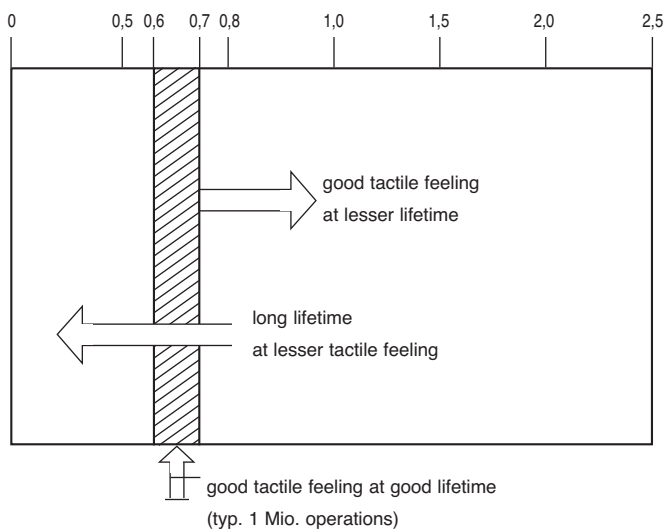


General features of silicone rubber

The flexibility of silicone material allows a wide variety of shapes. Low pricing for mass production is an additional advantage of this technology.

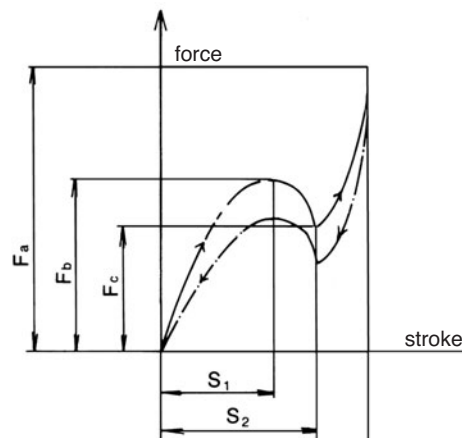
Tactile feeling



actuation force	tactile feeling	lifetime (operations)
50 g	very good	1 Mio.
70 g		1 Mio.
90 g		1 Mio.
100 g		1 Mio.
120 g	good	1 Mio.
150 g		560 K
170 g		450 K
200 g	less good	50K Typ (100 K Max)

This table shows typical data

Diagram





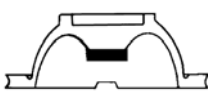
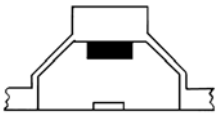
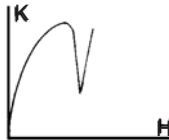
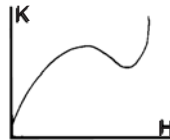
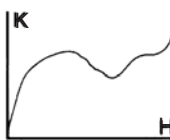
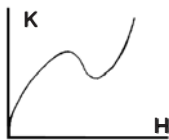
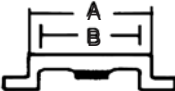
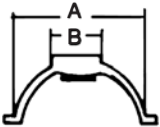
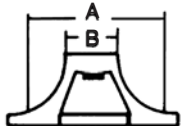
- Fa: overall force
- Fb: switching force
- Fc: tactile feeling
- S₁: point of return
- S₂: switching stroke

General parameter

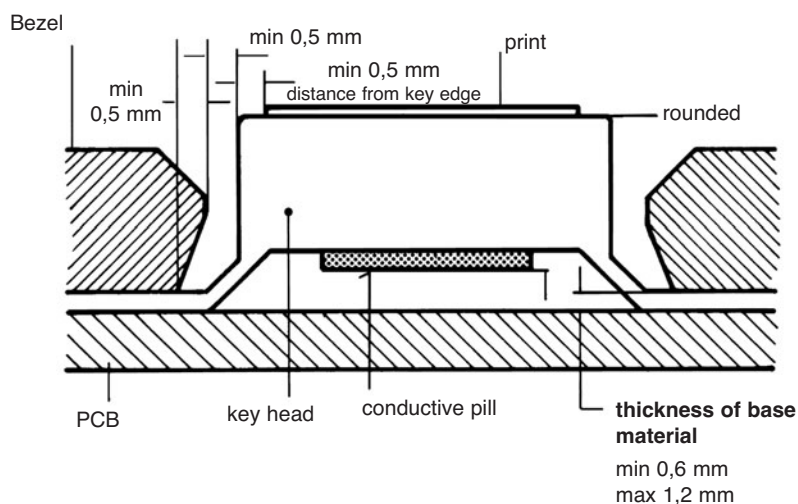
stroke: 0,2 mm 5 mm
 switching current: 30 mA bei 12 VDC/0,5 sek.
 operating temperature: -25°C + 250°C
 switching force: 10 g 200 g

lifetime (operations): 1 Mio.
 contact resistance: < 100 Ω
 bouncing: < 5 m sek.
 insulation resistance: 100 MΩ at 500 VDC

Directions for keys

KEY-TYPE	A flat type	B bell type	C double bell type	D cone type
				
pressure/stroke curve				
relation between pressure (g) and stroke (mm)	pressure (g) 30 – 200 stroke (mm) 0,3 – 7	pressure (g) 30 – 80 80 – 160 stroke (mm) 160 – 250	stroke (mm) 1,0 – 1,8 1,6 – 2,8 2,6 – 3,5	pressure (g) 30 – 200 stroke (mm) 0,3 – 7
outer dimensions (A) at a defined key head diameter (B)	 $A \geq B + 1,0 \text{ mm}$		$A \geq B + 2,0 \text{ mm}$	 $A \geq B \pm 2,0 \text{ mm}$

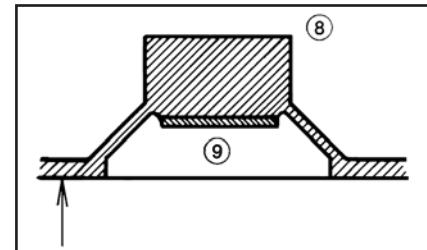
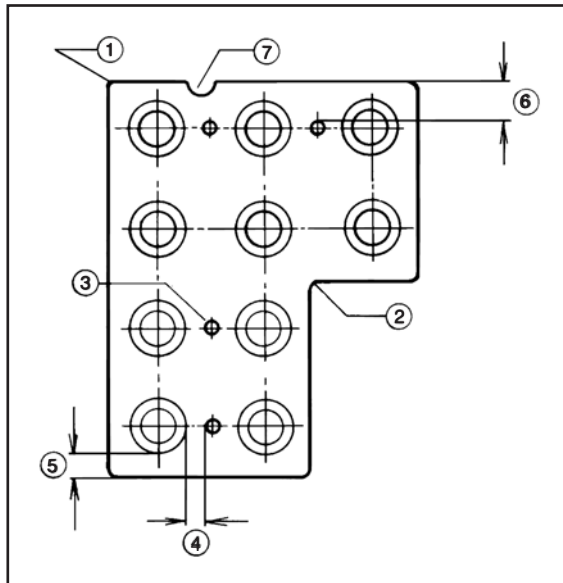
Assembly



Tolerances

below 10 mm	$\pm 0,10 \text{ mm}$
10 – 20 mm	$\pm 0,15 \text{ mm}$
20 – 30 mm	$\pm 0,20 \text{ mm}$
30 – 40 mm	$\pm 0,25 \text{ mm}$
40 – 50 mm	$\pm 0,30 \text{ mm}$
more than 50	$\pm 0,60 \%$

Directions for design



1	min	2,0	R
2	min	0,75	R
3	min	2,0 mm	∅
4,5,6	min	3,0	mm
7	min	1,0	R
8	min	0,3	R
9	conductive pill		

Design of customized rubber keypads

- | | |
|--|--|
| 1) Size overall | 6) Diameter of pills |
| 2) Positioning of keys (x-Axis / y-Axis) | 7) Diameter of key heads |
| 3) Thickness of base material | 8) actuation force and preferred tactile feeling |
| 4) stroke | 9) outer diameters |
| 5) Height overall (incl. keys) | 10) inner diameters |

Company _____

Street _____

Postal code/City _____

Telephone _____

Fax _____

E-mail _____

Contact person _____

Prototypes _____ pcs

Annual demand _____ pcs