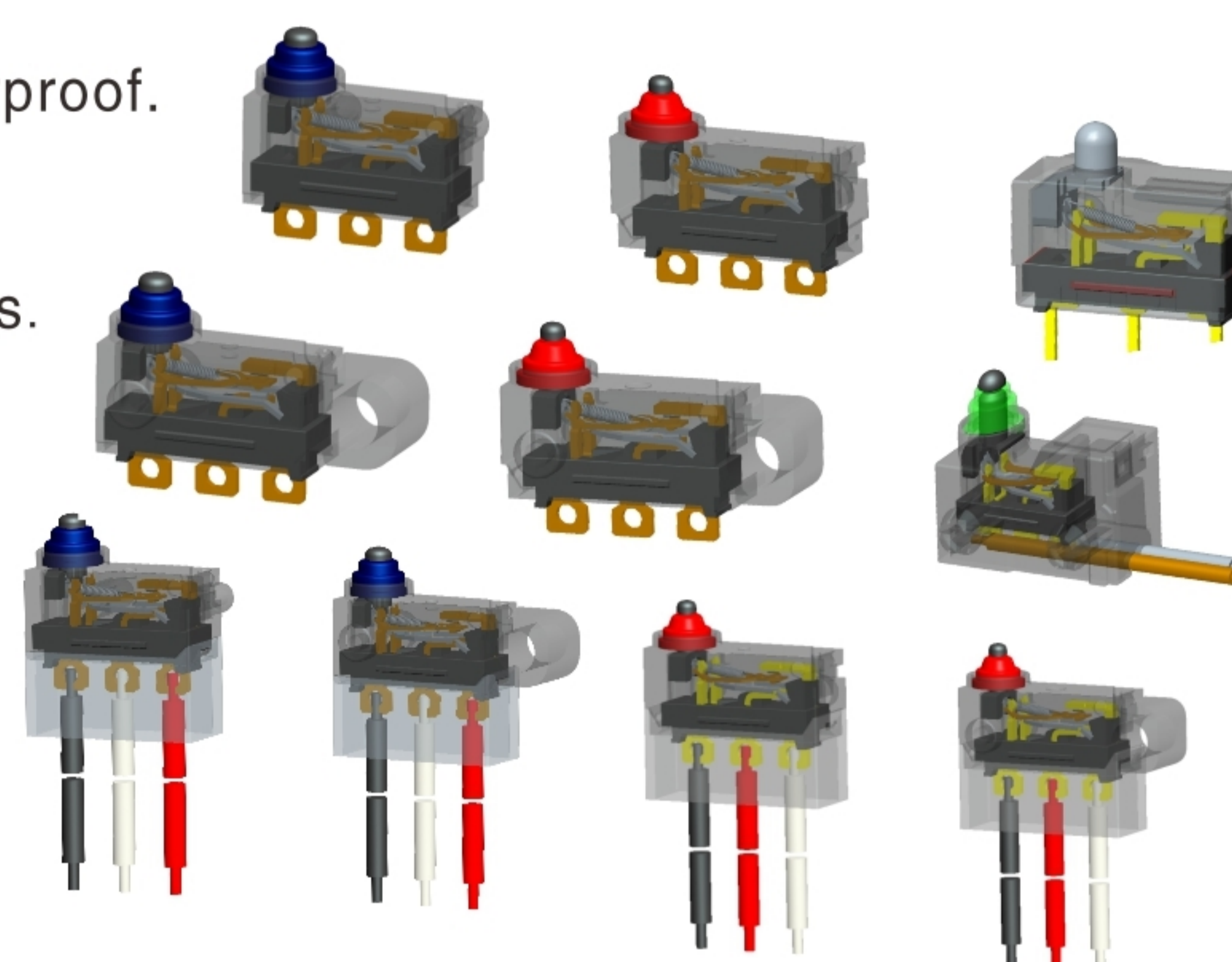


## WS5型防水開關系列 Waterproof switch series

### ◆ 特點和用途 Characteristics and usage

- 體形小巧，結構緊湊；長行程，防塵，防水。  
Small size, compact structure, long travel, dustproof, waterproof.
- 接線端子種類齊全，可配備各種導線。  
A variety of contact terminals, provide with a variety of wires.
- 配備各種形式動臂  
A variety of levers
- 可在汽車、家用電器、工業控制設備等有耐環境性能要求的場合及戶外設備、儀器中使用。  
Can be used in environmental resistant requirements application, outdoor equipments such as automobile, home appliances, industrial control equipment etc.



### ◆ 技術特性 Technical Characteristics

項目 Item		特性值 Value
工作速度 Operating speed		0.1mm ~ 1m/s (無動臂時No lever)
工作頻率 Operating frequency		機械 60次/min; 電氣 25次/min Mechanical 60 cycles/min; Electrical 25cycles/min
絕緣電阻 Insulation resistance		≥100MΩ (500VDC)
接觸電阻 Contact resistance		端子型Terminal type ≤50mΩ 導線型Wire type ≤100mΩ (24#, L≤200mm)
耐電壓 Test voltage	同極不相接端子間 Between terminals of the same polarity	AC600V, 50/60Hz, 1min
	帶電金屬零件與地(外殼)之間、接線端與不帶電金屬件之間 Between current-carrying metal parts and ground(case), and between each terminal and non-current-carrying metal parts.	AC1000V, 50/60Hz, 1min
抗振動 Vibration resistance		10 ~ 55Hz, 1.5mm雙振幅 Double amplitude
抗衝擊 Shock resistance		耐久Endurance: 1000m/s <sup>2</sup> (約100G approx.100G)max 誤動作Wrong action: 300m/s <sup>2</sup> (約30G approx.30G)max
防触电保护等級 Electric shock proof protection degree		I 級class
外殼防護等級 Case protection degree		IEC IP67 (端子型的端子部位除外Except terminal part of terminal type) 或其它等級Or other degrees
壽命 life		機械 ≥500,000次 Mechanical ≥500,000 cycles 電氣 ≥100,000次 Electrical ≥100,000 cycles
安全認證 Safety approvals		UL/CUL、TUV、CE、CQC

To provide a safe and reliable on-off service, let electric appliances more perfect



## ◆ 型號規格命名及含義 Model number legend and meanings

WS5□-□ □ □-□ □ □-□ □- (□)  
1 2 3 4 5 6 7 8 9 10

<b>1</b> 溫度等級 Degree of temperature	無標記No mark: 40T130	<b>7</b> 安裝構造 Mounting construction	A:定位銷(雙面各1); dowel pin (each one for double sides); AL:左2定位銷; left 2dowel pin; AR:右2定位銷; right 2dowel pin; AA:雙面各2定位銷 each 2 for double sides dowel pin AC:左1定位銷 left 1 dowel pin AD:右1定位銷 right 1 dowel pin B:M3螺釘固定 M3 screw fixed L:左固定銷 left side fixing pin R:右固定銷 right side fixing pin W:無孔無銷 without hole and pin CL:外形Ⅱ左固定銷; shapeⅡ left side fixing pin (外形Ⅱ用于WS5-30 shapeⅡ for WS5-30) CR:外形Ⅱ右固定銷; shapeⅡ right side fixing pin (外形Ⅱ用于WS5-30 shapeⅡ for WS5-30) DL:外形Ⅱ左定位銷; shapeⅡ left dowel pin (外形Ⅱ用于WS5-30 shapeⅡ for WS5-30) DR:外形Ⅱ右定位銷; shapeⅡ right dowel pin (外形Ⅱ用于WS5-30 shapeⅡ for WS5-30) CW:外形Ⅱ無孔無銷; shapeⅡ without hole and pin (外形Ⅱ用于WS5-30 shapeⅡ for WS5-30) E:外形ⅡM3螺釘固定; shapeⅡ M3 screw fixed (外形Ⅱ用于WS5-30 shapeⅡ for WS5-30) DD:外形Ⅱ雙面各2定位銷; shapeⅡ each 2 for double sides(外形Ⅱ用于WS5-30) (外形Ⅱ用于WS5-30 shapeⅡ for WS5-30) FL:外形Ⅲ左固定銷; shapeⅢ left side fixing pin (外形Ⅲ用于WS5-40 shapeⅢ for WS5-40) 注: 原外形: 長14.7/寬5.4/高6.8; 外形Ⅱ: 長13.3/寬5.3/高6.5; 外形Ⅲ: 長20/寬6.95/高12.3 Note: original shape:Lenth14.7/ width:5.4/ height:6.8 shapeⅡ :Lenth13.3/ width:5.3/height:6.8 shapeⅢ :Lenth20 /width:6.95/height:12.3		
<b>2</b> 額定值 Ratings	無標記No mark: 0.1A48VDC 125/250VAC; 3A 12VDC		<b>8</b> 導綫型端子的導綫長度(毫米數) Wire length of wire type terminal (mm)	非導綫型該位置空缺 Vacant for non-wire type	
<b>3</b> 接觸形式 Circuit	Z:轉換式SPDT T:常開(按通)式SPST-NO D:常閉(按斷)式SPST-NC (見說明圖See illustration)			<b>9</b> 防護等級 Protection degree	無標記No mark: IP67(端子型,端子處除外Except terminal part of terminal type) IP67(導綫型 Wire leads type) IP□□: 其它等級 Other degrees
<b>4</b> 驅動形式 Actuator forms	0:無動臂No lever 3:直動臂Straight lever 6:弧形動臂Arc lever □:非標準動臂not standard lever 注: 1) □表示非標準動臂的代號。 2) 若動臂為內安裝式, 則在動臂代號後加注字母N。 Note: 1) □ Indicate not standard lever. 2) If lever is amoundard inside, add letter "N" after the lever code.		<b>5</b> 端子類型 Terminal types		F:焊接端子(長2.4)Solder terminal(L2.4) FC:長焊接端子(長3.5)Solder terminal (L3.5) P:PCB端子PCB terminal PD:短PCB端子Short PCB terminal PL:左PCB端子Left PCB terminal PR:右PCB端子Right PCB terminal B:底部導綫型Bottom wire type L:左面導綫型(左右的定義見圖示) Left side wire type (definition of right and left is shown in diagram) R:右面導綫型Right side wire type Y:非標準端子Not standard terminal
<b>6</b> 動作力(max) Operating force	100: 1.00N 130:1.30N 195:1.95N 220:2.20N 注: 若是非標準動作力, 用此動作力上限值表示。 Note: if it is not standard operating force, indicate with the upper limit.				

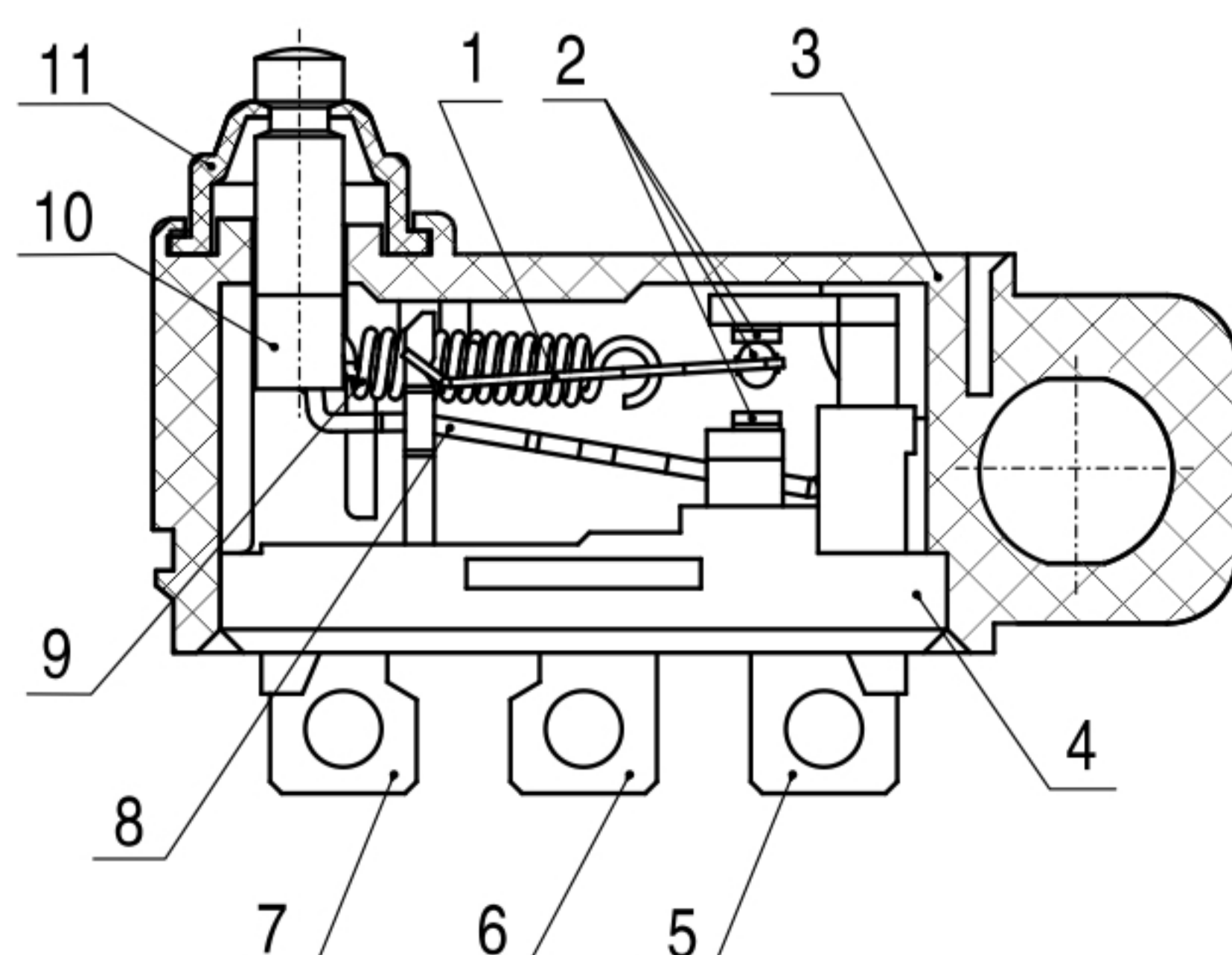
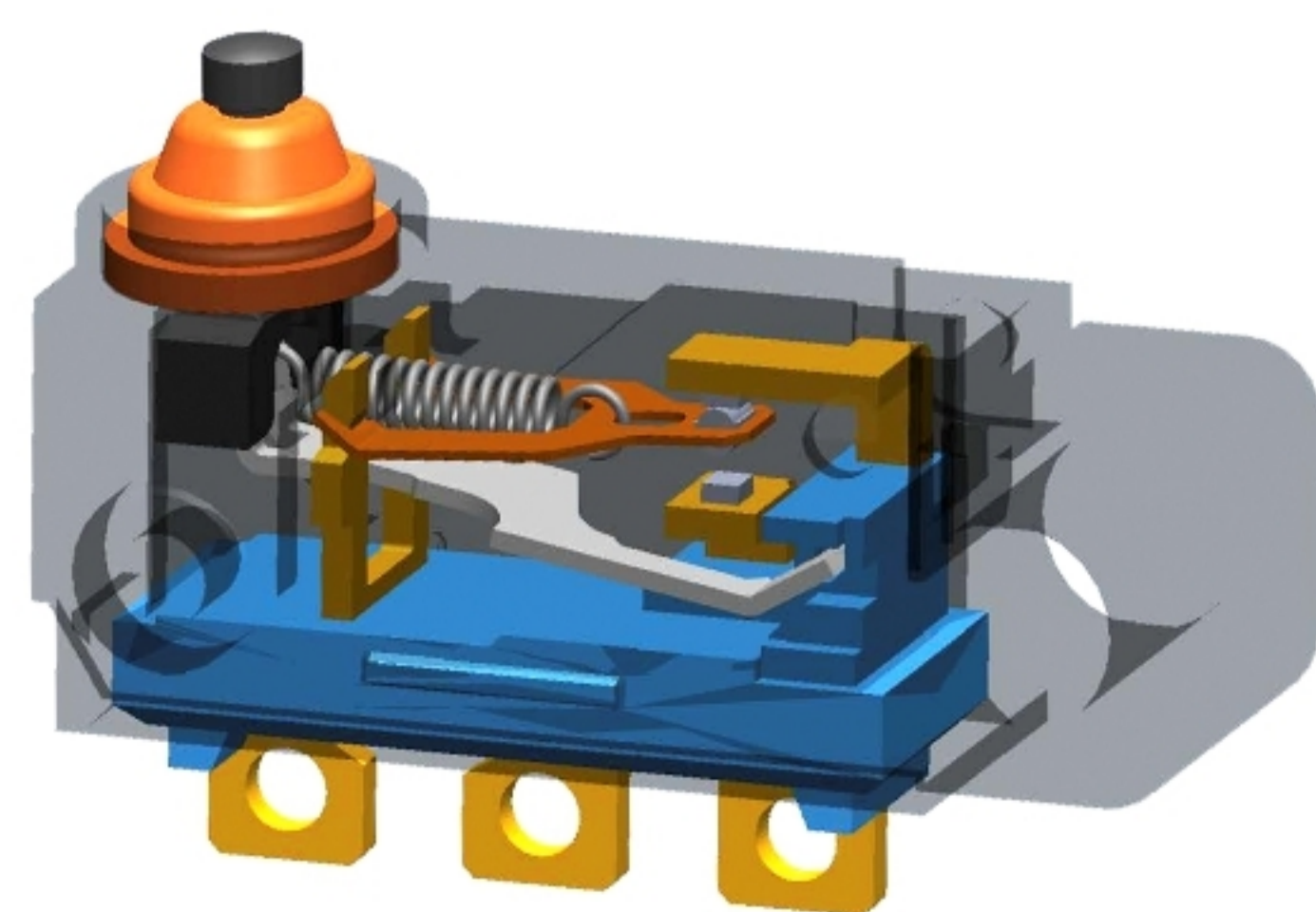
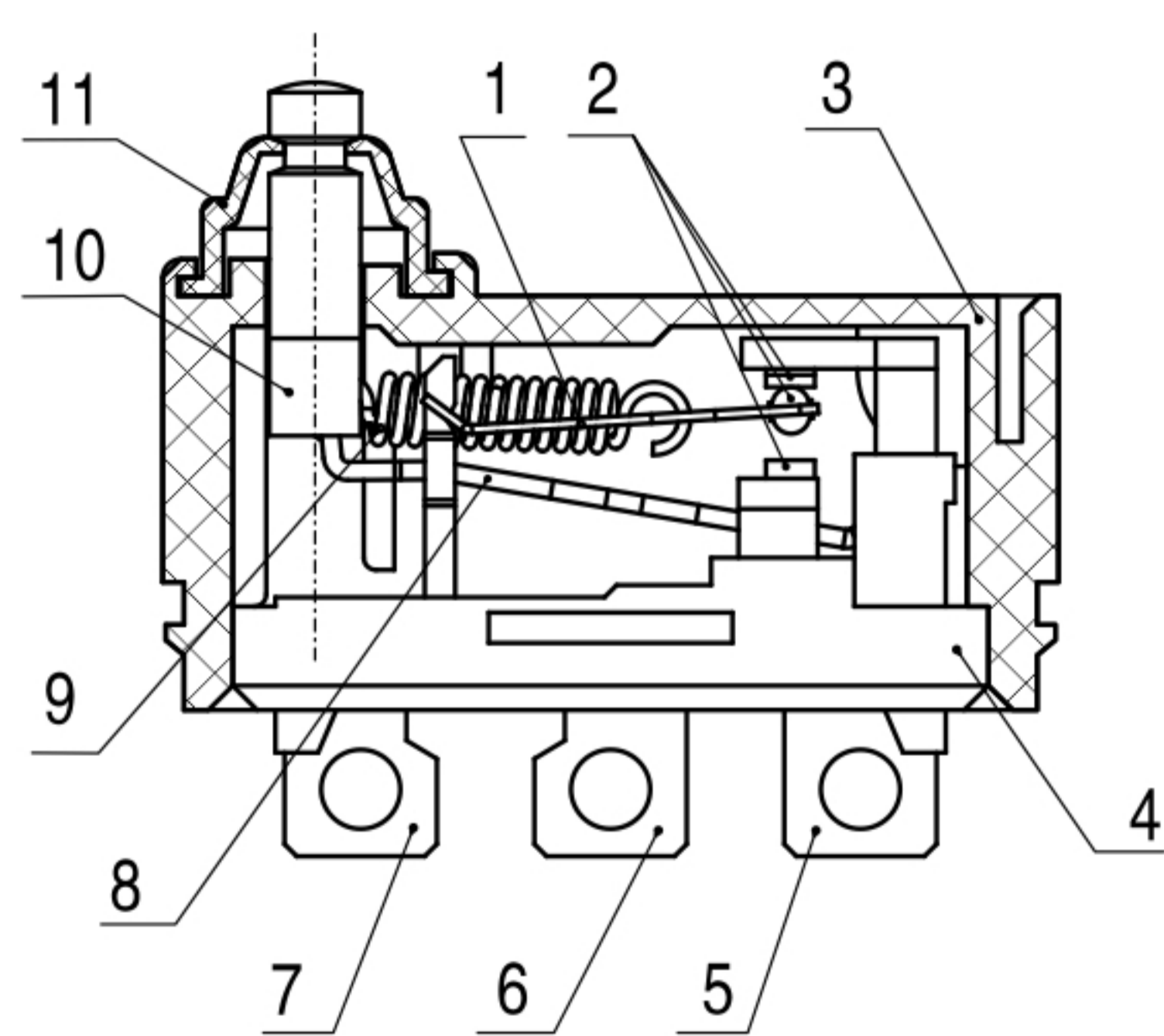
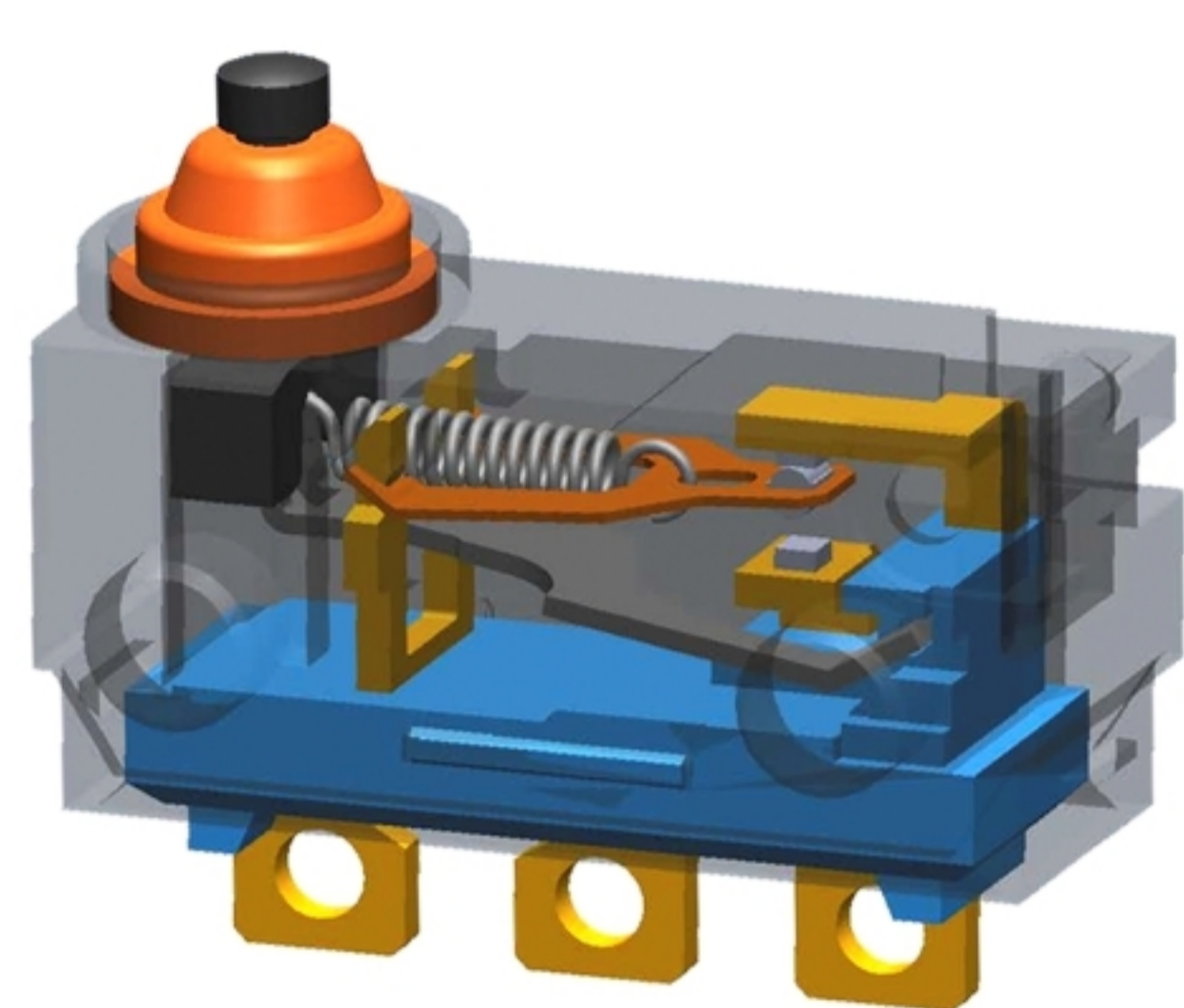


◆ 型號規格命名及含義 Model number legend and meanings

WS5□-□ □ □-□ □ □-□ □-□  
1 2 3 4 5 6 7 8 9 10

<p><b>10</b> 附加規格代號及導線顏色配置代號 Additional specs code and wire color code</p>	<p>適用於apply to: 1) 當開關使用了非標準零件如非標準端子時; When used not standard parts such as not standard terminal. 2) 當顧客有特殊動作特性值或其它要求時; When customer has particular operating value or other requirements. 3) 當導線顏色不是默認的配置顏色時。 When the wire color is not the default color. ■ 附加規格代號用兩位阿拉伯數字表示, 如01、02、03……在沒有附加規格編號時, 該位置空缺。  Additional spec number shows as 01, 02, 03……If there is no additional numbers, the place is vacant. ■ 導線顏色配置代號: 用三個英文字母按COM、NC、NO順序表示; 若是常開式或常閉式開關, 空缺位置用字母O表示。(顏色代號: 紅-R、白-W、黑-B、綠-G、藍-L、黃-M、灰-H、紫-P)。</p>	<p><b>10</b> 附加規格代號及導線顏色配置代號 Additional specs code and wire color code</p>	<p>Wire color code: indicate with 3 letters, the order is COM、NC、NO; If NO or NC, vacant place shows 0. (Color code: red-R, white-W, black-B, green-G, blue-L, yellow-Y, grey-H, purple-P)示例example: BWR, BOR, RWO ■ 若同時有附加規格代號和導線顏色配置代號, 則導線顏色配置代號位于附加規格代號之後。If there are append specs code and wire color code at the same time, then the wire color code should be after the append specs code. 示例example: 02BWR ■ 導線型開關的引線顏色默認配置規定如下Wire color of wire type switch is as follows: 公共端引線COM: 黑色 Common terminal wire COM: Black 常閉端引線NC: 紅色 Normally closed terminal wire NC: Red 常開端引線NO: 白色 Normally opened terminal wire NO: white</p>
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◆ 內部構造圖 Internal configuration drawing

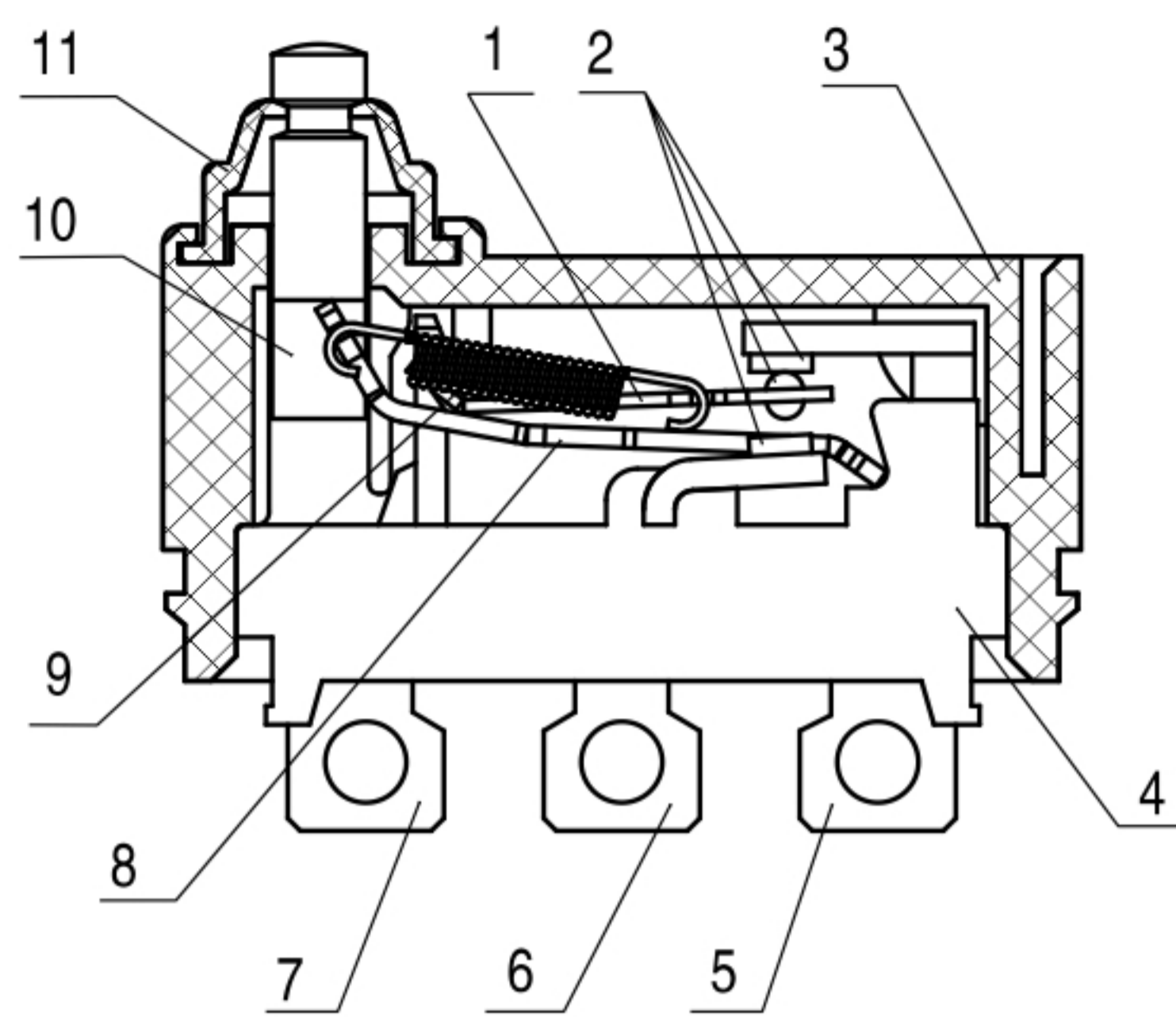
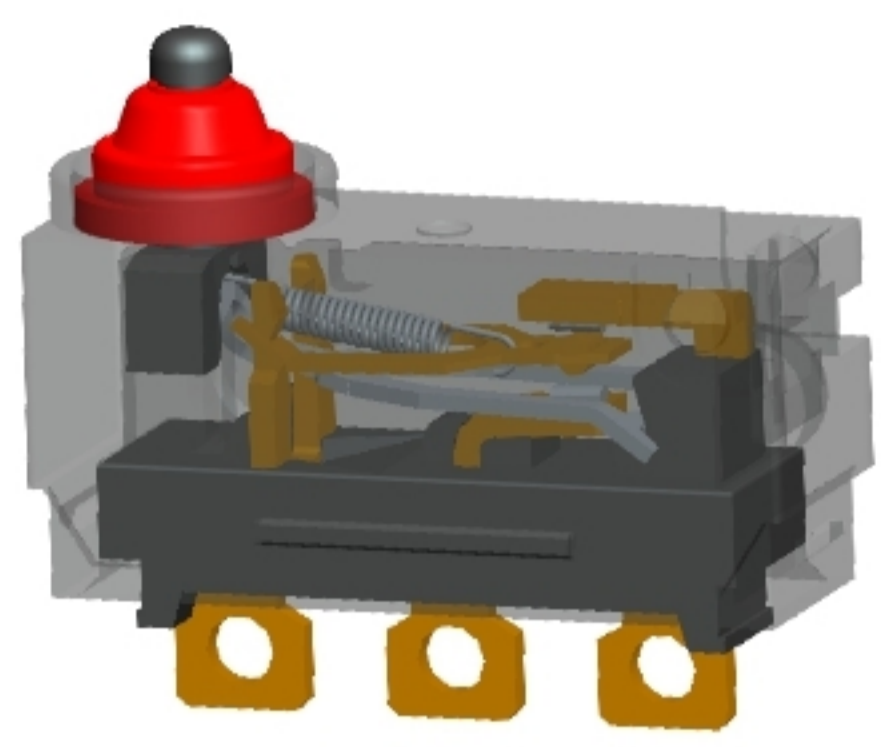


- |         |               |
|---------|---------------|
| 1: 可動片  | Moving piece  |
| 2: 電觸點  | Contact       |
| 3: 外殼   | Base          |
| 4: 底座   | Case          |
| 5: 常閉端子 | NC terminal   |
| 6: 常開端子 | NO terminal   |
| 7: 支架   | Support       |
| 8: 杠杆   | Lever         |
| 9: 拉簧   | Pull spring   |
| 10: 按鈕  | Plunger       |
| 11: 密封圈 | Hermetic loop |

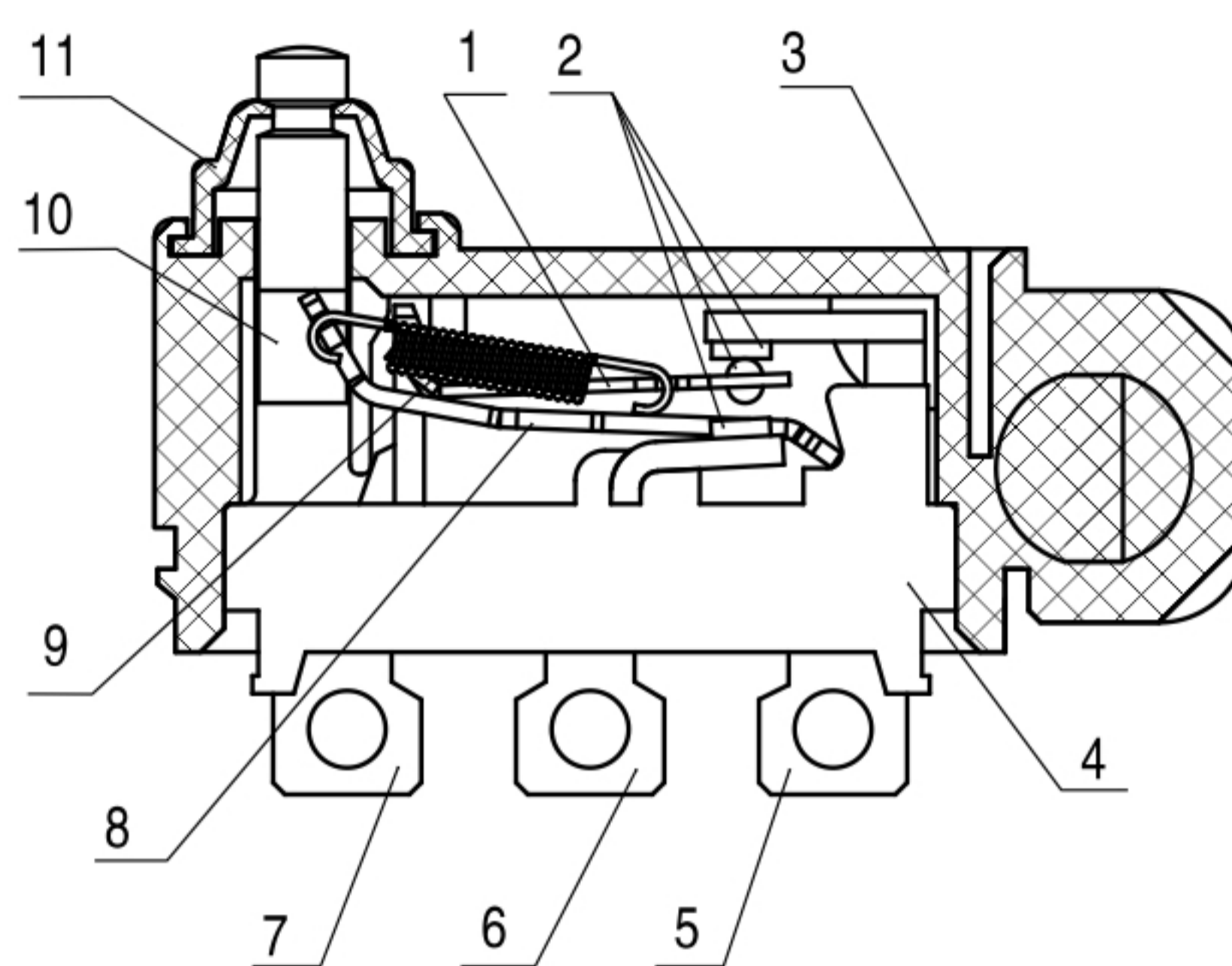
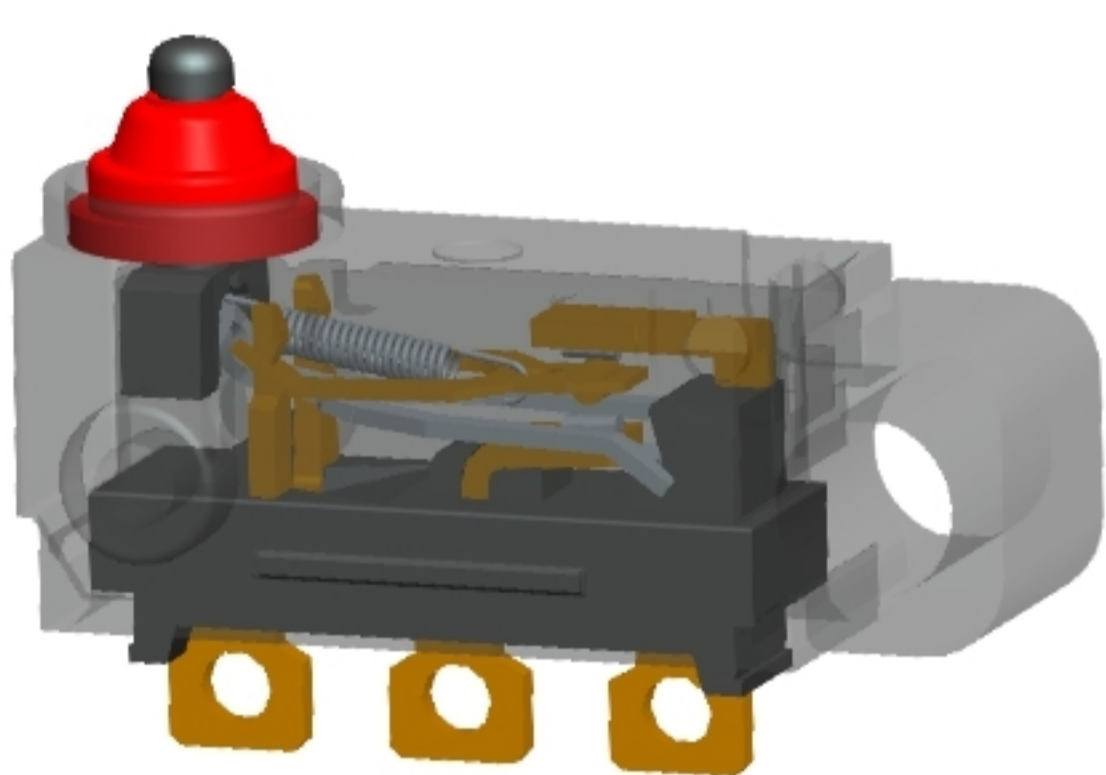
To provide a safe and reliable on-off service, let electric appliances more perfect



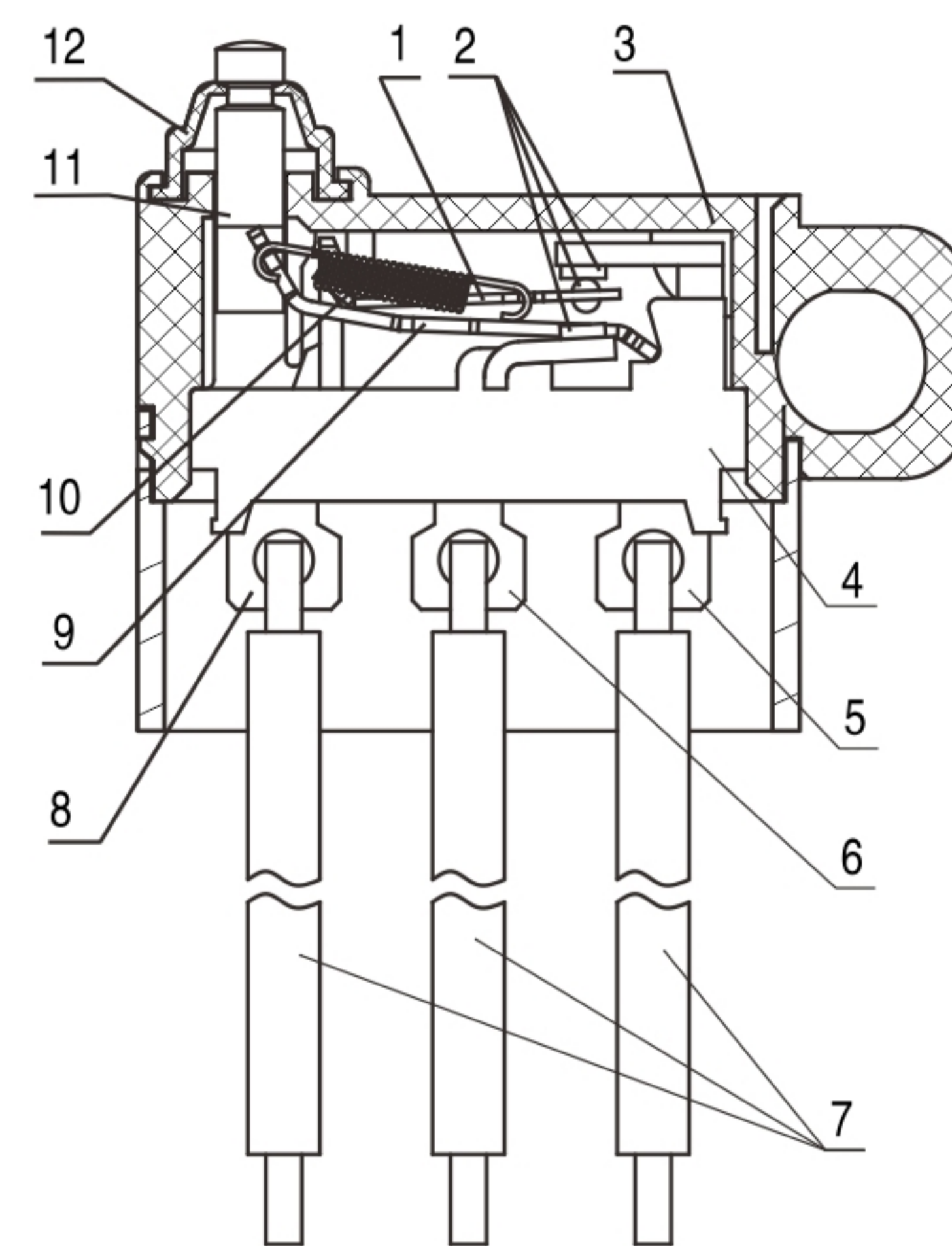
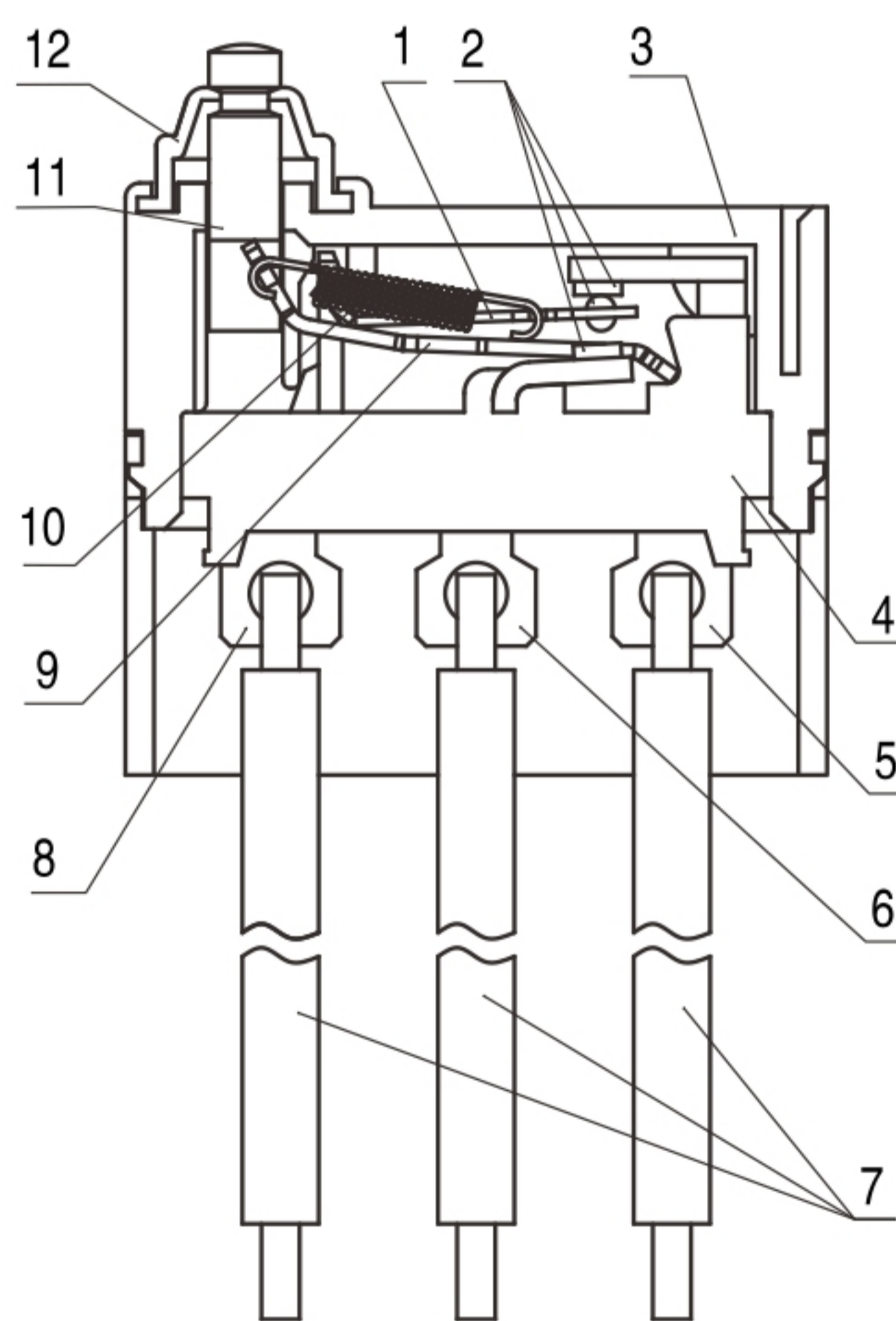
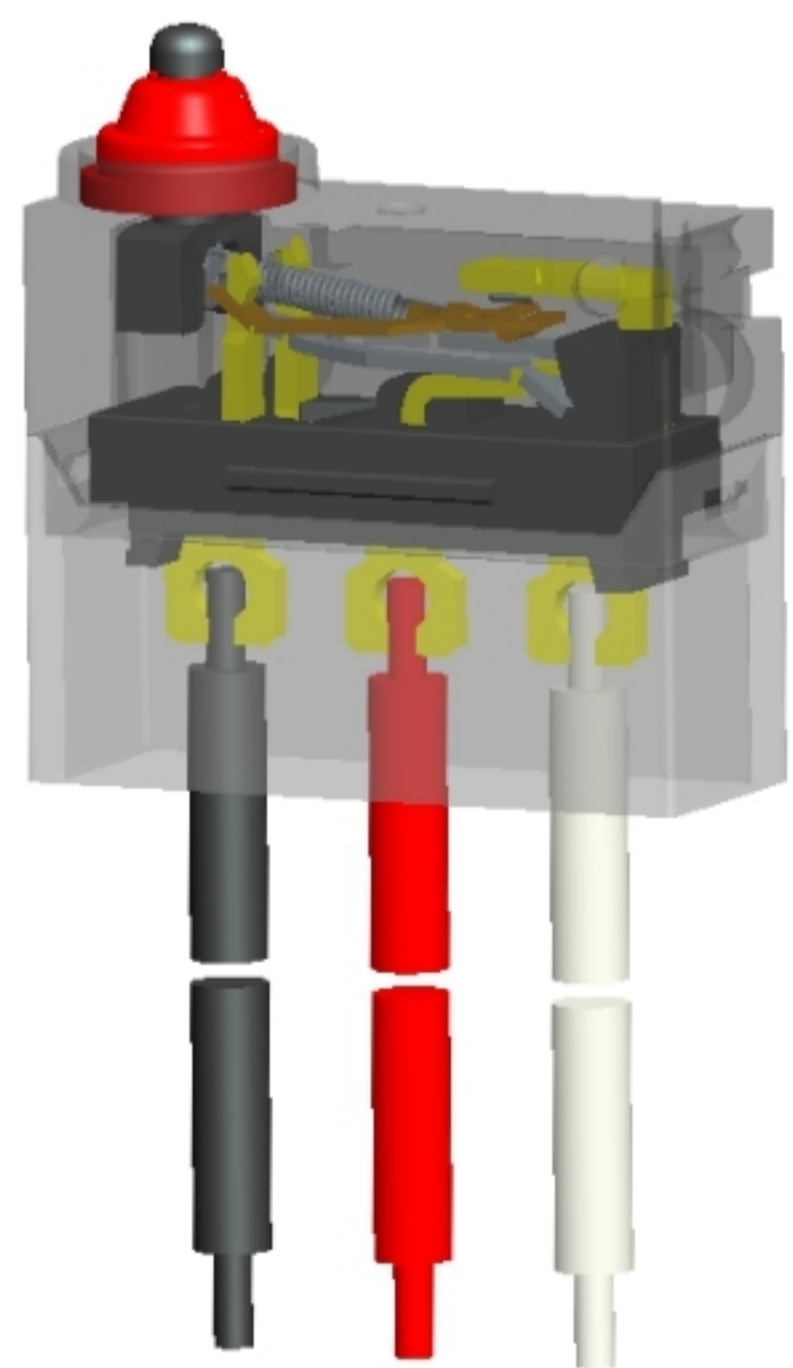
## ◆ 内部构造图 Internal configuration drawing



- |        |               |
|--------|---------------|
| 1.可動片  | Moving piece  |
| 2.電觸點  | Contact       |
| 3.外殼   | Base          |
| 4.底座   | Case          |
| 5.常閉端子 | NC terminal   |
| 6.常開端子 | NO terminal   |
| 7.支架   | Support       |
| 8.杠杆   | Lever         |
| 9.拉簧   | Pull spring   |
| 10.按鈕  | Plunger       |
| 11.密封圈 | Hermetic loop |

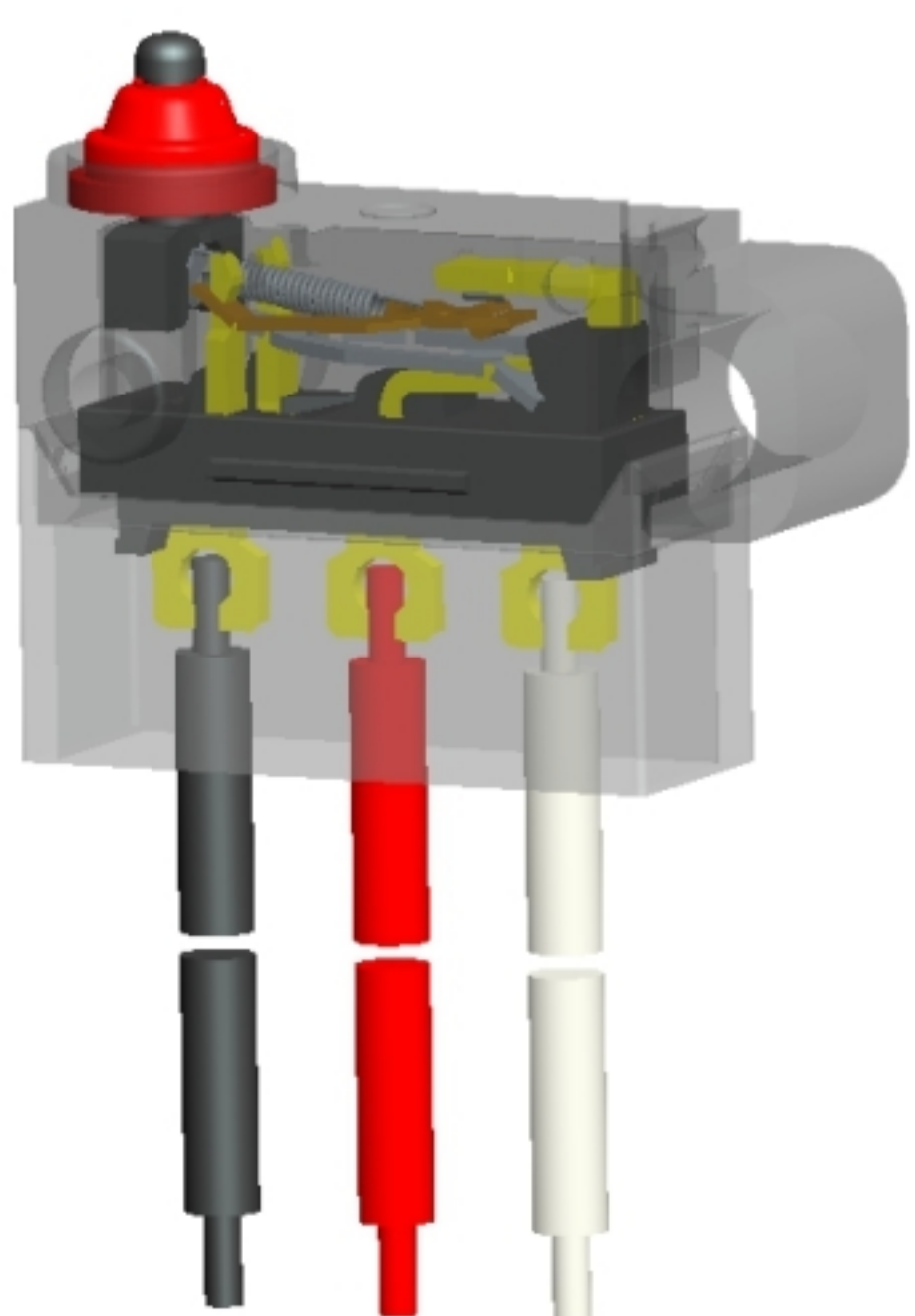


## ◆ WS5-2055 第二代防水罩灌膠型 Second-generation



- |        |              |
|--------|--------------|
| 1.可動片  | Moving piece |
| 2.電觸點  | Contact      |
| 3.外殼   | Base         |
| 4.底座   | Case         |
| 5.常閉端子 | NC terminal  |
| 6.常開端子 | NO terminal  |

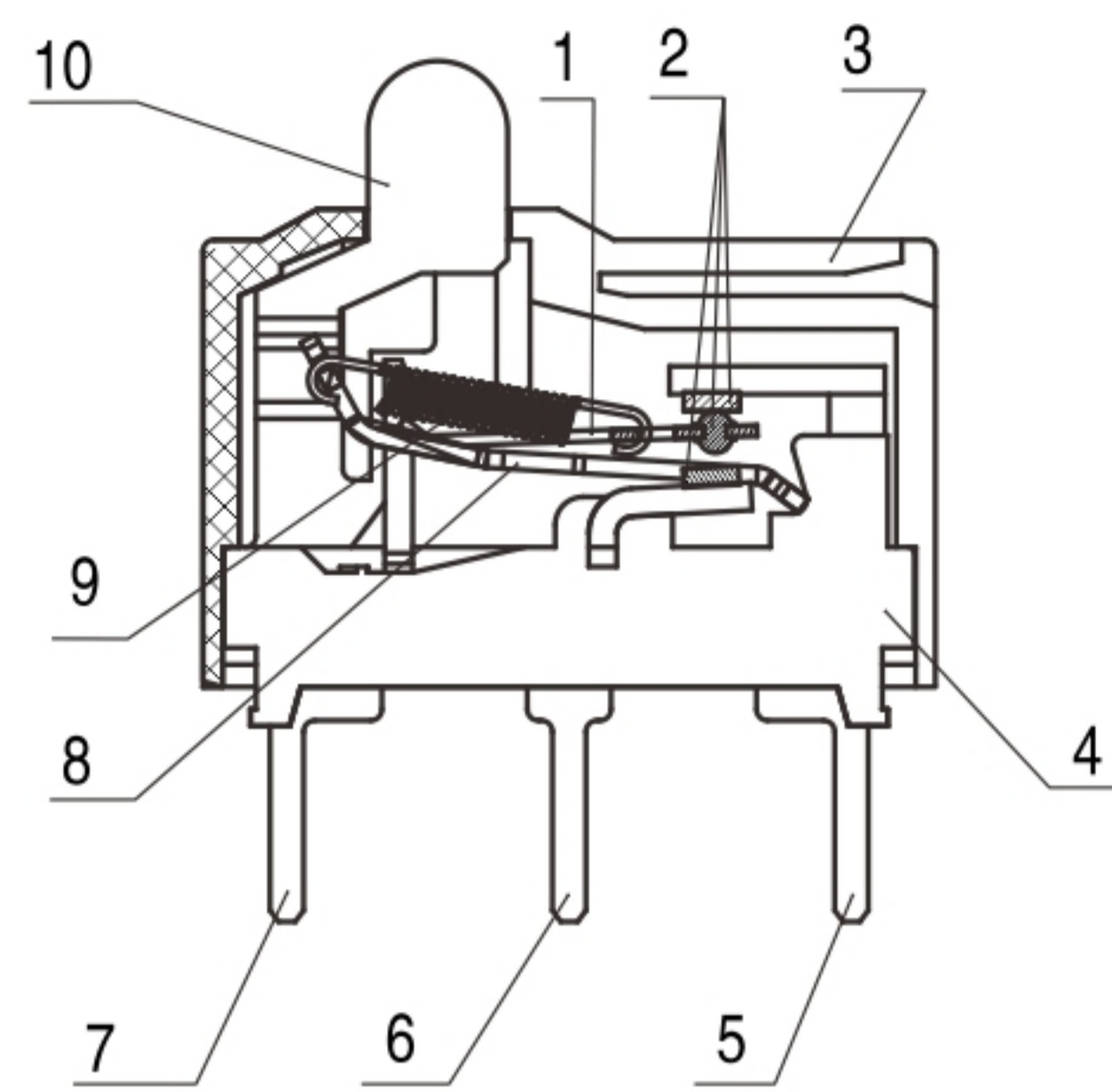
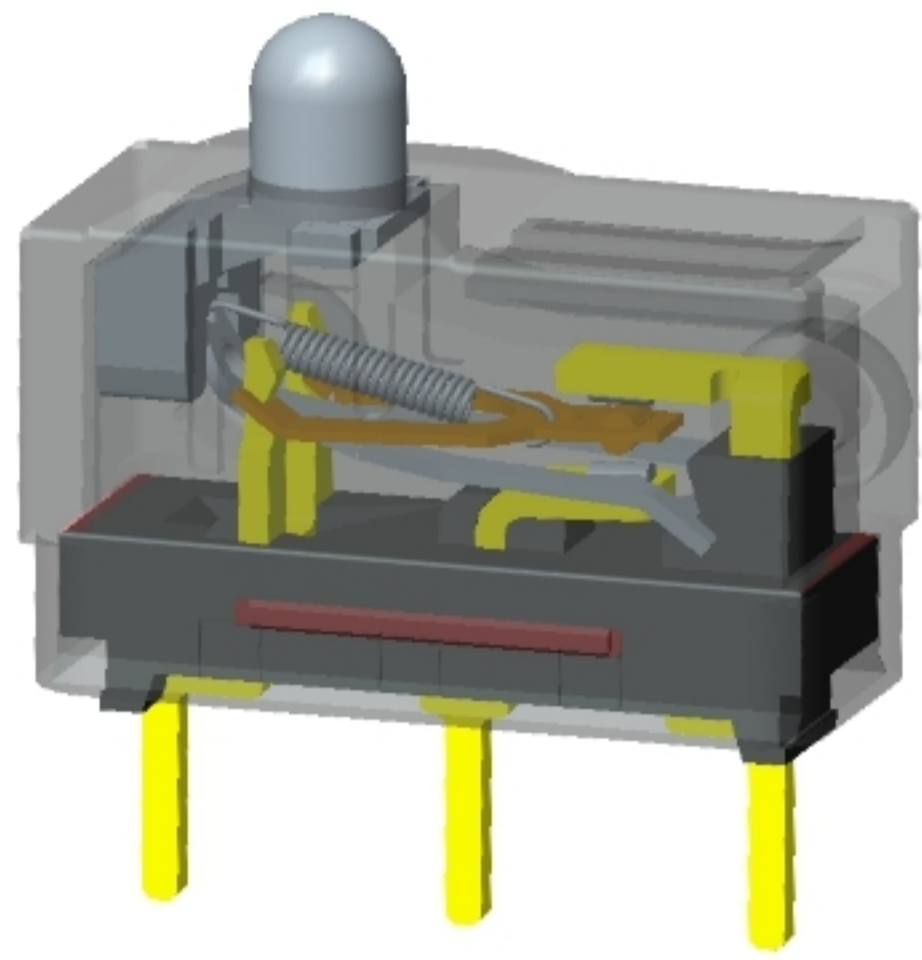
- |        |               |
|--------|---------------|
| 7.導線   | Wire          |
| 8.支架   | Support       |
| 9.杠杆   | Lever         |
| 10.拉簧  | Pull spring   |
| 11.按鈕  | Plunger       |
| 12.密封圈 | Hermetic loop |





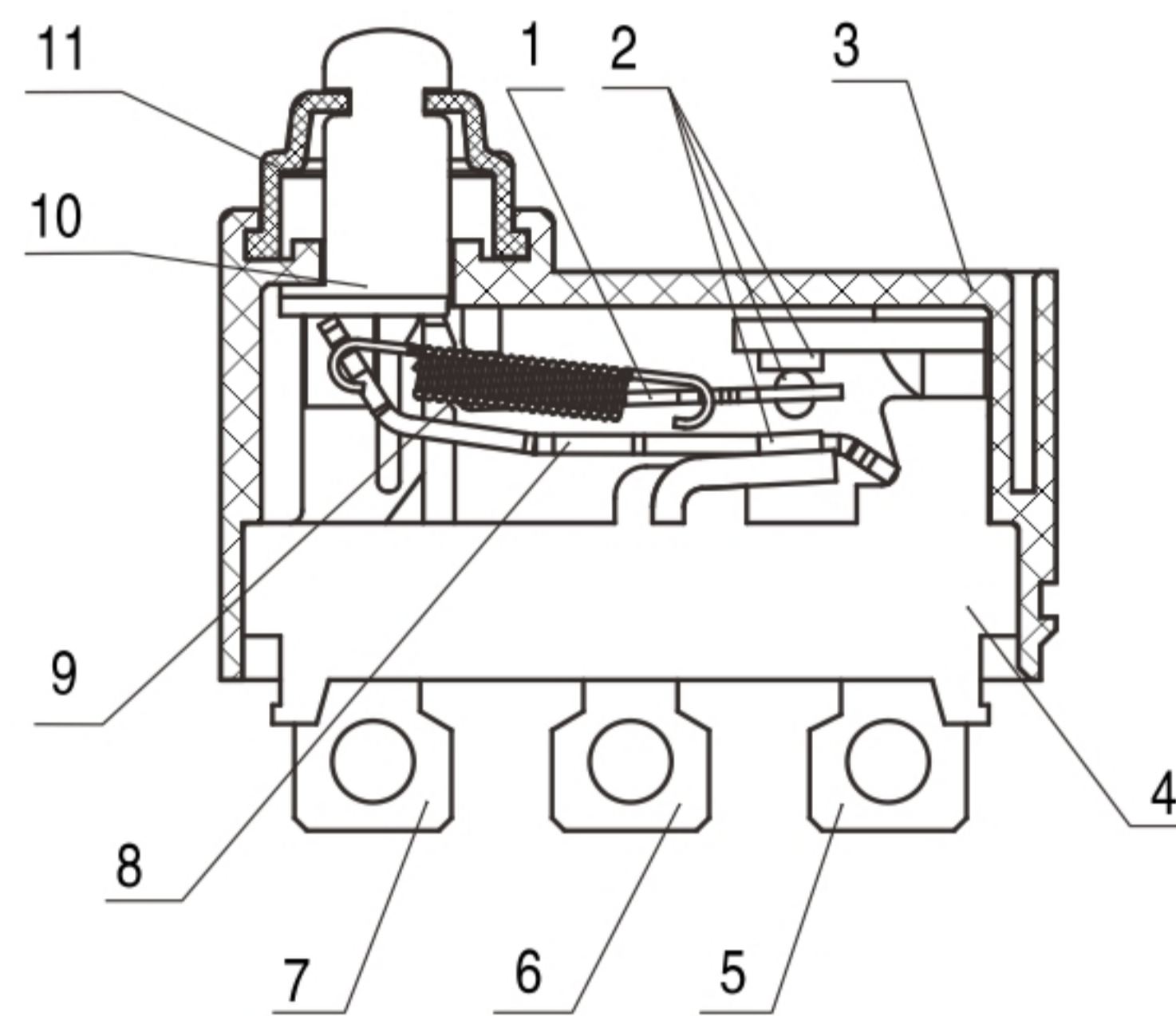
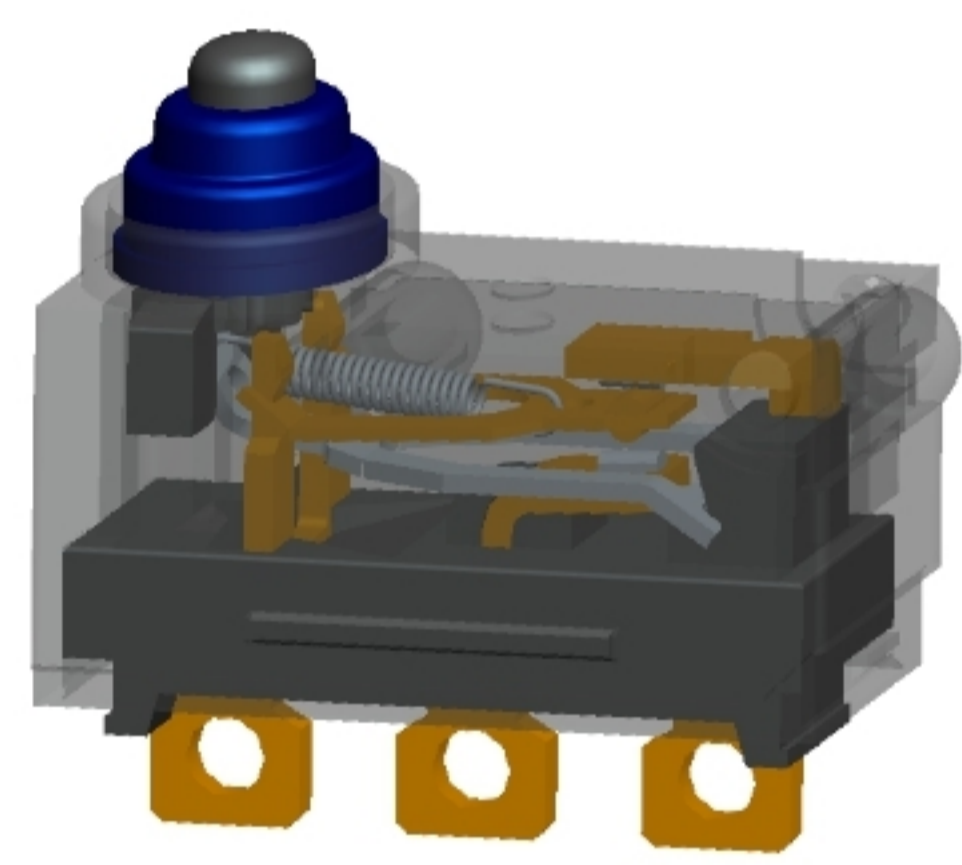
## ◆ WS5-IP40-2041 第二代IP40不防水型

## Second-generation IP40

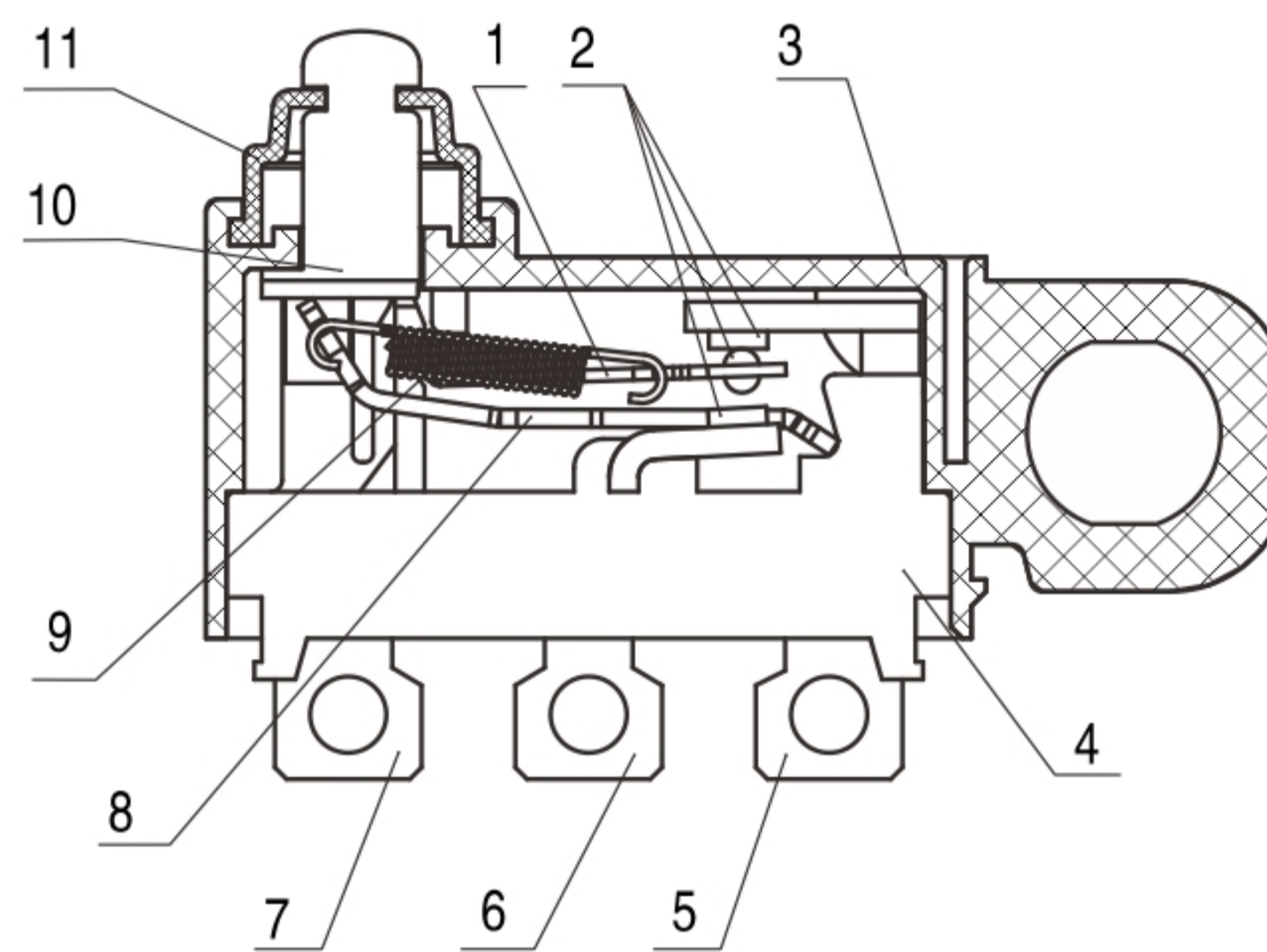
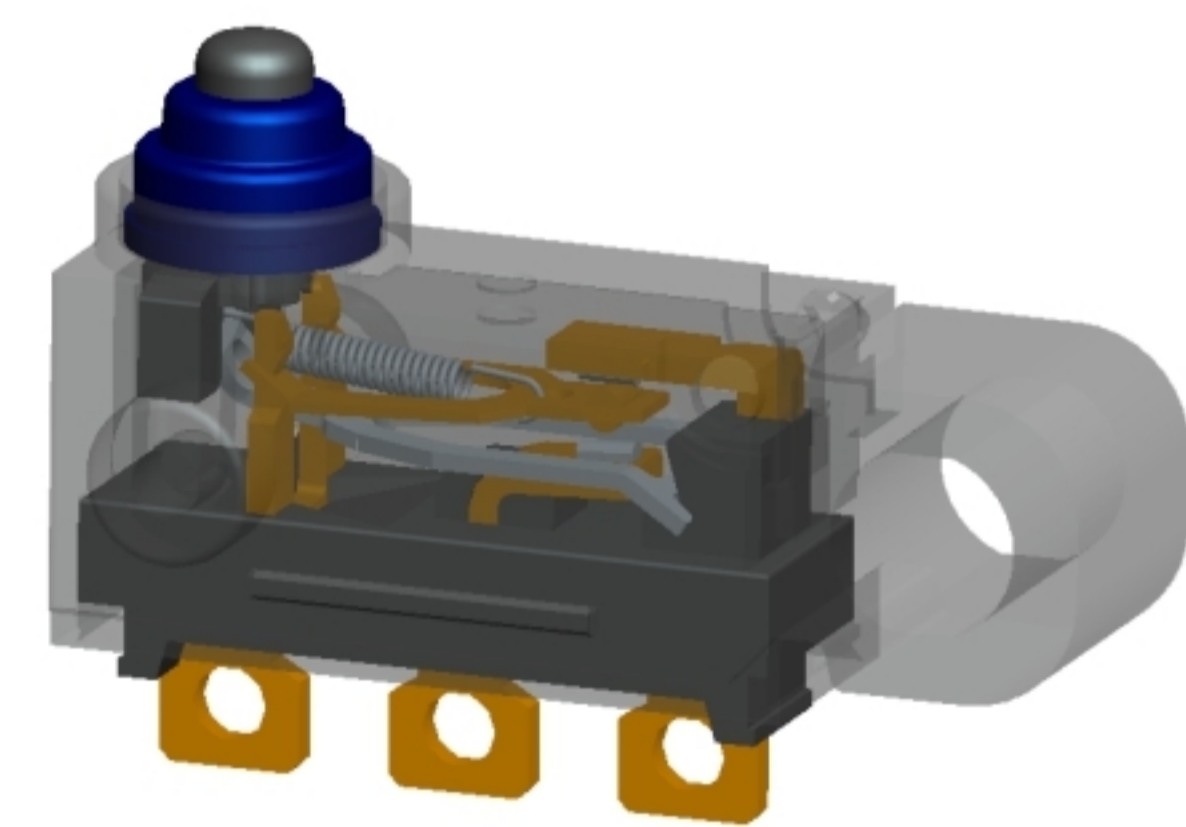


- |        |              |
|--------|--------------|
| 1.可動片  | Moving piece |
| 2.電觸點  | Contact      |
| 3.外殼   | Base         |
| 4.底座   | Case         |
| 5.常閉端子 | NC terminal  |
| 6.常開端子 | NO terminal  |
| 7.支架   | Support      |
| 8.杠杆   | Lever        |
| 9.拉簧   | Pull spring  |
| 10.按鈕  | Plunger      |

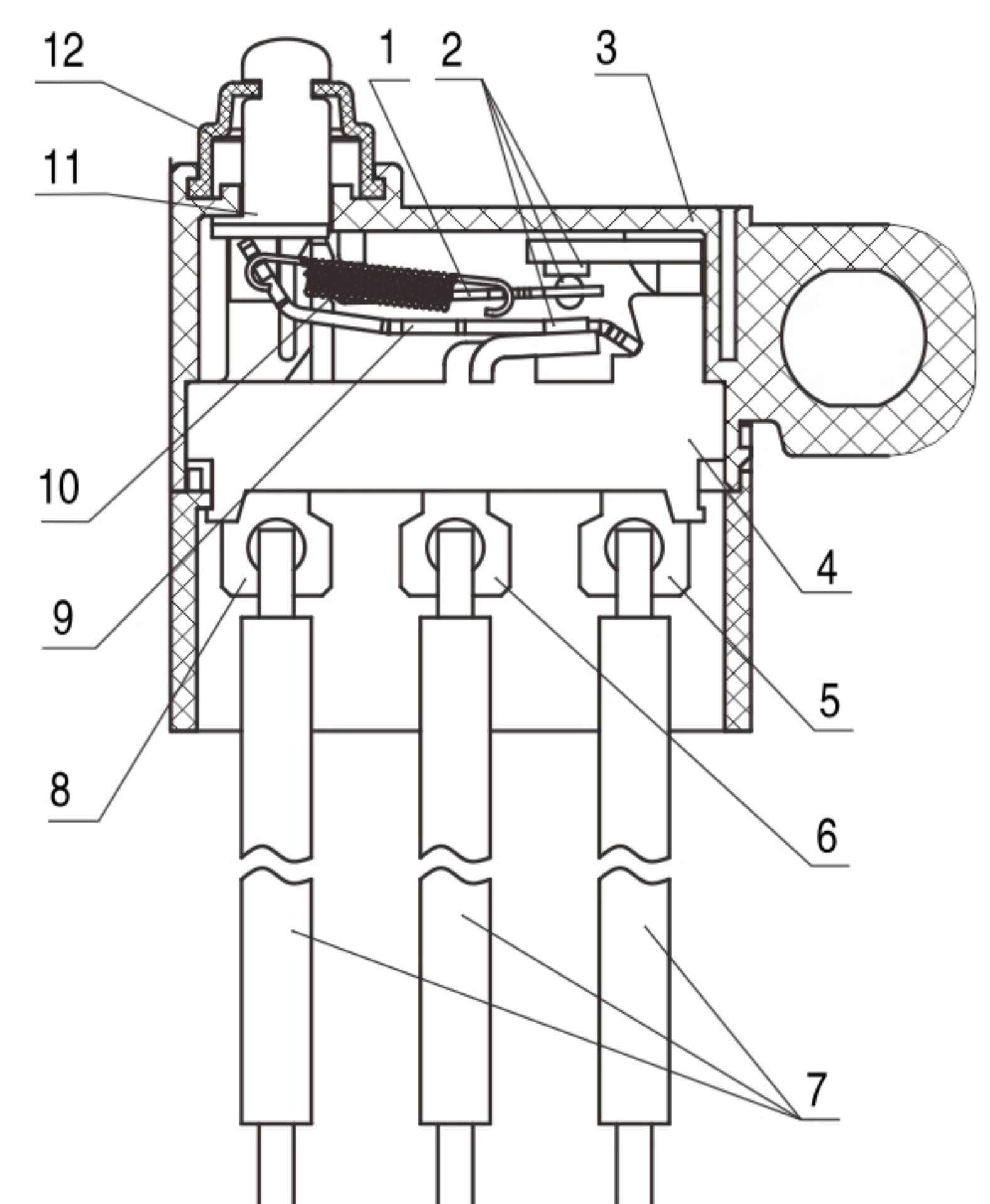
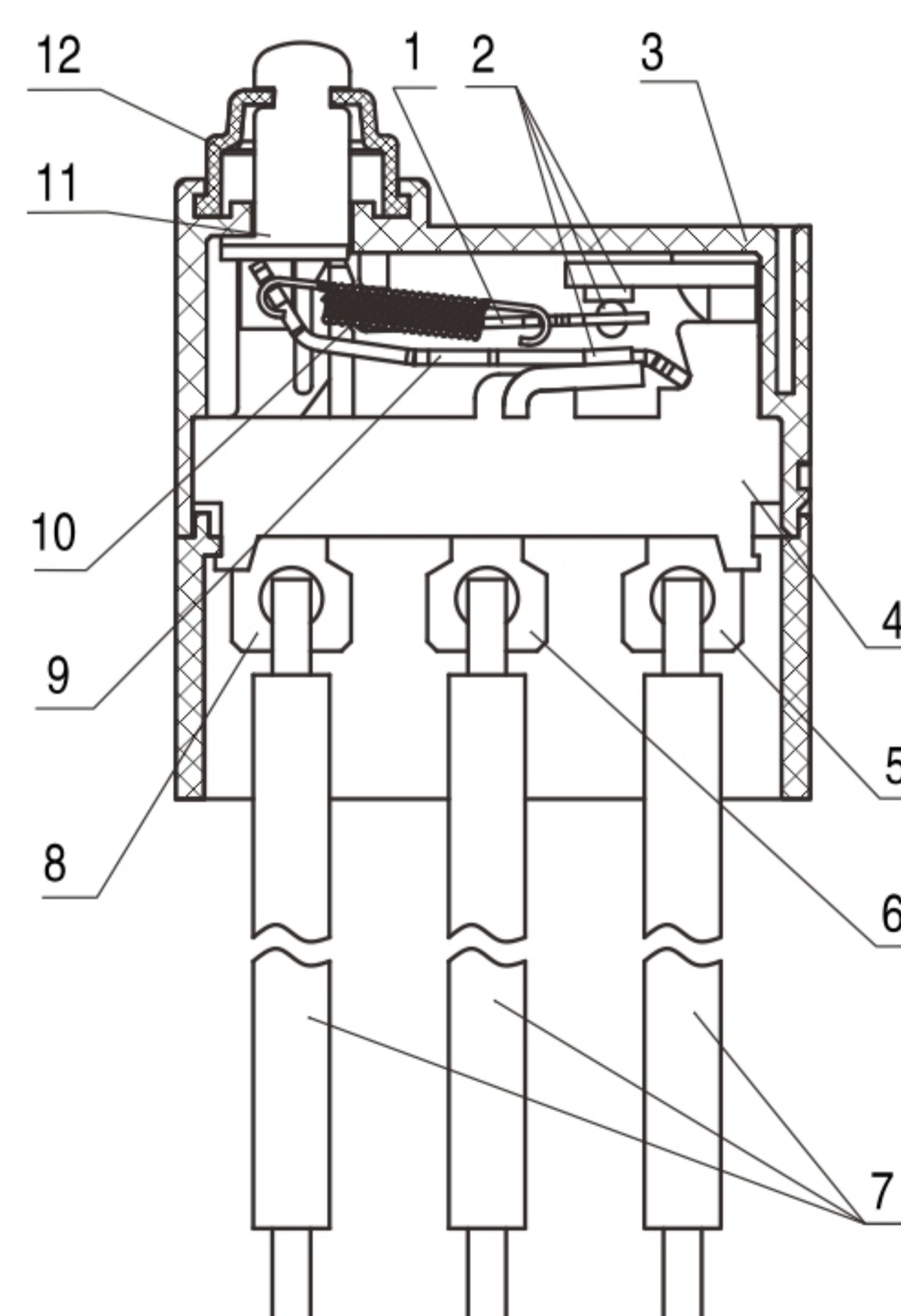
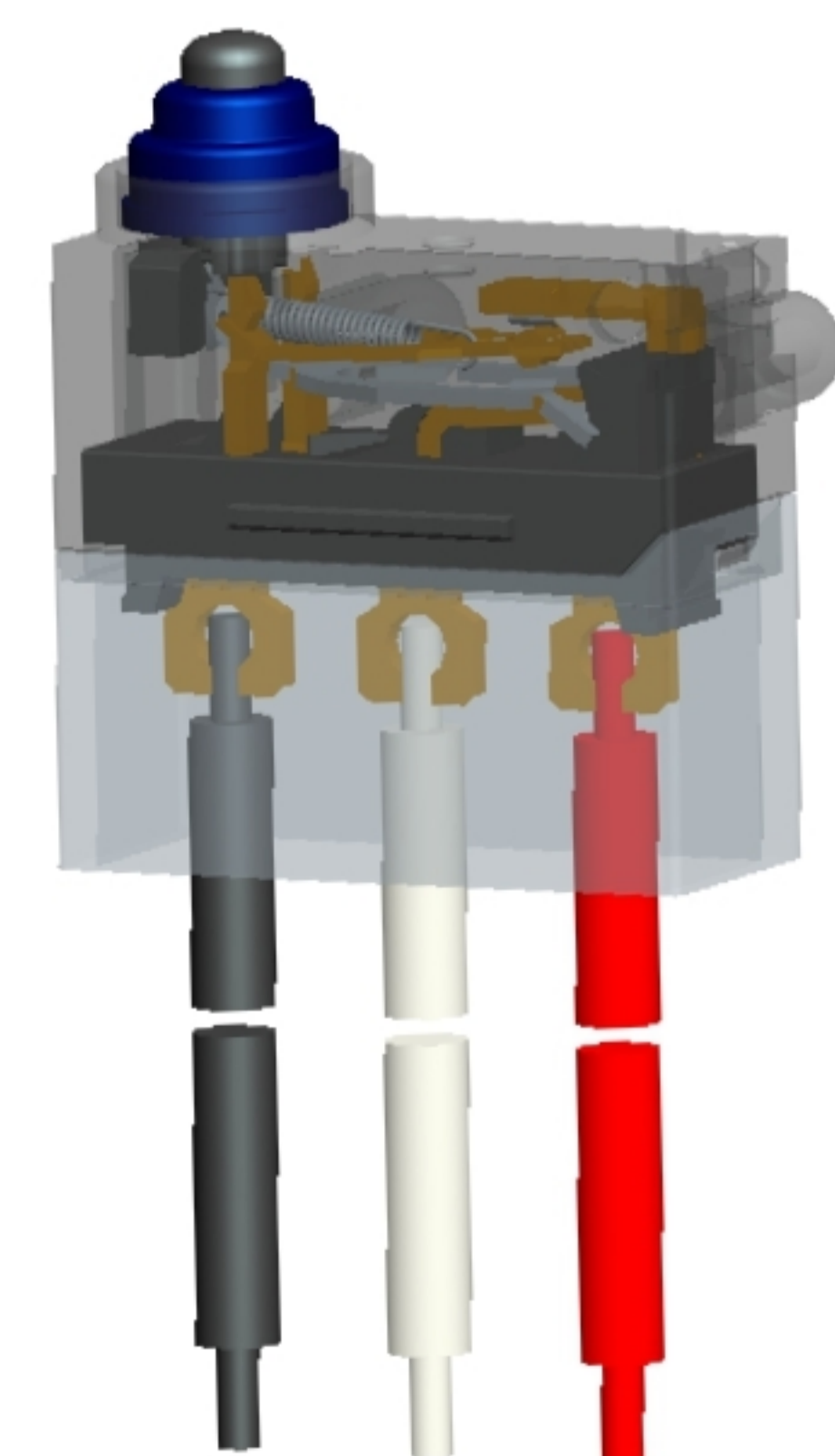
## ◆ WS5-30 第三代基本型 Third-generation



- |        |               |
|--------|---------------|
| 1.可動片  | Moving piece  |
| 2.電觸點  | Contact       |
| 3.外殼   | Base          |
| 4.底座   | Case          |
| 5.常閉端子 | NC terminal   |
| 6.常開端子 | NO terminal   |
| 7.支架   | Support       |
| 8.杠杆   | Lever         |
| 9.拉簧   | Pull spring   |
| 10.按鈕  | Plunger       |
| 11.密封圈 | Hermetic loop |

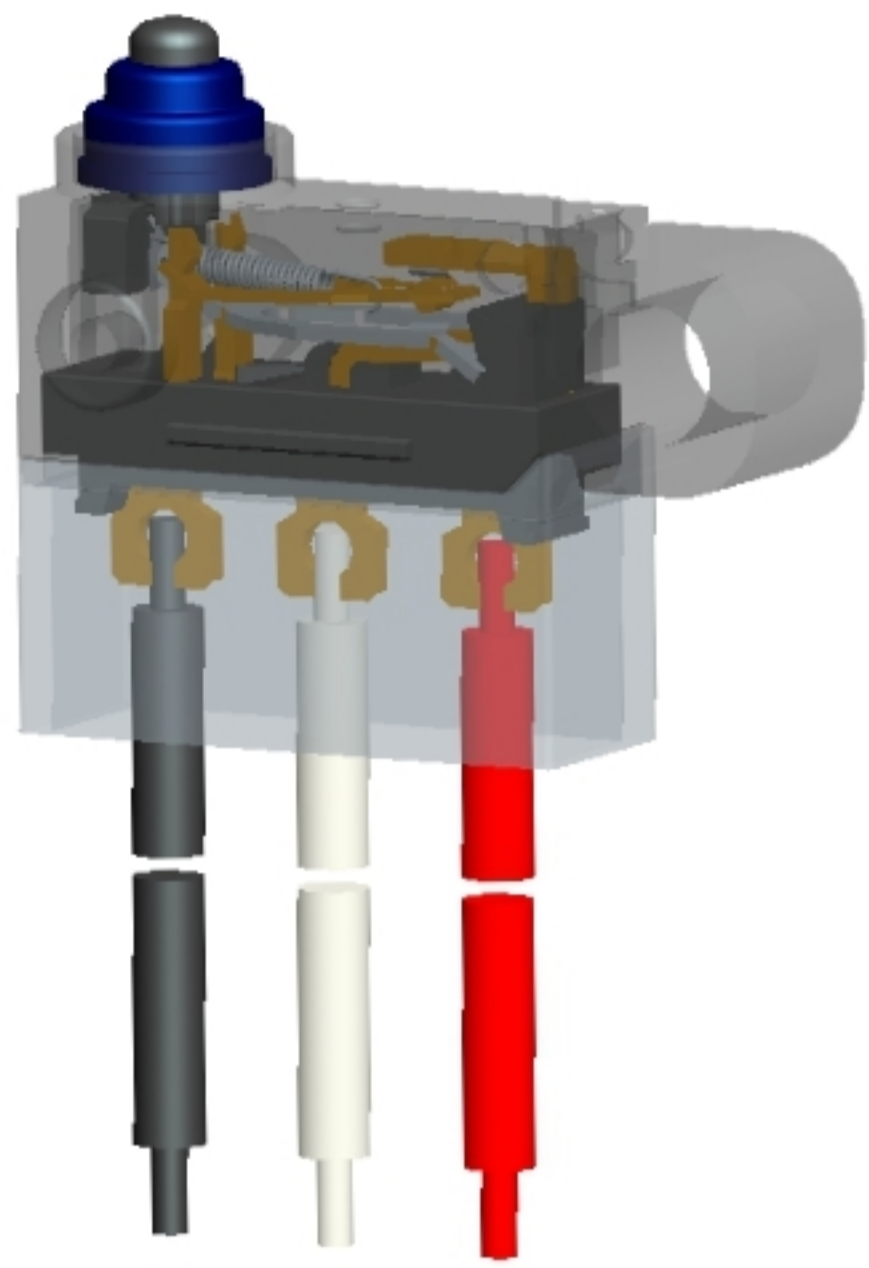


## ◆ WS5-3055 第三代防水罩灌膠型 Third-generation



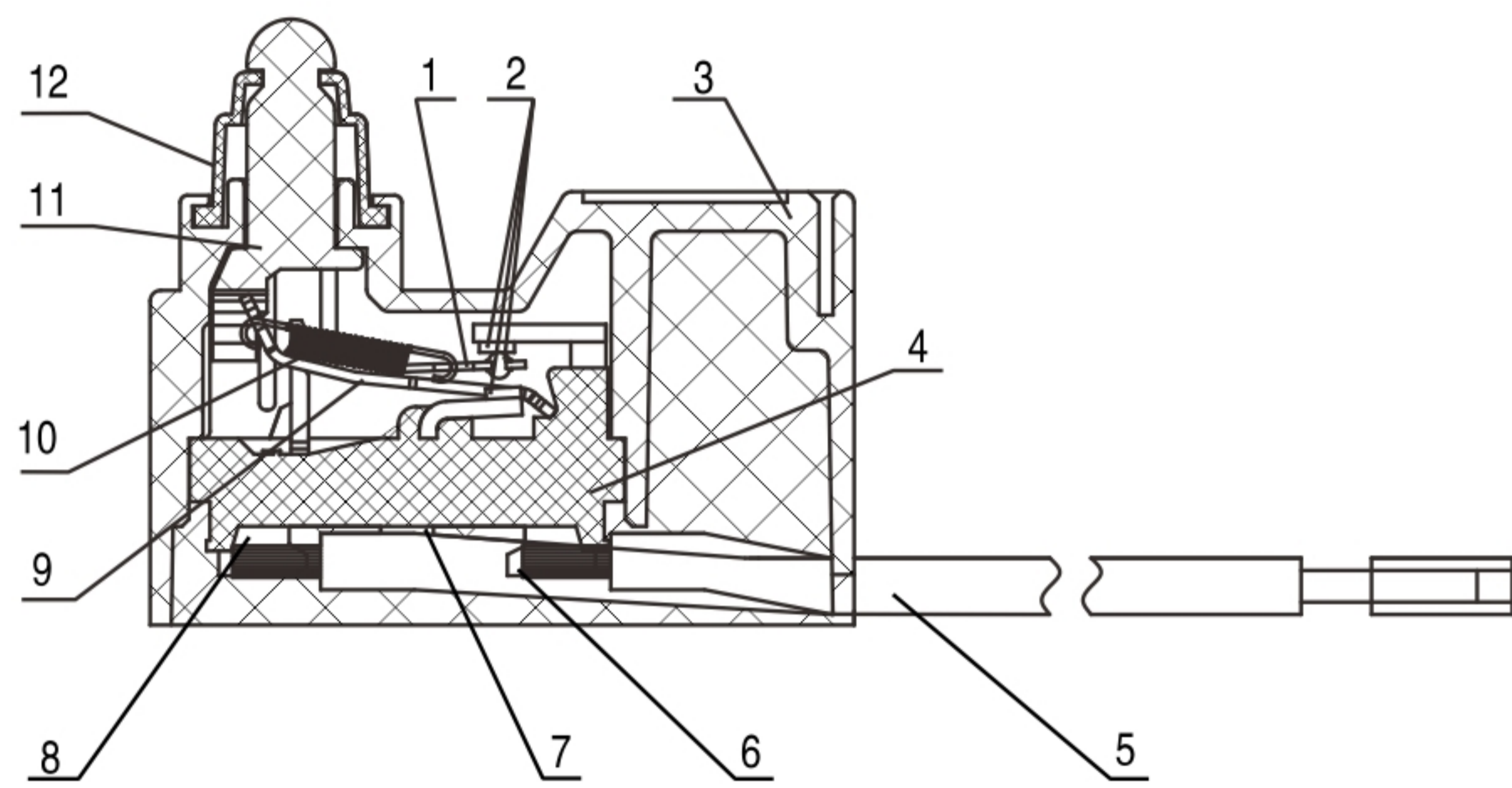
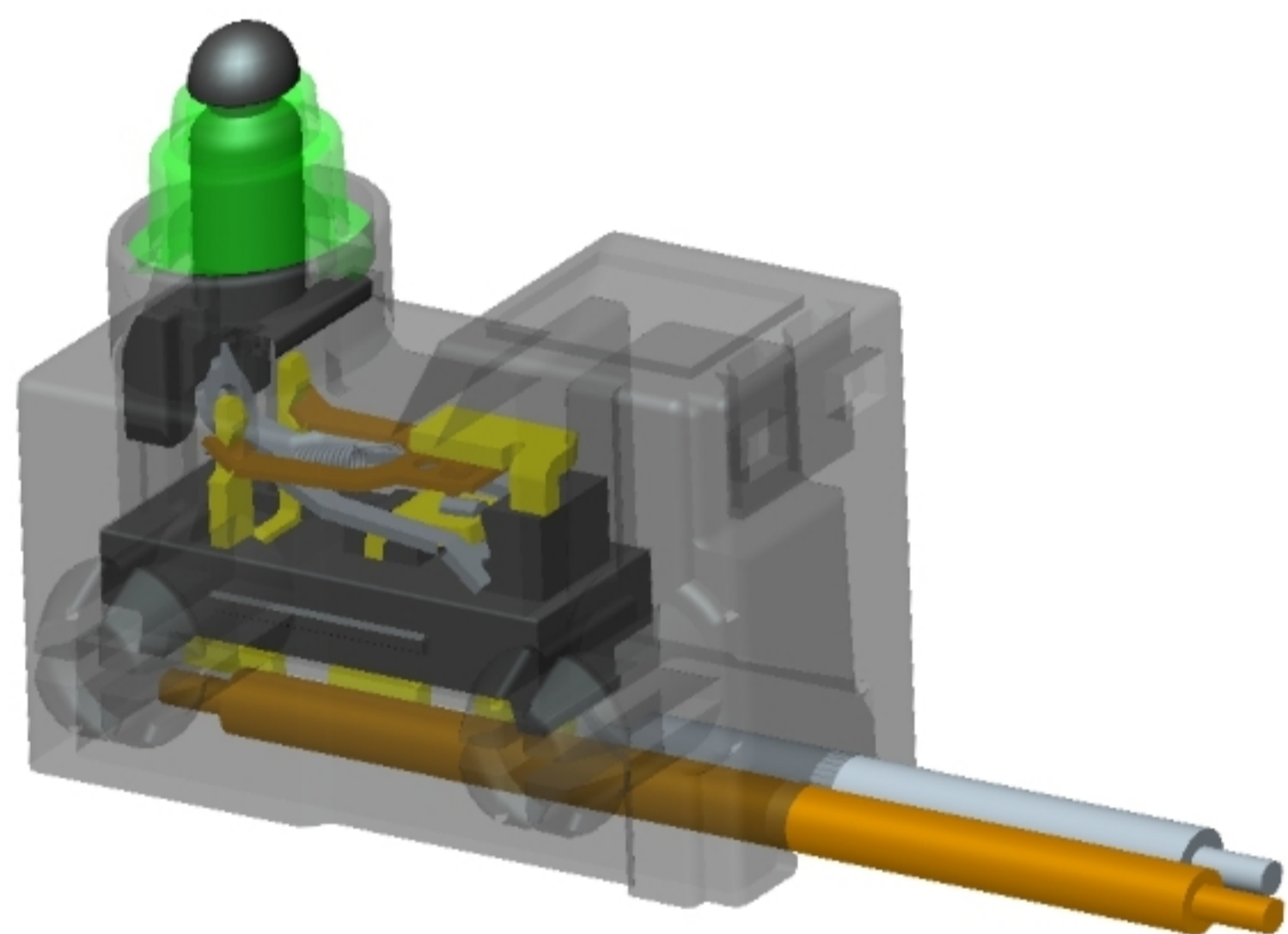


## ◆ WS5-3055 第三代防水罩灌膠型 Third-generation



- |        |              |        |               |
|--------|--------------|--------|---------------|
| 1.可動片  | Moving piece | 7.導綫   | Wire          |
| 2.電觸點  | Contact      | 8.支架   | Support       |
| 3.外殼   | Base         | 9.杠杆   | Lever         |
| 4.底座   | Case         | 10.拉簧  | Pull spring   |
| 5.常閉端子 | NC terminal  | 11.按鈕  | Plunger       |
| 6.常開端子 | NO terminal  | 12.密封圈 | Hermetic loop |

## ■ WS5-40 第四代灌膠型 Fourth-generation



- |        |              |        |               |
|--------|--------------|--------|---------------|
| 1.可動片  | Moving piece | 7.常開端子 | NO terminal   |
| 2.電觸點  | Contact      | 8.支架   | Support       |
| 3.外殼   | Base         | 9.杠杆   | Lever         |
| 4.底座   | Case         | 10.拉簧  | Pull spring   |
| 5.導綫   | Wire         | 11.按鈕  | Plunger       |
| 6.常開端子 | NO terminal  | 12.密封圈 | Hermetic loop |

## ◆ 接綫端尺寸 Terminal dimensions

F: 焊接端子(L2.4) F:Solder terminal(L2.4)	FC: 長焊接端子(L3.5) FC:Long Solder terminal(L3.5)	FW: 焊接端子(無孔) FW:Solder terminal(without hole)	
P: PCB端子(L4.2) P:PCB terminal(L4.2)	PD: 短PCB端子(L3.1) PD:Short PCB terminal(L3.1)	PL: 左PCB端子 PL:Left side PCB terminal	PR: 右PCB端子 P:Right side PCB terminal



◆ 接線端尺寸 Terminal dimensions

B:底部導綫型 B:Bottom wire type	L:左面導綫型 L:Left side wire type	R:右面導綫型 R:Right side wire type

◆ 接觸形式說明圖 Circuit illustration

	Z:转换式 SPDT	T:常開式 SPST-NO	D:常閉式 SPST-NC

◆ 安裝孔尺寸 Mounting hole dimension

	定位銷/固定銷間距 Dowel pin / fixing pin distance	直PCB端子安裝孔 Straight PCB terminal mounting hole	左右PCB端子安裝孔 Left and right PCB terminal mounting hole	M3螺釘安裝孔 M3 screw mounting hole
WS5 WS5-20				
WS5-IP40 -2041				



◆ 安裝孔尺寸 Mounting hole dimension

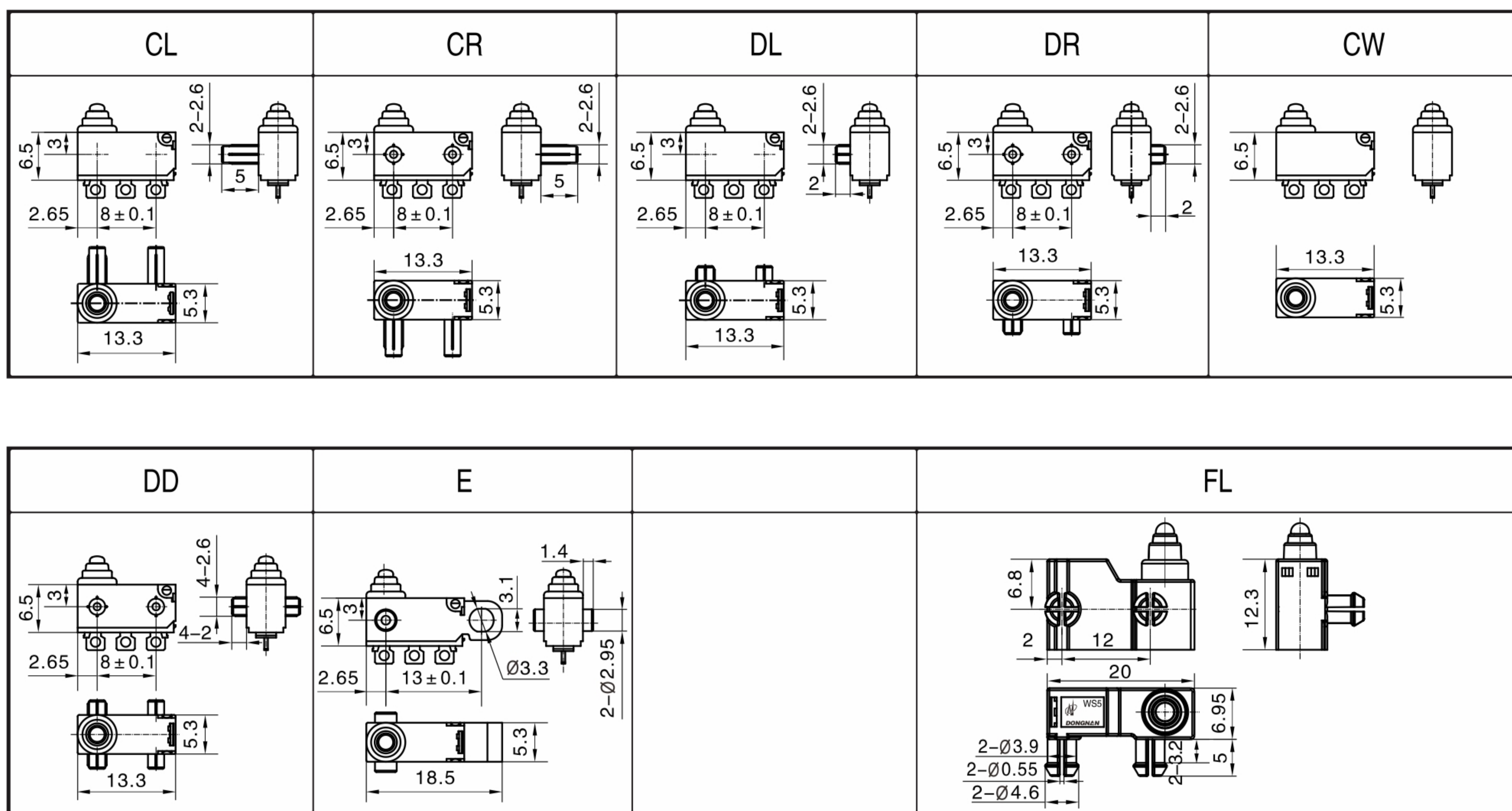
	定位銷/固定銷間距 Dowel pin / fixing pin distance	直PCB端子安裝孔 Straight PCB terminal mounting hole	左右PCB端子安裝孔 Left and right PCB terminal mounting hole	M3螺釘安裝孔 M3 screw mounting hole
WS5 WS5-20				
WS5-IP40 -2041				

◆ 安裝構造說明圖 Mounting construction illustration

A	AL	AR	
AA	AC	AD	B
L	R	W	



◆ 安裝構造說明圖 Mounting construction illustration

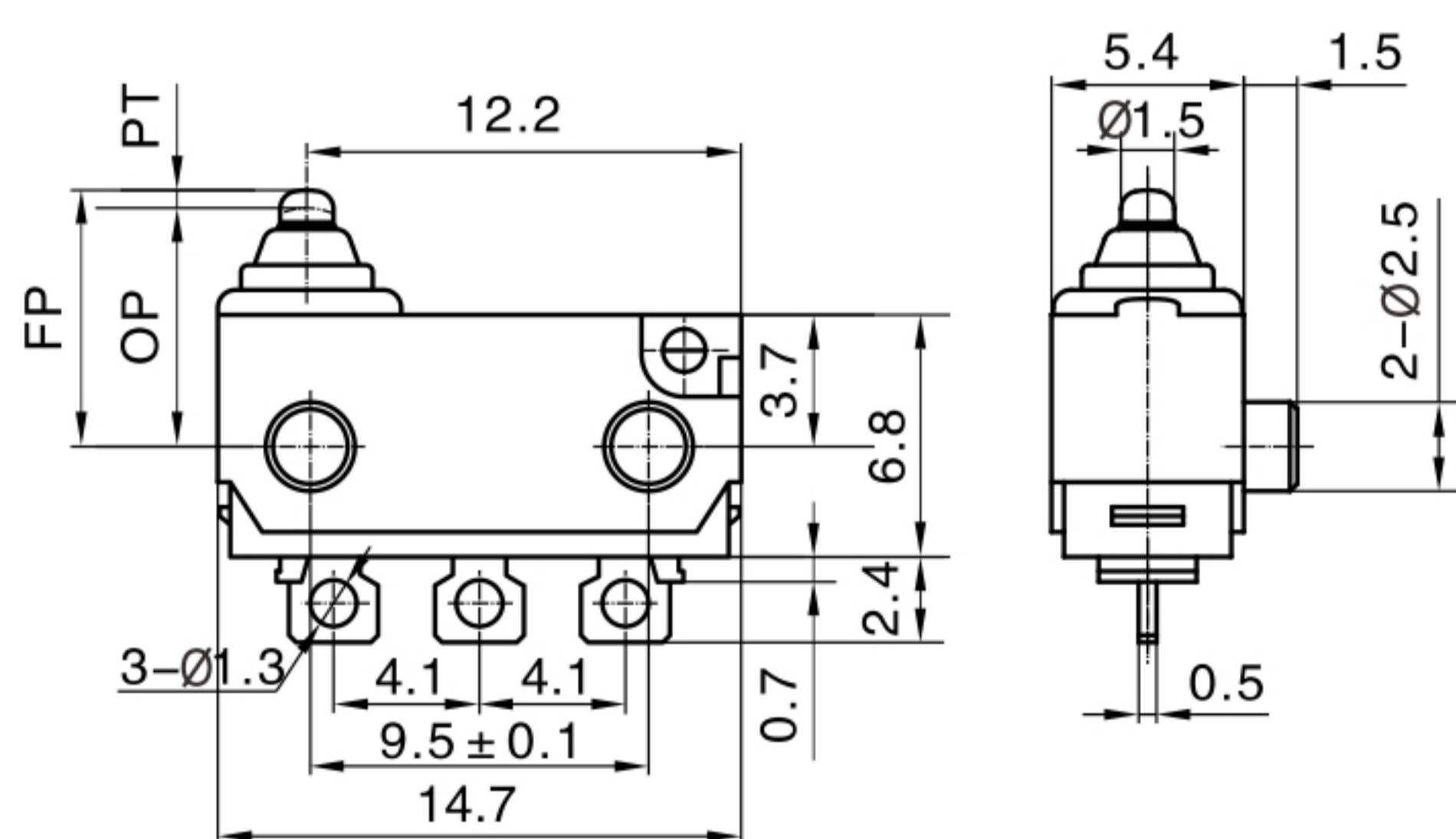
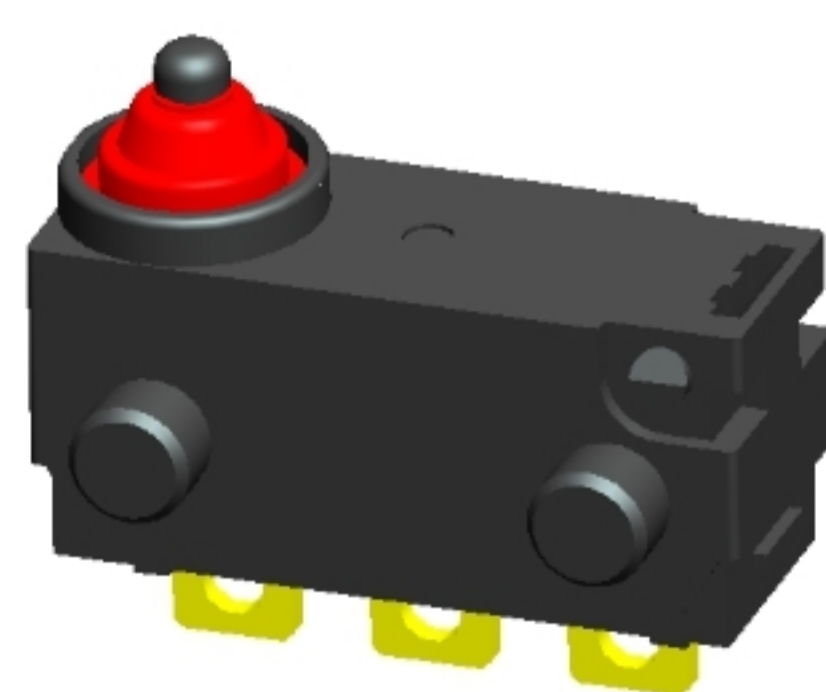


◆ 外形尺寸和動作特性 Dimensions and operating characteristics

WS5 第一代和WS5-20 第二代 WS5 first-generation and WS5-20 second-generation

定位銷型 Dowel pin type

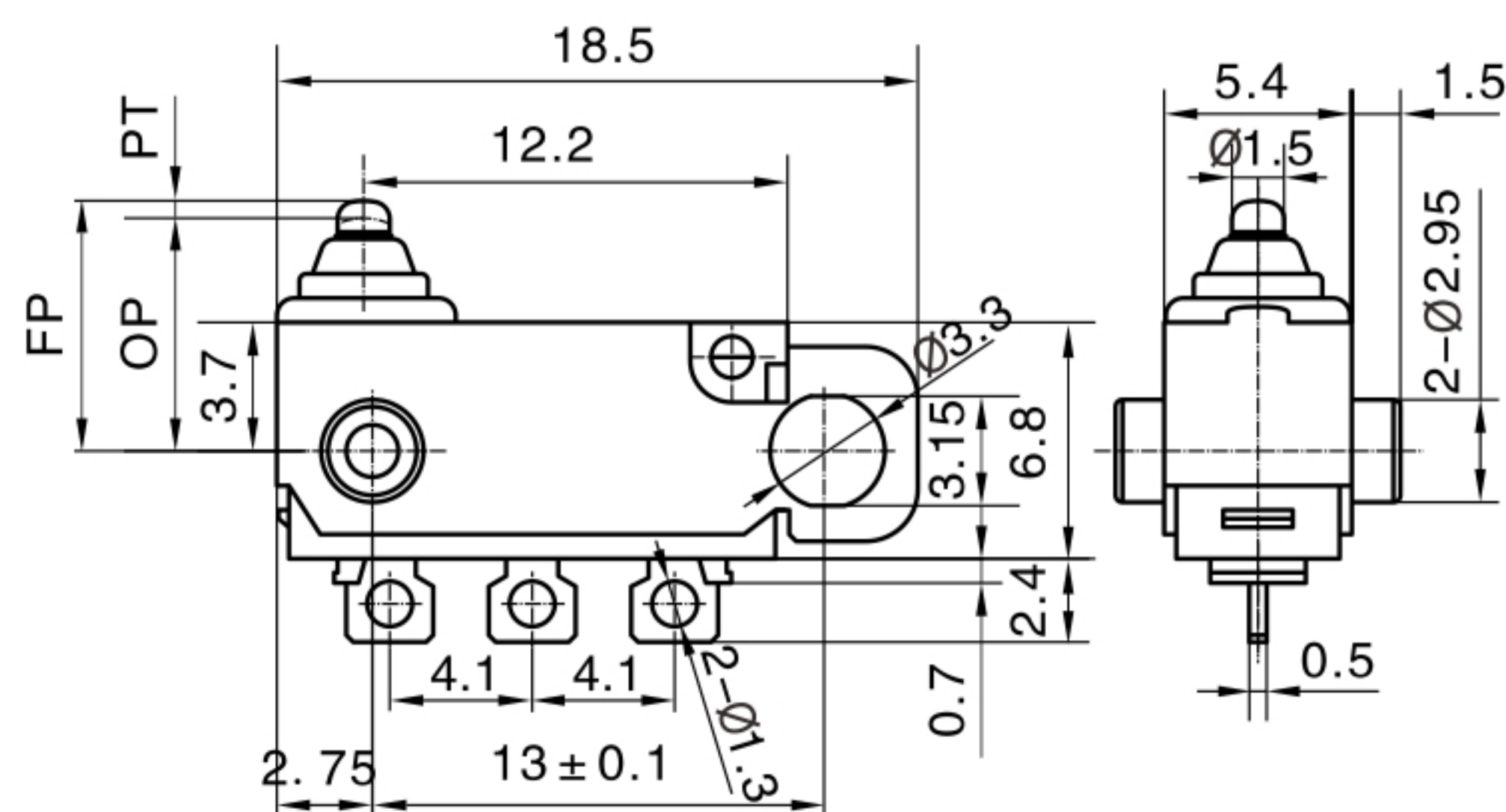
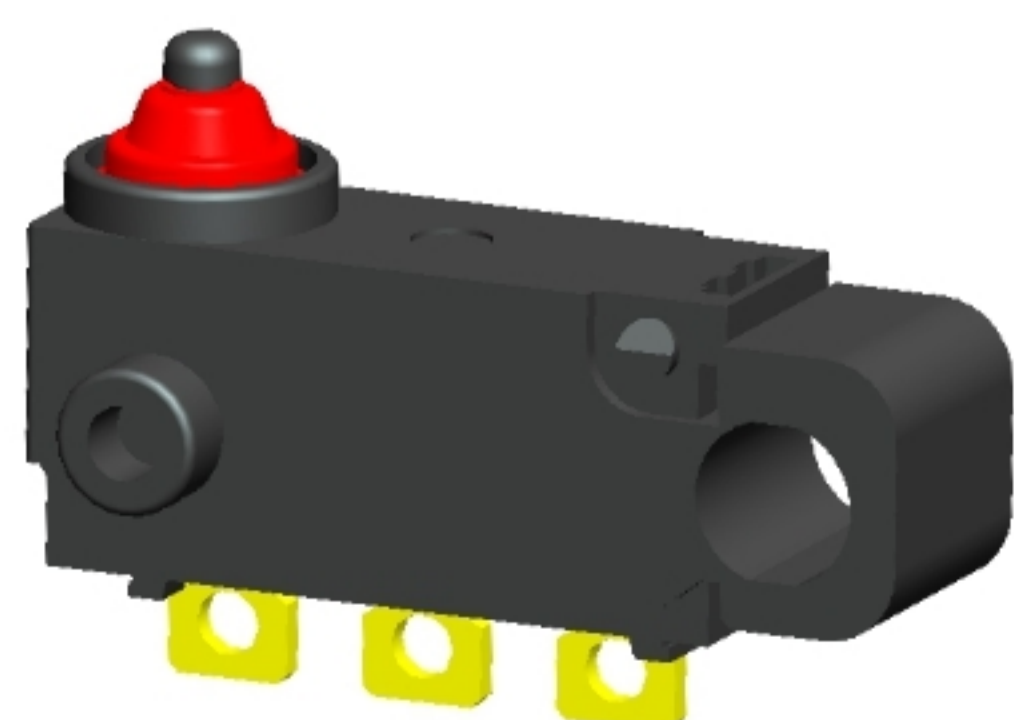
WS5-Z0-□130□-□□



型號 Model	安裝柱型 with posts
FP Max(mm)	7.35
OP (mm)	6.75 ± 0.2
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OF Max(N)	1.30
RF Min(N)	0.13

M3螺釘固定型 M3 screw fixed type

WS5-Z0-□130B-□□



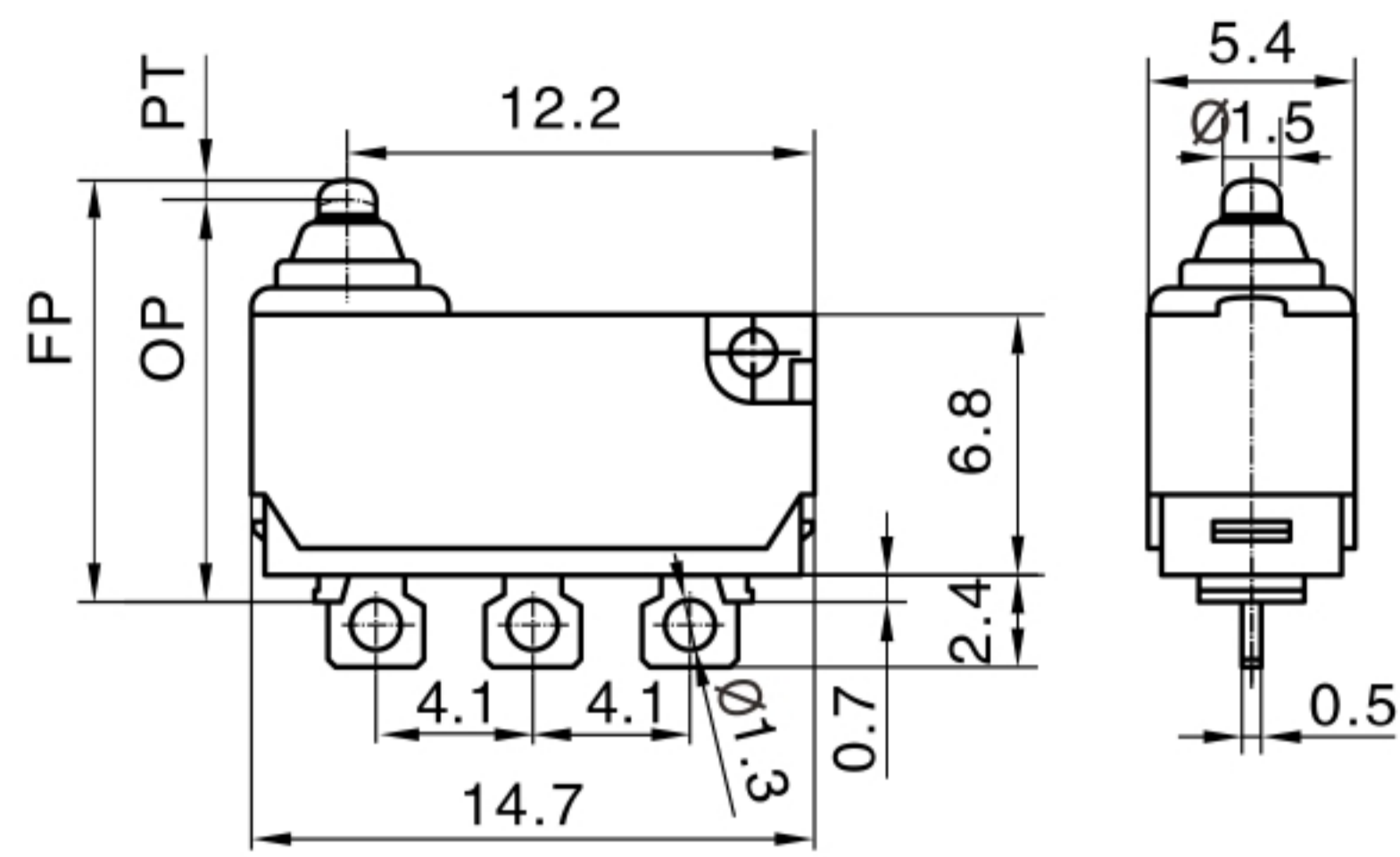
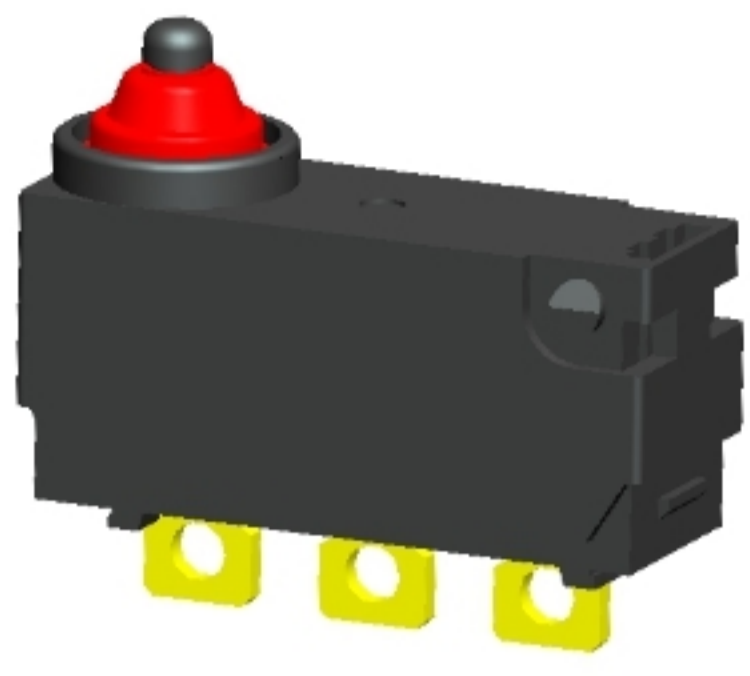
型號 Model	M3螺釘固定型M3 screw fixed
FP Max(mm)	7.35
OP (mm)	6.75 ± 0.2
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OF Max(N)	1.30
RF Min(N)	0.13



### ◆ 外形尺寸和動作特性 Dimensions and operating characteristics

無孔無銷型 Without hole and pin type

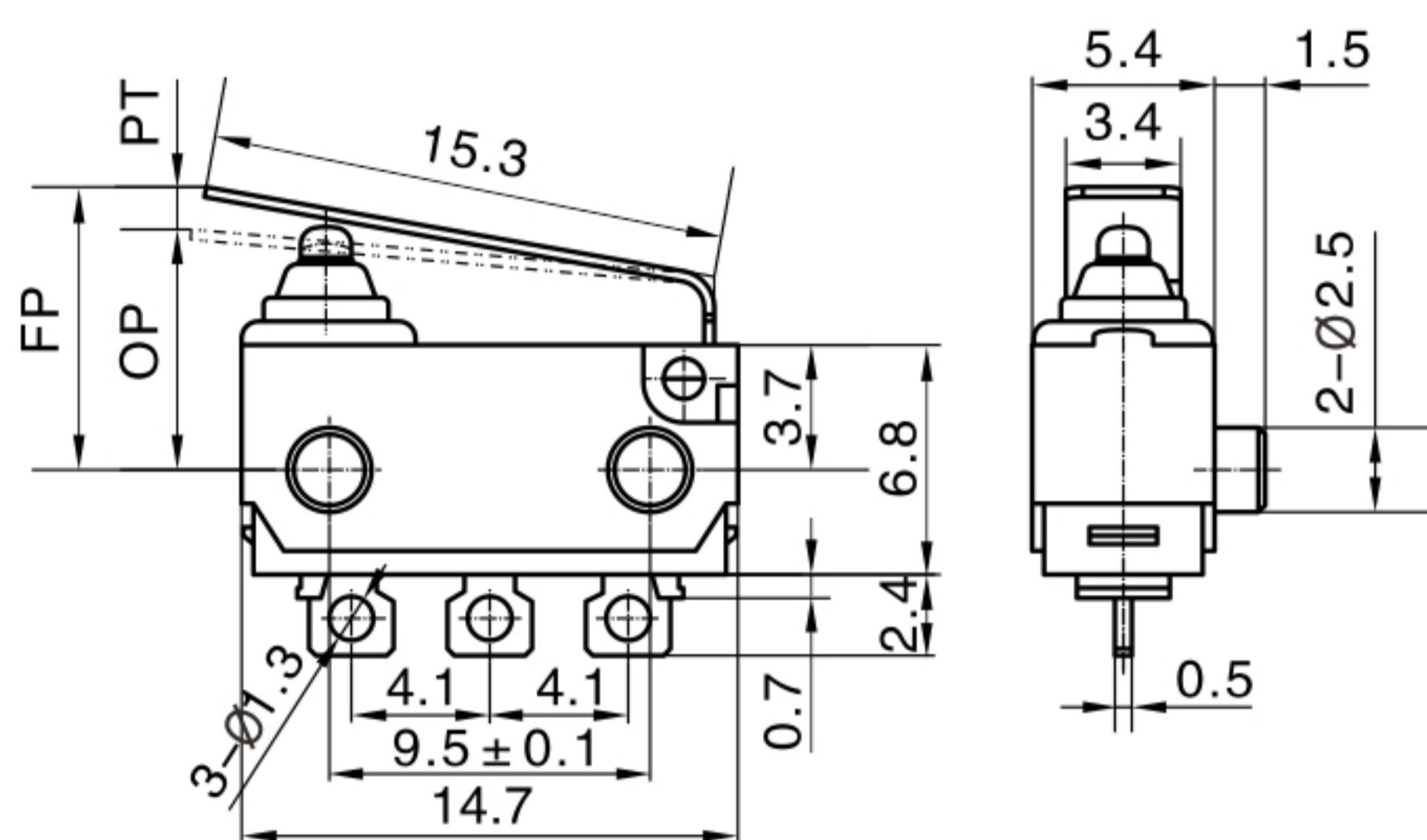
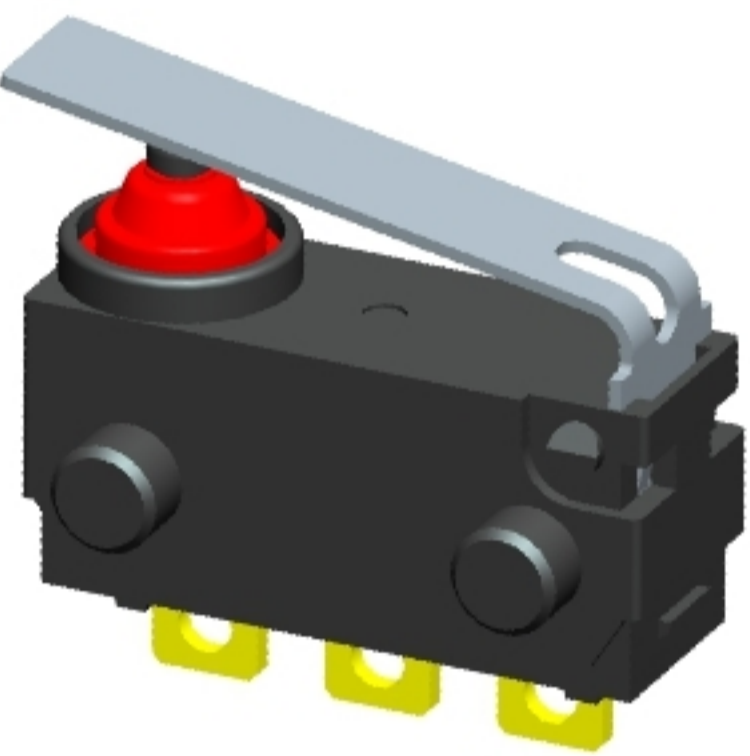
WS5-Z0-□130W-□□



型號 Model	無安裝柱型 without posts
FP Max(mm)	11.2
OP (mm)	10.55 ± 0.2
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OF Max(N)	1.30
RF Min(N)	0.13

3N動臂型 Models with 3N Lever

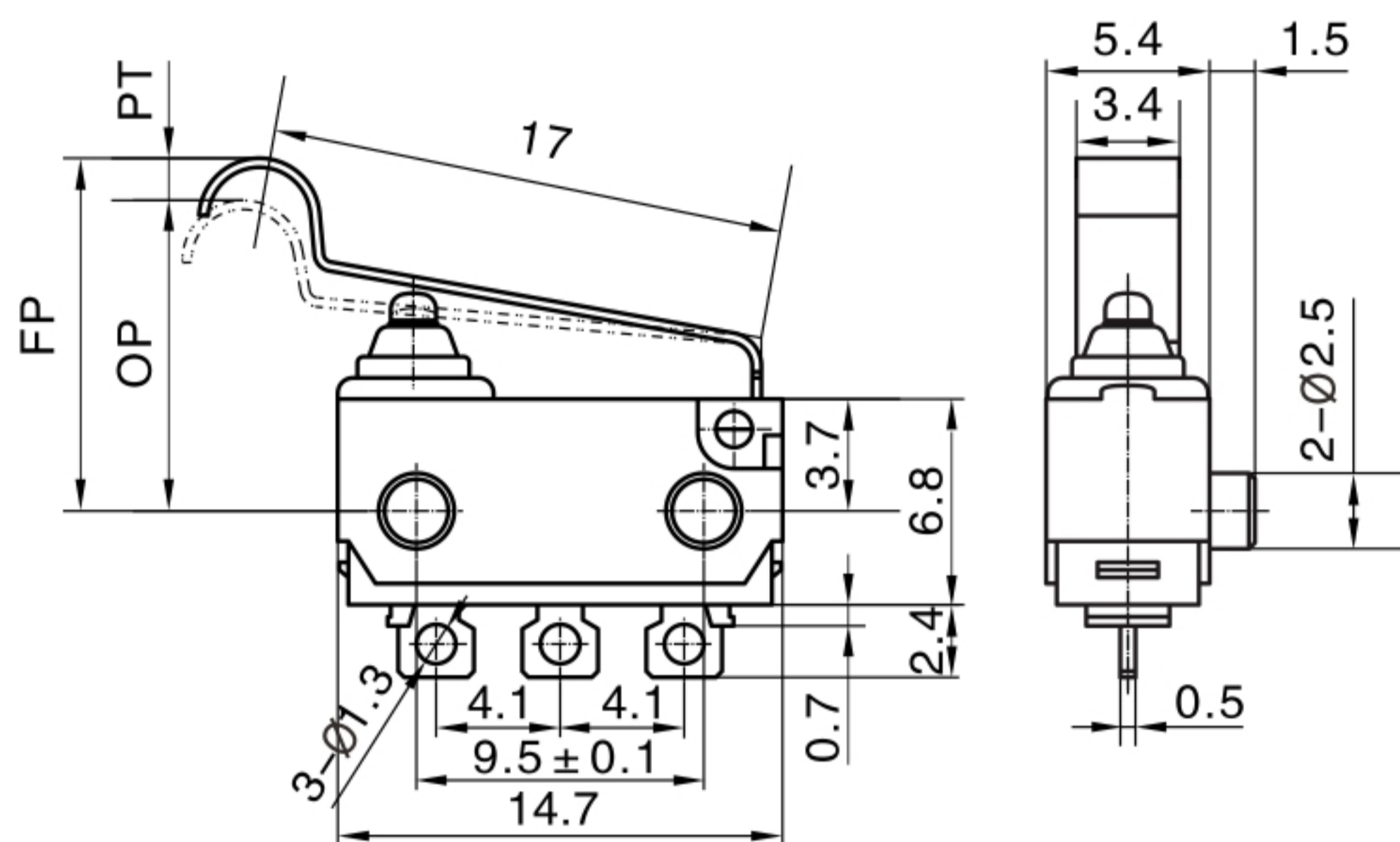
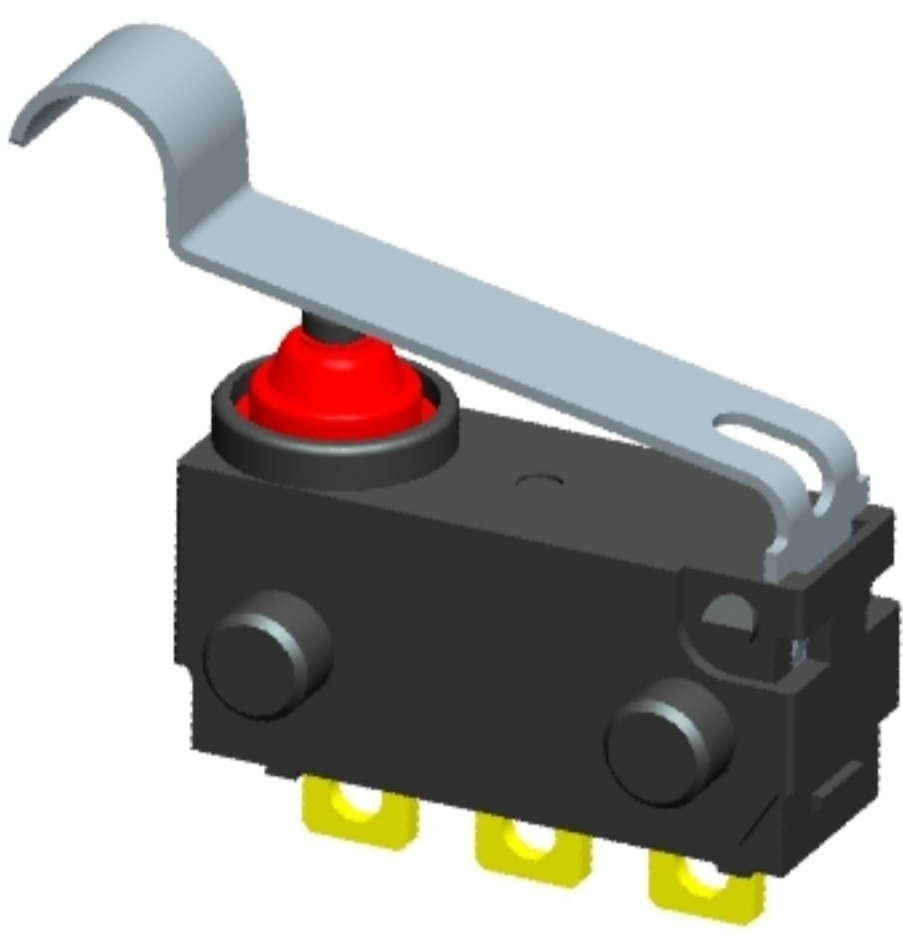
WS5-Z3N-□130□-□□



型號 Model	安裝柱型 with posts	M3螺釘固定型 M3 screw fixed	無安裝柱型 without posts
FP Max(mm)	10.5		14.3
OP (mm)	7.4 ± 0.6		11.2 ± 0.6
PT Max(mm)		3.5	
OT Min(mm)		1.35	
MD Max(mm)		0.6	
OF Max(N)		1.95	
RF Min(N)		0.25	

6N動臂型 Models with 6N Lever

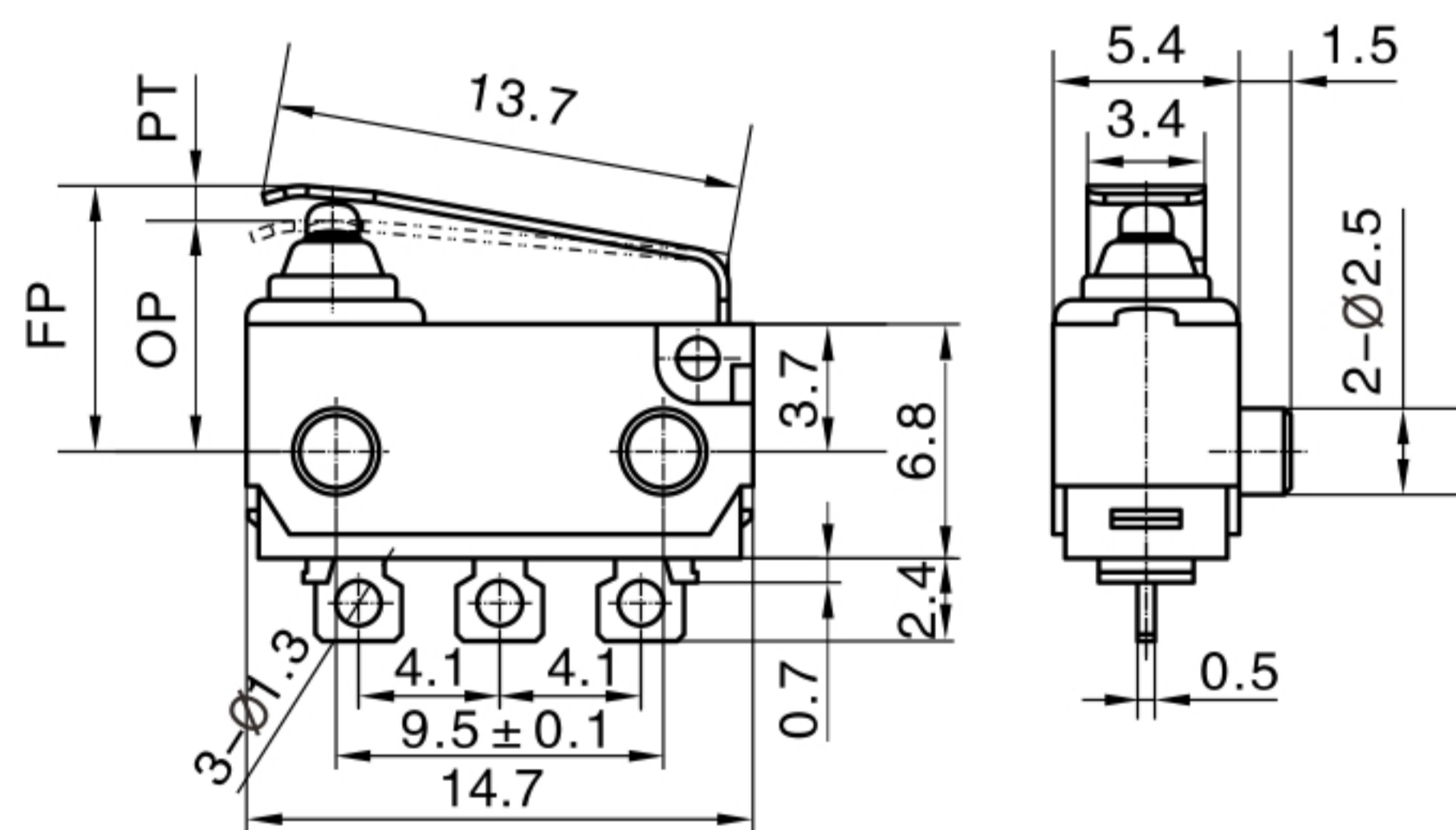
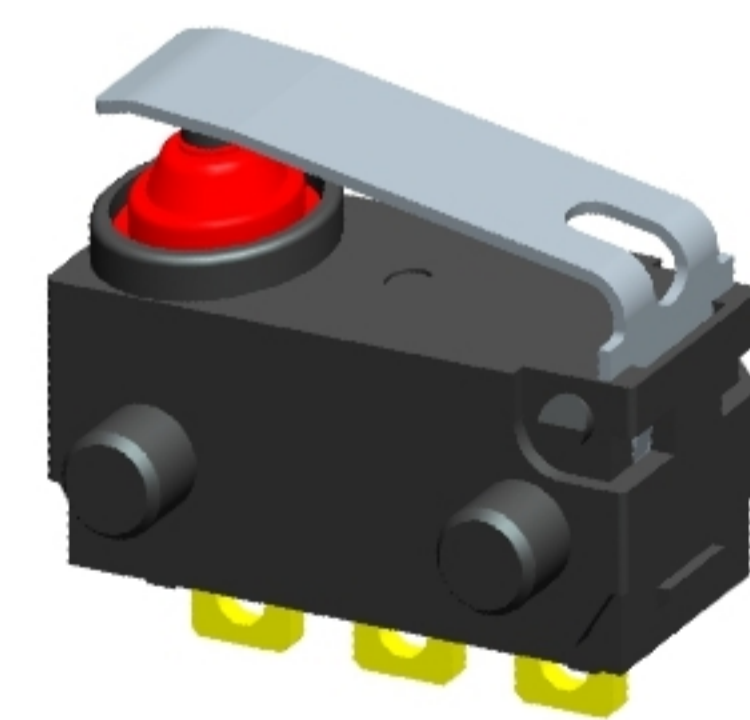
WS5-Z6N-□130□-□□



型號 Model	安裝柱型 with posts	M3螺釘固定型 M3 screw fixed	無安裝柱型 without posts
FP Max(mm)	13.5		17.3
OP (mm)	10.7 ± 0.7		14.5 ± 0.7
PT Max(mm)		3.8	
OT Min(mm)		1.5	
MD Max(mm)		0.7	
OF Max(N)		1.8	
RF Min(N)		0.2	

AN動臂型 Models with AN Lever

WS5-ZAN-□130□-□□



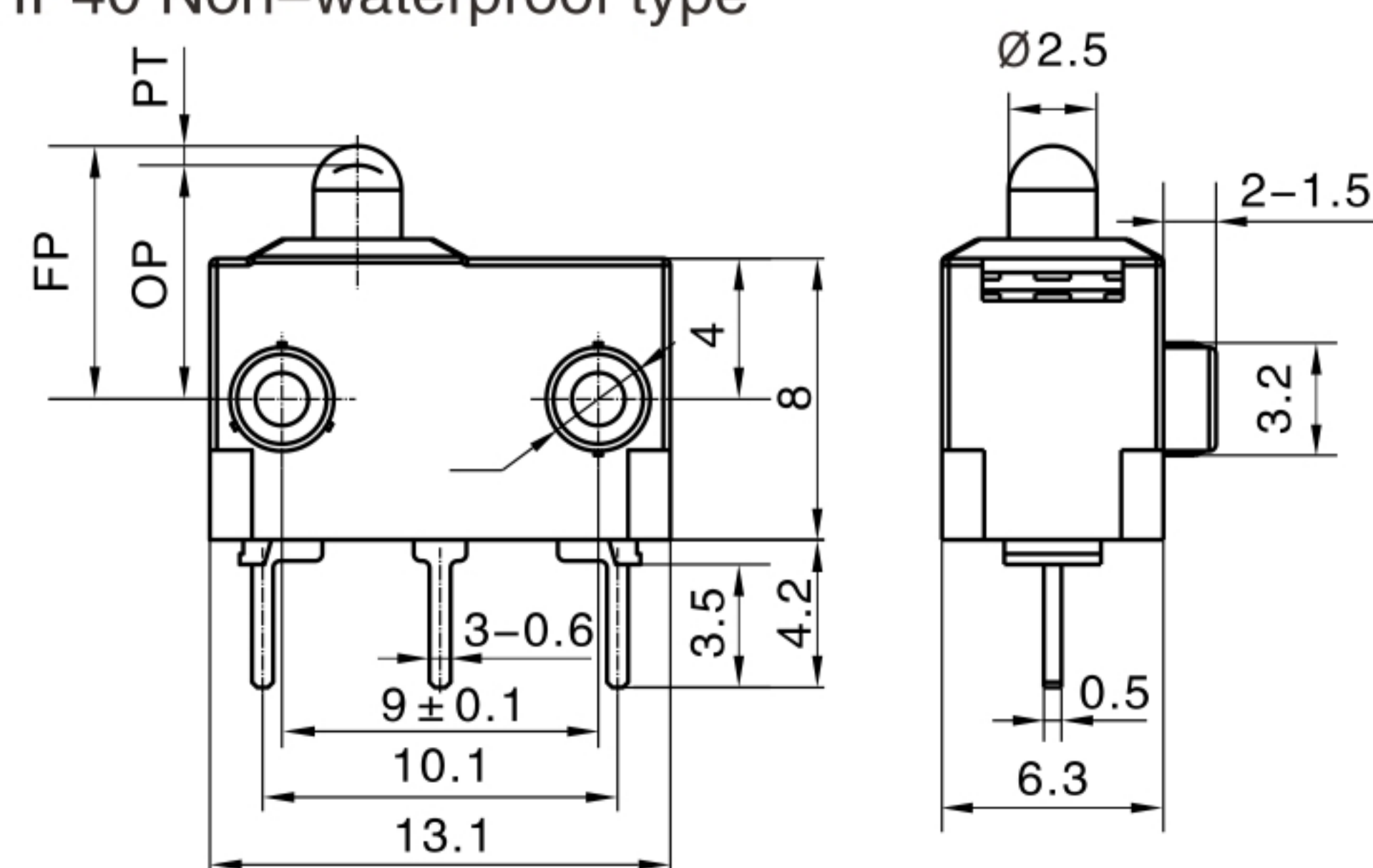
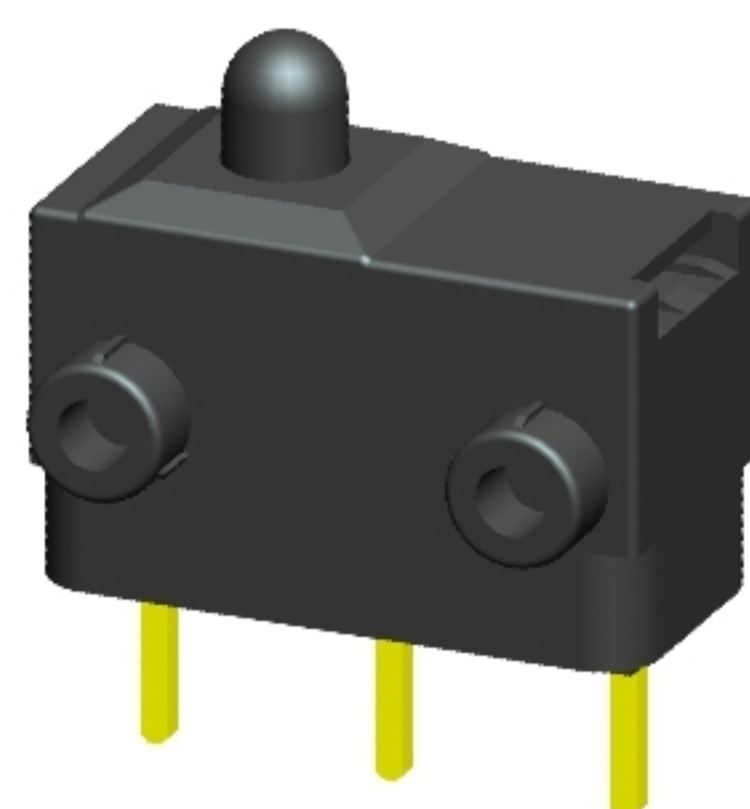
型號 Model	安裝柱型 with posts	M3螺釘固定型 M3 screw fixed	無安裝柱型 without posts
FP Max(mm)	9.4		13.2
OP (mm)	7.1 ± 0.5		10.9 ± 0.5
PT Max(mm)		3.0	
OT Min(mm)		0.8	
MD Max(mm)		0.5	
OF Max(N)		2.20	
RF Min(N)		0.30	

WS5-20 第二代IP40不防水型

Second-generation IP40 Non-waterproof type

定位銷型 Dowel pin type

WS5-Z0-□100□-IP40-2041-□



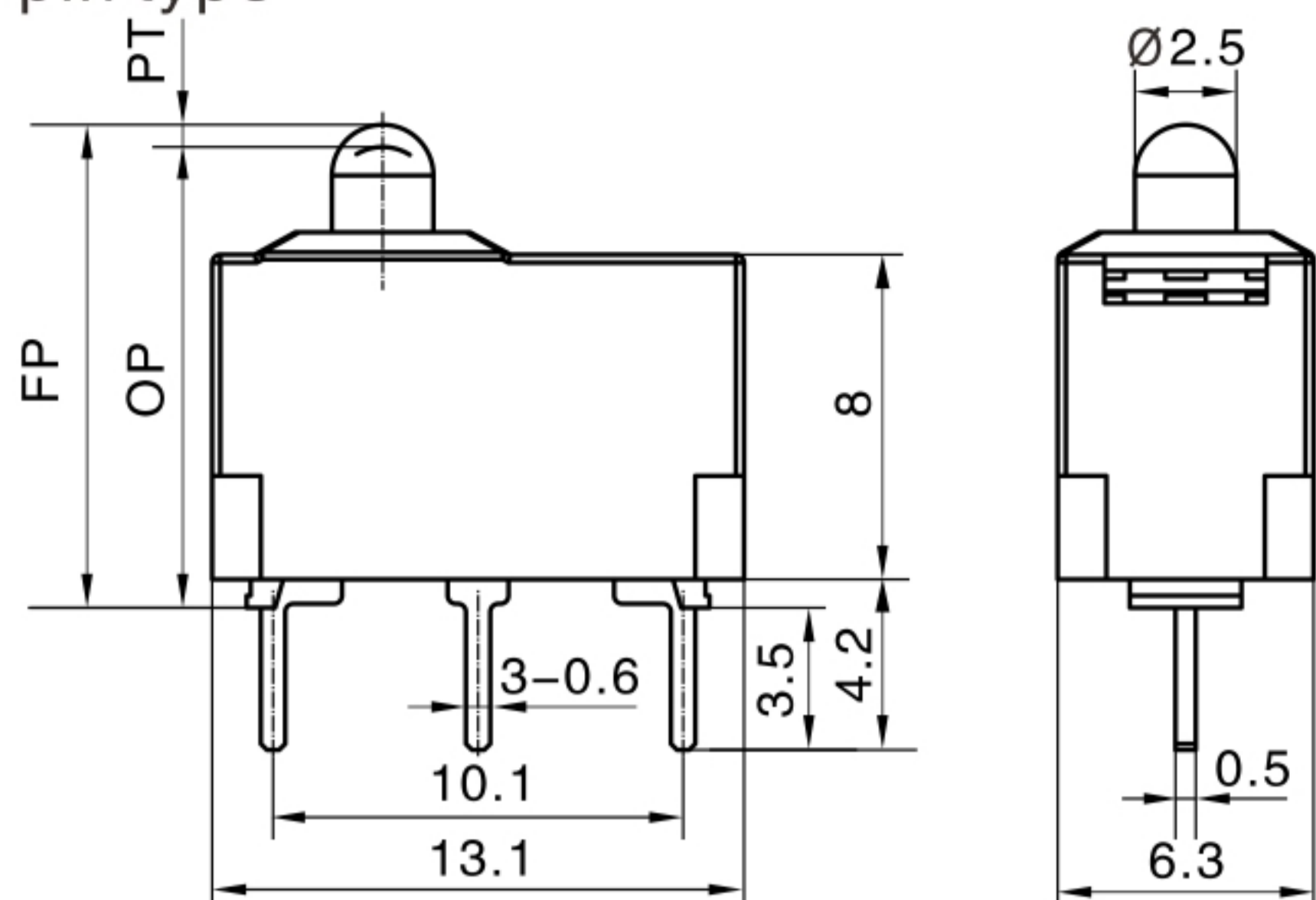
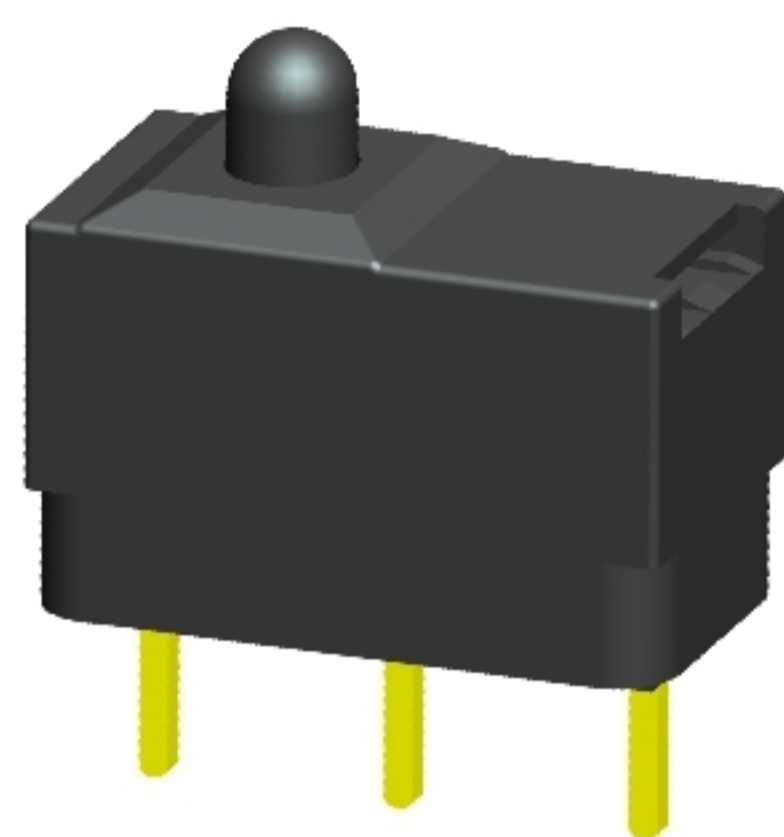
型號 Model	安裝柱型 with posts
FP Max(mm)	7.3
OP (mm)	6.2 ± 0.3
PT Max(mm)	1.5
OT Min(mm)	0.5
MD Max(mm)	0.25
OF Max(N)	1.00
RF Min(N)	0.08



◆ 外形尺寸和動作特性 Dimensions and operating characteristics

無孔無銷型 Without hole and pin type

WS5-Z0-□100W-IP40-2041-□

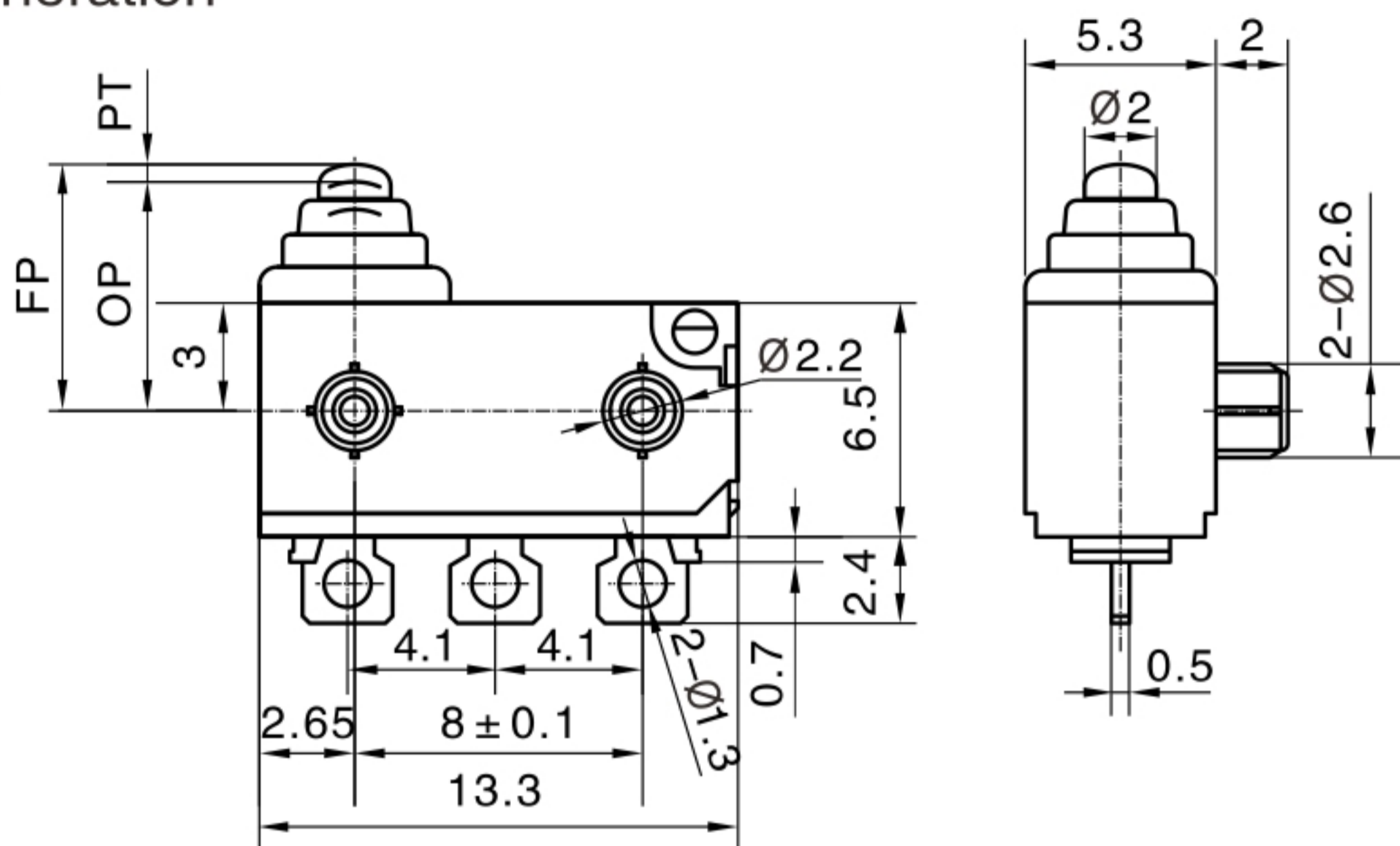
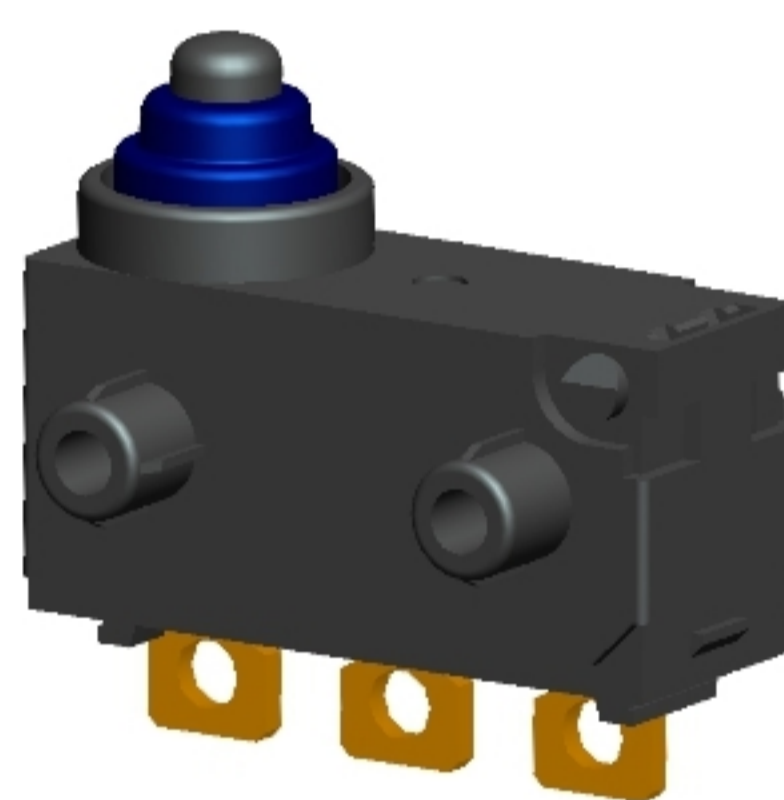


型號 Model	無安裝柱型 without posts
FP Max(mm)	12.0
OP (mm)	10.9 ± 0.3
PT Max(mm)	1.5
OT Min(mm)	0.5
MD Max(mm)	0.25
OF Max(N)	1.00
RF Min(N)	0.08

WS5-30 第三代 Third-generation

固定銷型 Models with posts

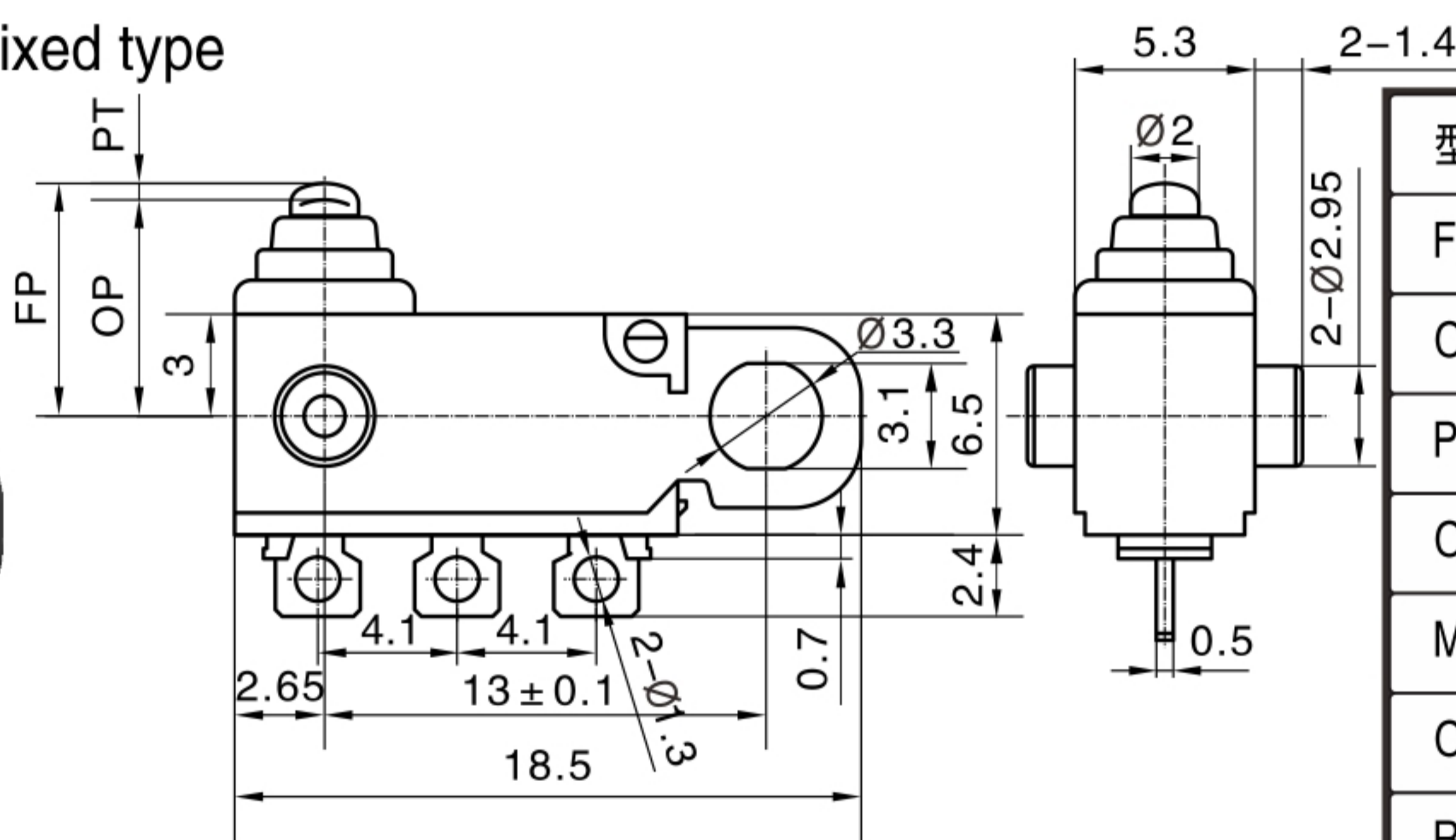
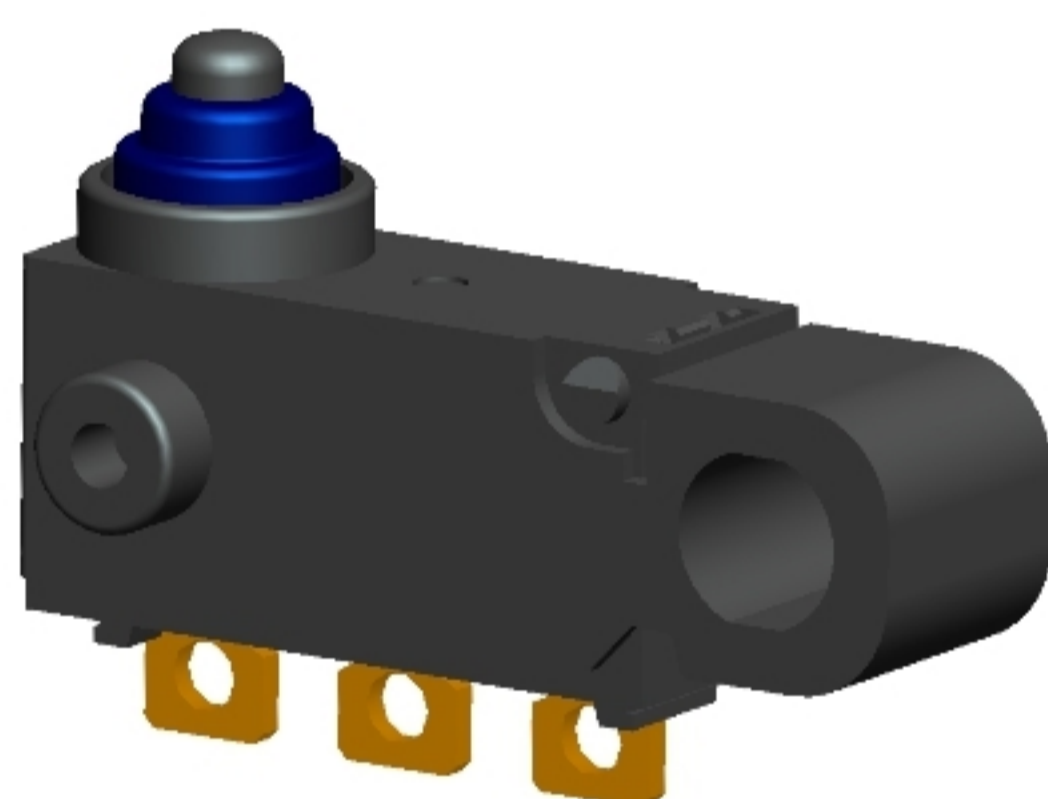
WS5-Z0-□130□-□-30□



型號 Model	安裝柱型 with posts
FP Max(mm)	7.2
OP (mm)	6.4 ± 0.2
PT Max(mm)	1.0
OT Min(mm)	0.8
MD Max(mm)	0.25
OF Max(N)	1.30
RF Min(N)	0.13

M3螺釘固定型 M3 screw fixed type

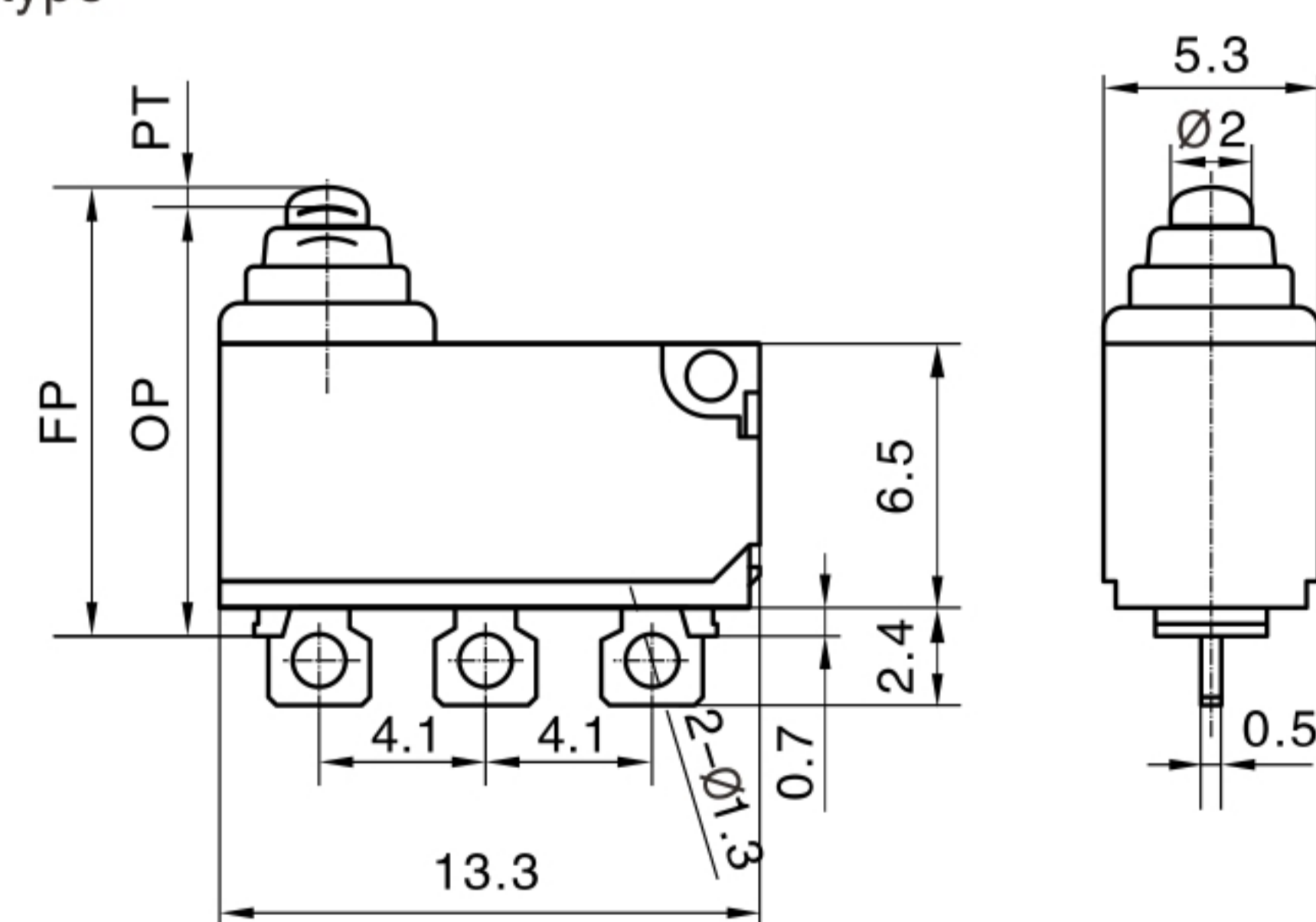
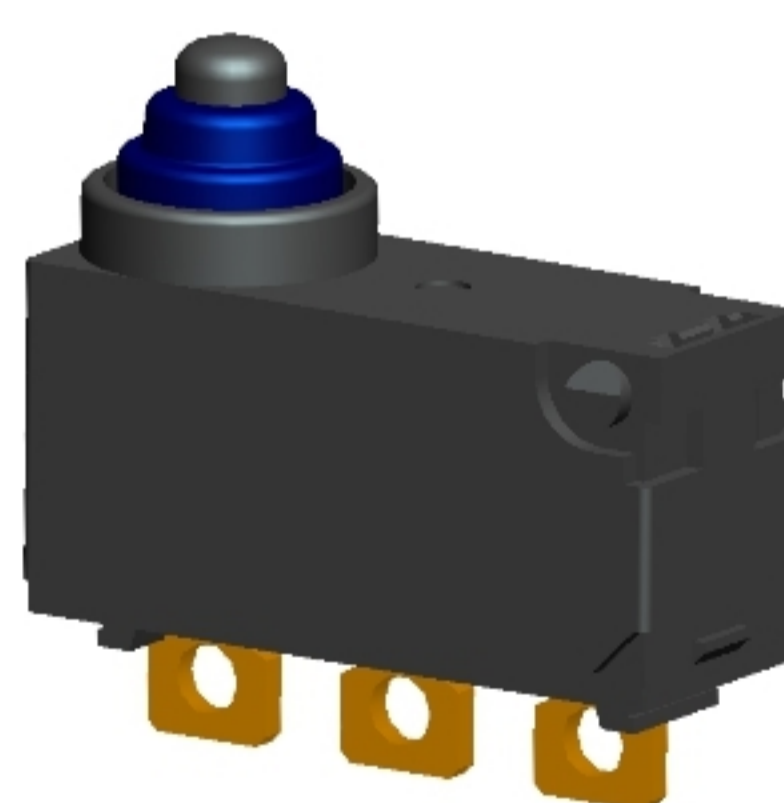
WS5-Z0-□130E-□-30□



型號 Model	M3螺釘固定型 M3 screw fixed
FP Max(mm)	7.2
OP (mm)	6.4 ± 0.2
PT Max(mm)	1.0
OT Min(mm)	0.8
MD Max(mm)	0.25
OF Max(N)	1.30
RF Min(N)	0.13

無孔無銷型 Without hole and pin type

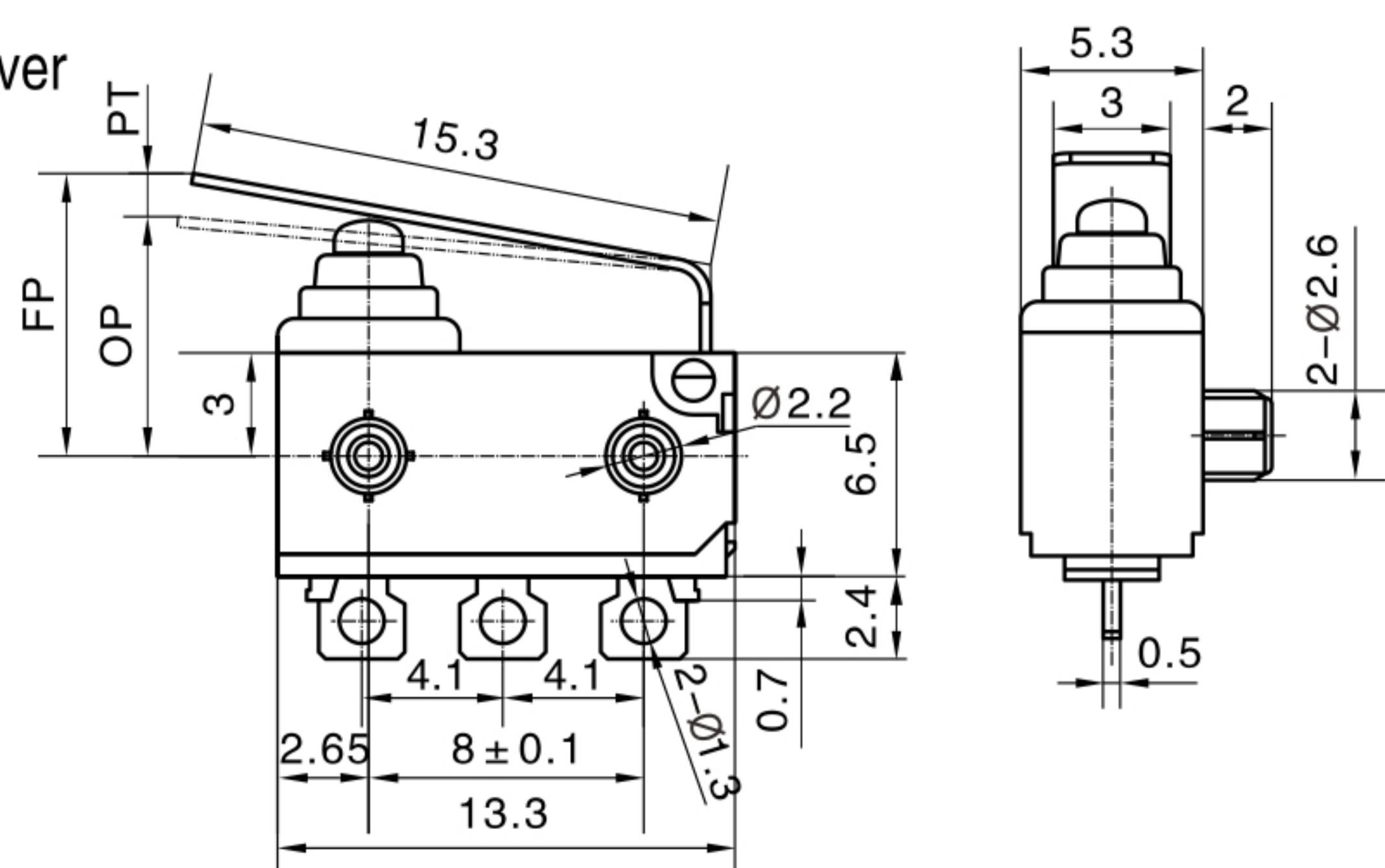
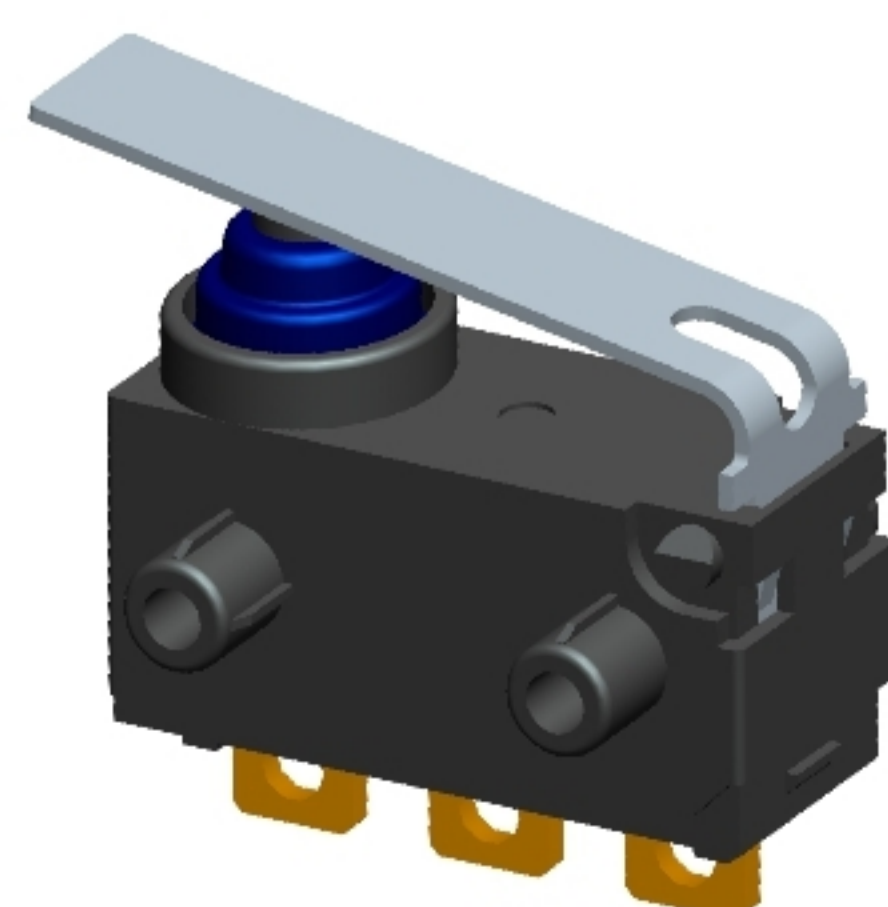
WS5-Z0-□130CW-□-30□



型號 Model	無安裝柱型 without posts
FP Max(mm)	11.4
OP (mm)	10.6 ± 0.2
PT Max(mm)	1.0
OT Min(mm)	0.8
MD Max(mm)	0.25
OF Max(N)	1.30
RF Min(N)	0.13

3N動臂型 Models with 3N Lever

WS5-Z0-□130□-□-30□



型號 Model	安裝柱型 with posts	M3螺釘固定型 M3 screw fixed	無安裝柱型 without posts
FP Max(mm)	10.0		14.2
OP (mm)	7.3 ± 0.6		11.5 ± 0.6
PT Max(mm)		3.5	
OT Min(mm)		1.35	
MD Max(mm)		0.6	
OF Max(N)		1.95	
RF Min(N)		0.25	

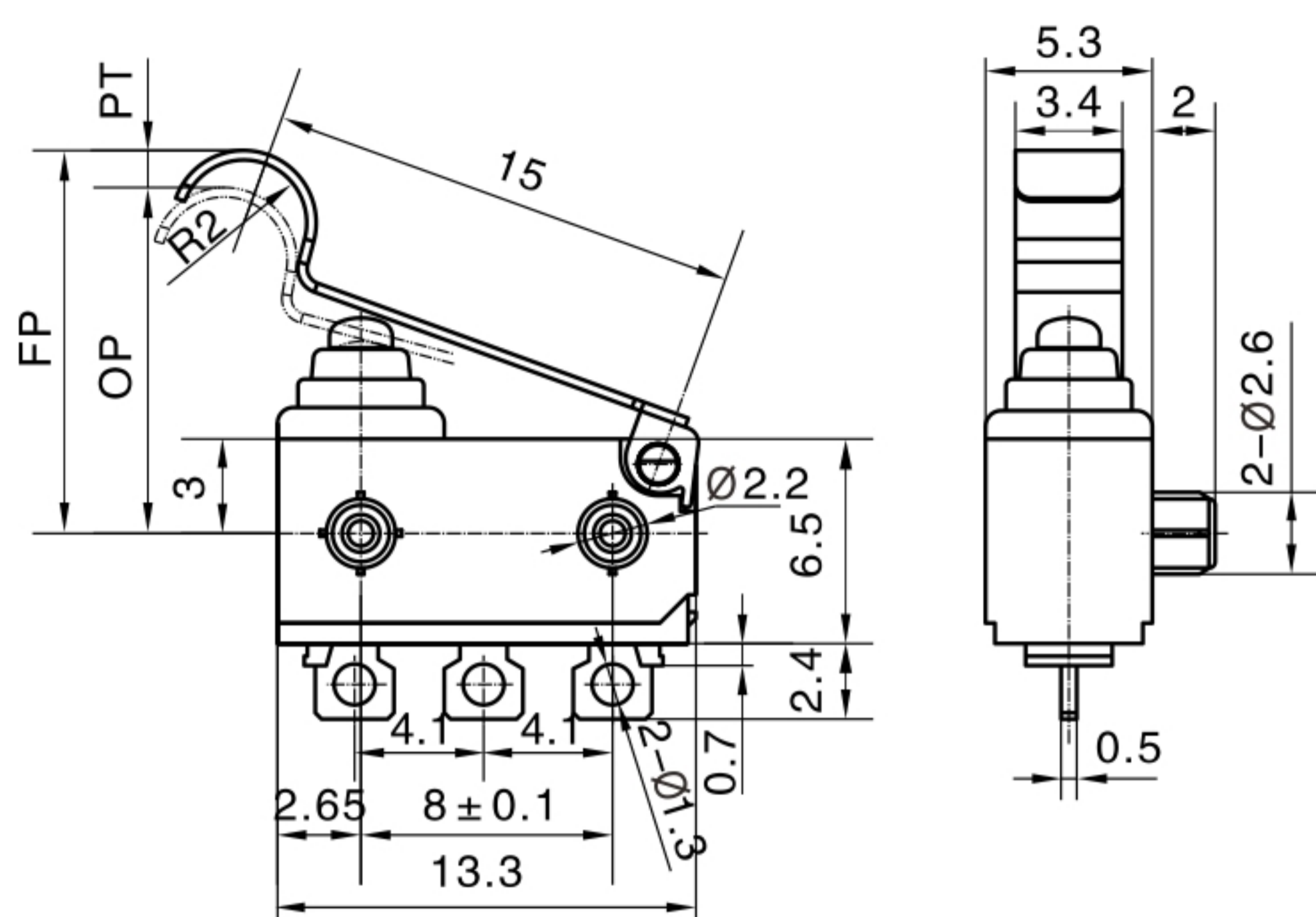
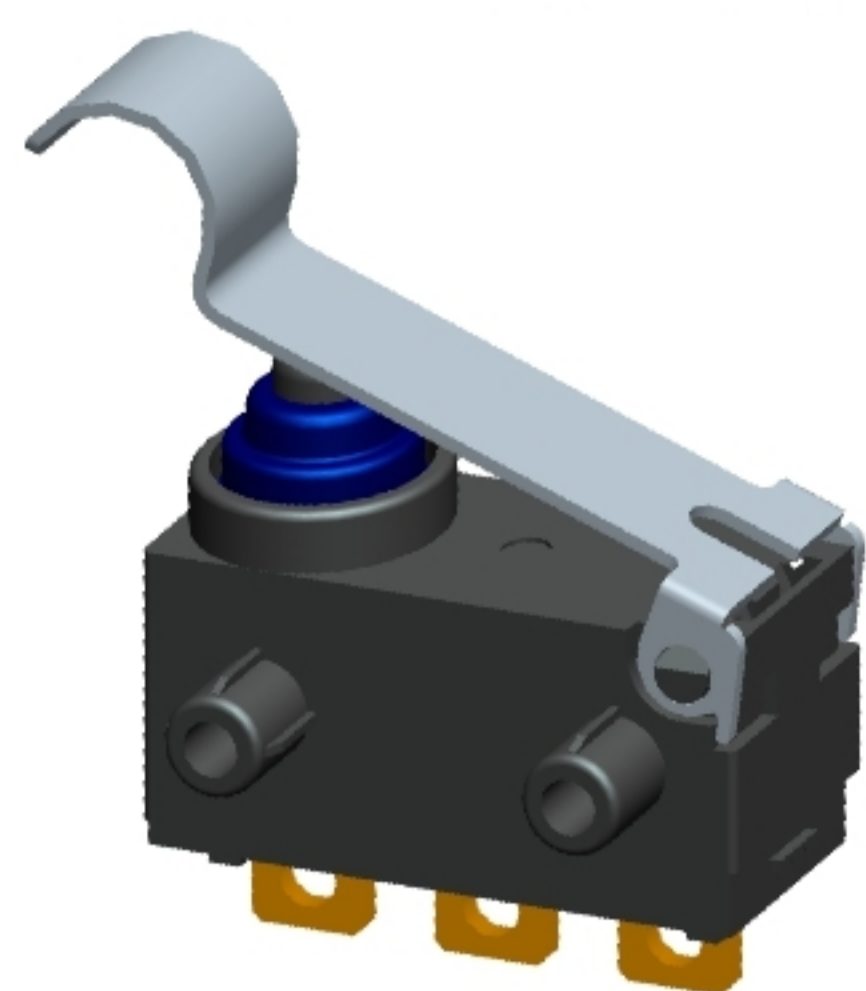






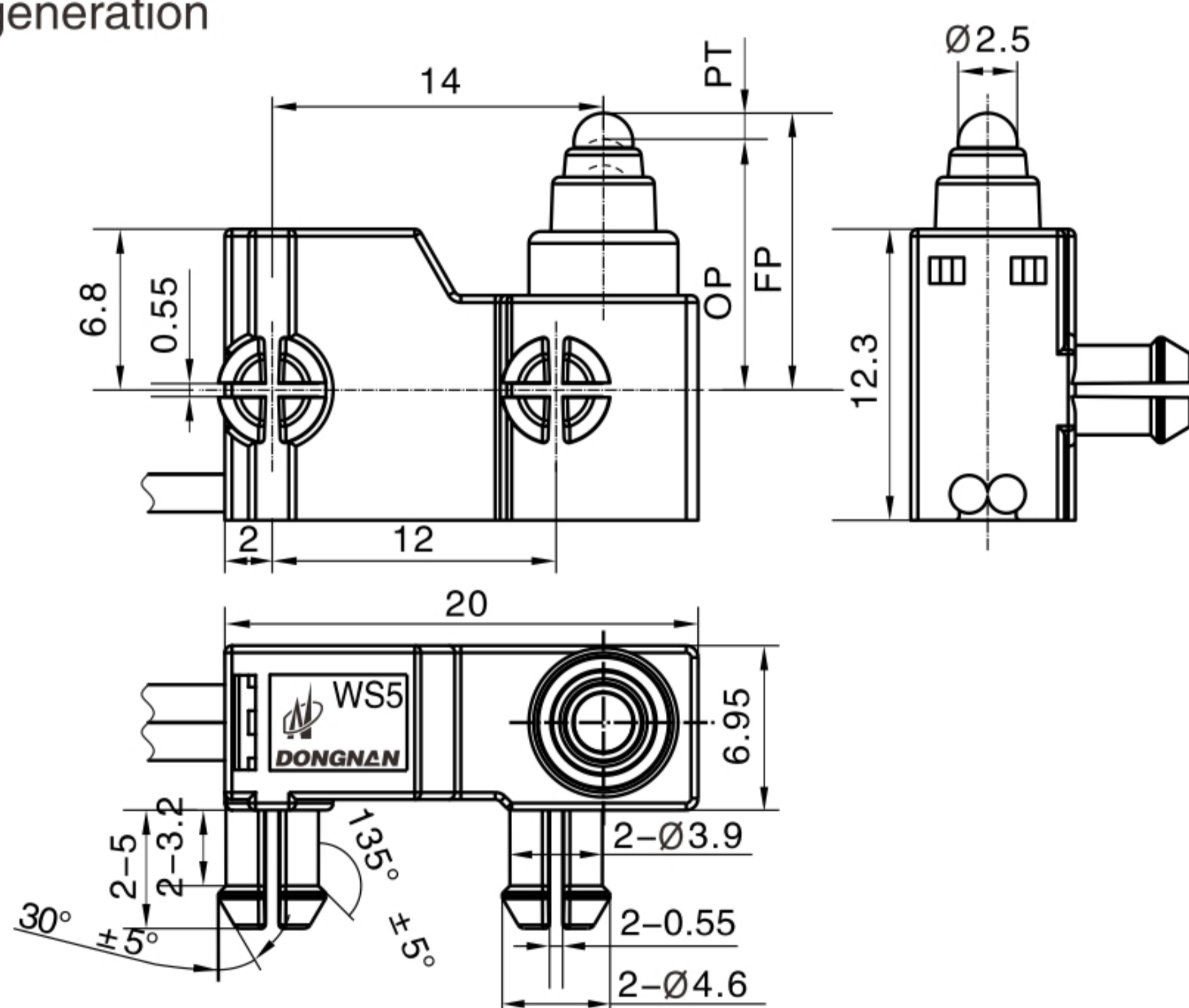
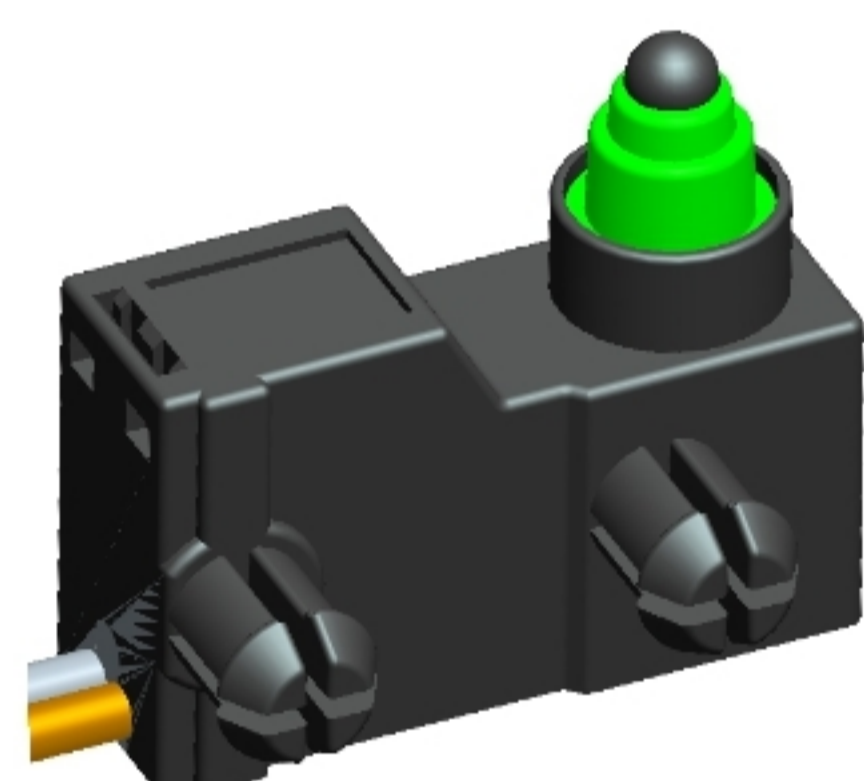
### ◆ 外形尺寸和動作特性 Dimensions and operating characteristics

R 動臂型 Models with R Lever  
WS5-ZR-□130□-□-30□



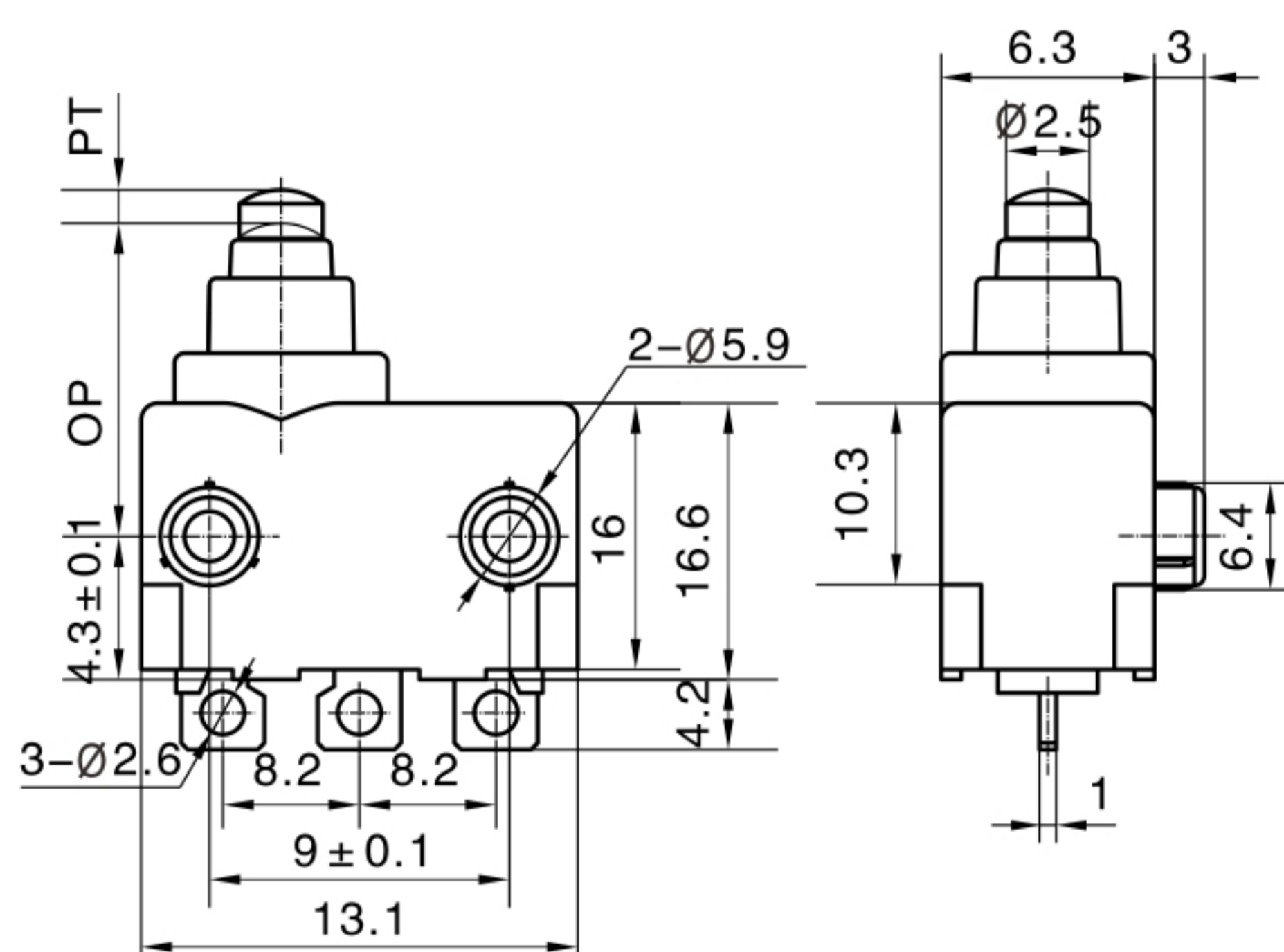
型號 Model	安裝柱型 with posts	M3螺釘固定型 M3 screw fixed	無安裝柱型 without posts
FP Max(mm)	12.5		16.7
OP (mm)	11.2 ± 0.5		15.4 ± 0.5
PT Max(mm)	2.0		
OT Min(mm)	1.0		
MD Max(mm)	0.5		
OF Max(N)	1.0		
RF Min(N)	0.8		

WS5-40 第四代 Forth-generation  
固定銷型 Dowel pin type  
WS5-D0-□195FL-□-40□



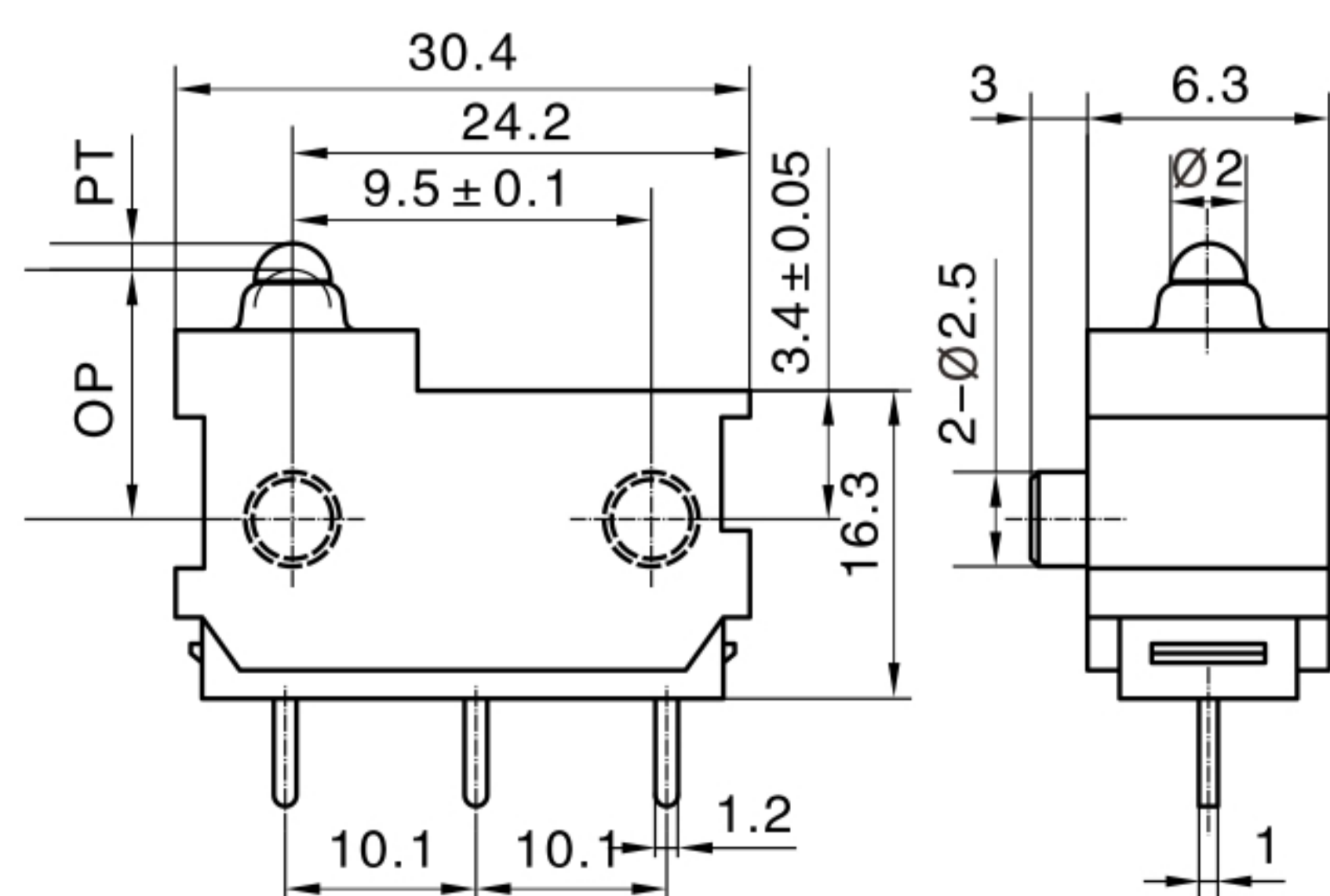
型號 Model	安裝柱型 with posts
FP Max(mm)	12.5
OP (mm)	10.6 ± 0.4
PT Max(mm)	1.5
OT Min(mm)	0.7
MD Max(mm)	0.6
OF Max(N)	1.95
RF Min(N)	0.25

WS5 特殊外型 Special type  
WS5-Z0-F100AR-□



型號 Model	WS5-Z0-F100-X
OF Max(N)	1.00
RF Min(N)	0.20
PT Max(mm)	1.5
OT Min(mm)	0.7
MD Max(mm)	0.25
OP (mm)	9.4 ± 0.3

WS5-Z0-P100AL-□



型號 Model	WS5-Z0-P100-X
OF Max(N)	1.00
RF Min(N)	0.13
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OP (mm)	6.8 ± 0.2

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