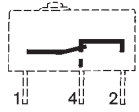


## General specifications

### Layout



### Components

#### Material

- Case : polyester UL 94 VO
- Button : glass-filled polyamide
- Contacts : AgNi, gold-plated AgNi (dual-current)
- Terminals : copper-nickel

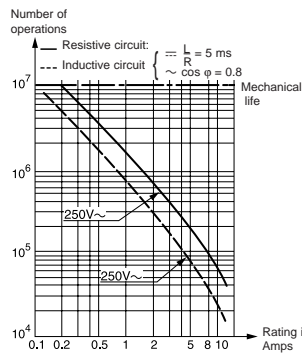
#### Actuators

- flat : stainless steel
- roller : stainless steel with polyamide roller

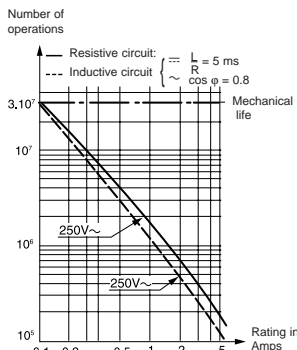
Approvals: NF - UL - cUL

### Operating curve

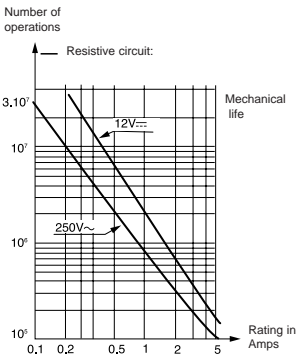
For type 83 170 0



For type 83 170 4



For type 83 170 9



Model 83 170 9 is designed to operate equally well on dual-current (1 mA 4 V minimum) or medium-current (5 A maximum) circuits. However, a given product should only be used to switch one type of circuit during its working life.

## Types

Part numbers for standard products (no lever) terminal type	
	1
	2
	3

### Features

#### Electrical characteristics

	Nominal	A
Current rating at 250 V		
	Thermal	A

#### Mechanical characteristics

Operating force - max.	N (oz.)
Release force - min.	N (oz.)
Total travel force - max.	N (oz.)
Permitted overtravel force - max.	N (oz.)
Maximum rest position	mm (in.)
Tripping point	mm (in.)
Differential travel	mm (in.)
Overtravel - min.	mm (in.)
Ambient operating temperature	°C
Mechanical endurance	Operations
Contact gap	mm (in.)
Weight	g (oz.)

#### Contact type

- C** (Form C) SPDT
- B** (Form B) SPNC not available in PC terminals
- A** (Form A) SPNO not available in PC terminals

#### Connections

## Actuators and mounting positions

### Part numbers for standard actuators

Actuators - Length	mm (in.)
--------------------	----------

### Mounting positions

Coefficient	
Tripping point	mm (in.)

### Mounting positions

Except where otherwise indicated, actuators are supplied unmounted. For factory mounting, specify mounting position L or R.

- **To calculate force** : take the force quoted for the switch and divide by the coefficient given in the table.
- **To calculate travel** : take the travel quoted for the switch and multiply by the same coefficient.

### Mounting accessories for PCB mounting: 5 / 6 / 7 / 8

See page 3/9.

## Other information

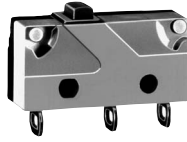
For other forces, actuators, connections and temperatures, please consult us.

Normally stocked items

Catalog products produced to order

Products and specifications subject to change without notice.

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



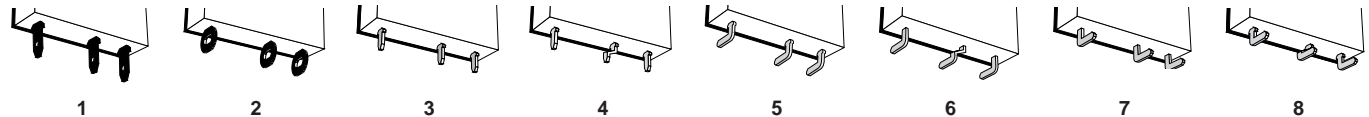
1

83170.0	83170.4	83170.9	83170.4 SP 4967	83170.4	83170.9
831700C1.0	831704C1.0	831709C1.0	831704C2.MBSP	831704C1.MB	831709C1.MB
831700C2.0	831704C2.0	831709C2.0	831704C3.MBSP	831704C2.MB	831709C2.MB
831700C3.0	831704C3.0	831709C3.0	831704C1.MBSP	831704C3.MB	831709C3.MB
High current	Standard	Low current	High force	Standard	Low current
10	5	0.1	5	5	0.1
12.5	6		6	6	
1.5 (5.3)	0.6 (2.2)	0.6 (2.2)	1.5 (5.3)	0.6 (2.2)	0.6 (2.2)
0.3 (1)	0.1 (.04)	0.1 (.04)	0.3 (1)	0.1 (.04)	0.1 (.04)
1.8 (6.3)	1 (3.5)	1 (3.5)	1.8 (6.3)	1 (3.5)	1 (3.5)
10 (35.3)	10 (35.3)	10 (35.3)	10 (35.3)	10 (35.3)	10 (35.3)
9.2 (.36)	9.2 (.36)	9.2 (.36)	10.8 (.425)	10.8 (.425)	10.8 (.425)
8.4 <sup>+0.3</sup> (.33 <sup>+0.01</sup> )	8.4 <sup>+0.3</sup> (.33 <sup>+0.01</sup> )	8.4 <sup>+0.3</sup> (.33 <sup>+0.01</sup> )	9.9 <sup>+0.3</sup> (.39 <sup>+0.01</sup> )	9.9 <sup>+0.3</sup> (.39 <sup>+0.01</sup> )	9.9 <sup>+0.3</sup> (.39 <sup>+0.01</sup> )
0.15 (.006)	0.15 (.006)	0.15 (.006)	0.15 (.006)	0.15 (.006)	0.15 (.006)
0.5 (.02)	0.5 (.02)	0.5 (.02)	0.5 (.02)	0.5 (.02)	0.5 (.02)
-20 to130 (-4 to 266)	-20 to130 (-4 to 266)	-20 to130 (-4 to 266)	-20 to130 (-4 to 266)	-20 to130 (-4 to 266)	-20 to130 (-4 to 266)
10 <sup>7</sup>	3.10 <sup>7</sup>	3.10 <sup>7</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>
0.4 (.016)	0.4 (.016)	0.4 (.016)	0.4 (.016)	0.4 (.016)	0.4 (.016)
1.7 (.06)	1.7 (.06)	1.7 (.06)	1.7 (.06)	1.7 (.06)	1.7 (.06)

2

C	C	C	C	C	C
B	B	B	B	B	B
A	A	A	A	A	A

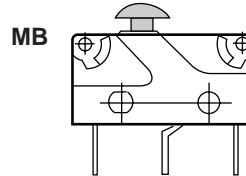
3



4

A 79 253 327	B 79 253 326	C 79 253 328	E 79 218 454	F 79 253 329
Flat 170A R18.3 (.72)	Flat 170A R24 (.94)	Flat 170A R41 (1.61)	Roller 170E R20 (.79)	Dummy roller 170F R19.5 (.77)
L 3 10.4 <sup>+1.2</sup> (.41 <sup>+0.05</sup> )	L 4 11.1 <sup>+1.2</sup> (.44 <sup>+0.05</sup> )	L 7 13.2 <sup>+2.5</sup> (.52 <sup>+1</sup> )	L 3 15.4 <sup>+1.2</sup> (.61 <sup>+0.05</sup> )	L 3 13 <sup>+1.2</sup> (.51 <sup>+0.05</sup> )
R 1.5 9.2 <sup>+0.6</sup> (.36 <sup>+0.24</sup> )	R 2 9.6 <sup>+0.6</sup> (.38 <sup>+0.24</sup> )	R 3.5 10.7 <sup>+1.2</sup> (.42 <sup>+0.05</sup> )	R 1.5 14.5 <sup>+0.6</sup> (.57 <sup>+0.24</sup> )	R 1.5 12 <sup>+0.6</sup> (.47 <sup>+0.24</sup> )

D 79 218 491	L 79 218 493
Screw 170D R20 (.79)	Transverse roller 170L R20 (.79)
Characteristics available upon request.	



Ø No Actuator

5

To order please specify :

Example : 831700 C 2 . C L

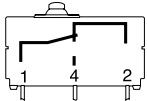
<b>1</b> Switch Type	<b>2</b> Contact Type	<b>3</b> Connection	<b>4</b> Actuators	<b>5</b> Actuator Position
831700 831704 831709	A B C	1 5 2 6 3 7 4 8	A E B F C L D MB Ø MB SP4967	L - Left (Standard) R - Right
To order actuators separately, use the 8 digit P/N			Example P/N is 831700 SPDT solder terminals "C" actuator mounted on the left.	

Products and specifications subject to change without notice.

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

## General specifications

### Layout



### Components

#### Material

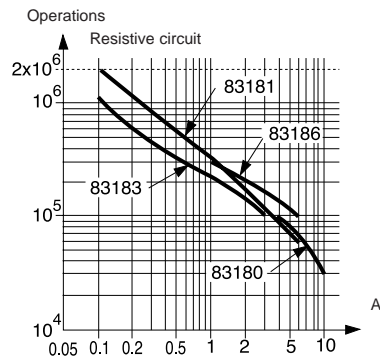
- Case : UL 94VO glass-filled polyester
- Button : Polyester
- Membrane : silicon
- Contacts : AgCdO  
AgNi (dual current),
- Terminals : tinned brass
- Cable : PVC (IP 67)
- Leads : PVC

#### Actuators

- flat : stainless steel
- roller : stainless steel with polyamide roller

Approvals 83 180/83 186 : NF. UL - cUL on request

### Operating curve 250 V~



### Switch rating with DC supply

		83 180	83 181	83 183	83 186
12 V	Resistive load	10 A	6 A	3 A	6 A
	Inductive L/R 5 ms	10 A	6 A	3 A	6 A
24 V	Resistive load	10 A	6 A	3 A	6 A
	Inductive L/R 5 ms	5 A	5 A	3 A	5 A

Model 83 181 is designed to operate equally well on dual-current (1 mA 4 V minimum) or medium-current (6 A maximum) circuits. However, a given product should only be used to switch one type of circuit during its working life.

### Degree of protection

- Tag version : casing = IP67  
terminals = IP00
- Lead / cable version : outlet / casing = IP67

## Types

### Part numbers for standard products with connection of type

1  
2  
FD0

### Features

### Electrical characteristics

Current rating at 250 V	Nominal Hp	A
		1/2

### Mechanical characteristics

Operating force - max.		N (oz.)
Release force - min.		N (oz.)
Total travel force - max.		N (oz.)
Permitted overtravel force - max.		N (oz.)
Rest position - max.		mm (in.)
Tripping point		mm (in.)
Differential travel		mm (in.)
Overtravel - min.		mm (in.)
Ambient operating temperature	for tag version	°C (°F)
	for lead / cable version	°C (°F)
Mechanical durability		Operations
Contact gap		mm (in.)
Weight (tag version)		g (oz.)

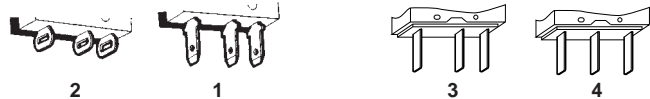
### Contact Type

C (Form C) SPDT

B (Form B) SPNC not available in PC terminals

A (Form A) SPNO not available in PC terminals

### Connections



### Actuators and mounting positions

#### Part numbers for standard actuators

Actuators - Length mm (in.)

#### Mounting position

Coefficient

Tripping point mm (in.)

83 180

83 181/183/186

#### Part numbers for standard actuators

Actuators - Length mm (in.)

#### Mounting positions

Coefficient

Tripping point

Except where otherwise indicated, actuators are supplied unmounted.

For factory mounting, specify fixing position L or R.

- **To calculate force** : take the force quoted for the switch and divide by the coefficient given in the table.

- **To calculate travel** : take the travel quoted for the switch and multiply by the same coefficient.

### Mounting accessories for PCB mounting : 5 / 6 / 7 / 8

See page 3/9.

## Other information

For other forces, actuators, connections and temperatures, please consult us.

Normally stocked items

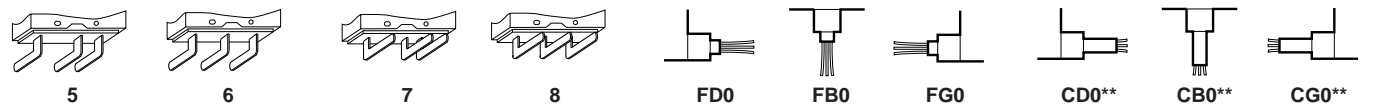
Catalog products produced to order



<b>83180</b>	<b>83181</b>	<b>83183</b>	<b>83186</b>
<b>831800C1.0</b>	<b>831810C1.0</b>	<b>831830C1.0</b>	<b>831860C1.0</b>
<b>831800C2.0</b>	<b>831810C2.0</b>	<b>831830C2.0</b>	<b>831860C2.0</b>
<b>831800CFD0.0</b>	<b>831810CFD0.0</b>	<b>831830CFD0.0</b>	<b>831860CFD0.0</b>

High current	Dual current	Medium current	Standard
10	6	3	6
12.5	7.5	4	7.5
3.4 (12)	2.5 (8.8)	2.5 (8.8)	2.5 (8.8)
1 (3.5)	0.8 (2.8)	0.8 (2.8)	0.8 (2.8)
5 (17.6)	4.2 (14.1)	4.2 (14.1)	4.2 (14.1)
10 (35.3)	10 (35.3)	10 (35.3)	10 (35.3)
9.3 (.37)	9.3 (.37)	9.3 (.37)	9.3 (.37)
8.4 ±0.3 (.33 ±0.012)	8.4 ±0.3 (.33 ±0.012)	8.4 ±0.3 (.33 ±0.012)	8.4 ±0.3 (.33 ±0.012)
0.10 (.004)	0.10 (.004)	0.10 (.004)	0.10 (.004)
0.6 (.024)	0.6 (.024)	0.6 (.024)	0.6 (.024)
-40 +125 (-40 +257)	-40 +125 (-40 +257)	-40 +125 (-40 +257)	-40 +125 (-40 +257)
-40 +105 (-40 +221)	-40 +105 (-40 +221)	-40 +105 (-40 +221)	-40 +105 (-40 +221)
10 <sup>6</sup>	2 x 10 <sup>6</sup>	2 x 10 <sup>6</sup>	2 x 10 <sup>6</sup>
0.4 (.016)	0.4 (.016)	0.4 (.016)	0.4 (.016)
2 (.07)	2 (.07)	2 (.07)	2 (.07)

C	C	C	C
B	B	B	B
A	A	A	A



A	B	C	E
<b>79 253 327</b>	<b>79 253 326</b>	<b>79 253 328</b>	<b>79 218 454</b>
Flat <b>170A</b> R18.3 (.72)	Flat <b>170A</b> R24 (.94)	Flat <b>170A</b> R41 (1.61)	Roller <b>170E</b> R20 (.79)
L      R	L      R	L      R	L      R
3      1.5	4      2	7      3.5	3      1.5
10.4 <sup>+1.2</sup> (.41 <sup>+0.05</sup> )    9.2 <sup>+0.6</sup> (.36 <sup>+0.24</sup> )	11.1 <sup>+1.2</sup> (.44 <sup>+0.05</sup> )    9.6 <sup>+0.6</sup> (.38 <sup>+0.24</sup> )	13.2 <sup>+2.5</sup> (.52 <sup>+1</sup> )      10.7 <sup>+1.2</sup> (.42 <sup>+0.05</sup> )	15.4 <sup>+1.2</sup> (.61 <sup>+0.05</sup> )    14.5 <sup>+0.6</sup> (.57 <sup>+0.24</sup> )

F	D *	L *
<b>79 253 329</b>	<b>170D</b>	<b>170EL *</b>
Dummy roller <b>170F</b> R19.5 (.77)	Screw <b>170D</b>	Transverse roller <b>170EL *</b>
L      R		
3      1.5		
13 <sup>+1.2</sup> (.51 <sup>+0.05</sup> )    12 <sup>+0.6</sup> (.47 <sup>+0.24</sup> )		

Ø No Actuator

\* Special order, contact us for part number  
 \*\* Cable version for types 83 181, 83 183 and 83 186

To order please specify :

<b>1</b> Switch Type 831810 831830 831860 831800	<b>2</b> Contact Type A B C	<b>3</b> Connection 1 6 2 7 3 8 4 FDØ    CDØ 5 FGØ    CBØ FBØ    CGØ	<b>4</b> Actuators Ø F L A B C D E	<b>5</b> Actuator Position L - Left (Standard) R - Right
--	--------------------------------------	--	--	--

To order actuators separately, use the 8 digit P/N

Example P/N is 831810 SPDT solder terminals with no actuator.

Products and specifications subject to change without notice.

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



# Miniature Side Rotary (High Sensitivity) Switches Series 83 137



## General specifications

### Layout



### Components

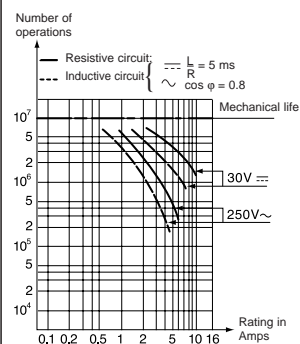
#### Material

- Case : glass filled polyamide
- Contacts : silver

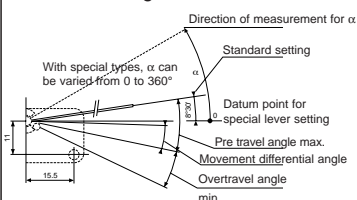
#### Actuators

- Stainless steel wire

### Operating curve



### Actuator setting in α



**Approvals** CSA (LR-20418), ASE, Semko, UTE & VDE.

For other connections, actuators, approvals accessories...Please consult factory

## Types

**83 137 0**

### Features

Standard

### Electrical characteristics

Current rating at 125-250 V	Nominal	A	5
	Thermal	A	14

### Mechanical characteristics

Maximum operating force	N cm (in. oz)	0.12 (.17)
Minimum release torque	N cm (in. oz)	0.03 (.042)
Overtravel torque	N cm (in. oz)	0.5 (.71)
Movement differential	°	10 <sup>+0.4</sup>
Overtravel - min.	°	12
Operating temperature	°C (F°)	-20 to 125 (-4 to 257)
Mechanical life	Operations	10 <sup>7</sup>
Contact gap	mm (in)	0.8 (.031)
Weight	g (oz)	7.2 (.25)

### Contact Type

C (Form C) SPDT	C
B (Form B) SPNC	B
A (Form A) SPNO	A

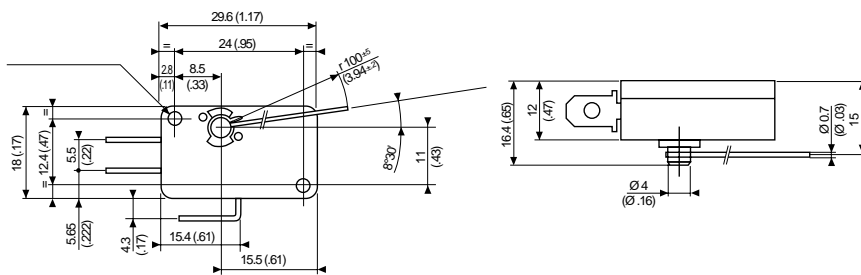
### Connections



2 solder

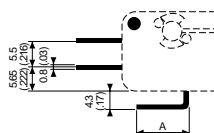
3 for 1/4" Quick Connects

## Dimensions

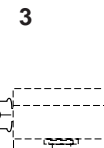
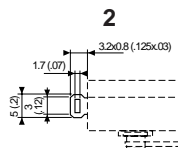


mm (in)

## Dimensions connections



mm (in)



To order, please specify :

Example : 831370 C 3 2 W

**1** Switch Type

831370

**2** Contact Type

A  
B  
C

**3** Connection

2  
3

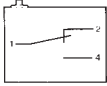
Example switch is: 831370, SPDT, 1/4" Q.C.

Products and specifications subject to change without notice.

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

## General specifications

### Layout



83 169

### Components

#### Material

- Case : polyester UL 94 VO
- Contacts : nickel silver gold alloy (low current)
- Membrane : Fluoro - silicone

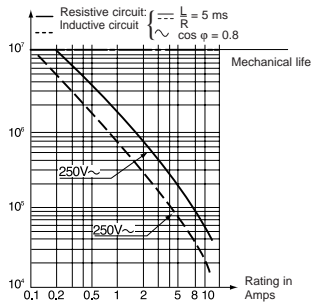
#### Actuators

- stainless steel
- rollers : polyamide
- Plunger : stainless steel

## Operating curve

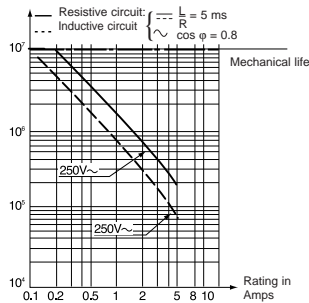
83 169 0

Number of operations



83 169 4

Number of operations



## Operating characteristics

**83 169 8 and 83 169 9 low current**

Intended for use from 1 to 100 mA at 4 to 30 V DC.

Under these conditions, electrical life exceeds mechanical life.

**Degree of protection IP 67**

**Approvals: UL, cUL (CSA Equivalent)**

## Types

### Features

### Electrical characteristics

	Nominal	A
Current rating at 125-250 V		

### Mechanical characteristics

Operating force - max.	N (oz)
Release force - min.	N (oz)
Maximum overtravel force	N (oz)
Overtravel max. - force	N (oz)
Maximum rest position	mm (in)
Tripping point	mm (in)
Movement differential	mm (in)
Overtravel - min.	mm (in)
Temperature	°C (F°)
Endurance	Operations
Contact gap	mm (in)
Weight	g (oz)

## Contact Type

**C (Form C) SPDT**

## Connections

Flexible leads  $\varnothing 3 \times 1 \text{ mm}^2$  long 0.50 m

Lead position - right

Lead position - left

3 lead cable -  $3 \times 0.75 \text{ mm}^2$  length 0.50 m, left output only

## Actuators and mounting positions-user or factory mounted

### Part numbers for standard actuators

**P**

Actuator-Length mm (in.) \*\* Flat **139 AX R29.7 (1.17)**



### Mounting positions

**D**

Operating force - max.	N (oz)	2.5 (8.8)
Release force - min.	N (oz)	0.4 (1.4)
Movement differential	mm (in)	1.2-0.5 (.047-.02)

### Part numbers for standard actuators

Mounting positions	N (oz)
Operating force - max.	N (oz)
Release force - min.	mm (in)
Movement differential	
Unless indicated, flat actuators and roller actuators are delivered unmounted	
** Factory Mounted Only	

**Note :** When mounting actuators a light greasing of the switch push-button is recommended.

## Other information

For other forces, actuators, connections and temperatures, please contact factory.

Normally stocked items

Catalog products produced to order

Products and specifications subject to change without notice.

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



1

**83 169 0**      **83 169 4**      **83 169 8**      **83 169 9**

Standard	Reduced differential movement	Low current	Low current, reduced differential movement
10	5	0.1	0.1
4 (14.1)	4 (14.1)	4 (14.1)	4 (14.1)
1 (3.5)	1 (3.5)	1 (3.5)	1 (3.5)
8 (28.2)	8 (28.2)	8 (28.2)	8 (28.2)
20 (70.5)	20 (70.5)	20 (70.5)	20 (70.5)
15.9 (.63)	15.9 (.63)	15.9 (.63)	15.9 (.63)
14.7 <sup>+0.5</sup> (.58 <sup>+0.02</sup> )	14.7 <sup>+0.5</sup> (.58 <sup>+0.02</sup> )	14.7 <sup>+0.5</sup> (.58 <sup>+0.02</sup> )	14.7 <sup>+0.5</sup> (.58 <sup>+0.02</sup> )
0.35 (.014)	0.07 (.003)	0.35 (.014)	0.07 (.003)
1 (.04)	0.4 (.016)	1 (.04)	0.4 (.016)
-20 to 85 (-4 to 185)	-20 to 85 (-4 to 185)	-20 to 85 (-4 to 185)	-20 to 85 (-4 to 185)
5 x 10 <sup>6</sup>	5 x 10 <sup>6</sup>	5 x 10 <sup>6</sup>	5 x 10 <sup>6</sup>
0.4 (.016)	0.4 (.016)	0.4 (.016)	0.4 (.016)
30 (1.06)	30 (1.06)	30 (1.06)	30 (1.06)

2

**C**      **C**      **C**      **C**

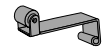
3

R	R	R	R
L	L	L	L
C <sup>(1)</sup>	C	C	C

(1) 83 169 0 Cable limits current to 8 Amps

4

**R**      **A 79 215 740**      **B 70 507 524**      **E 79 215 742**      **G 70 507 529**  
 \*\*Roller 139 EX R28.7 (1.13)      Flat 161 A R14.2 (.56) - R25.4 (1)      Roller 161 E R13.6 (.54) - R24.1 (.95)

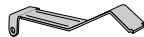


D
2.5 (8.8)
0.4 (1.4)
1.2-0.5 (.047-.02)

A	B	A	B	C
2.5 (8.8)	4.2 (14.8)	1.4 (4.9)	2.5 (8.8)	3.5 (12.3)
0.5 (1.8)	1 (3.5)	0.25 (.88)	0.5 (1.8)	0.6 (2.1)
0.8 (.032)	0.4 (.016)	1.6 (.063)	0.8 (.032)	0.6 (.024)

A	B	A	B	C
2.5 (8.8)	4.2 (14.8)	1.4 (4.9)	2.5 (8.8)	3.5 (12.3)
0.5 (1.8)	1 (3.5)	0.25 (.88)	0.5 (1.8)	0.6 (2.1)
0.8 (.032)	0.4 (.016)	1.6 (.063)	0.8 (.032)	0.6 (.024)

**F 79 218 581**  
Flat 161 F R22.3 (.88)



A	B
1.5 (5.3)	2.6 (9.2)
0.25 (.9)	0.5 (1.8)
16 (.63)	0.8 (.032)

**H 79 218 651**  
Dummy roller 161 G R21.8 (.86)



A	B
1.5 (5.3)	2.6 (9.2)
0.25 (.9)	0.5 (1.8)
16 (.63)	0.8 (.032)

Ø  
**No Actuator**

For more actuators see 83161

5

To order, please specify :

Example : 831690 C R .5 \* Ø \_

<b>1</b> Switch Type	<b>2</b> Contact Type	<b>3</b> Connections	<b>4</b> Length of Leads	<b>5</b> Actuator	<b>6</b> Actuator Position
831690 831694 831698 831699	C	R L C	.5 - 1/2 meter (std) 1 - 1 meter 2 - 2 meter	Ø A B H	E F P R

Example switch is: 831690, SPDT, leads exit right, .5 meter leads, with no actuator. To order actuators separately, use the 8 digit P/N.

Products and specifications subject to change without notice.

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

