



# ELETTROTEC®

## 压力和真空开关 小型和超小型系列

*Pressure and Vacuum Switches  
Miniature and Subminiature Series*



意大利标准、欧洲标准、国际标准9001:2008质量管理体系  
Quality Management System UNI EN ISO 9001: 2008

# 公司简介

## Company profile

意大利伊莱科有限公司 (ELETTROTEC) 创建于1977年, 公司的最初业务是设计和生产微型可调节的压力开关、电磁浮球液位指示仪以及可视的、电动调节的流量指示仪和流量开关。

由于公司产品迅速占领市场, 成绩令人鼓舞人心, 因而再进行投资, 其针对的目标是不断地更新产品, 保持技术进步, 与时俱进, 永远满足自己客户的需求。在过去的30年业务活动中, 公司发生了巨大的变化, 提升、加强了竞争力, 改进和扩大了自己的产品供给。公司生产新的液面控制开关、流量开关、压力调节开关、真空开关和弯度调节控制开关, 受到意大利和国内外客户以及市场的青睐。

不断地发展以及对于市场要求迅速变化的关注, 这两点仍然是公司政策里不可分割的一部分。事实上, 除了在当时发展的多种专门的和个性化的解决方案以外, 公司又给巩固的核心业务增加了新的生产线, 专门用于电子工业自动化的产品。意大利伊莱科有限公司在扩大其产品供给时所面临的一个挑战就是要求其产品在所有的应用中有更加精确的监视、监控。另外, 要使生产产品完整还必须有一个范围很广的配件, 如防护帽和接插件, 其中最引人注目的是新的德国标准系列接插件, 其带有透明的外罩和红绿双色二级发光管。这些新系列的设计构思被用在意大利伊莱科有限公司整个系列产品中。

公司投入的巨大资金和人力收到了非常好的效果, 目前公司在仪器领域里已成为真正的主角。现今公司拥有高质量的产品, 在下列重要领域里牢牢地站稳脚跟: 机械工业、制药工业、医学电气领域、铁路运输行业、农业机械、液压领域、气动领域、自动化领域、润滑设备、电梯、消防设备、热交换器以及土方工程机械。

意大利伊莱科有限公司已通过UNI EN ISO 9001:2000 认证, 团队合作是公司的特色。从市场到运输, 所有部门都紧密协作, 对全球化竞争具有清晰认识。这是公司不断成长的基石, 帮助伊莱科在永不止步的发展中更好地适应瞬息万变的市場要求。

### 生产: 流体控制设备

产品范围: 压力开关、真空开关、温度调节控制开关、液面控制开关、流量计以及流量开关、液面传感器、可编程的电子数字式指示器、电子压力传感器以及压力稳定开关、防护帽、接插件。

营业地及客户服务部:

地址: Milan, Via Jean Jaurés, 12

*Established in 1977 Elettrotec began first with the design and manufacturing of adjustable miniature pressure switches, electromagnetic float level switches and electric flow indicators and switches with or without visual indication.*

*The fast and encouraging penetration in the market led the Company to direct its efforts towards investment aimed at steadily updating the products in offer, keeping up with the progress in technology and always answering to any customer's requirements. With 30 years of experience, years of radical changes and increasing competitiveness, Elettrotec has been able to improve and enlarge the product range with new series of level switches, flow indicators, pressure, vacuum and temperature switches, coming up to the expectations of the customers and the market in general, both in Italy and abroad.*

*Constant development and the attention paid to the fast changes required by the market are still an integral part of the Company policy. In fact, besides specific and custom-made solutions developed in years of experience, the established Elettrotec core business has been also added with new product lines for the electronic industrial automation. A challenge that the Company has to embark on, in order to expand its offer in all those applications requiring nowadays most accurate process monitoring. Moreover, to give a comprehensive idea of the Elettrotec production, it has to be also mentioned a wide range of excellent accessories, such as protection caps and connectors, among which stands out in particular the new series of DIN connectors with transparent housing and red/green LED, designed to suit and fit not only the Elettrotec product range.*

*The huge investments and the great commitment yielded more than satisfactory results, letting Elettrotec become a primary player in the field of instrumentation. Thanks to its high standard quality products, the Company is now very well-established in important sectors, such as: hydraulics, pneumatics, mechanical, pharmaceutical, medical, cosmetic, food, textile and healthcare industry, railway transportation, agricultural machinery, automation, lubrication plants, lifting systems, fire prevention, heat exchangers and earthwork machinery.*

*Elettrotec, certified according to UNI EN ISO 9001:2000, is characterized by team work. All the departments, from Marketing to the Shipping one, work closely together also wellaware to have to compete worldwide. This is the cornerstone of the Elettrotec organization, a structure that, according to the Management, is constantly growing and perfectly tuned with the requirements of an extremely dynamic market in a non-stop and progressive evolution.*

### PRODUCTION: CONTROL DEVICES FOR FLUIDS

**Product range: pressure switches, vacuum switches, temperature switches, float level switches, flow indicators and switches, level sensors, programmable digital indicators, electronic pressure transmitters and switches, variable area flow meters, protection caps, connectors.**

*Business Premises and Customer Service:  
Milan, Via Jean Jaurés, 12.*

# PMN系列可调节式压力开关 调节范围0.1-300巴

## Adjustable pressure switches PMN series Adjustment ranges 0.1 to 300 bar

### 用途

本系列压力开关产品一般用于监控油或油脂润滑设备、液压、气动和水回路中的压力。这些压力开关已经被设计为具有六角本体、隔膜或活塞式传感元件、镀银触点、按下即接通接线端以及弹簧的形式，以平衡和调节将要进行检查的压力。如需调节压力，使用一把小螺丝钉转动V型调节螺钉，注意不要影响到弹簧。

可按照要求在出厂时将压力开关设定为一个具体数值。

N/O或N/C开关元件指的是不存在压力时的状态。建议使用保护帽CAP1或CAP10保护内部零件，防止湿气和灰尘侵入。

### 材料

开关壳	尼龙6.6
保护帽	黑色NBR
隔膜/垫圈	参见下面引用表
活塞（用于高压）	AISI316不锈钢
本体24 AF	参见第2页的表格
触点	镀银铜片（3微米）

### DATI TECNICI

最大电压	48 Vca/cc
电流	0.5 (0.2) A
温度范围	-30°C...+140°C (取决于隔膜/垫圈材料)
防护等级（接线端）	IP 00
使用CAP 1防护时	IP 54
使用CAP 10防护时	IP 54
25°C最大循环速率	200/分钟（隔膜式）
25°C最大循环速率	80/分钟（活塞式）
机械寿命	10 <sup>6</sup> 次运行
强度测试	1500 V - 10 mA - 10"
拧紧力矩	最大5Kgm

### USE

This series of pressure switches is generally used to monitor pressure either in oil or grease lubrication plants, hydraulic, pneumatic and water circuits. These pressure switches have been designed with hexagonal body, diaphragm or piston sensing element, silver-plated contacts, push-on terminals and springs to balance and adjust the pressure to be checked. To adjust pressure, turn with a small screwdriver the V adjusting screw, paying attention not to affect the spring.

**Pressure switches factory set to a specific value can be supplied on request.**

N/O or N/C switching element refers to the status in absence of pressure. It is advisable to protect the electric connections and the internal parts against moisture and dust infiltration using protection CAP1 or CAP10.

### MATERIALS

Switch housing	Nylon 6,6
Protection cap	Black NBR
Diaphragm/Gasket	See reference list below
Piston (for high pressure)	AISI316 stainless steel
Body 24 AF	See table on page 2
Contact	Silver-plated copper (3 microns)

### SPECIFICATIONS

Max voltage	48 Vac/dc
Current	0.5(0.2)A
Temperature range	-30°C to +140°C (according to diaphragm/gasket material)
Protection (terminals)	IP 00
Protection with CAP 1	IP 54
Protection with CAP 10	IP 54
Max. cycle rate at 25°C	200/min (diaphragm type)
Max. cycle rate at 25°C	80/min (piston type)
Mechanical life	10 <sup>6</sup> operations
Strength test	1500 V - 10 mA - 10"
Tightening torque	max. 5 Kgm

### 举例 / EXAMPLE

订购代码 / ORDERING CODE

PMN	50	A	14K
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物料号 / PART NO.

31561
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### 订购信息

PMN... 具有按下即接通端子6.3 x 0.8的压力开关

**触点**  
A N/O触点（无压力）  
C N/C触点（无压力）  
**24 AF本体材料（参见一般技术规范）**

- 标准执行  
I AISI303 不锈钢  
W AISI316 不锈钢

**隔膜/垫圈**  
- NBR (-5°C...+60°C)  
V FKM (-5°C...+90°C)  
S 硅胶 (-30°C...+120°C)  
NT HNBR (-25°C...+140°C)  
C 氯丁橡胶 (-10°C...+90°C)  
E EPDM (-20°C...+110°C)  
MI 不锈钢 (-30°C...+140°C)

**螺纹**  
- G1/8 锥螺纹（标准）  
14K G1/4 锥螺纹  
10K M10x1 锥螺纹  
M12 M12x1.5 直螺纹  
R14 G1/4 直螺纹

**选项**  
T2 压力上升到设定值（例如2巴）时动作  
T2D 压力下降到设定值（例如2巴）时动作  
G 用于低电流的镀金触点（3微米）  
SG 为使用氧气的的应用进行脱脂  
TG 为使用气体的应用进行测试  
P Pocan开关壳（-30°C ~ +140°C）  
AP 高压执行

符合CE 89/336标准EMC 编号147E/96 报告

### ORDERING INFORMATION

PMN... Pressure switch with push-on terminals 6.3 x 0.8

**Contact**  
A N/O contact (without pressure)  
C N/C contact (without pressure)

**24 AF body material (see general specifications)**  
- Standard execution  
I AISI303 stainless steel  
W AISI316 stainless steel

**Diaphragm/Gasket**  
- NBR (-5°C to +60°C)  
V FKM (-5°C to +90°C)  
S Silicone (-30°C to +120°C)  
NT HNBR (-25°C to +140°C)  
C Neoprene (-10°C to +90°C)  
E EPDM (-20°C to +110°C)  
MI Stainless steel (-30°C to +140°C)

**Threads**  
- G1/8 taper (standard)  
14K G1/4 taper  
10K M10x1 taper  
M12 M12x1.5 parallel  
R14 G1/4 parallel

**Options**  
T2 Set-point adjustment rising at the required value (ex. 2 bar)  
T2D Set-point adjustment falling at the required value (ex. 2 bar)  
G Gold-plated contact (3 microns) for low current  
SG Degreased for applications with oxygen  
TG Tested for applications with gas  
P Pocan switch housing (-30°C to +140°C)  
AP High pressure execution

IN COMPLIANCE WITH CE 89/336 STANDARDS EMC No. 147E/96 REPORT

# 订购代码 / ORDERING CODE

PMN	10	C	W	V	14K	-
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型号 / MODEL	PMN
范围 / RANGE	1 - 2 - 10 - 20 - 50 80 - 150 - 250 - 300
触点 (无压力)	A - C
本体 / BODY	(-) - I - W

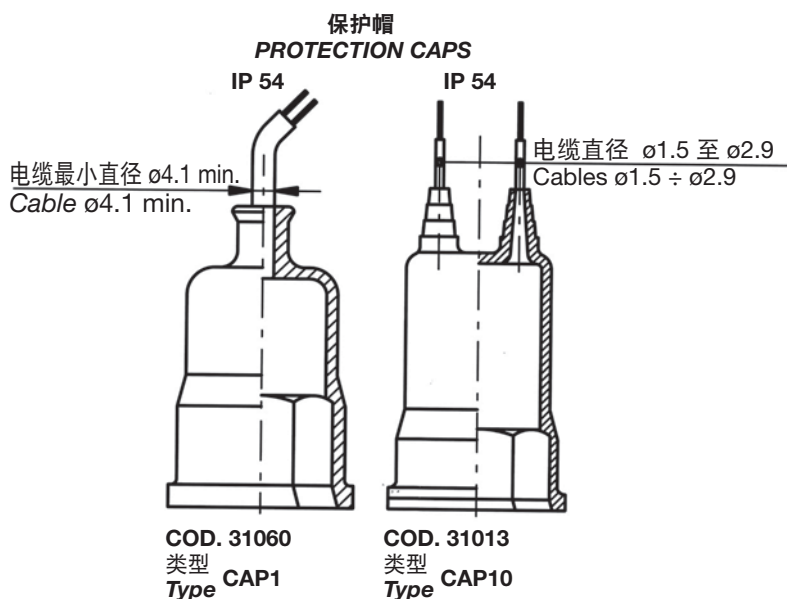
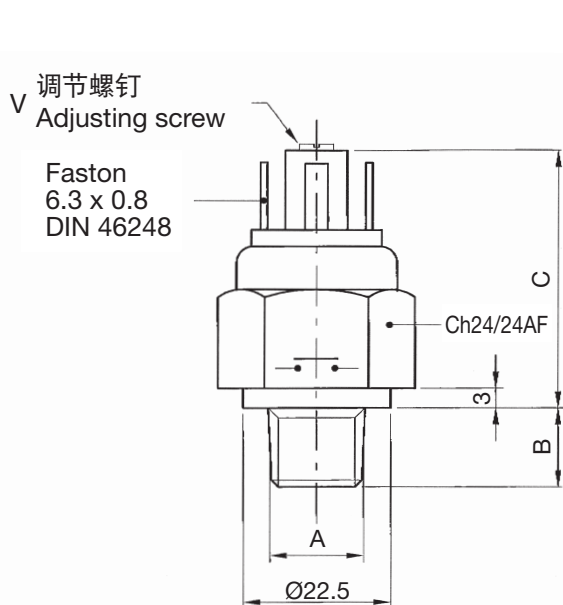
选项 / OPTIONS		
T... - T...D - G - SG TG - P - AP		

螺纹	"A"	"B"
18K	G1/8 锥螺纹	10
14K	G1/4 锥螺纹	12
10K	M10x1 锥螺纹	10
M12	M12x1,5 直螺纹	12
R14	G1/4 直螺纹	12

隔膜 / Diaphragm
垫圈 / gasket



## 总技术条件 / GENERAL SPECIFICATIONS

类型 Model	调节范围 Adjustment range	尺寸 "C" Dimensions "C"	最大静态压力 Max. static pressure					25 °C时 固定滞后量 Fixed hysteresis at 25 °C	25°C时误差 Tolerance at 25°C	执行 Execution	
			巴/bar								
			黄铜制标准 执行 Standard execution in brass	耐热钢制标准 执行 Standard execution in tropicalized steel	仅用于PMN1/2/10 的耐热钢制AP执行 AP execution in tropicalized steel only PMN1/2/10	AISI 303 不锈钢执行 AISI 303 stainless steel execution	AISI 316 不锈钢执行 AISI 316 stainless steel execution				
PMN 1	0,1 - 1	40	80				150	150	0,1	$\pm 0,1$	隔膜 Diaphragm
PMN 2	0,15 - 2	40	80				150	150	0,15	$\pm 0,15$	
PMN 10	2 - 10	40	80				150	150	0,2	$\pm 0,2$	
PMN 1 AP	0,1 - 1	40		300					0,1	$\pm 0,1$	
PMN 2 AP	0,15 - 2	40		300					0,15	$\pm 0,15$	
PMN 10 AP	2 - 10	40		300					0,2	$\pm 0,2$	
PMN 20	10 - 20	40		300		300	300	300	0,3	$\pm 0,4$	
PMN 50	20 - 50	40		300		300	300	300	0,8	$\pm 1$	
PMN 80	50 - 80	40		300		300	300	300	5,5	$\pm 2$	
PMN 150	50 - 150	40		300		300	300	300	10	$\pm 5$	
PMN 250	100 - 250	40		600		400	400	400	15	$\pm 10$	活塞 Piston
PMN 300	50 - 300	42		600		400	400	400	20	$\pm 15$	

# PMM系列可调节式压力开关

## 调节范围0.1-300巴

### Adjustable pressure switches PMM series

### Adjustment ranges 0.1 to 300 bar

#### 用途

本系列压力开关产品一般用于监控油或油脂润滑设备、液压、气动和水回路中的压力。这些压力开关已经被设计为具有六角本体、隔膜或活塞式传感元件、镀银触点、螺丝接线端以及弹簧的形式，以平衡和调节将要进行检查的压力。如需调节压力，在将CAP3拧紧衬套移除掉后，使用一把小螺丝钉转动V型调节螺钉，注意不要影响到弹簧。

可按照要求在出厂时将压力开关设定为一个具体数值。

N/O或N/C开关元件指的是不存在压力时的状态。建议使用保护帽CAP3保护内部零件，防止湿气和灰尘侵入。

#### 材料

开关壳	尼龙6.6
保护帽	黑色NBR
隔膜/垫圈	参见下面引用表
活塞（用于高压）	AISI316不锈钢
本体24 AF	参见第4页的表格
触点	镀银铜片（3微米）

#### 技术规范

最大电压	48Vac/dc
电流	0.5(0.2)A
温度范围	-30°C to +140°C (取决于隔膜/垫圈材料)
防护等级（接线端）	IP 00
使用CAP 3防护时	IP 65
25°C最大循环速率	200/分钟（隔膜式）
25°C最大循环速率	80/分钟（活塞式）
机械寿命	10 <sup>9</sup> 次运行
强度测试	1500 V - 10 mA - 10 <sup>9</sup>
拧紧力矩	最大5Kgm

#### USE

This series of pressure switches is generally used to monitor pressure either in oil or grease lubrication plants and hydraulic, pneumatic and water circuits. These pressure switches have been designed with hexagonal body, diaphragm or piston sensing element, silver-plated contacts, screw terminals and springs to balance and adjust the pressure to be checked. To adjust pressure, after having removed CAP3 fastening bush (B) turn with a small screwdriver the V adjusting screw and pay attention not to affect the spring.

**Pressure switches factory set to a specific value can be supplied on request.**

N/O or N/C switching element refers to the status in absence of pressure. It is advisable to protect the electric connections and the internal parts against moisture and dust infiltration using protection CAP3.

#### MATERIALS

Switch housing	Nylon 6,6
Protection cap	Black NBR
Diaphragm / Gasket	See reference list below
Piston (for high pressure)	AISI316 stainless steel
Body 24 AF	See table on page 4
Contact	Silver-plated copper (3 microns)

#### SPECIFICATIONS

Max voltage	48 Vac/dc
Current	0.5(0.2) A
Temperature range	-30°C to +140°C (according to diaphragm/gasket material)
Protection (terminals)	IP 00
Protection with CAP 3	IP 65
Max cycle rate at 25°C	200/min (diaphragm type)
Max cycle rate at 25 °C	80/min (piston type)
Mechanical life	10 <sup>9</sup> operations
Strength test	1500 V - 10 mA - 10 <sup>9</sup>
Tightening torque	Max. 5 Kgm

#### 举例 / EXAMPLE

订购代码 / ORDERING CODE

PMM	50	A	14K
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物料号 / PART NO.

31661
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#### 订购信息

PMM... 带有螺丝接线端的压力开关

触点  
A N/O触点（无压力）  
C N/C触点（无压力）  
24 AF本体材料（参见一般技术规范）

- 标准执行  
I AISI303 不锈钢  
W AISI316 不锈钢

#### Membrana/Guarnizione

-	NBR	(-5°C ~ +60°C)
V	FKM	(-5°C ~ +90°C)
S	硅胶	(-30°C ~ +120°C)
NT	HNBR	(-25°C ~ +140°C)
C	氯丁橡胶	(-10°C ~ +90°C)
E	EPDM	(-20°C ~ +110°C)
MI	不锈钢	(-30°C ~ +140°C)

螺纹  
- G1/8锥螺纹（标准）  
14K G1/4锥螺纹  
10K M10x1锥螺纹  
M12 M12x1.5直螺纹  
R14 G1/4直螺纹

选项  
T2 压力上升到设定值（例如2巴）时动作  
T 2D 压力上升到设定值（例如2巴）时动作  
G 用于低电流的镀金触点（3微米）  
SG 为使用氧气的的应用进行脱脂  
TG 为使用气体的应用进行测试  
P Poca开关壳（-30°C ~ +140°C）  
AP 高压执行

符合CE 89/336标准EMC 编号147E/96 报告

#### ORDERING INFORMATION

PMM... Pressure switch with screw terminals

#### Contact

A N/O contact (without pressure)  
C N/C contact (without pressure)

#### 24 AF body material (see general specifications)

- Standard execution  
I AISI303 stainless steel  
W AISI316 stainless steel

#### Diaphragm / Gasket

-	NBR	(-5°C to +60°C)
V	FKM	(-5°C to +90°C)
S	Silicone	(-30°C to +120°C)
NT	HNBR	(-25°C to +140°C)
C	Neoprene	(-10°C to +90°C)
E	EPDM	(-20°C to +110°C)
MI	Stainless steel	(-30°C to +140°C)

#### Threads

- G1/8 taper (standard)  
14K G1/4 taper  
10K M10x1 taper  
M12 M12x1,5 parallel  
R14 G1/4 parallel

#### Options

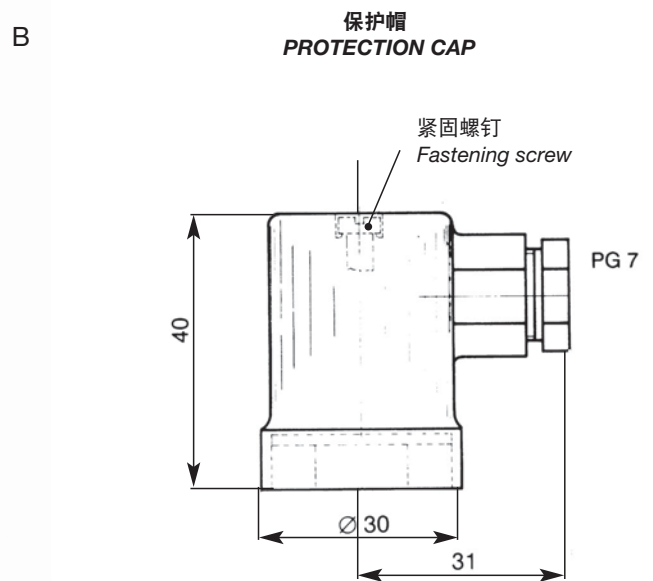
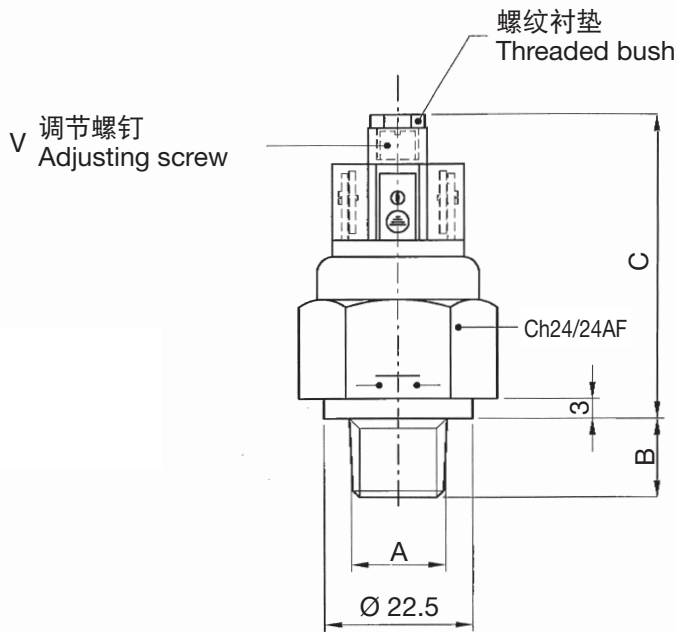
T2 Set-point adjustment rising at the required value (ex. 2bar)  
T 2D Set-point adjustment falling at the required value (ex. 2bar)  
G Gold-plated contact (3 microns) for low current  
SG Degreased for applications with oxygen  
TG Tested for applications with gas  
P Poca switch housing (-30°C to +140°C)  
AP High pressure execution

IN COMPLIANCE WITH CE 89/336 RULES EMC N° 147E/96 REPORT



# 订购代码 / ORDERING CODE

型号 / MODEL	PMM	10	C	W	V	14K	-	选项 / OPTIONS
PMM								T... - T...D - G - SG TG - P - AP
范围 / RANGE	1 - 2 - 10 - 20 - 50 80 - 150 - 250 - 300							螺纹
触点 (无压力)	A - C							"A"
本体 / BODY	(-) - I - W							"B"
								18K G1/8 锥螺纹 10
								14K G1/4 锥螺纹 12
								10K M10x1 锥螺纹 10
								M12 M12x1,5 直螺纹 12
								R14 G1/4 直螺纹 12
								隔膜 / Diaphragm
								垫圈 / gasket



**COD. 31015**  
类型  
Type **CAP3**

# 总技术条件 / GENERAL SPECIFICATIONS

类型 Model	调节范围 Adjustment range	尺寸 "C" Dimensions "C"	最大静态压力 Max. static pressure					25 °C时 固定滞后量 Fixed hysteresis at 25 °C	25°C时误差 Tolerance at 25°C	执行 Execution
			巴/bar							
			黄铜制标准 执行 Standard execution in brass	耐热钢制标准 执行 Standard execution in tropicalized steel	仅用于PMN1/2/10 的耐热钢制AP执行 AP execution in tropicalized steel only PMN1/2/10	AISI 303 不锈钢执行 AISI 303 stainless steel execution	AISI 316 不锈钢执行 AISI 316 stainless steel execution			
	巴/bar	mm					巴/bar	巴/bar		
PMM 1	0,1 - 1	46	80			150	150	0,1	±0,1	隔膜 Diaphragm
PMM 2	0,15 - 2	46	80			150	150	0,15	±0,15	
PMM 10	2 - 10	46	80			150	150	0,2	±0,2	
PMM 1 AP	0,1 - 1	46		300				0,1	±0,1	
PMM 2 AP	0,15 - 2	46		300				0,15	±0,15	
PMM 10 AP	2 - 10	46		300				0,2	±0,2	
PMM 20	10 - 20	46		300		300	300	0,3	±0,4	活塞 Piston
PMM 50	20 - 50	46		300		300	300	0,8	±1	
PMM 80	50 - 80	46		300		300	300	5,5	±2	
PMM 150	50 - 150	46		300		300	300	10	±5	
PMM 250	100 - 250	46		600		400	400	15	±10	
PMM 300	50 - 300	49		600		400	400	20	±15	

# MS-PS系列可调节式压力开关

## 调节范围0.2-300巴

### Adjustable pressure switches MS-PS series

### Adjustment ranges 0.2 to 300 bar

#### 用途

MS-PS可调节式压力开关，有两种类型可供使用，最高压力为100巴的隔膜式或最高压力为300巴的活塞式，设计具有额定值为6(2)A / 250Vac或30mA / 30Vdc的标准SPDT触点，如果需要使用镀金触点的话。MS-PS压力开关具有等于设定值15%的固定滞后量。这种压力开关可以配备黄铜、耐热钢或者按照要求采用303和316不锈钢制成的24 AF六角本体。

MS-PS压力开关极其适用于在自动化、液压、气体分配、防火、起吊系统、制药工业、润滑设备、制冷设备应用中中对压力进行监控。通过使用开关壳中所包含的调节螺钉，可以将压力开关设定在所需值处。注意不要影响到弹簧。

可按照客户要求出厂时将压力开关设定为一个具体数值。

#### 技术规范

开关额定值	6(2)A / 250Vac
开关额定值	2(1)A / 24Vdc
最大额定值—镀金触点	30mA / 30Vdc
开关绝缘性	C, 根据VDE 0110
滞后量	~设定值的15%
温度范围	-30°C ~ 140°C (取决于隔膜/垫圈材料)
防护等级 (接线端)	IP00
使用CAP13进行防护时	IP65
使用CAP16进行防护时	IP54
25°C最大循环速率	120/分钟 (隔膜式)
25°C最大循环速率	10/分钟 (SS隔膜式)
25°C最大循环速率	60/分钟 (活塞式)
机械寿命	10 <sup>6</sup> 次运行
拧紧力矩	5Kgm
CAP13拧紧力矩	0.5Kgm

#### 材料

24 AF本体	参见备查表
镀银触点	Ag. CdO
CAP13	黑色尼龙 (-10°C ~ +110°C)
开关壳	Pocan

#### 订购信息

MS	隔膜式压力开关
PS	活塞式压力开关
<b>调节范围</b>	
MS 2	0.2 - 2 巴
MS 10	1 - 10 巴
MS 50	10 - 50 巴
MS 100	10 - 100 巴
PS 150	30 - 150 巴
PS 300	50 - 300 巴
<b>触点</b>	
SC	SPDT C/O 触点
<b>24 AF本体材料</b>	
-	标准执行为黄铜 (MS2 - MS10) 和耐热钢 (MS50 - MS100 - PS150 - PS300)
I	AISI 303 不锈钢
W	AISI 316 不锈钢
<b>隔膜或垫圈</b>	
NT	HNBR -25°C ~ +140°C V
FKM	-5°C ~ +90°C
S	Red silicone -30°C ~ +120°C
E	EPDM -20°C ~ +110°C
C	Neoprene -10°C ~ +110°C
MI	不锈钢仅用于MS2和MS10型产品—最大压力80巴 -30°C~+140°C

#### 螺纹—"A"参考

R18	G 1/8" 直螺纹	"B" = 10
R14	G 1/4" 直螺纹	"B" = 12
M10	M10x1 直螺纹	"B" = 10
M12	M12x1.5 直螺纹	"B" = 12
18NPT	1/8NPT 锥螺纹	"B" = 10

#### 设置

T ...	压力上升到设定值时动作 (例如T2 压力上升到2巴时动作)
T ...D	压力下降到设定值时动作 (例如T5D 压力下降到5巴时动作)

#### 选项

AP	当本体材料为耐热钢时用于MS2-MS10型产品的高压执行 (100巴)
G	用于低电流应用 30mA的镀金触点 ≤30mA
SG	去除压力开关油脂用于使用氧气的应用
TG	测试压力开关用于使用气体的应用

符合CE 89/336标准EMC 编号147E/96 报告

#### USE

MS-PS adjustable pressure switches, available either in diaphragm execution up to 100 bar or piston execution up to 300 bar, have been designed with SPDT contacts standard rated at 6(2)A / 250Vac or 30mA / 30Vdc if gold-plated contacts are required. MS-PS pressure switches are supplied with fixed hysteresis at ~15% of set-point value. They can be supplied with 24 AF hexagonal body in brass, tropicalized steel or, only on request, 303 and 316 stainless steel. MS-PS pressure switches are particularly suitable to monitor pressure in automation, hydraulics, gas distribution, fire prevention, lifting systems, pharmaceutical industry, lubrication plants, refrigeration and so on. Using the adjusting screw housed in the switch housing, it is possible to set the pressure switch at the required value. Pay attention not to affect the spring.

Pressure switches factory set to a specific value can be supplied on customer's request.

#### SPECIFICATIONS

Switch rating	6(2)A / 250Vac
Switch rating	2(1)A / 24Vdc
Max rating - gold contacts	30mA / 30Vdc
Switch insulation	C according to VDE 0110
Hysteresis	~15% set-point value
Temperature range	-30°C to 140°C ( according to diaphragm / gasket material )
Protection (terminals)	IP00
Protection with CAP13	IP65
Protection with CAP16	IP54
Max cycle rate at 25°C	120/min. (diaphragm type)
Max cycle rate at 25°C	10/min. (with SS diaphragm)
Max cycle rate at 25°C	60/min. (piston type)
Mechanical life	10 <sup>6</sup> operations
Tightening torque	5 Kgm
CAP13 tightening torque	0.5 Kgm

#### MATERIALS

24 AF body	See reference table
Silver-plated contacts	Ag. CdO
CAP13	Black Nylon (-10°C to +110°C)
Switch housing	Pocan

#### ORDERING INFORMATION

MS	Diaphragm pressure switch
PS	Piston pressure switch
<b>Adjustment range</b>	
MS 2	0.2 - 2 bar
MS 10	1 - 10 bar
MS 50	10 - 50 bar
MS 100	10 - 100 bar
PS 150	30 - 150 bar
PS 300	50 - 300 bar

#### Contact

SC	SPDT C/O contact
----	------------------

#### 24 AF body material

-	Standard execution in brass (MS2 - MS10) and tropicalized steel (MS50 - MS100 - PS150 - PS300)
I	AISI 303 stainless steel
W	AISI 316 stainless steel

#### Diaphragm or gasket

NT	HNBR	-25°C to +140°C
V	FKM	-5°C to +90°C
S	Red silicone	-30°C to +120°C
E	EPDM	-20°C to +110°C
C	Neoprene	-10°C to +110°C
MI	Stainless steel only for MS2 and MS10 models - max. pressure 80bar	-30°C to +140°C

#### Threads - "A" reference

R18	G 1/8" parallel	"B" = 10
R14	G 1/4" parallel	"B" = 12
M10	M10x1 parallel	"B" = 10
M12	M12x1.5 parallel	"B" = 12
18NPT	1/8NPT taper	"B" = 10

#### Setting

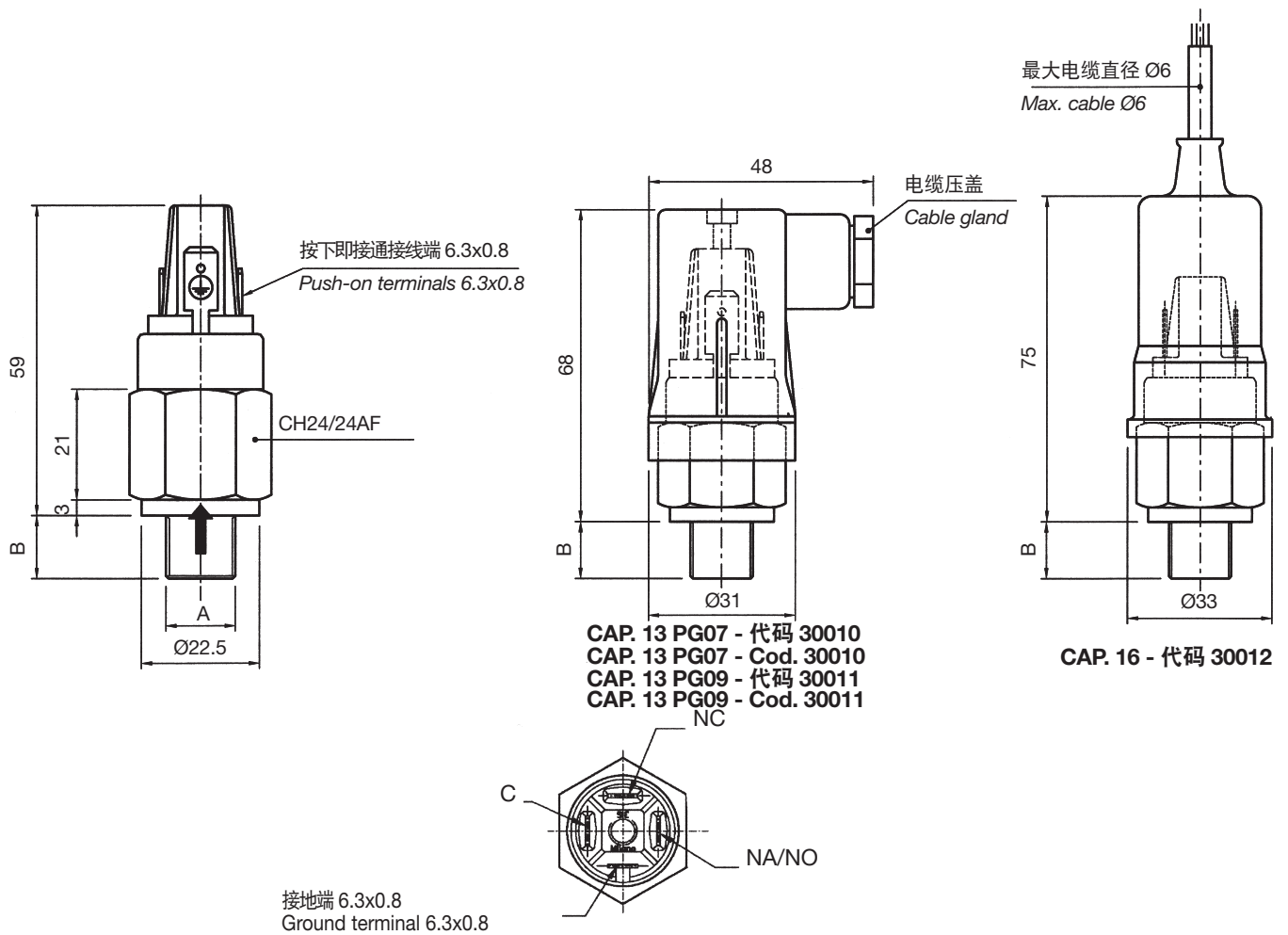
T ...	Set up rising to the required value ( ex. T2 rising set-point adjustment at 2 bar )
T ...D	Set up falling to the required value ( ex. T5D falling set-point adjustment at 5 bar )

#### Options

AP	High pressure execution (300 bar) for MS2 - MS10 models with body in tropicalized steel
G	Gold-plated contacts for low current applications ≤30mA
SG	Pressure switches degreased for applications with oxygen
TG	Pressure switches tested for applications with gas

IN COMPLIANCE WITH CE 89/336 RULES EMC N° 147E/96 REPORT





CAP. 13 PG07 - 代码 30010  
 CAP. 13 PG07 - Cod. 30010  
 CAP. 13 PG09 - 代码 30011  
 CAP. 13 PG09 - Cod. 30011

CAP. 16 - 代码 30012

通用 / Common  
 NC = 常闭 / Normally Closed  
 NA/NO = 常开 / Normally Open

## CARATTERISTICHE GENERALI / 总技术条件

类型 Model	调节范围 Adjustment range 巴/bar	最大静态压力 Max. static pressure 巴/bar					25 °C时 固定滞后量 Fixed hysteresis at 25 °C 巴/bar	25°C时误差 Tolerance at 25°C 巴/bar	执行 Execution 隔膜 Diaphragm 活塞 Piston
		黄铜制标准 执行 Standard execution in brass	耐热钢制标准 执行 Standard execution in tropicalized steel	仅用于MS 2/10的 耐热钢制AP执行 AP execution in tropicalized steel only MS 2/10	AISI 303 不锈钢执行 AISI 303 stainless steel execution	AISI 316 不锈钢执行 AISI 316 stainless steel execution			
		MS 2	0,2 - 2	80					
MS 10	1 - 10	80			150	150	~15% set-point	±0,4	
MS 2...AP	0,2 - 2			300			~15% set-point	±0,2	
MS 10...AP	1 - 10			300			~15% set-point	±0,4	
MS 50	10 - 50		300		150	150	~15% set-point	±2	
MS 100	10 - 100		300		150	150	~15% set-point	±3	
PS 150	30 - 150		300		250	250	~15% set-point	±5	活塞 Piston
PS 300	50 - 300		600		400	400	~15% set-point	±15	



# 可调节式压力开关

## Adjustable pressure switches PSM - PSP

### 用途

可调节式PSM-PSP压力开关可用工作压力范围为0.2~300巴，特别适用于在自动化、气动和液压线路、润滑设备、安全系统等应用中。这些压力开关设计用于根据CE标准进行工作，配备C/O触点，滞后量可调节，最高可至满量程值的30%。在不使用任何密封件的情况下即可将PSM-PSP压力开关连接到要监控的线路上，因为它们本身已配备了一只专门用于所用流体的OR垫圈。可通过适当的中间调节螺钉来调节设定点，另一个螺钉是专门用来调节滞后量以使触点复位的。可按照要求在出厂时将压力开关设定为一个具体数值。

产品类型获得了IMQ产品认证许可。

### 技术规范

最大电压	250 Vac
工作电压	220 Vac
可调节滞后量	设定点的10%-30%
电流	6(2)A
温度范围	-30°C ~ +140°C (取决于隔膜/垫圈材料)
防护等级	IP 65 DIN 40050
PG09 或 PG11连接器	DIN 43650
25 °C最大循环速率	120/分钟 (隔膜式)
25 °C最大循环速率	60/分钟 (活塞式)
机械寿命	10 <sup>6</sup> 次运行
拧紧扭矩	最大5Kgm

### 材料

本体27 AF	见表格
连接器和电缆夹	尼龙6.6
隔膜	NBR (标准)
高压用活塞	不锈钢+NBR垫圈 (标准)
C/O触点	SPDT

### 订购信息

PSM	带有SPDT触点的隔膜式压力开关
PSP	带有SPDT触点的活塞式压力开关

### 调节范围

PSM 2	0,2 - 2 巴
PSM 10	1 - 10 巴
PSM 50	10 - 50 巴
PSM 100	10 - 100 巴
PSP 150	30 - 150 巴
PSP 300	50 - 300 巴

### 本体材料

-	黄铜 (PSM 2和PSM 10)
-	耐热钢 (PSM 50/100, PSP 150/300)
I	AISI 303 不锈钢
W	AISI 316 不锈钢

### 隔膜/垫圈

-	NBR (标准)	-5°C ~ +90°C
NT	HNBR	-25°C ~ +140°C
V	FKM	-5°C ~ +90°C
S	硅胶	-30°C ~ +120°C
C	氯丁橡胶	-10°C ~ +90°C
E	EPDM	-20°C ~ +110°C
MI	不锈钢 (仅用于PSM2和PSM10)	-30°C ~ +140°C

### 螺纹

R18	G1/8"直螺纹
R14	G1/4"直螺纹
M	M10 x 1 直螺纹
M	M12 x 1.5直螺纹
18NPT	1/8 NPT

### 电缆夹

-	PG09 (标准)
11	PG11

### 选项

G	用于低电流应用 30mA的镀金触点
SG	为使用氧气的应用进行脱脂
T	压力上升到设定值时动作 (例如T2 压力上升到2巴时动作)
T...D	压力下降到设定值时动作 (例如T2D 压力下降到2巴时动作)
T...F...	如果在10%~30%设定点范围内, 设定点和所需值处的滞后量 (例如40巴处T40F10设定点, 滞后量为10巴) 出厂设置。
AP	以耐热钢制成的适用于高压环境 (最大300巴) 的PSM 2和PSM 10型产品
TG	为使用气体的应用进行测试

订购举例: PSM 50 W NT 11 M12 T F10

符合CE 89/336标准EMC 编号149E/96 报告

### USE

Adjustable PSM-PSP pressure switches available with 0,2 to 300 bar operating range are particularly suitable to be used in automation, pneumatic and hydraulic circuits, lubrication plants, safety systems and so on. These pressure switches have been designed to work according to the CE standards, with C/O contacts and adjustable hysteresis up to 30% of full scale value. PSM-PSP pressure switches can be connected to the line to be monitored without using any seal, because they have been already equipped with an OR gasket specifically suitable for the fluid used. Set-point can be adjusted by means of the proper central adjusting screw, while another screw is specifically intended to adjust the hysteresis to reset contact. **Pressure switches factory set to a specific value can be supplied on request.**

Models available with IMQ product certification approval.

### SPECIFICATIONS

Max. voltage	250 Vac
Working voltage	220 Vac
Adjustable hysteresis	10% - 30% of set-point
Current	6 (2) A
Temperature range	-30°C to +140°C (according to diaphragm/gasket material)

Protection	IP 65 DIN 40050
PG09 or PG11 connector	DIN 43650
Max. cycle rate at 25 °C	120/min. (diaphragm type)
Max. cycle rate at 25 °C	60/min. (piston type)
Mechanical life	10 <sup>6</sup> operations
Tightening torque	max. 5 Kgm.

### MATERIALS

Body 27 AF	See table
Connector and cable clamp	Nylon 6,6
Diaphragm	NBR (Std)
Piston for high pressure	Stainless steel+NBR gasket (Std)
C/O contacts	SPDT

### ORDERING INFORMATION

PSM...	Diaphragm pressure switch with SPDT contacts
PSP...	Piston pressure switch with SPDT contacts

### Adjustment range

PSM 2	0,2 - 2 bar
PSM 10	1 - 10 bar
PSM 50	10 - 50 bar
PSM 100	10 - 100 bar
PSP 150	30 - 150 bar
PSP 300	50 - 300 bar

### Body material

-	Brass (PSM 2 and PSM 10)
-	Tropicalized steel (PSM 50/100, PSP 150/300)
I	AISI 303 stainless steel
W	AISI 316 stainless steel

### Diaphragm / Gasket

-	NBR (standard)	-5°C to +90°C
NT	HNBR	-25°C to +140°C
V	FKM	-5°C to +90°C
S	Silicone	-30°C to +120°C
C	Neoprene	-10°C to +90 °C
E	EPDM	-20°C to +110°C
MI	Stainless steel (only PSM2 and PSM10)	-30°C to +140°C

### Threads

R18	G1/8" parallel
R14	G1/4" parallel
M10	M10 x 1 parallel
M12	M12 x 1.5 parallel
18NPT	1/8 NPT

### Cable clamp

-	PG09 (standard)
11	PG11

### Options

G	Gold-plated contacts for low current ≤ 30 mA
SG	Degreased for applications with oxygen
T...	Set-point adjustment rising at the required value (ex. T2 pressure set rising at 2 bar)
T...D	Set-point adjustment falling at the required value (ex. T2D pressure set falling at 2 bar)
T...F...	Set-point and hysteresis at the required value if > 10% max 30% of set-point (ex. T40F10 set point at 40 bar with hysteresis at 10 bar) FACTORY SETTING.
AP	High pressure execution (max. 300 bar) in tropicalized steel for PSM 2 and PSM 10 models
TG	Tested for applications with gas

ORDERING EXAMPLE: PSM 50 W NT 11 M12 T40 F10

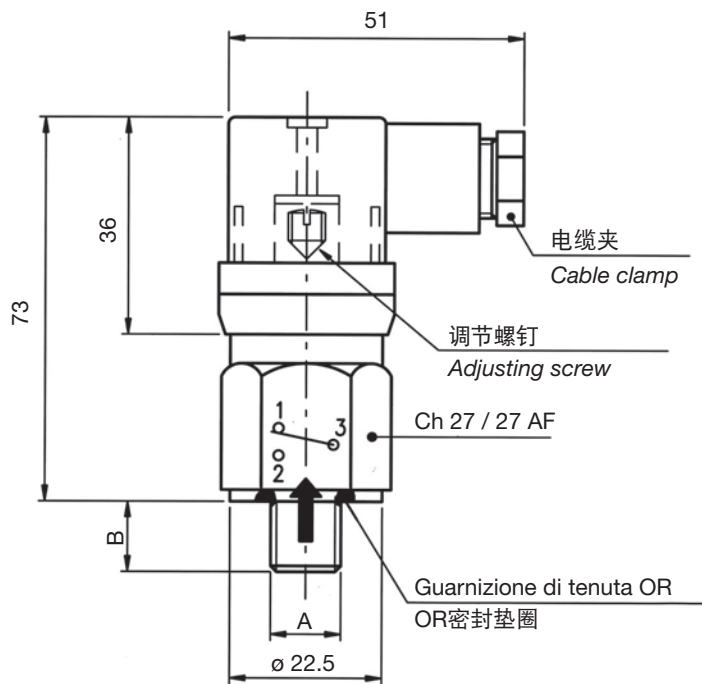
IN COMPLIANCE WITH CE 89/336 STANDARDS EMC N° 149E/96 REPORT



# 订购代码 / ORDERING CODE

型号 / MODEL	PSM	10	W	V	R18	-	-	选项 / OPTIONS
PSM - PSP								G - SG - T... - T...D - T...F - AP - TG
范围 / RANGE							电缆夹 / CABLE CLAMP	
2 - 10 - 50 - 100 - 150 - 300							(-) - 11	
本体 / BODY							螺纹 / THREADS	
(-) - I - W							R18 - R14 - M10 - M12 - 18NPT	
	隔膜 / DIAPHRAGM			垫圈 / GASKET				
	(-) - NT - V - S - C - E - MI			(-) - NT - V - S - C - E				
							A	B
							G1/8	10
							G1/4	12
							M10 x 1	10
							M12 x 1.5	12
							1/8NPT	10

(-) 标准执行  
(-) Standard execution



# 总技术条件 / GENERAL SPECIFICATIONS

类型 Model	调节范围 Adjustment range	最大静态压力 Max. static pressure					25°C时误差 Tolerance at 25 °C	执行 Execution	重量 Weight
		巴/bar							
		黄铜制标准执行 Standard execution in brass	耐热钢制标准执行 Standard execution in tropicalized steel	仅用于PSM 2/10的耐热钢制AP执行 AP execution in tropicalized steel only PSM 2/10	AISI 303 不锈钢执行 AISI 303 stainless steel execution	AISI 316 不锈钢执行 AISI 316 stainless steel execution			
	巴/bar					巴/bar		g	
PSM 2	0,2 - 2	80			150	150	± 0,2	隔膜 Diaphragm	100
PSM 10	1 - 10	80			150	150	± 0,4		100
PSM 2...AP	0,2 - 2			300			± 0,2		100
PSM 10...AP	1 - 10			300			± 0,4		100
PSM 50	10 - 50		300		150	150	± 2	100	
PSM 100	10 - 100		300		150	150	± 3	100	
PSP 150	30 - 150		300		250	250	± 5	活塞 Piston	100
PSP 300	50 - 300		600		400	400	± 15		100

# 用于歧管总成的可调节式压力开关

## Adjustable pressure switches for manifold assembly

### PSM 2/10...B

#### 用途

PSM...B压力开关专门应用于气动系统中以监控最小工作压力。它们被设计为可通过两只M5x40螺钉即可安装到歧管上的形式，以进行轻松装配并具有紧凑尺寸。使用VR调节螺钉可以对调节范围为0.2~10巴的压力进行监控，所具有的滞后量为设定值的10%~30%，也可通过适当VD螺钉进行调节。PSM...B压力开关具有SPDT触点和标准DIN 436540 - PG09连接器。

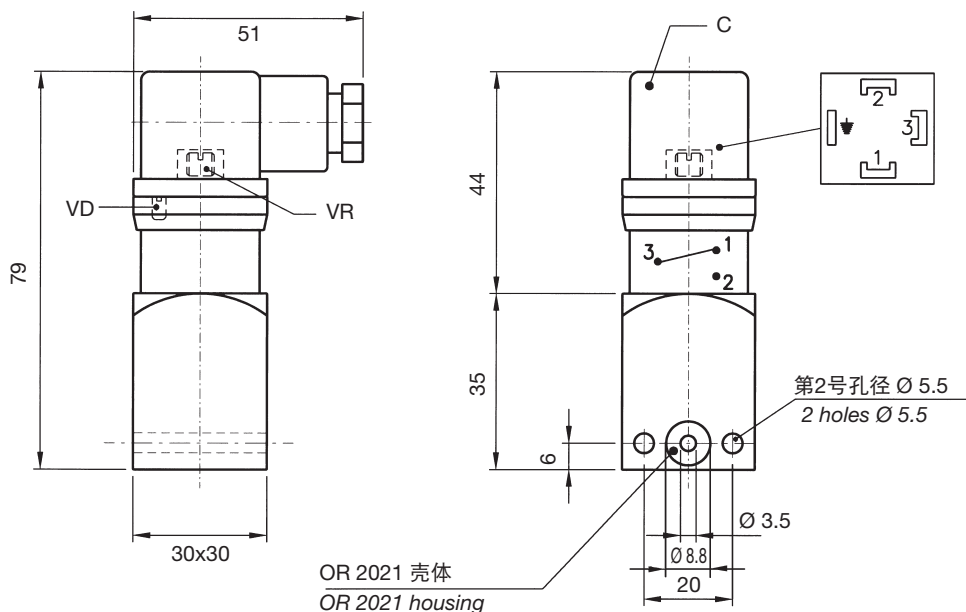
建议将这些压力开关垂直地固定在线路上，使Ø3.5入口朝下以防止出现任何冷凝物或残留物留在内部并因此影响正常工作。可按照要求将压力开关调节（上升或下降）至一个具体数值处，滞后量出厂设定为所需比值（范围为设定点的10%~30%）。

#### USE

PSM...B pressure switches can be specifically used in pneumatic systems to monitor a minimum operating pressure. They have been designed for manifold mounting with two M5x40 screws in order to have easy assembly and compact dimensions. Using the VR adjusting screw it is possible to monitor an adjustable pressure from 0.2 to 10 bar, with an hysteresis included between 10% to 30% of the set value, also adjustable thanks to the proper VD screw. PSM...B pressure switches have SPDT contacts and standard DIN 436540 - PG09 connector.

It is advisable to fix these pressure switches vertically to the line, with the Ø3.5 inlet downwards, to avoid that any condensation or residues, remaining inside, could affect the correct working.

**Pressure switches adjusted (rising or falling) at a specific value, with the hysteresis factory-set to the required rate (min. 10% - max. 30% of set-point) can be supplied on request.**



#### 技术规范

最大电压 250 Vac  
 工作电压 220 Vac  
 可调节滞后量 设定值的10%-30%  
 电流 6(2)A  
 C/O触点 SPDT  
 温度范围 -25°C ~ +140°C  
 防护等级 IP 65 DIN 40050  
 PG09连接器“C” DIN 43650  
 25°C最大循环速率 120/分钟  
 机械寿命 106 次运行  
 最大静态压力 30巴  
 标准执行 HNBR 隔膜  
 重量 145 g

#### 材料

30x30 本体 蓝色阳极氧化铝  
 连接器和电缆夹 尼龙6.6  
 电气触点 3微米镀银  
 隔膜和OR106 HNBR

#### SPECIFICATIONS

Max. voltage 250 Vac  
 Working voltage 220 Vac  
 Adjustable hysteresis 10% to 30% of set-point  
 Current 6(2) A  
 C/O contacts SPDT  
 Temperature range -25°C to +140°C  
 Protection IP 65 DIN 40050  
 PG09 connector “C” DIN 43650  
 Max. cycle rate at 25°C 120/min.  
 Mechanical life 10<sup>6</sup> operations  
 Max. static pressure 30 bar  
 Standard execution HNBR diaphragm  
 Weight 145 g

#### MATERIALS

30x30 body Anodized blue aluminium  
 Connector and cable clamp Nylon 6.6  
 Electric contact 3 micron silver-plated  
 Diaphragm and OR106 HNBR

类型 MODEL	调节范围 Adjustment range 巴/bar	25 °C时的误差 Tolerance at 25 °C 巴/bar	执行 Execution
PSM2B	0.2 - 2	+/- 0.2	HNBR 隔膜 HNBR diaphragm
PSM10B	1 - 10	+/- 0.4	HNBR 隔膜 HNBR diaphragm

# 用于歧管总成的可调节式压力开关

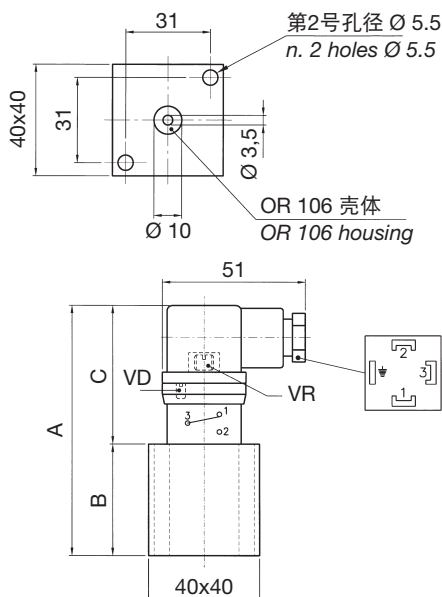
## Adjustable pressure switches for manifold assembly

### PSM - PSP... CE

#### 用途

这些压力开关设计为专门用于气动系统、润滑设备和液压设备中以监控最小或最高工作压力。它们被设计为可通过两只M5x45螺钉即可安装到歧管上的形式，以进行轻松装配并具有紧凑尺寸。可以通过VR螺钉对范围为0.2~300巴的压力进行调节，所具有的范围为设定点10%~30%的滞后量也可通过适当VD螺钉的方法进行调节。这些压力开关配备了SPDT触点和PG09 DIN43650连接器。

可按照要求将压力开关出厂设定为一个上升或下降具体压力值，滞后量出厂设定为所需比值（范围为设定点的10%~30%）。



#### USE

These pressure switches have been specially designed to be used in pneumatic systems, lubrication plants and hydraulic units to monitor the minimum or maximum operating pressure. They have been designed to be manifold mounted with two M5x45 screws in order to have easy assembling and small dimensions. It is possible to adjust, by the VR screw, a pressure from 0.2 to 300 bar with a differential included between 10% and 30% set-point also adjustable by means of the of proper VD screw. These pressure switches are equipped with SPDT contacts and PG09 DIN43650 connector.

**Pressure switches factory set to a specific rising or falling pressure with the hysteresis adjusted to the required rate (10% to 30% set-point value) can be supplied on request.**

#### 技术数据-标准执行

最大电压	250 Vac
工作电压	220 Vac
可调节滞后量	设定值的10%-30%
电流	6(2)A
温度范围	-25°C ~ +140°C (取决于隔膜/垫圈材料)
防护等级	IP 65 DIN 40050
PG09连接器“C”	DIN 43650
25°C最大循环速率	120/分钟 (隔膜式)
25°C最大循环速率	60/分钟 (活塞式)
机械寿命	106 次运行
重量	225 g

<b>材料</b>	
40x40 本体	参见下表
连接器和电缆夹	尼龙6.6
C/O触点	SPDT
标准隔膜和OR106	NBR

<b>隔膜</b>	
- NBR (标准)	-5°C ~ +90°C
NT HNBR	-25°C ~ +140°C
V FKM	-5°C ~ +90°C

#### 选项

G	用于低电流应用的镀金触点
T...	压力上升到设定值时动作
T...D	压力下降到设定值时动作
T...F...	当所需值位于设定点的10%~30%范围中时设定点和滞后量
AP	采用耐热钢制成的用于高压环境（最大300巴）的PSM2和PSM10型产品。

#### TECHNICAL DATA - STANDARD EXECUTION

Max. voltage	250 Vac
Working voltage	220 Vac
Adjustable hysteresis	10% to 30% of set-point
Current	6(2)A
Temperature range	-25°C to +140°C (according to diaphragm/gasket material)

Protection	IP 65 DIN 40050
PG09 connector “C”	DIN 43650
Max. cycle rate at 25°C	120/min. (diaphragm type)
Max. cycle rate at 25°C	60/min. (piston type)
Mechanical life	10 <sup>6</sup> operations
Weight	225 g

#### MATERIALS

40x40 body	See table below
Connector and cable clamp	Nylon 6.6
C/O contact	SPDT
Standard diaphragm and OR106	NBR

#### DIAPHRAGM

- NBR (standard)	-5°C to +90°C
NT HNBR	-25°C to +140°C
V FKM	-5°C to +90°C

#### OPTIONS

G	Gold-plated contacts for low current.
T...	Set-point adjustment rising at the required value.
T...D	Set-point adjustment falling at the required value.
T...F...	Set-point and hysteresis at the required value if > 10% max 30% of set-point
AP	High pressure execution (max 300 bar) in tropicalized steel for PSM2 and PSM10 models.

调节范围 Adjustment range 巴/bar	最大静态压力 Max static pressure 巴/bar	Contatto di scambio SPDT C/O SPDT contact		Dimensioni Size			40x40 本体 40x40 body	25°C时误差 Tolerance at 25°C bar	执行 Execution
		类型 Model	代码 Code	A	B	C			
0.2 - 2	30	PSM 2 CE	30 111 171	80	35	45	红色铝 Red aluminium	+/- 0.2	NBR 隔膜 NBR diaphragm
1 - 10	30	PSM 10 CE	30 121 171	80	35	45	红色铝 Red aluminium	+/- 0.4	NBR 隔膜 NBR diaphragm
0.2 - 2	300	PSM 2 CE AP	30 111 171 AP	80	35	45	耐热钢 Tropicalized steel	+/- 0.2	NBR 隔膜 NBR diaphragm
1 - 10	300	PSM 10 CE AP	30 121 171 AP	80	35	45	耐热钢 Tropicalized steel	+/- 0.4	NBR 隔膜 NBR diaphragm
10 - 50	300	PSM 50 CE	30 131 171	80	35	45	耐热钢 Tropicalized steel	+/- 2	NBR 隔膜 NBR diaphragm
10 - 100	300	PSM 100 CE	30 161 171	80	35	45	耐热钢 Tropicalized steel	+/- 3	NBR 隔膜 NBR diaphragm
30 - 150	300	PSP 150 CE	30 141 171	86	41	45	耐热钢 Tropicalized steel	+/- 5	活塞 Piston
50 - 300	600	PSP 300 CE	30 151 171	86	41	45	耐热钢 Tropicalized steel	+/- 15	活塞 Piston

# 带有计量器连接端口的可调节式压力开关

## Adjustable pressure switches with port for gauge

### PSM - PSP ... AM

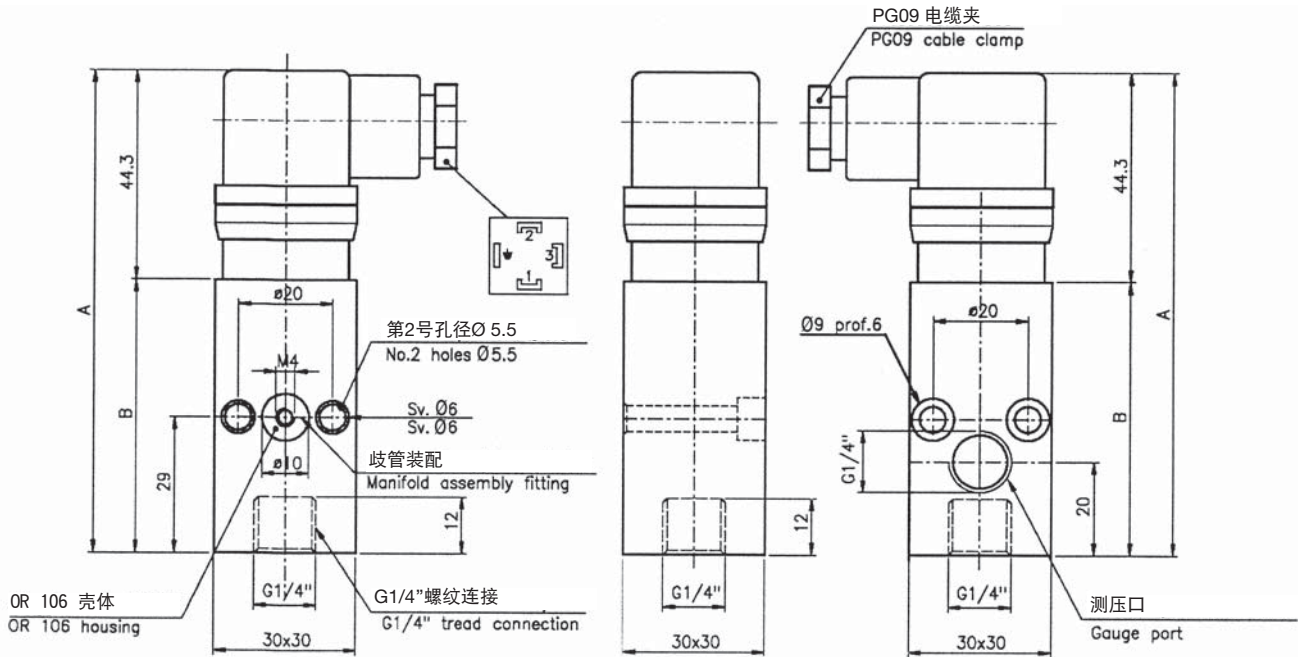
#### 用途

本系列压力开关设计为具有0.2~300巴的压力调节范围、额定值为6A/250Vac的C/O SPDT触点以及带有PG09电缆压盖的IP65 DIN 43650插头。PSM- PSP...AM特别适用于在气动系统、润滑设备和液压设备中对最小和最大工作压力进行监控。它们被特别设计为可通过两只M5x40螺钉安装在歧管上的形式。G1/4"母端口既允许将开关固定到所要监控的线路上，也允许连接压力计。不使用的端口可通过适当的G1/4"螺钉将其塞住。这些开关还配备了一只M4销钉，用于在停止使用时将歧管连接处塞住。可按照要求将压力开关出厂设定为一个上升或下降具体压力值，可调节滞后量设定为所需值（范围为设定点的10%~30%）。

#### USE

This series of pressure switches has been designed with adjustment ranges 0.2 to 300bar, C/O SPDT contacts rated 6A/250Vac, IP65 DIN 43650 plug with PG09 cable gland. PSM-PSP...AM are particularly suitable to monitor the minimum and maximum operating pressure in pneumatic systems, lubrication plants and hydraulic units. They have been specifically designed for manifold mounting with two M5x40 screws. The G1/4" female ports allow both to fix the switch to the line to be monitored and to connect a pressure gauge. Port not in use can be blanked off using a proper G1/4" screw. These switches are also supplied with an M4 dowel to blank off manifold connection if not used.

**Pressure switches factory set at a specific rising or falling pressure, with the hysteresis adjusted to the required value (10% to 30% of set-point) can be supplied on request.**



#### 技术规范

最大工作电压 250Vac  
 电流 6(2)A  
 可调节滞后量 设定值的10%-30%  
 温度范围 -25°C ~ +140°C  
 防护等级 IP65 DIN 40050  
 PG09连接器 DIN 43650  
 25°C最大循环速率 120/分钟 (隔膜式)  
 25°C最大循环速率 60/分钟 (活塞式)  
 机械寿命 10<sup>6</sup> 次运行

#### SPECIFICATIONS

Max working voltage 250Vac  
 Current 6(2)A  
 Adjustable hysteresis 10% to 30% set-point  
 Temperature range -25°C to +140°C  
 Protection IP65 DIN 40050  
 PG09 connector DIN 43650  
 Max cycle rate at 25°C 120/min (diaphragm type)  
 Max cycle rate at 25°C 60/min (piston type)  
 Mechanical life 10<sup>6</sup> cycles

#### MATERIALI

30x30 本体 参见下面列表  
 连接器和电缆压盖 尼龙6.6  
 电气触点 3微米镀银  
 标准隔膜和OR106 HNBR

#### MATERIALS

30x30 body See list below  
 Connector and cable gland Nylon 6.6  
 Electric contact 3-micron silver-plated  
 Standard diaphragm and OR106 HNBR

调节范围 Adjustment range	最大静态压力 Max static pressure	SPDT 触点 SPDT contact		30x30 本体 材料 30x30 body material	25°C时误差 Tolerance at 25°C 巴/bar	执行 Execution	尺寸 Dimensions	
		类型 Model	代码 Code				A	B
0.2 - 2	80	PSM 2 NT AM	30 111 391	Alluminio anodizzato blu Blue anodized aluminium	+/- 0.2	HNBR 隔膜 HNBR diaphragm	102.3	58
1 - 10	80	PSM 10 NT AM	30 121 391		+/- 0.4			
10 - 50	300	PSM 50 NT AM	30 131 391		+/- 2			
10 - 100	300	PSM 100 NT AM	30 161 391	Acciaio tropicalizzato Tropicalized steel	+/- 3	钢活塞 Steel piston	114.3	70
30 - 150	300	PSP 150 NT AM	30 141 391		+/- 5			
50 - 300	600	PSP 300 NT AM	30 151 391		+/- 15			

# 可调节式压力开关 Adjustable Pressure Switches

## PMC... - PPC

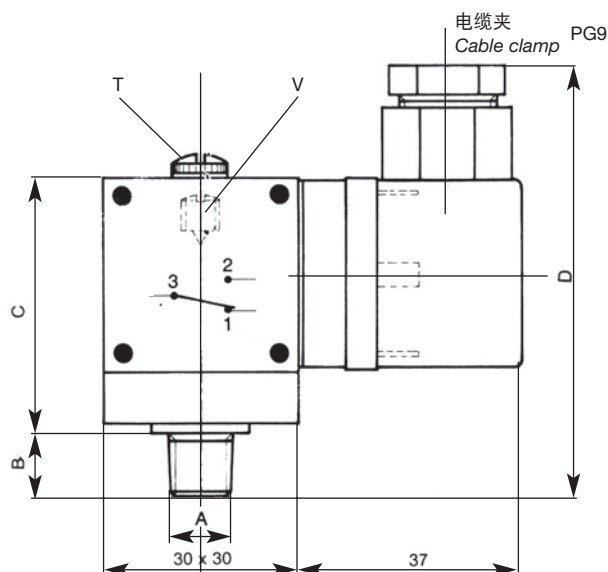


图1  
Fig. 1

## PPC F...

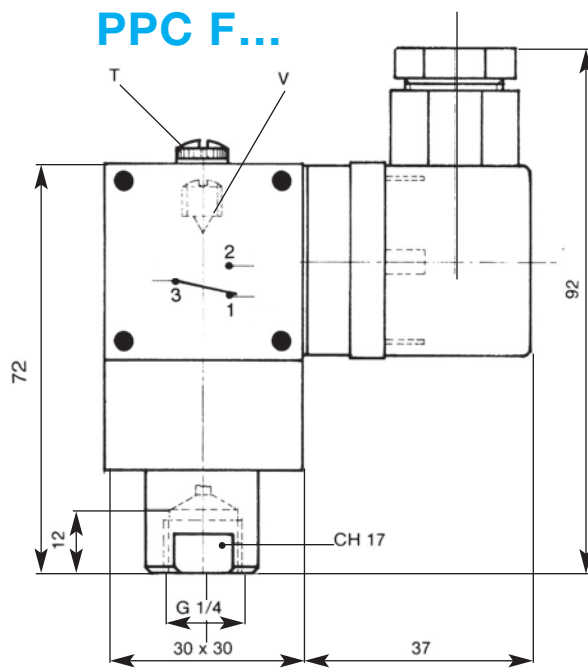


图2  
Fig. 2

### 用途

本系列可调节式压力开关一般用于润滑设备以及气动、液压、水和加热线路中。

PMC...系列设计有耐油隔膜传感元件，可在最高温度60°C下使用，压力最高可调至80巴（最大静态压力150巴）；PPC/PPCF...系列设计有活塞，可在最大300巴（最大静态压力600巴）压力处稳定工作。

PMC... 和 PPC...压力开关设计有阳极氧化铝本体、镀镍钢制下螺纹法兰、NBR隔膜或钢活塞以及转换微开关。如需将压力开关设定在所需值处，可使用螺丝刀旋转T型塞子下壳体中的V型调节螺钉。在完成了设置后，建议使用合适的密封材料对V型调节螺钉进行固定。

可按照要求在出厂时将压力开关设定为一个具体数值。

### 技术规范

最大电压	250Vac
工作电压	220Vac
触点	3A (电阻式) 2A (电感式)
C/O 触点	SPDT
温度范围	-5°C ~ +60°C
最大循环速率-隔膜式	100/分钟
最大循环速率-活塞式	60/分钟
固定滞后量	设定值的30%
防护等级	IP65-DIN 40050
电气连接	PG09 - DIN 43650

符合CE 89/336标准EMC 编号189E/96 报告

### USE

This series of adjustable pressure switches is generally used in lubrication plants and pneumatic, hydraulic, water and heating circuits.

PMC... series, designed with an oil-proof diaphragm sensing element, can be used at a max temperature of 60°C and adjusted at max 80 bar (max static pressure 150 bar); PPC/PPCF... series, designed with piston, can work instead at a max pressure of 300 bar (max static pressure 600 bar).

PMC... and PPC... pressure switches are designed with anodized aluminium body, lower threaded flange in nickel-plated steel, NBR diaphragm or steel piston and changeover micro-switch. To set the pressure switch at the required value, turn with a screwdriver the V adjusting screw housed under the T plug. Once the setting has been done, it is advisable to secure the V adjusting screw using a suitable sealing material.

Pressure switches factory set to a specific value can be supplied on request.

### SPECIFICATIONS

Maximum voltage	250 Vac
Working voltage	220 Vac
Current	3A (resistive) 2A (inductive)
C/O contact	SPDT
Temperature range	-5°C to +60°C
Max cycle rate - diaphragm type	100/min.
Max cycle rate - piston type	60/min.
Fixed hysteresis	≤ 30% of set-point
Protection	IP65 - DIN 40050
Electrical connection	PG09 - DIN 43650

IN COMPLIANCE WITH CE 89/336 STANDING EMC N° 189E/96 REPORT

代码 CODE	类型 MODEL	调节范围 Adjustment range 巴/bar	尺寸单位: mm Size in mm				25 °C时的误差 Tolerance in at 25 °C 巴/bar	最大静态压力 Max static pressure 巴/bar	执行 Execution	图片 Picture	重量 Weight g	
			A 气体 GAS	B	C	D						
31198	PMC 2	0,15 - 2	G1/8 锥形 taper	10	44	75	± 0,1	30	NBR 隔膜 Diaphragm	图1	185	
31199	PMC 5	0,2 - 5					± 0,1	60				
31200	PMC10	0,5 - 10					± 0,2	100				
31201	PMC25	10 - 25					± 0,5	100				
31202	PMC80	25 - 80					± 1,0	150				
31300	PPC150	30 - 150	G1/4 锥形 taper	12	46	78	± 7,0	600	活塞 Piston	图2	295	
31301	PPC300	150 - 300					± 7,0	600				
31320	PPCF150	30 - 150					± 7,0	600				活塞 Piston
31321	PPCF300	150 - 300										

# 歧管安装式可调节压力开关

## Adjustable pressure switches for manifold mounting

### PMC...P / PPC...P

#### 用途

本小型系列可调节式压力开关一般用于润滑设备以及气动、液压、水和加热线路中。

PMC...P系列设计有耐油隔膜传感元件，可在最高温度60°C下使用，压力最高可调至80巴（最大静态压力150巴）；PPC...P系列设计有活塞，可在最大300巴（最大静态压力600巴）压力处稳定工作。

PMC...P和PPC...P压力开关设计有阳极氧化铝本体、适用于歧管安装的镀镍钢制下螺纹法兰、NBR隔膜或钢活塞、转换微开关、DIN 43650三极连接器和IP65防护等级PG09电缆夹。这些产品类型都可在不使用额外连接的情况下将多个压力开关固定在歧管上，使得即使尺寸再小也具有坚固装配结构。如需将压力开关设定在所需值处，可使用螺丝刀旋转T型塞子下壳体中的V型调节螺钉。在完成了设置后，建议使用合适的密封材料对V型调节螺钉进行固定。

可按照要求在出厂时将压力开关设定为一个具体数值。

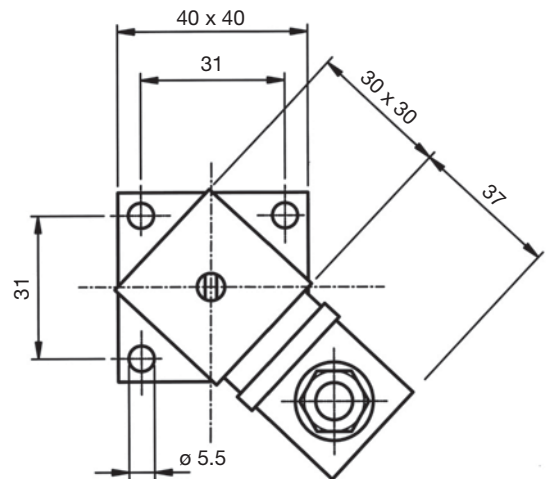
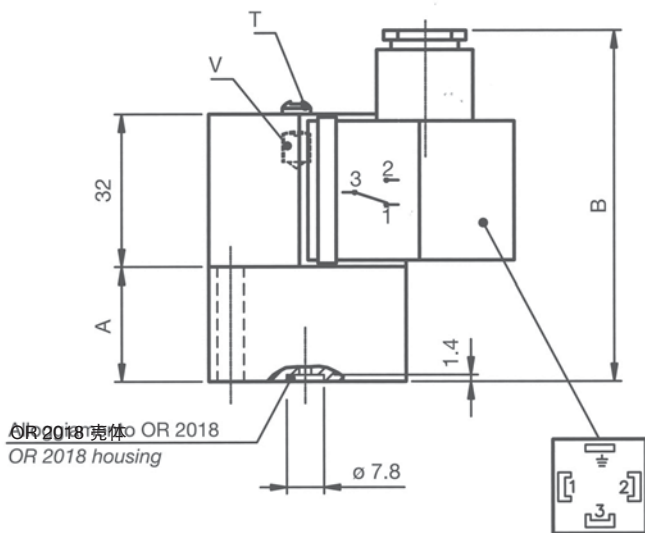
#### USE

This miniature series of adjustable pressure switches can be generally used in lubrication plants and pneumatic, hydraulic, water and heating circuits.

PMC...P series, designed with an oil-proof diaphragm sensing element, can be used at a max temperature of 60°C and adjusted at 80 bar (max. static pressure 150 bar); PPC...P series, designed with piston, can work instead at a max pressure of 300 bar (max. static pressure 600 bar).

PMC...P and PPC...P pressure switches are designed with anodized aluminium body, lower threaded flange in nickel plated steel suitable for manifold mounting, NBR diaphragm or steel piston, changeover micro-switch, DIN 43650 three-pole connector and PG09 cable clamp IP65 protected. These models enable to fix several pressure switches on a manifold without further connections having, in this way, a rugged assembly even if of small size. To set the pressure switch at the required value, turn with a screwdriver the V adjusting screw housed under the T plug cap. Once the setting has been done, it is advisable to secure the V adjusting screw using a suitable sealing material.

**Pressure switches factory set to a specific value can be supplied on request.**



#### 技术规范

最大电压 250Vac  
工作电压 220Vac  
触点 3A (电阻式)  
2A (电感性)  
C/O 触点 SPDT  
温度范围 -5°C ~ +60°C  
最大循环速率-隔膜式 100/分钟  
最大循环速率-活塞式 60/分钟  
固定滞后量 设定值的30%  
防护等级 IP65-DIN 40050  
电气连接 PG09-DIN 43650

符合CE 89/336标准EMC 编号189E/96 报告

#### SPECIFICATIONS

Maximum voltage 250 Vac  
Working voltage 220 Vac  
Current 3A (resistive)  
2A (inductive)  
C/O contacts SPDT  
Temperature range -5°C to +60°C  
Max cycle rate-diaphragm type 100/min.  
Max cycle rate-piston type 60/min.  
Fixed hysteresis ≤ 30% set-point  
Protection IP65 - DIN 40050  
Electrical connection PG09 - DIN 43650

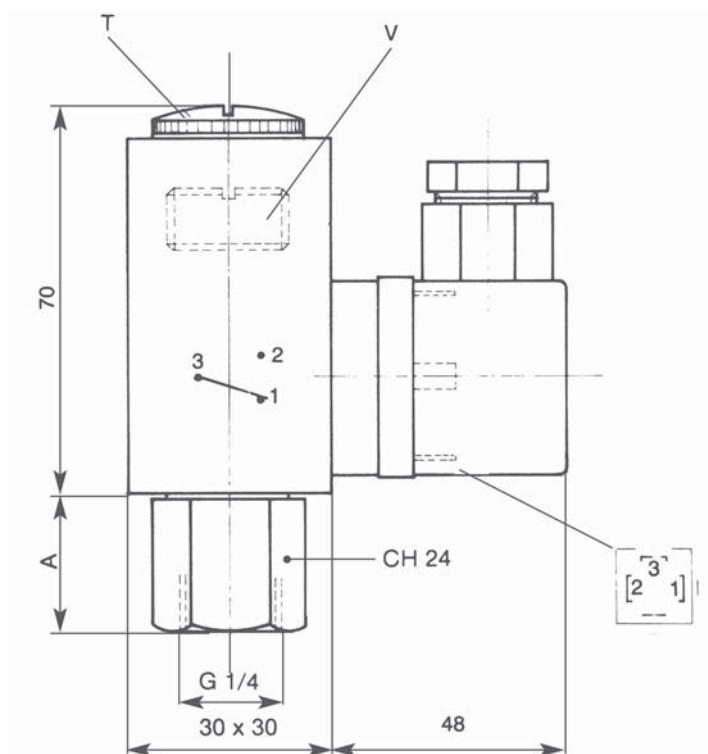
IN COMPLIANCE WITH CE 89/336 STANDARDS EMC N° 189E/96 REPORT

代码 CODE	类型 MODEL	调节范围 Adjustment range 巴/bar	尺寸单位: mm Dimensions in mm		25 °C时的误差 Tolerance at 25 °C 巴/bar	最大静态压力 Max static pressure 巴/bar	执行 Execution	重量 Weight g
			A	B				
31248	PMC 2P	0,15 - 2	14	66	± 0,1	30	NBR 隔膜 Diaphragm	300
31249	PMC 5P	0,2 - 5			± 0,1	60		
31250	PMC 10P	0,5 - 10			± 0,2	100		
31251	PMC 25P	10 - 25			± 0,5	100		
31252	PMC 80P	25 - 80			± 1	150		
31261	PPC150P	30 - 150	29	81	± 7	600	活塞 Piston	450
31262	PPC300P	150 - 300			± 7	600		

# 可调节式压力开关

## Adjustable Pressure Switches

### PML - PPL



#### 用途

这些可调节式压力开关可用于润滑设备以及气动、液压、水和加热线路中。PML...系列设计有耐油隔膜传感元件，可在最高温度60°C下使用，压力最高可调至100巴（最大静态压力300巴）；PPL...系列设计有活塞，可在最大350巴（最大静态压力600巴）压力处稳定工作。PML...和PPL...压力开关设计有阳极氧化铝本体、钢制下连接器、NBR隔膜或钢活塞、转换微开关以及电气连接器。如需将压力开关设定在所需值处，可使用螺丝刀旋转T型塞子下壳体中的V型调节螺钉。

在完成了设置后，建议使用合适的密封材料对V型调节螺钉进行固定。

可按照要求在出厂时将压力开关设定为一个具体数值。

#### USE

These adjustable pressure switches can be used both in lubrication plants and pneumatic, hydraulic, water and heating circuits. PML... series, designed with an oil-proof diaphragm sensing element, can be used at a max temperature of 60°C and adjusted at max 100 bar (max static pressure 300 bar); PPL... series, designed with piston, can work at a max pressure of 350 bar (max static pressure 600 bar). PML...and PPL... pressure switches are designed with anodized aluminium body, lower connection in steel, NBR diaphragm or steel piston, changeover micro-switch and electrical connector. To set the pressure switch at the required value, turn with a screwdriver the V adjusting screw housed under the T plug.

Once the setting has been done, it is advisable to secure the V adjusting screw using a suitable sealing material.

**Pressure switches factory set to a specific value can be supplied on request.**

#### 符合CE 89/336标准EMC 编号189E/96 报告

##### 技术规范

最大电压	250Vac
工作电压	220Vac
触点	3A (电阻式) 2A (电感性)
C/O 触点	SPDT
温度范围	-5°C ~ +60°C
最大循环速率	100/分钟 (隔膜式)
机械寿命	106 次运行
防护等级	IP65 DIN 40050
固定滞后量	设定值的30%

#### IN COMPLIANCE WITH CE 89/336 RULES REPORT EMC N° 189E/96

##### SPECIFICATIONS

Maximum voltage	250 Vac
Working voltage	220 Vac
Current	3A (resistive) 2A (inductive)
C/O contacts	SPDT
Temperature range	-5°C to +60°C
Max cycle rate	100/min. (diaphragm type)
Mechanical life	10 <sup>6</sup> operations
Protection	IP65 DIN 40050
Fixed hysteresis	≤ 30% of set-point value

代码 CODE	类型 MODEL	调节范围 Adjustment range 巴/bar	A	25 °C时的误差 Tolerance at 25 °C 巴/bar	最大静态压力 Max static pressure 巴/bar	执行 Execution	重量 Weight g
31350	PML 10	0,5 - 10	12	± 0,2	300	NBR 隔膜 Diaphragm	285
31351	PML100	10 - 100	12	± 1	300		
31375	PPL150	30 - 150	15	± 7	600	活塞 Piston	335
31376	PPL350	150 - 350	25	± 7	600		



# 具有刻度旋钮和固定滞后量，调节范围为10~360巴的适用于歧管安装的可调节式压力开关

## PSK系列

### *Adjustable pressure switches suitable for manifold mounting with graduated knob and fixed hysteresis*

### *Adjustment ranges 10 to 360 bar*

### *PSK Series*

#### 用途

新型PSK...压力开关特别设计用于对液压和气动线路、润滑设备等等中的最小和最大压力进行监控。

由于具有坚固结构并且通过具有压力指示和设定点参考功能的刻度旋钮进行轻松调节，PSK...压力开关既可通过G1/4" BSP内螺纹连接器轻松固定在线路上，也可通过四个合适孔(Ø5.25)固定在装配好的歧管上。

设计有可在调节好的设定值处开关的SPDT触点，PSK...压力开关有两种形式可供使用：调节范围为10~100巴（最大静态压力300巴）的隔膜执行和调节范围为100~360巴（最大静态压力600巴）的活塞执行。

完成压力设定后，可以使用壳体中合适的紧固螺钉将调节旋钮固定在开关体上。

#### USE

New PSK... pressure switches have been particularly designed to monitor the minimum or maximum pressure in hydraulic and pneumatic circuits, lubrication plants and so on.

Thanks to the rugged construction and the very easy adjustment by means of a graduated knob with pressure indication and set-point reference, PSK... pressure switches can be either easily fixed on the line by the G1/4" BSP inside thread connection or manifold assembled through four proper holes (Ø5.25).

Designed with SPDT contact, switching at the adjusted set-point value, PSK... pressure switches are available both in diaphragm execution with adjustment ranges 10 to 100bar (max. static pressure 300bar) and piston execution with adjustment ranges 100 to 360bar (max. static pressure 600bar).

After pressure setting, it is possible to secure the adjustment knob using the proper fastening screw housed on the switch body.

#### 技术规范

电压	220Vac
最大电流	3A ( 5A / 125Vac )
温度范围	-5°C ~ +60°C (标准)
机械寿命	106 次运行
最大循环速率	100/分钟 (隔膜式)
最大循环速率	60/分钟 (活塞式)
固定滞后量	设定值的30%
防护等级	IP65 DIN 40050
旋钮精度-平均值	设定点的±10%
PSK100型	
旋钮精度-平均值	设定点的±8%
PSK360型	

#### 材料

本体	黄色阳极氧化铝
调节旋钮	铝
隔膜/垫圈	NBR
刻度尺	Scotch 激光薄膜
辨识刻度尺	丝网印刷
	铝-1mm厚
设定点固定螺钉	不锈钢
基础/连接器	PA (+G)

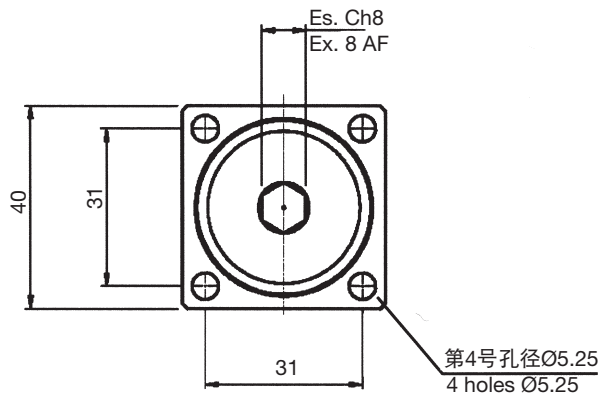
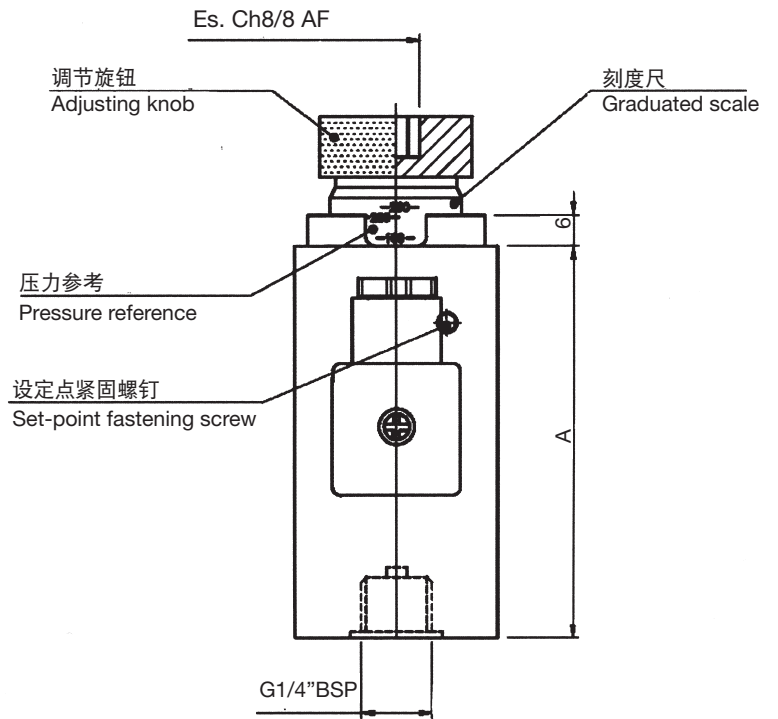
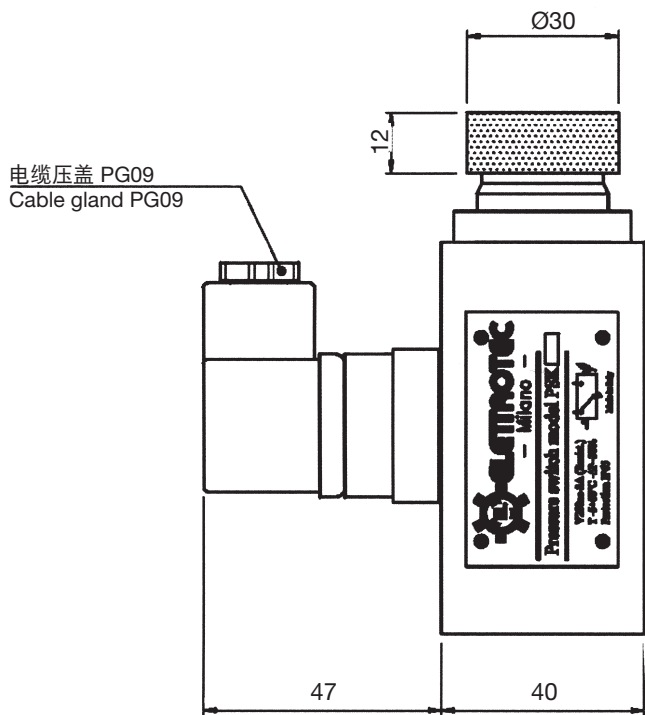
#### SPECIFICATIONS

Voltage	220Vac
Max. current	3A ( 5A / 125Vac )
Temperature range	-5°C to +60°C (Standard)
Mechanical life	10 <sup>6</sup> operations
Max. cycle rate	100/min (diaphragm type)
Max. cycle rate	60/min (piston type)
Fixed hysteresis	≤30% set-point
Protection	IP65 DIN 40050
Knob accuracy - average value	±10% set-point
model PSK100	
Knob accuracy - average value	±8% set-point
model PSK360	

#### MATERIALS

Body	Yellow anodized aluminium
Adjusting knob	Aluminium
Diaphragm/Gasket	NBR
Graduated scale	Scotch laser film
Identification scale	Silk-screen printed aluminium - 1mm thick
Set-point fastening screw	Stainless steel
Base / Connector	PA (+G)





压力开关高度

- A 77 mm (隔膜执行)
- A 90 mm (活塞执行)

PRESSURE SWITCH HEIGHT

- A 77 mm (diaphragm execution)
- A 90 mm (piston execution)

物料号 Part. No.	描述 Description	工作范围 Working range	25°C时的误差 Tolerance at 25°C	执行 Execution	最大静态压力 Max. static pressure
31380	PSK 100	10 - 100 巴/bar	$\pm 4\%$ 设定点/set-point	NBR 隔膜 NBR diaphragm	300 巴/bar
31381	PSK 360	100 - 360 巴/bar	$\pm 7\%$ 设定点/set-point	活塞 Piston	600 巴/bar

# VCM...-VCN... 系列可调节式真空开关

## Adjustable vacuum switches VCM...-VCN... series

**CAMPO DI LAVORO:** -200...-900 mbar  
**Adjustment ranges**

### 用途

VCN...和VCM...可调节式真空开关设计用于对化工和制药设备、食品加工、气动和液压设备中的真空状态进行监控并给出信号。当隔膜传感元件检测到任何真空度升高或下降情况时，都会使电气开关元件在预先确定的启动点处打开或关闭。触点可以是常开N/O或常闭N/C（就静止状态而言），取决于线路要求。请注意所有类型产品都具有一只蠕动微开关，因此必须将电流限制在最大0.5A（电阻式）或0.2A（电感式）处。对于较高负载，推荐使用保护继电器。VCN和VCM真空开关设计有钢制，或者按要求提供不锈钢制六角本体、螺钉或按下即接通接线端、用于对所要监控的真空度进行平衡和调节的弹簧、镀银触点、调节螺钉和隔膜传感元件。如需将真空开关设定在所需值处，用小螺丝刀小心地旋转V型调节螺钉。如需设置VCM开关，必须首先移除掉CAP3的紧固衬套（B）。顺时针旋转V型调节螺钉，注意不要影响到弹簧并因此影响到真空开关的正常工作，这样将会降低设定点并朝着刻度的最低值（-200毫巴）处进行调节。建议将真空开关安装在远离振动和热源的地方，以防止改变设定点和可重复性，以及使用CAP1或CAP10（用于VCN）和CAP3（用于VCM）保护电气触点免受灰尘和湿气影响。

可按照要求在出厂时将真空开关设定为一个具体数值。

### 材料—标准执行

开关壳	尼龙6.6
保护帽	黑色NBR
隔膜	参见下面引用表
本体24 AF	耐热钢
触点	镀银铜片（3微米）

### 技术规范

最大电压	48Vac/dc
电流	0.5(0.2)A
温度范围	-30°C ~ +140°C（取决于隔膜材料）
防护等级（接线端）	IP00
使用CAP10时的防护等级	IP54
使用CAP1时的防护等级	IP54
使用CAP3时的防护等级	IP65
25°C最大循环速率	200/分钟
机械寿命	106 次运行
强度测试	1500 V - 10 mA - 10"
拧紧力矩	最大5Kgm

### 订购信息

VCM1...	带有螺钉接线端+地的真空开关
VCN2...	具有按下即接通端子6.3 x 0.8的真空开关
A	N/O触点（无真空）
C	N/C触点（无真空）
T400	压力上升到设定值（例如-400毫巴处）时动作
T400D	压力下降到设定值（例如-400毫巴处）时动作

### 隔膜

-	NBR	(-5°C ~ +60°C)
V	FKM	(-5°C ~ +90°C)
S	硅胶	(-30°C ~ +120°C)
NT	HNBR	(-25°C ~ +140°C)
E	EPDM	(-20°C ~ +120°C)

### 螺纹

-	G 1/8K锥螺纹（标准）
14K	G 1/4K锥螺纹

### 选项

G	用于低电流的镀金触点（3微米）
I	AISI303不锈钢本体
P	Pocan开关壳（-30° ~ +140°C）

符合CE 89/336标准，EMC编号为147E/96的报告（用于VCN...），  
EMC编号为148/96的报告（用于VCM...），

### USE

VCN... and VCM... adjustable vacuum switches, have been designed to be used to monitor and signal the vacuum status in chemical and pharmaceutical plants, food processing, pneumatics and hydraulics. Any increase or decrease of vacuum, detected by a diaphragm sensing element, let the electrical switching element open or close at a predetermined actuation point. Contacts can be either Normally Open N/O or Normally Closed N/C (referred to quiescent status) according to circuit requirements. Please, take note that these models have a creep action micro switch, therefore it is important to limit current to max. 0.5A resistive and max. 0.2A inductive. For higher loads a protection relay is recommended. VCN and VCM vacuum switches have been designed with hexagonal body in steel or, on request, stainless steel, screw or push-on terminals, springs to balance and adjust vacuum to be monitored, silver-plated contacts, adjusting screw and diaphragm sensing element. To set the vacuum switch at the desired value turn carefully the V adjusting screw using a small screwdriver. To set VCM switches, it is necessary to remove first the fastening bush (B) of CAP3. Turning the V adjusting screw clockwise, paying attention not to affect the spring and consequently the correct working of the vacuum switch, set-point adjustment will be reduced and brought towards the lowest value in scale (-200 mbar). It is advisable to install the vacuum switch far from vibration and heat sources, in order to avoid to alter set-point and repeatability, and to protect the electric contacts from dirt and moisture using protection CAP1 or CAP10 for VCN and CAP3 for VCM.

**Vacuum switches factory set to a specific value can be supplied on request.**


### MATERIALS - STANDARD EXECUTION

Switch housing	Nylon 6,6
Protection cap	Black NBR
Diaphragm	See reference list below
Body 24 AF	Tropicalized steel
Contact	Silver-plated copper at (3 microns)

### SPECIFICATIONS

Max voltage	48 Vac/dc
Current	0.5(0.2)A
Temperature range	-30°C to +140°C (according to diaphragm material)
Protection (terminals)	IP00
Protection with CAP10	IP54
Protection with CAP1	IP54
Protection with CAP3	IP65
Max. cycles rate at 25°C	200/min
Mechanical life	10° operations
Strength test	1500V - 10 mA - 10"
Tightening torque	Max. 5 Kgm.

### ORDERING INFORMATION

VCM1...	Vacuum switch with screw terminals +  earth
VCN2...	Vacuum switch with push-on terminals 6.3 x 0.8
A	N/O contact (without vacuum)
C	N/C contact (without vacuum)
T400	Set-point adjustment rising (ex. at -400 mbar)
T400D	Set-point adjustment falling (ex. at -400 mbar)

### Diaphragm

-	NBR	(-5°C to +60°C)
V	FKM	(-5°C to +90°C)
S	Silicone	(-30°C to +120°C)
NT	HNBR	(-25°C to +140°C)
E	EPDM	(-20°C to +120°C)

### Threads

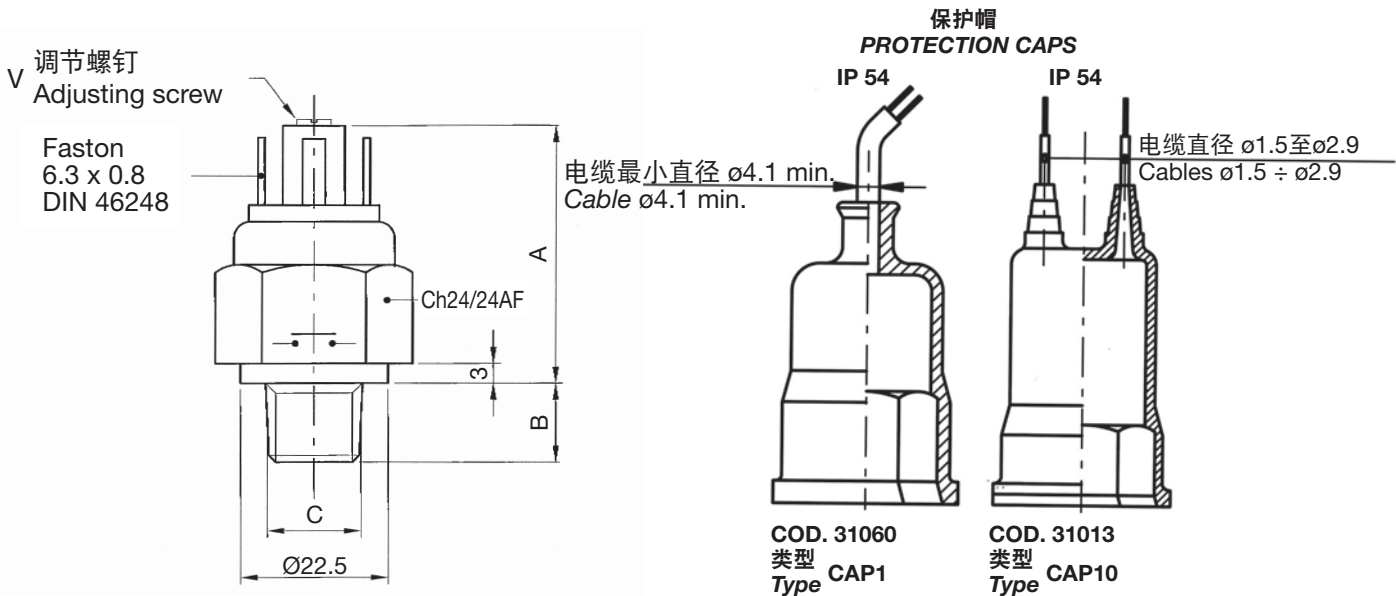
-	G 1/8K taper thread (standard)
14K	G 1/4K taper thread

### Options

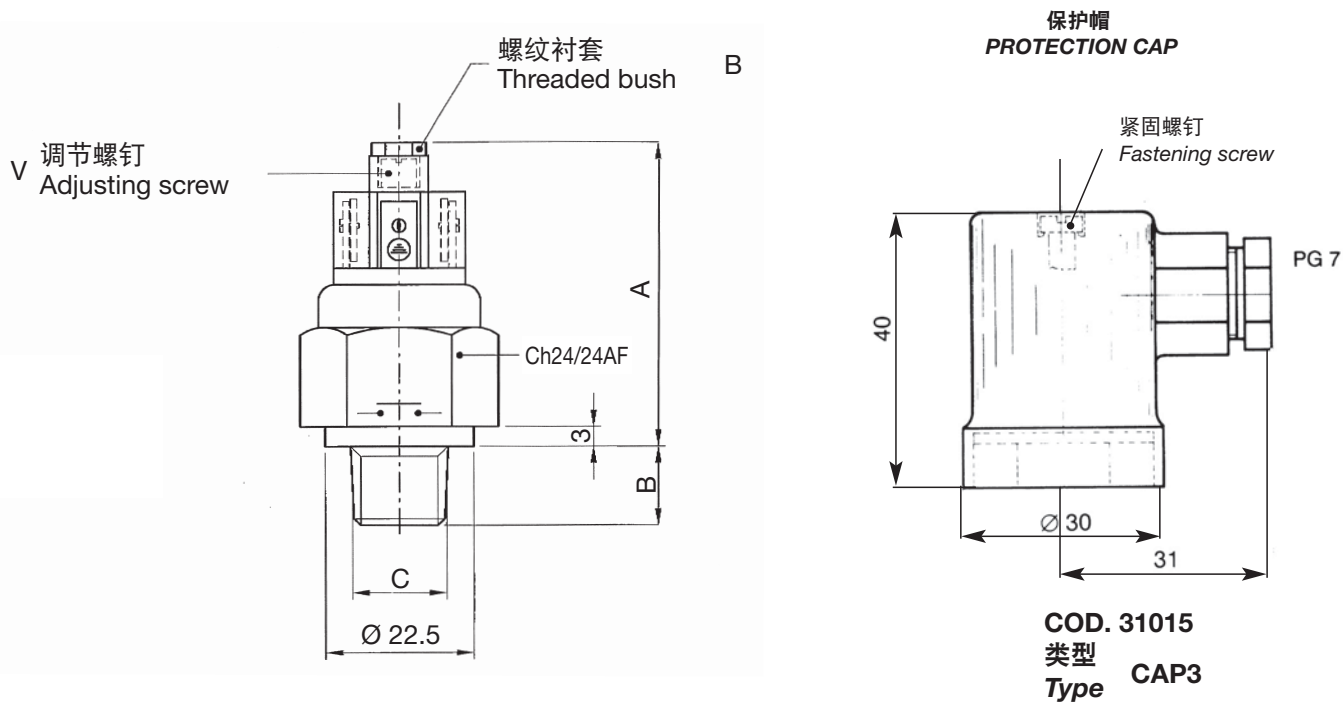
G	Gold-plated contacts (3 microns) for low current
I	AISI 303 stainless steel body
P	Pocan switch housing (-30° to +140°C)

**IN COMPLIANCE WITH CE 89/336 STANDARDS REPORT EMC No. 147E/96 FOR VCN..., REPORT EMC N° 148/96 FOR VCM...**

# VCN2型 / TYPE VCN2



# VCN1型 / TYPE VCN1



调节范围 Adjustment range 毫巴 mbar	最大静态压力 Max static pressure 巴/bar	N/O 触点 N/O contact 常开 Normally open		N/C 触点 N/C contact 常闭 Normally closed		A	B	C 气体 Gas	25 °C时的 误差, 毫巴 Tolerance in mbar at 25 °C	25 °C时的固定 滞后量, 毫巴 Fixed hysteresis at 25 °C mbar	隔膜执行 (材料) membrana (Materiale) Diaphragm execution (Material)	本体 Body	重量 Weight g
		代码 Code	类型 Model VCN/VCM	代码 Code	类型 Model VCN/VCM								
200 - 900	20	31720	VCN2A	31730	VCN2C	39	10	G 1/8K	± 50	20	NBR (标准)	耐热钢 Tropicalized steel	60
		31721	VCN2A14K	31731	VCN2C14K	39	12	G 1/4K					67
	20	31700	VCM1A	31710	VCM1C	45	10	G 1/8K					67
		31701	VCM1A14K	31711	VCM1C14K	45	12	G 1/4K					77
200 - 900	20	31727	VCN2AI	31737	VCN2CI	39	10	G 1/8K	± 50	20	NBR (标准)	不锈钢 AISI 303 Stainless steel AISI 303	60
		31728	VCN2AI14K	31738	VCN2CI14K	39	12	G 1/4K					67
	20	31707	VCM2AI	31717	VCM1CI	45	10	G 1/8K					67
		31708	VCM1AI14K	31718	VCM1CI14K	45	12	G 1/4K					77

# 可调节式真空开关

## Adjustable vacuum switches

### VSM

#### 用途

可调节式VSM真空开关设计用于在空气泵、起吊系统、过滤器控制应用中进行使用。通过转动适当的调节螺钉，可以将真空度和滞后量设定在所需值处。滞后量必须至少相当于设定点调节量的10%。建议在受到防振动保护的线路中使用VSM真空开关并将它们垂直固定在线路上。必须知道所使用的是什么介质，这一点非常重要，以确保与润湿部件材料（隔膜和本体）的兼容性。此外，电气负载（电阻或电感性）、工作电压和电流都必须清晰规定。

可按照要求在出厂时将真空开关设定为一个具体数值。

产品类型获得了IMQ产品认证许可。

#### 技术规范—标准执行

最大电压	250 Vac
工作电压	220 Vac
可调节滞后量	设定值的10%-30%
电流	6(2)A
温度范围	-30°C ~ +140°C (取决于隔膜材料)
防护等级	IP65 DIN 40050
PG9 或 PG11连接器	DIN 43650
25 °C最大循环速率	80/分钟
机械寿命	10 <sup>6</sup> 次运行
拧紧力矩	最大5Kgm

#### 材料—标准执行

本体27 AF	见表格
连接器和电缆夹	尼龙6.6
隔膜	NBR
C/O触点	SPDT

#### 订购信息

VSM... 带有SPDT触点的隔膜真空开关

#### 调节范围

VSM 1	-100 ~ -500 毫巴
VSM 2	-500 ~ -900 毫巴

#### 本体材料

-	耐热钢
I	AISI 303 不锈钢
W	AISI 316 不锈钢

#### 隔膜

-	NBR (标准)	-5°C ~ +90°C
NT	HNBR	-25°C ~ +140°C
V	FKM	-5°C ~ +90°C
S	硅胶	-30°C ~ +120°C
C	氟丁橡胶	-10°C ~ +90°C
E	EPDM	-20°C ~ +110°C

#### 螺纹

R18	G1/8"直螺纹
R14	G1/4"直螺纹
M12	M12 x 1.5直螺纹

#### 电缆夹

-	PG09 (标准)
11	PG11

#### 选项

G	用于低电流应用 30mA的镀金触点
SG	为使用氧气的应用进行脱脂
T...	压力上升到设定值时动作 (例如T250 压力上升到-250毫巴时动作)
T...D	压力下降到设定值时动作 (例如T350D 压力下降到-350毫巴时动作)
T...F...	如果在10%~30%设定点范围内，设定点和所需值处的滞后量（例如-400毫巴处T400F 100 设定点，滞后量为100毫巴）出厂设置为使用气体的应用进行测试
TG	为使用气体的应用进行测试

订购举例：VSM 1 W NT 11 M12

符合CE 89/336标准EMC 编号149E/96 报告

#### USE

The adjustable VSM vacuum switches have been designed to be used in air pumps, lifting systems, filter control applications, and so on. By turning the proper adjusting screw, it is possible to set vacuum and hysteresis at the required value. Hysteresis should correspond at least to the 10% of the set-point adjustment. It is advisable to use VSM vacuum switches in circuits protected from vibrations and fix them vertically on the line. It is always important to know the medium used in order to guarantee compatibility with wetted part materials (diaphragm and body). Furthermore, electric load (resistive or inductive), working voltage and current should be clearly specified.

Vacuum switches factory set to a specific value can be supplied on request.

Models available with IMQ product certification approval.

#### SPECIFICATIONS - STANDARD EXECUTION

Max. voltage	250 Vac
Working voltage	220 Vac
Adjustable hysteresis	10% to 30% of set-point
Current	6(2)A
Temperature range	-30°C to +140°C (according to diaphragm material)
Protection	IP65 DIN 40050
PG9 or PG11 connector	DIN 43650
Max. cycle rate at 25 °C	80/min.
Mechanical life	10 <sup>6</sup> operations
Tightening torque	max. 5 Kgm.

#### MATERIALS - STANDARD EXECUTION

Body 27 AF	See table
Connector and cable clamp	Nylon 6,6
Diaphragm	NBR
C/O contacts	SPDT

#### ORDERING INFORMATION

VSM... Diaphragm vacuum switch with SPDT contacts

#### Adjusting range

VSM 1	-100 to -500 mbar
VSM 2	-500 to -900 mbar

#### Body material

-	Tropicalized steel
I	AISI 303 Stainless steel
W	AISI 316 Stainless steel

#### Diaphragm

-	NBR (standard)	-5°C to +90°C
NT	HNBR	-25°C to +140°C
V	FKM	-5°C to +90°C
S	Silicone	-30°C to +120°C
C	Neoprene	-10°C to +90°C
E	EPDM	-20°C to +110°C

#### Threads

R18	G1/8" parallel
R14	G1/4" parallel
M12	M12 x 1.5 parallel

#### Cable clamp

-	PG09 (standard)
11	PG11

#### Options

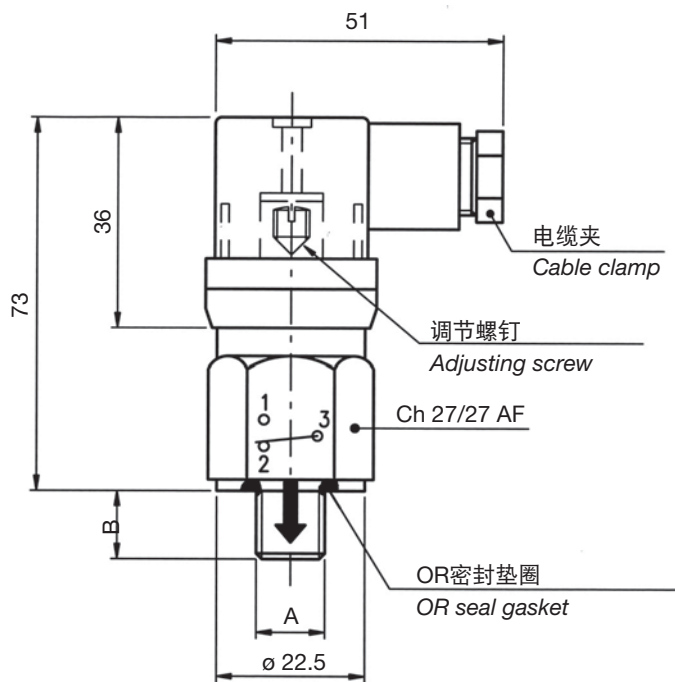
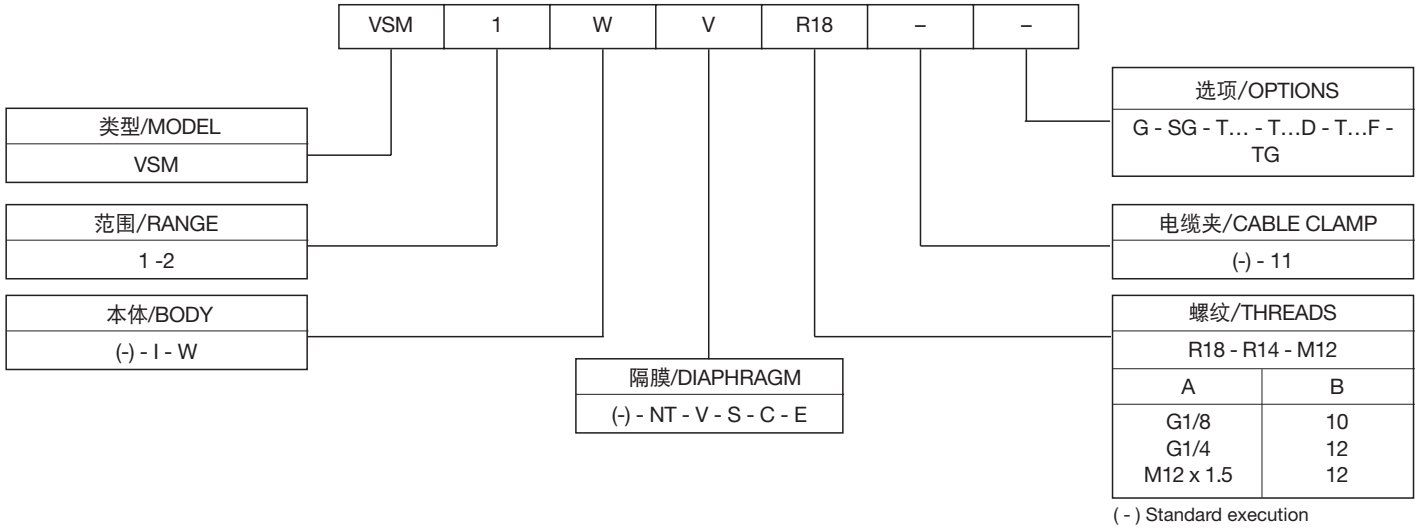
G	Gold-plated contacts for low current ≤ 30 mA
SG	Degreased for applications with oxygen
T...	Set-point adjustment rising at the required value (ex. T250 set rising at -250 mbar)
T...D	Set-point adjustment falling at the required value (ex. T350D set rising falling at -350 mbar)
T...F...	Set-point and hysteresis at the required value if > 10% max 30% of set-point (ex. T400F100 set point at -400 mbar with hysteresis at 100 mbar) FACTORY SETTING
TG	Tested for applications with gas

ORDERING EXAMPLE: VSM 1 W NT 11 M12

IN COMPLIANCE WITH CE 89/336 STANDARDS EMC N° 149E/96 REPORT



## 订购代码 / ORDERING CODE



## 总技术规范 / GENERAL SPECIFICATIONS

类型 Model	调节范围 Adjustment range  毫巴 mbar	最大静态压力 Max. static pressure  巴/bar			25°C时误差 Tolerance at 25 °C  毫巴 mbar	执行 Execution	重量 Weight  g
		耐热钢标准执行 Standard execution in tropicalized steel	不锈钢执行 Stainless steel execution	不锈钢执行 Stainless steel execution			
		VSM 1	-100 / -500	20			
VSM 2	-500 / -900	20			100		
VSM 1 I	-100 / -500		20		100		
VSM 2 I	-500 / -900		20		100		
VSM 1 W	-100 / -500			20	100		
VSM 2 W	-500 / -900			20	100		

# VS系列可调节式真空开关 调节范围-200~-900毫巴

## Adjustable vacuum switches VS series Adjustment ranges -200 to -900 mbar

### 用途

VS真空开关为隔膜执行式，设计具有-200毫巴~-900毫巴的调节范围和额定值为6(2)A / 250Vac或30mA / 30Vdc的标准SPDT触点，如果需要使用镀金触点的话。VS真空开关具有大约等于设定点调节量15%的固定滞后量，且可根据应用要求使用由耐热钢、303或316不锈钢制成的24AF六角本体。隔膜式VS真空开关特别适用于在化学和制药设备、食品加工、气动和液压设备中监控真空度。

通过使用开关壳中所包含的调节螺钉，可以将真空开关设定在所需值处。

可按照客户要求，在出厂时将真空开关设定为一个具体数值。

### 技术规范

开关额定值	6(2)A / 250Vac
开关额定值	2(1)A / 24Vac
最低额定值-金触点	30mA / 30Vdc
开关绝缘性	C, 根据VDE 0110
滞后量	最低100毫巴
温度范围	-30°C ~ +140°C (取决于隔膜材料)
接线端防护等级	IP00
使用CAP13时的防护等级	IP65
使用CAP16时的防护等级	IP54
25°C最大循环速率	120/分钟
机械寿命	10 <sup>6</sup> 次运行
拧紧力矩	5Kgm
CAP13拧紧力矩	0.5Kgm

### 材料

本体24 AF	参见备查表
镀银触点	Ag. CdO
CAP13	黑色尼龙 (-10°C ~ +110°C)
开关壳体	Pocan

### 订购信息

VS	隔膜式真空开关
调节范围	
VS 1	-200 ~ -500 毫巴
VS 2	-500 ~ -900 毫巴
触点	
SC	SPDT C/O 触点
24AF本体	
-	耐热钢-标准执行
I	AISI 303 不锈钢
W	AISI 316 不锈钢
标准隔膜	
-	NBR -5°C ~ +90°C
按要求提供隔膜	
NT	HNBR -25°C ~ +140°C
V	FKM -5°C ~ +90°C
S	红色硅胶 -30°C ~ +120°C
标准螺纹	
-	"A"参考 "B"参考
R18	G 1/8" 直螺纹 10
R14	G 1/4" 直螺纹 12
设置	
T ...	压力上升到设定值时动作 (例如T500 压力上升到-500毫巴时动作)
T ...D	压力下降到设定值时动作 (例如T750D 压力下降到-750毫巴时动作)
选项	
G	用于低电流应用 30mA的镀金触点

### USE

VS vacuum switches, diaphragm execution, have been designed with adjustment ranges -200 mbar to -900 mbar and SPDT contacts standard rated at 6(2)A / 250Vac or 30mA / 30Vdc if gold-plated contacts are required. VS vacuum switches are supplied with a fixed hysteresis equivalent to about 15% of set-point adjustment, and are available with the 24AF hexagonal body in tropicalized steel, 303 or 316 stainless steel according to application requirements. Diaphragm VS vacuum switches are particularly suitable to monitor vacuum in chemical and pharmaceutical plants, food processing, pneumatics and hydraulics.

Using the adjusting screw housed in the switch housing, it is possible to set the vacuum switch at the required value.

**On customer's request, vacuum switches factory-set to a specific value can be supplied.**

### SPECIFICATIONS

Switch rating	6(2)A / 250Vac
Switch rating	2(1)A / 24Vdc
Max rating - gold contacts	30mA / 30Vdc
Switch insulation	C according to VDE 0110
Hysteresis	max 100 mbar
Temperature range	-30°C to +140°C (according to diaphragm material)
Protection terminals	IP00
Protection with CAP13	IP65
Protection with CAP16	IP54
Max. cycle rate at 25°C	120/min
Mechanical life	10 <sup>6</sup> operations
Tightening torque	5 Kgm
CAP13 tightening torque	0.5 Kgm

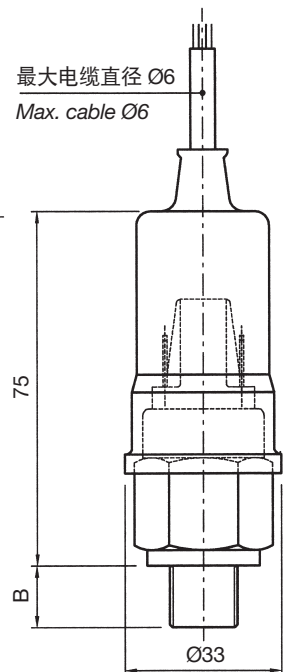
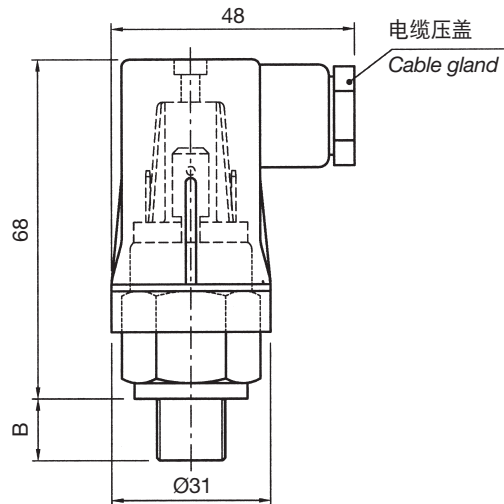
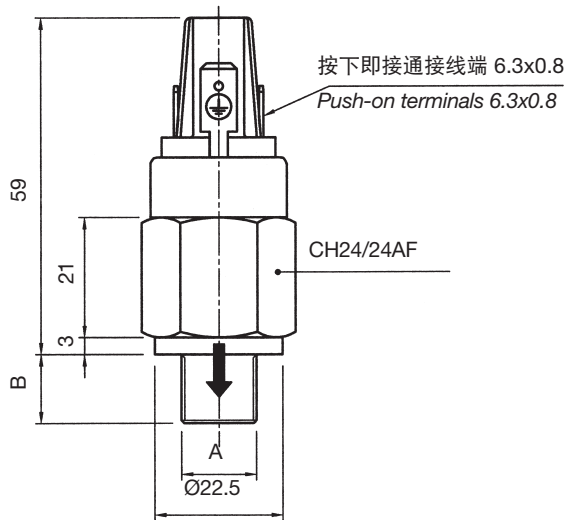
### MATERIALS

Body 24AF	See reference table
Silver-plated contacts	Ag. CdO
CAP13	Black Nylon (-10°C to +110°C)
Switch housing	Pocan

### ORDERING INFORMATION

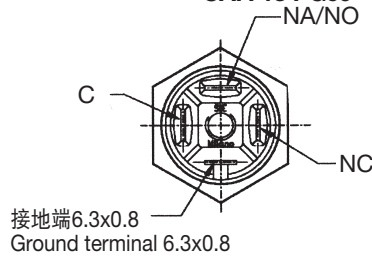
VS	Diaphragm vacuum switch
Adjustment range	
VS 1	-200 to -500 mbar
VS 2	-500 to -900 mbar
Contact	
SC	SPDT C/O contact
24AF Body	
-	Tropicalized steel - standard execution
I	AISI 303 stainless steel
W	AISI 316 stainless steel
Standard diaphragm	
-	NBR -5°C to +90°C
Diaphragm on request	
NT	HNBR -25°C to +140°C
V	FKM -5°C to +90°C
S	Red silicone -30°C to +120°C
Standard threads	
-	"A" reference "B" reference
R18	G 1/8" parallel 10
R14	G 1/4" parallel 12
Setting	
T ...	Set up rising to the required value (ex. T500 rising set-point adjustment at -500 mbar)
T ...D	Set up falling to the required value (ex. T750D falling set-point adjustment at -750 mbar)
Options	
G	Gold-plated contacts for low current applications ≤30mA





CAP. 13 PG07 - 代码 30010  
CAP. 13 PG07 - Cod. 30010  
CAP. 13 PG09 - 代码 30011  
CAP. 13 PG09 - Cod. 30011

CAP. 16 - 代码 30012  
CAP. 16 - Cod. 30012



C = 常用 / Common  
NC = 常闭 / Normally Closed  
NA/NO = 常开 / Normally Open

## 总技术规范 / GENERAL SPECIFICATIONS

类型 Model	调节范围 Adjustment range	最大静态压力 Max. static pressure			25 °C时的 固定滞后量	25°C时误差	执行 Esecution
		巴/mbar			Fixed hysteresis at 25 °C	Tolerance at 25°C	
		耐热钢标准执行 Tropicalized steel - standard execution	AISI 303 不锈钢本体执行 AISI 303 stainless steel body execution	AISI 303 不锈钢本体执行 AISI 303 stainless steel body execution	毫巴 mbar	毫巴 mbar	
VS 1	-200 / -500	20	20	20	100	±50	隔膜 Diaphragm
VS 2	-500 / -900	20	20	20	100	±50	



# 可调节式真空开关

## Adjustable vacuum switches

### VMC

#### 用途

可调节式VMC真空开关设计与PMC...压力开关相似的尺寸，配备有转换触点，压力调节范围为-200~-900毫巴。这些真空开关一般用于真空系统、包装机械、起吊设备、医学应用中。一只SPDT微开关由隔膜传感元件进行操作，可将任何预先确定的真空度的上升或下降转换为电气报警信号。真空开关必须安装在远离振动和热源的地方，螺纹接口朝下放置，防止湿气或其它杂质对设定值造成影响。如需将真空开关设定在所需值处，小心地旋转位于保护螺纹塞下面壳体中的调节螺钉。

在完成了设置后，建议使用合适的密封材料对调节螺钉进行固定。

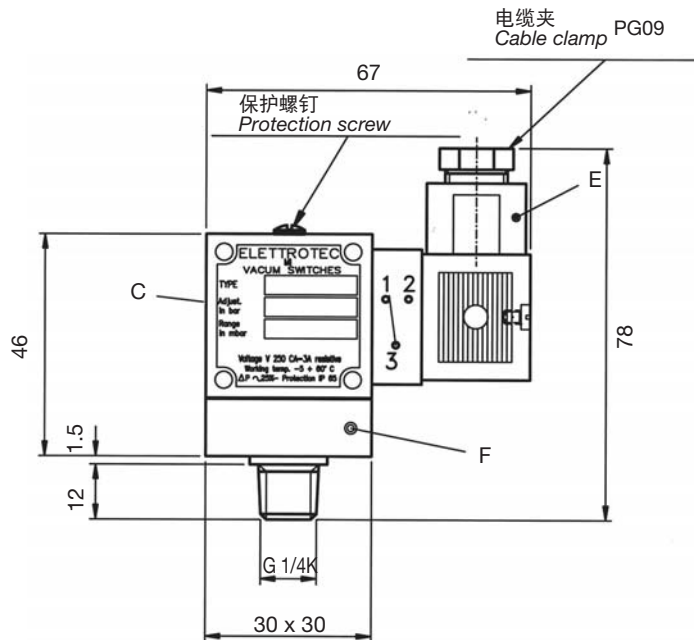
可按照要求在出厂时将真空开关设定为一个具体数值。

#### USE

The adjustable VMC vacuum switches have been designed with a size similar to the PMC...pressure switch, with changeover contact and a -200 to -900 mbar adjustment range. These vacuum switches are generally used in vacuum systems, packaging machines, lifting equipment, medical applications, etc. An SPDT micro-switch, operated by the diaphragm sensing element, transforms any predetermined increasing or decreasing of vacuum into an electric alarm signal. Vacuum switches should be installed far from vibration and heat sources with the thread connection downwards to avoid that moisture or other impurities could affect in time the setting value. To set the vacuum switch at the required value, carefully turn the adjusting screw housed under the protection screw plug.

Once the setting has been done it is advisable to secure the adjusting screw using a suitable sealing material.

**Vacuum switches factory set to a specific value can be supplied on request.**



#### 技术数据

最大电压	250 Vac
工作电压	220 Vac
电流	3A (电阻式) 2A (电感性)
调节范围	-200 ~ -900 毫巴
最大静态压力	20巴
固定滞后量	设定点的30%
温度范围	-5°C ~ +60°C
防护等级	IP65-DIN 40050
最大循环速率	100/分钟
机械寿命	10 <sup>6</sup> 次运行
隔膜	NBR
本体 (C)	阳极氧化铝
电气连接 (E)	PG09 DIN 43650
C/O触点	SPDT

#### TECHNICAL DATA

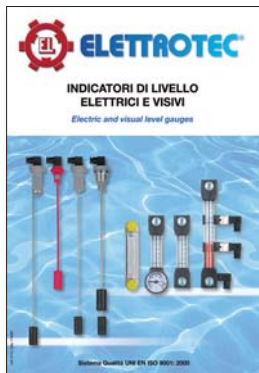
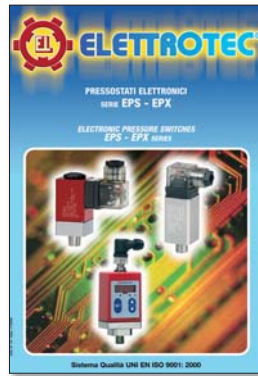
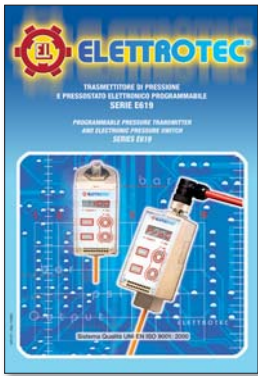
Maximum voltage	250 Vac
Working voltage	220 Vac
Current	3A (resistive) 2A (inductive)
Adjusting range	-200 to -900 mbar
Max. static pressure	20 bar
Fixed hysteresis	≤ 30% of set-point
Temperature range	-5°C to +60°C
Protection	IP65 - DIN 40050
Max cycle rate	100/min.
Mechanical life	10 <sup>6</sup> operations
Diaphragm	NBR
Body (C)	Anodized aluminium
Electrical connection (E)	PG09 DIN 43650
C/O contacts	SPDT

符合CE 89/336标准EMC 编号189E/96 报告

IN COMPLIANCE WITH CE 89/336 STANDARDS EMC N° 189E/96 REPORT

代码 CODE	类型 MODEL	本体材料 body MATERIAL	调节范围 Adjustment range 毫巴/mbar	25 °C时的误差 Tolerance in at 25 °C 毫巴/mbar	最大静态压力 Max static pressure 巴/bar	法兰材料 Flange material	重量 Weight g
31100	VMC 1	阳极氧化铝	-200 / -500	± 50	20	镀镍钢 Nickel-plated steel	174
31101	VMC 1A		-500 / -900				
31102	VMC 1I	Anodized aluminium	-200 / -500				
31103	VMC 1AI		-500 / -900			AISI 303 不锈钢 AISI 303 stainless steel	





- CD-ROM主目录也可供使用。
- CD-ROM master catalogue also available.

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# 流体控制设备

## Control Devices for Fluids

- 压力开关
  - 真空开关
  - 温度开关
  - 流量计
  - 流量开关
  - 浮球式液位开关
  - 液位传感器
  - 电子压力开关
  - 压力变送器
  - 数字指示器
  - 保护帽
  - 连接器
  - 客户执行
- Pressure switches
  - Vacuum switches
  - Temperature switches
  - Flow meters
  - Flow switches
  - Float level switches
  - Level sensors
  - Electronic pressure switches
  - Pressure transmitters
  - Digital indicators
  - Protection caps
  - Connectors
  - Custom executions

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