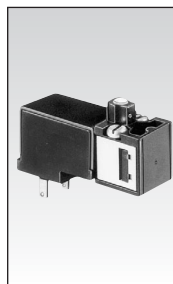
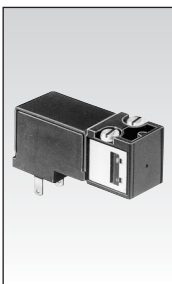


Intrinsically safe miniature solenoid valves EEx ia II C T6

ORDER ONLINE

LCIE approval
no. 93 C 6014X

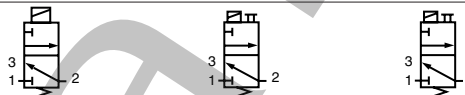
For mounting on sub-base or footprint in
accordance with CNOMO recommendation
E 06-36-120N



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)

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	°C	- 10 + 50	- 10 + 50
	fluid	°C	- 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

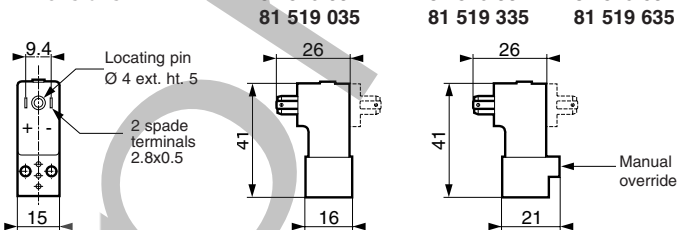
Pneumatic connections

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 81 516 100/200	see page 5/53	see page 5/53	see page 5/53

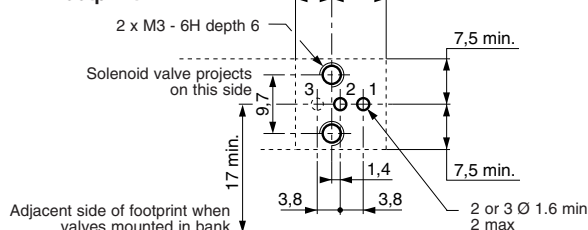
Electrical connections

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

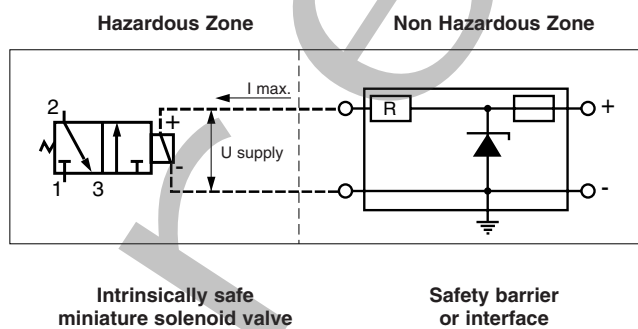
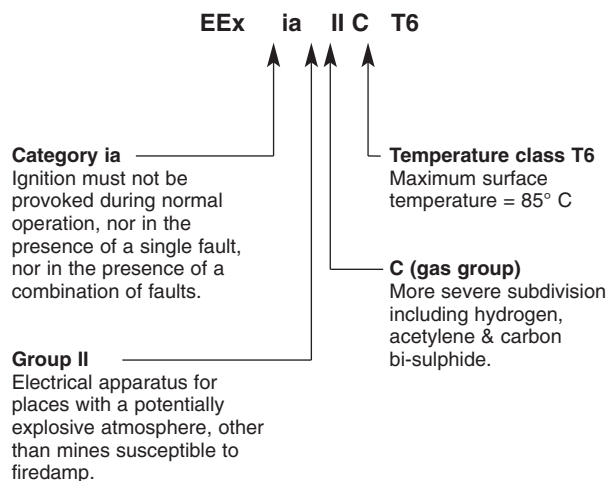
Products and specifications subject to change without notice.

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%
			LCIE	II C		220 Vac +/- 10%
MEASUREMENT TECHNOLOGY LTD	MTL 715 +		BASEEFA	II C	all zones	12 Vdc +10% -15%
STAHL	9004/01-168-050-00	ICS 1000 9451/12-01-10	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%
			LCIE	II C		220 Vac +/- 10%
MEASUREMENT TECHNOLOGY LTD	MTL 728 + MTL 708 +	MTL 2241 MTL 3021	BASEEFA	II C	all zones	20 to 26.6 Vdc
			BASEEFA	II C		21 to 35 Vdc
			BASEEFA	II C		180 to 260 Vac
PEPPERL & FUCHS	Z 428 EX	KHD3-ISD/EX148-90A	BASEEFA	II C	all zones	20 to 26.5 Vdc
			BASEEFA	II C		20 to 35 Vdc
STAHL	9004/01-280-025-00	ICS 1000 9451/12-02-10	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

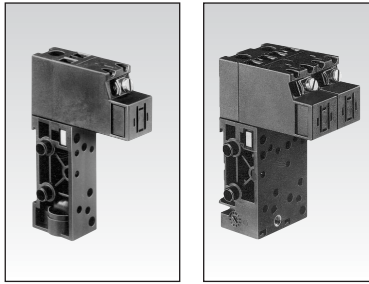
Products and specifications subject to change without notice.



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

ORDER ONLINE

LCIE approval
no. 93 C 6014X



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

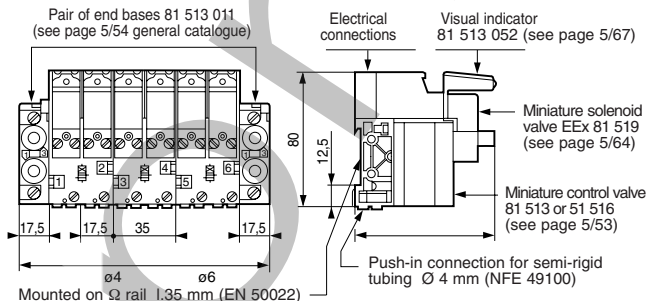
Port 1 function	common supply	—	—
Port 3 function	common exhaust	—	—
Port 2 function	miniature solenoid valve 81519...	—	—
Port "2" function	miniature control valve 81 513 200 /600	output at rest (NO)	output at rest (NO)
	miniature control valve 81 513 200 /600	—	output at rest (NO)
	miniature control 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

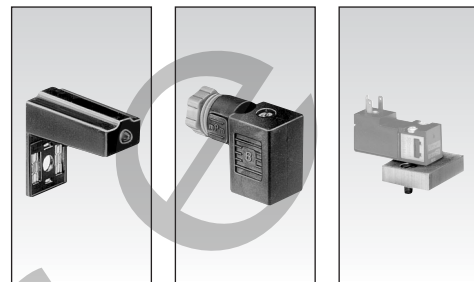
Associable sub-bases for miniature control valves EEx 81 513... and 81 516...



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.

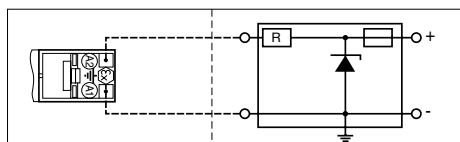


General information

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.

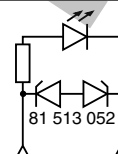
Note :

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

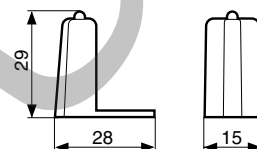


Characteristics

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.

79 453 569

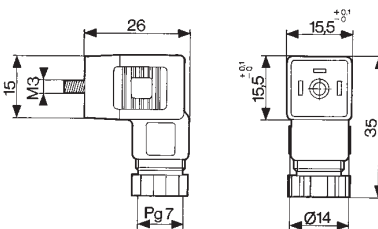
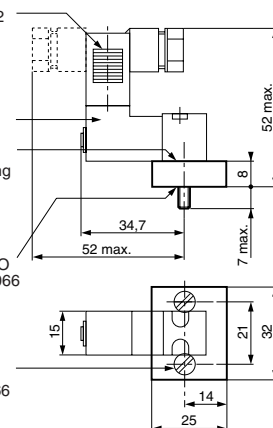
Connector ref. 81 516 082 (rotatable in 90° steps)

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)



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.

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.

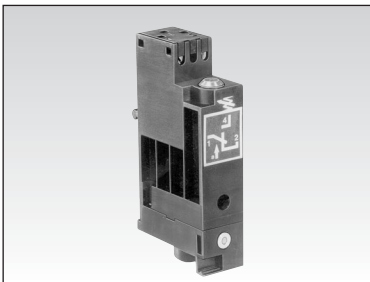


Intrinsically safe pressure switches LEx ia II C T6

ORDER
ONLINE

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

81 513 530
DIN rail 35 mm
EN 50022

Fixing			
Function	control	pressure	
Version	manual override	with	

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

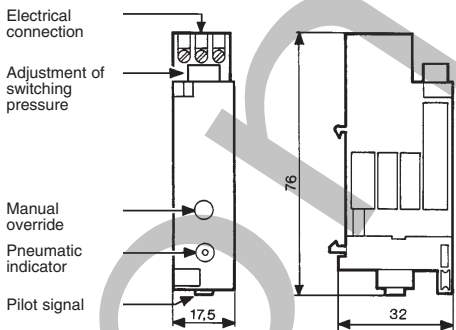
Connection	Push-in connection for semi-rigid tubing Ø 4 mm (NFE 49100)		
	Tapped holes 1/8 BSP		

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

1

Reference

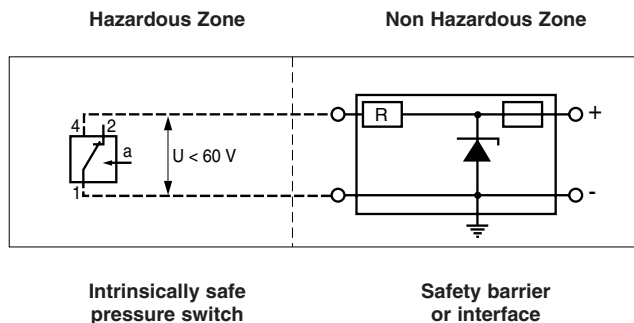
Example : Intrinsically safe pressure switches - 81 513 530

Products and specifications subject to change without notice.

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 +		BASEEFA	II C	all zones
			BASEEFA	II C	
		MTL 2210 B	BASEEFA	II C	
		MTL 3011	BASEEFA	II C	
PEPPERL & FUCHS GB LTD	Z 428 EX	MTL 4013	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	

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Intrinsically safe electro-pneumatic miniature control valves EEx ia II C T6

ORDER
ONLINE



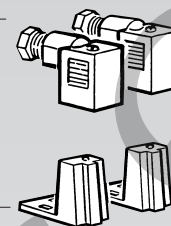
Mounting

Cabinet

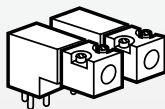
Machine

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.

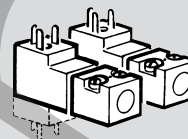
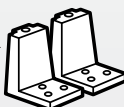


Miniature solenoid valves EEx ia II C T6



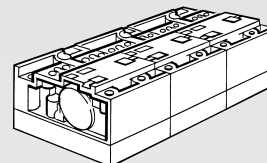
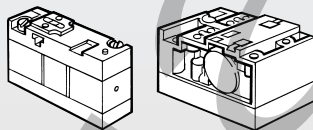
Indicators EEx ia II C T6

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

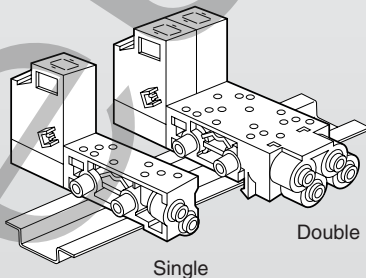
- Poppet
 - 3/2 monostable (17.5 mm)
 - 4/2 monostable (17.5 mm)
- Slide valve
 - 4/2 bistable (35 mm)
 - 4/2 monostable spring-return (35 mm)



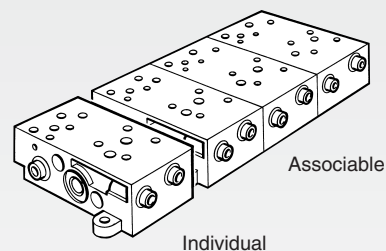
Sub-bases EEx ia II C T6

For miniature solenoid valves

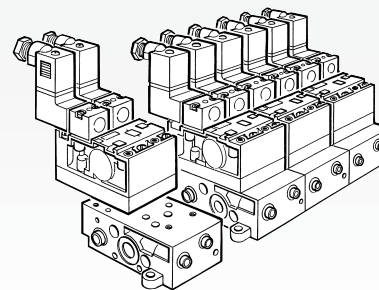
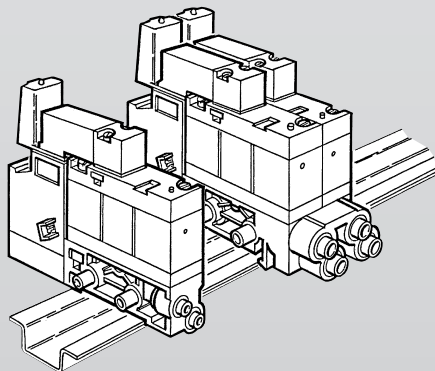
For valve modules



For valve modules



Complete product EEx ia II C T6



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