

LIMITATOARE ȘI MICRO- ÎNTRERUPĂTOARE CAPSULATE

LIMITATOARE DE CURSĂ

1. Standard de referință

SPE 2620/1-91

2. Domeniul de utilizare

În schemele electrice de acționare și automatizare ale diverselor instalații industriale, mașini utilaje sau în alte scopuri similare.

3. Condiții de utilizare

3.1. Temperatura aerului ambiant: -33 ... +55⁰ C pentru limitatoare de cursă necapsulate și capsulate în masă plastică.

-33 ... +70⁰ C media zilnică nedepășind +35⁰ C pentru limitatoare de cursă capsulate în siluminii.

3.2. Altitudine: max. 2000m .

3.3. Umiditate: max. 90% la 20⁰ C .

3.4. Medii fără praf, ceață , fum, pericol de explozie.

4. Caracteristici tehnice generale

4.1. Tensiunea nominală de izolare (Un) :500Vc.a.

4.2. Tensiunea nominală de utilizare (Ue) :380; 220; 110;Vc.a. 110; 60; 48; 24Vc.c.

4.3. Curentul nominal termic(I_n) :10A

4.4. Curentul nominal de utilizare (I_e) :6A la 380V; 10A la 220Vc.a.,110Vc.a.; 0,5A la 110Vc.c.; 1A la 60Vc.c., 48Vc.c.; 2A la 24Vc.c.

4.5. Frecvența de conectare (f_c) :600 ... 3600 man./oră

4.6. Tipul contactelor :cu rupere bruscă sau prin translație

4.7. Rezistența la uzură mecanică (RUM) :3x10⁶ manevre pentru variantele cu contact săritor
1x10⁶ manevre pentru variantele cu contact tip translație

4.8. Rezistența la uzură sub sarcină RUE :conform tabel 1.

4.9. Gradul normal de protecție :IP00 pentru variantele necapsulate
IP54 pentru variantele capsulate în masă plastică
IP66 pentru variantele capsulate în siluminii

4.10. Variante constructive și executii climatice certificate: conform tabel 2

4.11. Echivalența variantelor constructive siluminii – masă plastică: conform tabel 3

4.12. Clasificarea și simbolizarea variantelor constructive: conform tabel 4

4.13. Tipul produsului :conform schema 1, fig.1

Tabel 1

Tip limitatoare	Tensiunea nominală de utilizare Ue	Utilizare normală				Regim AC11		Regim DC11	
		I _e (A)	cos φ	L/R (ms)	RUE (man.)	I _e (A)	RUE (man.)	I _e (A)	RUE (man.)
Limitatoare de cursă cu contact săritor	380 V AC	2	0,3	-	1,5x10 ⁶	0,2	1,8x10 ⁶	-	-
	380 V AC	6	0,3	-	1x10 ⁶	0,5	1,5x10 ⁶	-	-
	220 V AC	8	0,3	-	0,8x10 ⁶	2,1	1,8x10 ⁶	-	-
	220 V AC	10	0,3	-	0,6x10 ⁶	1,5	0,6x10 ⁶	-	-
	110 V AC	10	0,3	-	0,8x10 ⁶	2	0,6x10 ⁶	-	-
	110 V DC	0,5	-	5	1x10 ⁶	-	-	0,1	0,8x10 ⁶
	60 V DC	1	-	5	0,8x10 ⁶	-	-	0,2	0,6x10 ⁶
	48 V DC	1	-	5	0,8x10 ⁶	-	-	0,2	0,6x10 ⁶
24 V DC	2	-	5	0,8x10 ⁶	-	-	0,6	0,4x10 ⁶	
Limitatoare de cursă cu contacte tip translație	380 V AC	2	0,3	-	10 ⁶	0,2	10 ⁶	-	-
	380 V AC	6	0,3	-	10 ⁵	1,5	10 ⁵	-	-
	220 V AC	8	0,3	-	10 ⁵	2,5	10 ⁵	-	-
	110 V AC	10	0,3	-	10 ⁵	4	10 ⁵	-	-
	110 V DC	0,5	-	5	10 ⁵	-	-	0,1	10 ⁵
	48 V DC	1	-	5	10 ⁵	-	-	0,2	10 ⁵
	24 V DC	2	-	5	10 ⁵	-	-	0,6	10 ⁵

Tabel 2

Nr. crt.	Denumire variantă constructivă	Cod	Execuții climatice certificate			
			N2	T2	M2	F2
1	Limitatoare de cursă necapsulate cu 2, 4 contacte tip săritor	L100 ... L102	N3	T3	•	-
2	Limitatoare de cursă capsulate în siluminiu cu 2, 4 contacte tip săritor	L103 ... L135	•	•	•	•
3	Limitatoare de cursă capsulate în siluminiu cu 4 contacte tip săritor (2xL100)	L136 ... L138	•	-	-	-
4	Limitatoare de cursă capsulate în siluminiu cu 3 contacte tip translație	L142 ... L164	•	-	-	-
5	Limitatoare de cursă capsulate în masă plastică cu 2, 4 contacte tip săritor	L165 ... L196	•	-	-	-
6	Limitatoare de cursă necapsulate cu 3 contacte tip translație	L220	•	-	-	-
7	Limitatoare de cursă capsulate în siluminiu cu 2 contacte tip translație	L221 ... L230	•	-	-	-
8	Limitatoare de cursă capsulate în masă plastică cu 2 contacte tip translație	L231 ... L239	•	-	-	-
9	Limitatoare de cursă necapsulate cu 2, 3 contacte tip translație	7401; 7402; 7402A; 7403A; 7404; 7404A; 7404B	N3	T3	-	-

Tabel 3

Nr. crt.	Cod variante constructive noi	
	Capsulat în siluminiu	Capsulat în masă plastică
1	L103	L165
2	L104	L166
3	L105	L167
4	L106	L168
5	L107	L169
6	L108	L170
7	L109	L171
8	L110	L172
9	L111	L173
10	L112	L174
11	L113	L175
12	L114	L176
13	L115	L177
14	L116	L178
15	L117	L179
16	L118	L180
17	L119	L181
18	L120	L182
19	L121	L183
20	L122	L184
21	L123	L185
22	L124	L186
23	L125	L187
24	L126	L188
25	L127	L189
26	L128	L190
27	L129	L191
28	L130	L192
29	L131	L193
30	L132	L194

LEGEND (table 2):

- = nu este disponibil

• = variante constructive atestate climatic (disponibil)

N = zonă de climat temperat

T = tropical climate zone

M = zonă de climat tropical

F = zonă de climat de mare rece

2; 3 = categorii operaționale

2: pentru spații acoperite, deschise

3: pentru spații închise cu aerisire naturală

31	L133	L195
32	L134	L196
33	L135	L197
34	L142	-
35	L143	-
36	L145	-
37	L146	-
38	L148	-
39	L149	-
40	L151	-
41	L152	-
42	L154	-
43*	L155	-
44	L221	L231
45	L222	L232
46	L223	L233
47	L224	L234
48	L225	L235
49	L226	L236
50	L227	L237
51	L228	L238
52	L229	L239

* Sunt omologate și următoarele coduri: L156; L157; L158; L159; L160; L161; L162; L163 și L164.

Tabel 4

Nr. crt.	Criterii de clasificare	Clasificare	Simbol	
1	După forma constructivă	- necapsulate - capsulate în siluminiu - capsulate în masă plastică	N C M	
2	După tipul contactelor	- cu contacte tip săritor - cu contacte tip transpirație	S T	
3	După numărul contactelor electrice	- cu 1 contact electric - cu 2 contacte electrice - cu 3 contacte electrice - cu 4 contacte electrice	1 2 3 4	
4	După sistemul de închidere al contactelor mobile (numai pentru cele cu 4 contacte tip săritor)	- cu închidere simultană a contactelor mobile - cu închidere decalată a contactelor mobile	1 2	
5	După numărul de contacte normal închise (numai pentru limitatoarele cu 3 contacte tip translație)	- cu 1 contact normal închis - cu 2 contacte normal închise - cu 3 contacte normal închise	1 2 3	
6	După sistemul de acționare	- cu tijă	- tijă axială cu cap sferic - tijă laterală cu cap sferic - tijă și rolă - tijă și rolă laterală verticală - tijă și rolă laterală orizontală	T TL R RL1 RL2
		- cu braț cu revenire	- braț și rolă de lungime fixă - braț și rolă de lungime variabilă - braț flexibil - resort de acționare în toate direcțiile - braț și tijă rigidă - braț cu rolă și tijă	FB1 FB2 FB3 FB4 FB5 B
		- cu braț cu reținere	- braț în V - braț în T - braț și camă	GB1 GB2 GB3
7	După modul de acționare a limitatoarelor capsulate cu braț	- cu acționare stânga - cu acționare dreapta - cu acționare stânga-dreapta	S D SD	

Tipul produsului

Scheme 1

Forma constructivă (tabel 4, rd. 1)

Tipul contactului (tabel 4, rd. 2)

Numărul contactelor
electrice (tabel 4, rd. 3)

Sistemul de închidere al contactelor
mobile, dacă limitatoarele sunt cu
contact săritor sau numărul
contactelor normal închise, dacă
limitatoarele sunt cu contacte tip
translație (tabel 4, rd. 4 or rd. 5)

Sistemul de acționare (tabel 4, rd. 6)

Modul de acționare al limitatoarelor de
cursă capsulate cu braț (tabel 4, rd. 7)

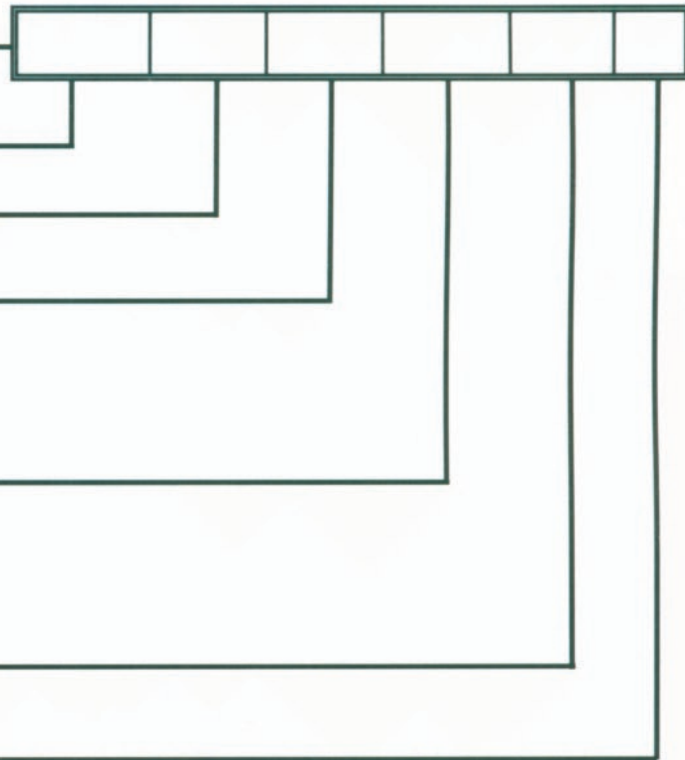
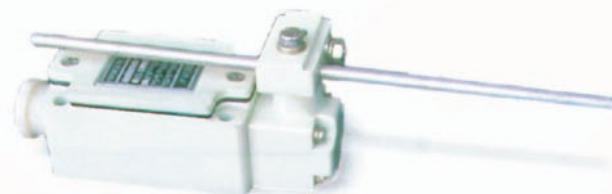
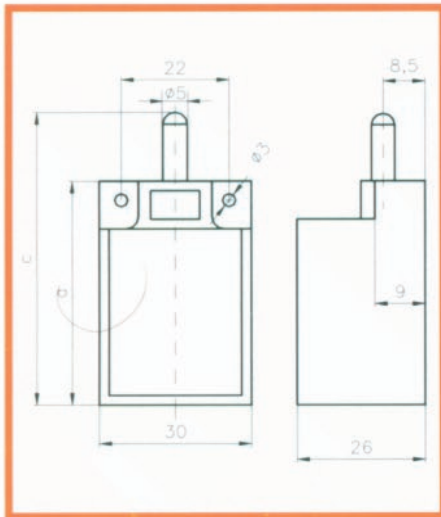


Fig. 1

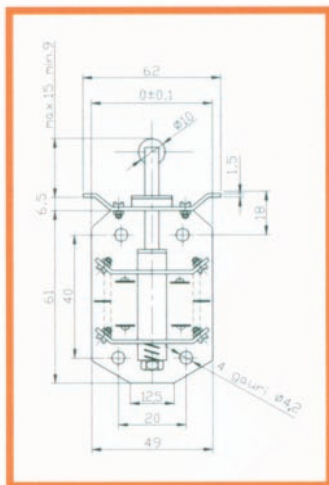




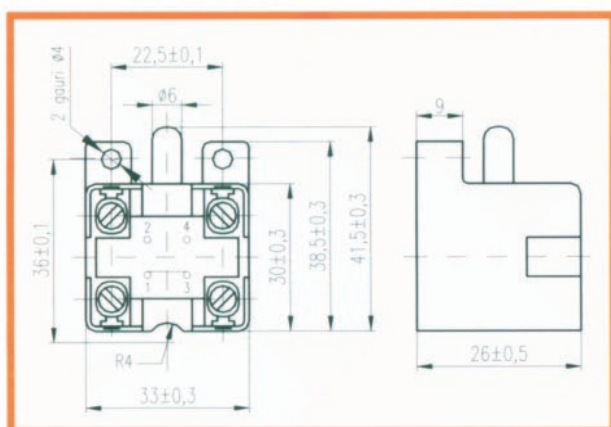
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Observație: Pentru toate diagramele de contacte, trebuie luate în considerare următoarele simbolizări:

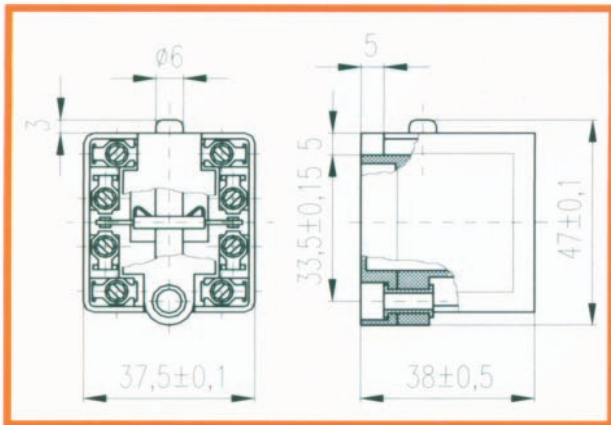
- contact închis
- contact deschis



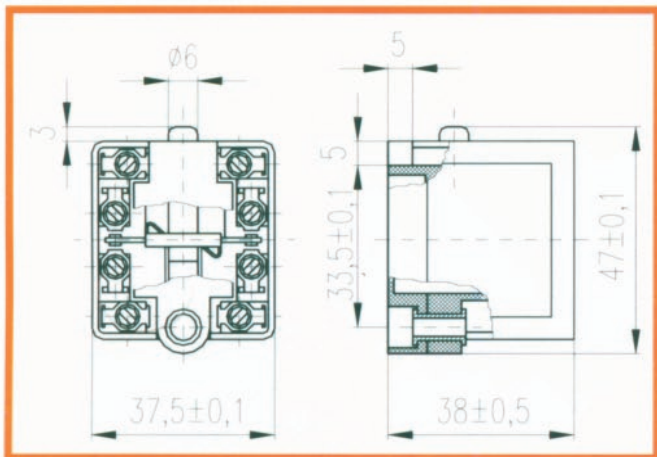
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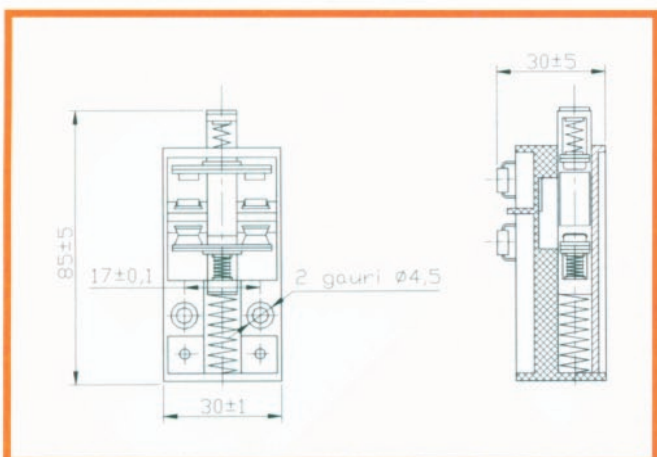
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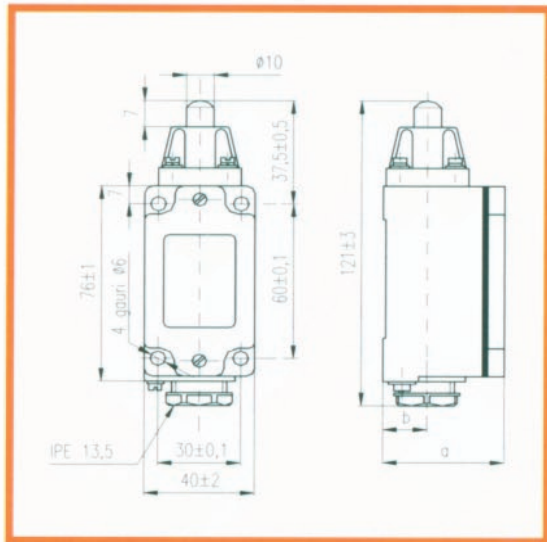
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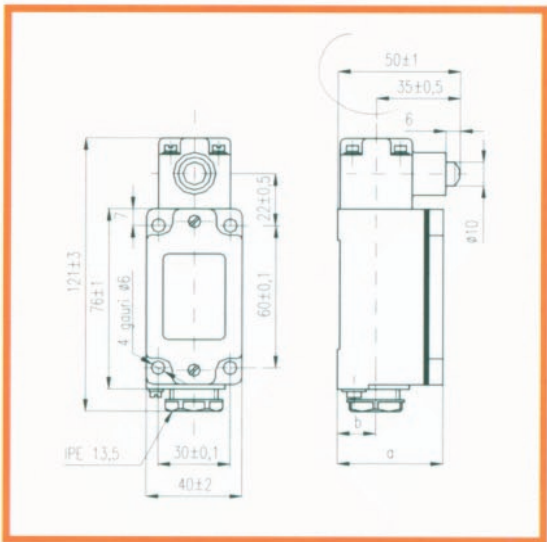
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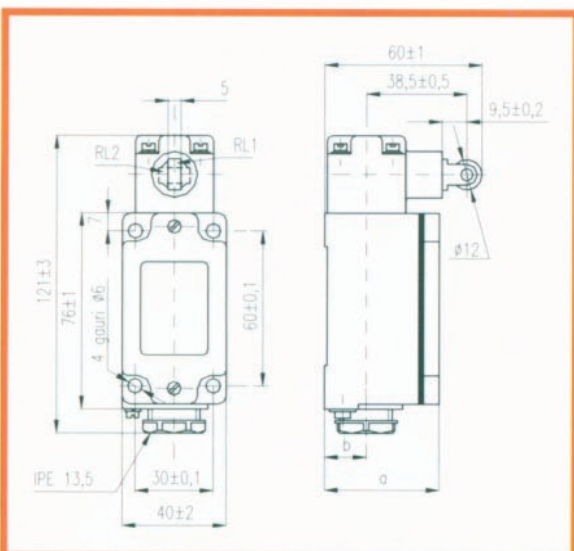
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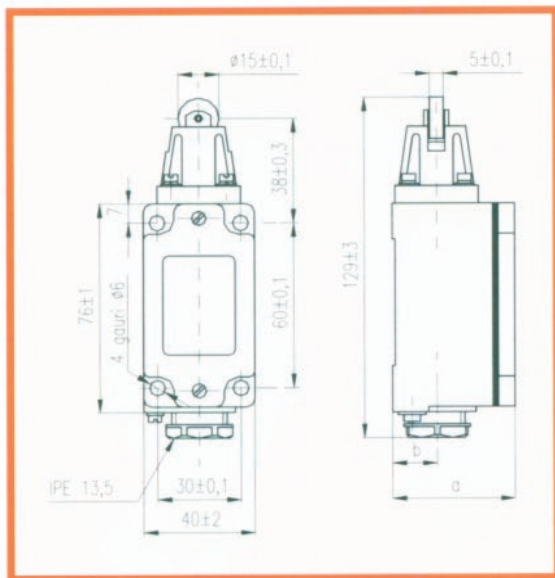
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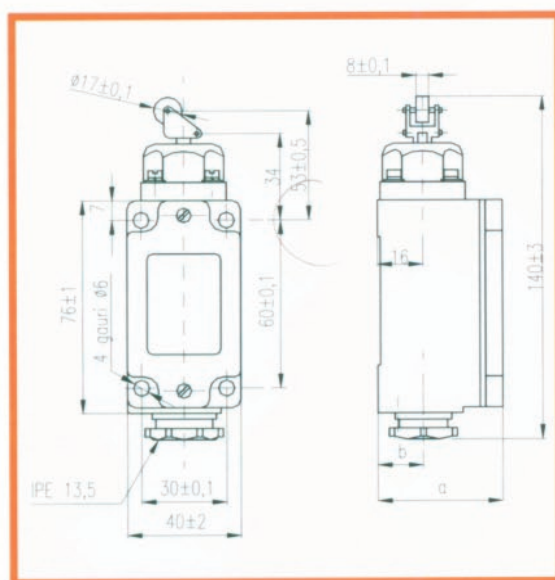
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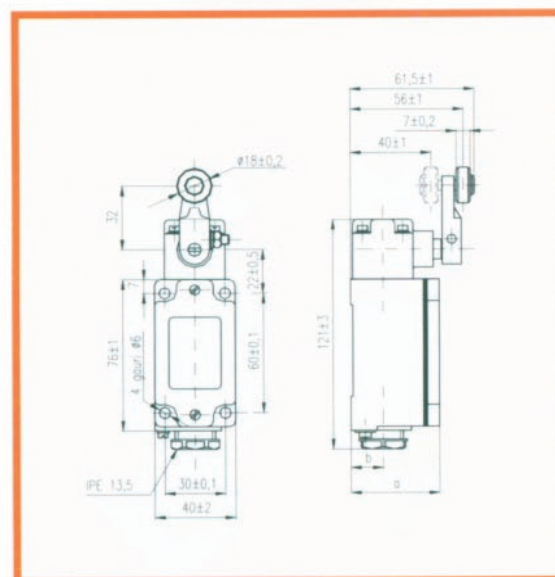
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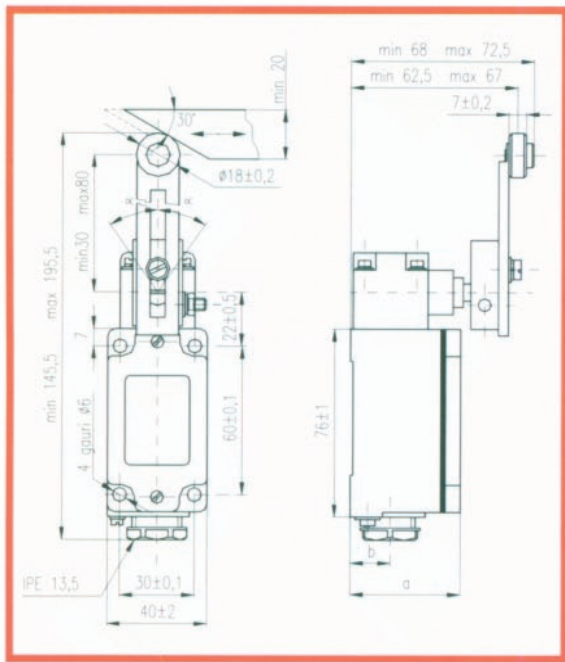
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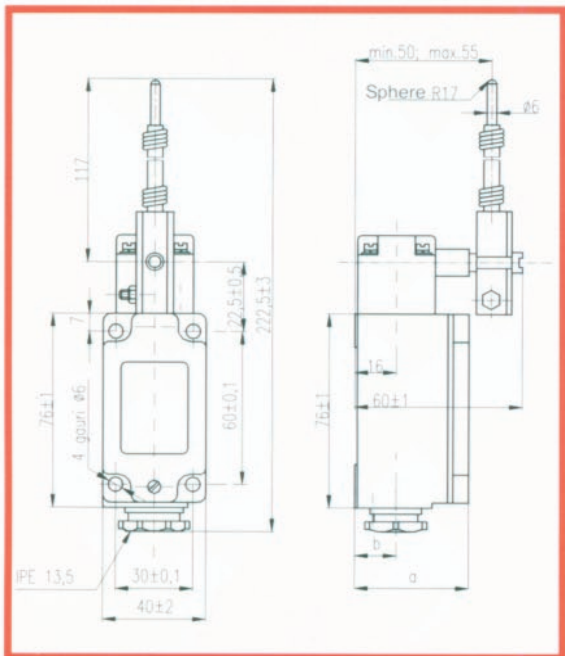
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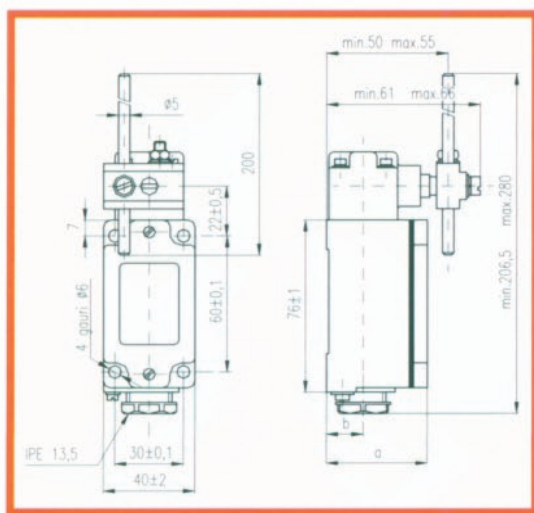
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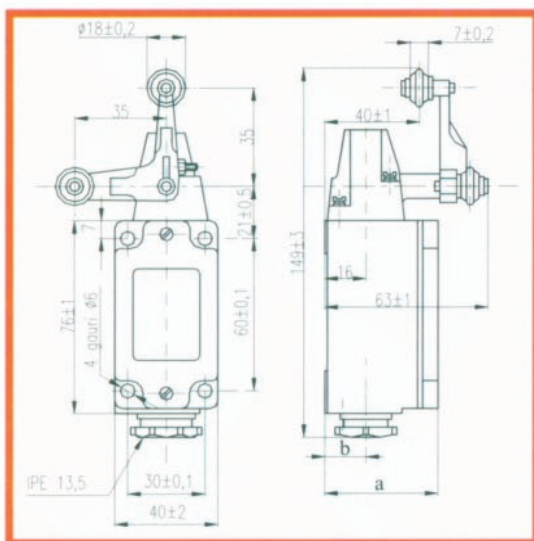
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L122	CS41FB2S CS41FB2SD CS41FB2D			47±1	21
L123	CS42FB2S CS42FB2D CS42FB2SD			47±1	21
L123	CS42FB2SD			47±1	21
L225	CT2FB2S CT2FB2D CT2FB2SD			40±1	16



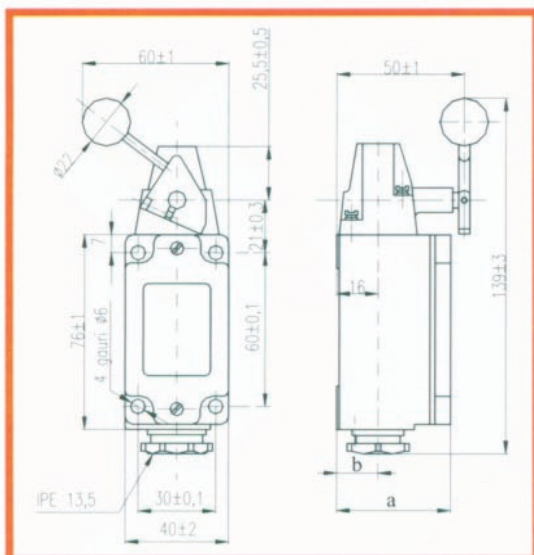
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L125	CS41FB3S CS41FB3D CS41FB3SD			47±1	21
L126	CS42FB3S CS42FB3D CS42FB3SD			47±1	21
L126	CS42FB3SD			47±1	21
L226	CT2FB3S CT2FB3D CT2FB3SD			40±1	16



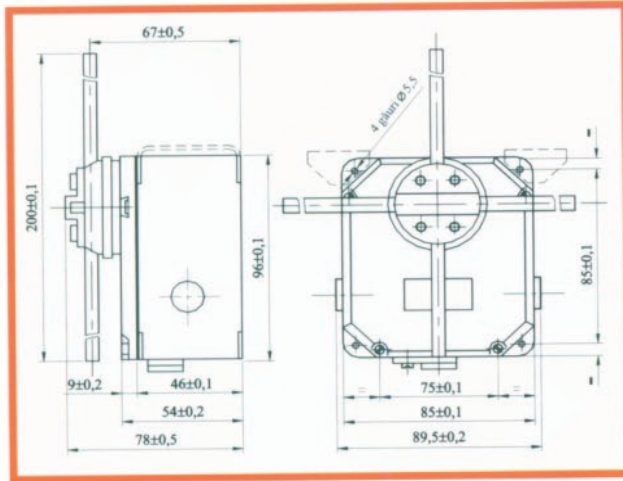
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L128	CS41FB5S CS41FB5SD CS41FB5D			47±1	21
L129	CS42FB5S CS42FB5D CS42FB5SD			47±1	21
L129	CS42FB5SD			47±1	21
L227	CT2FB5S CT2FB5D CT2FB5SD			40±1	16



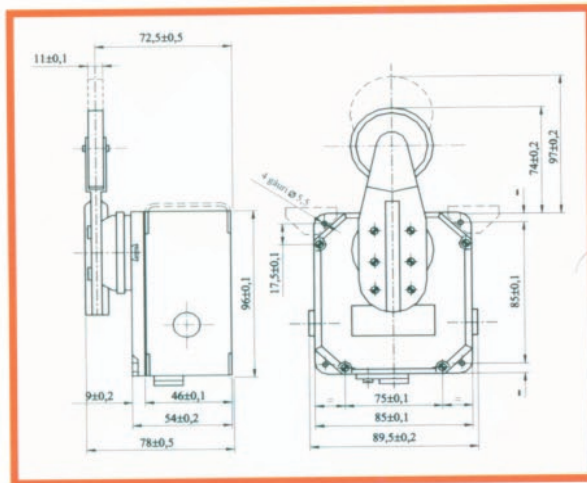
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L132	CS2GB1S CS2GB1D			41±1	16
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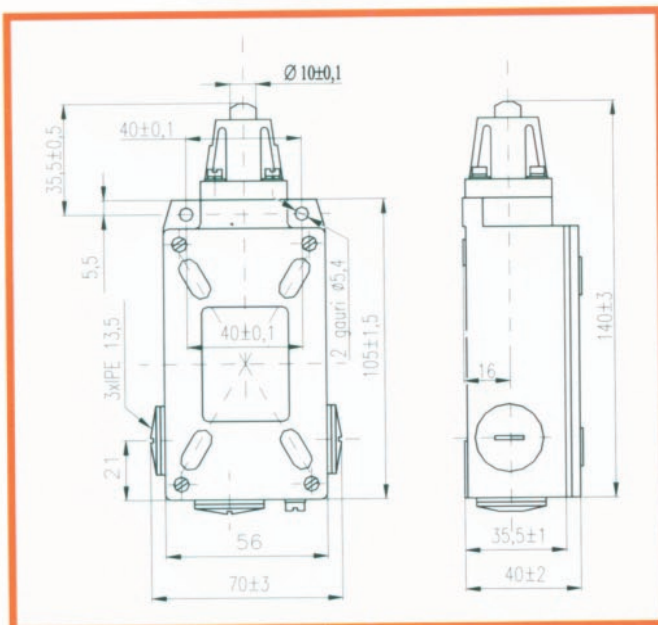
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L229	CT2GB3S CT2GB3D			40±1	16



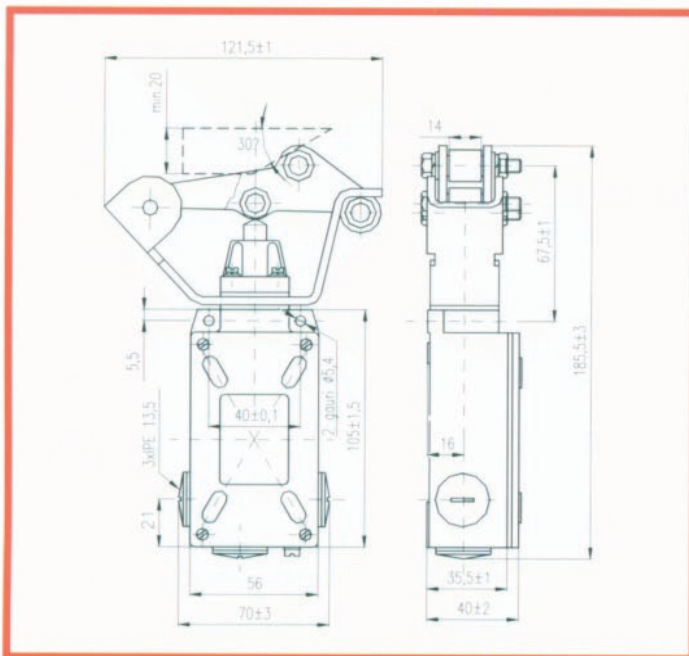
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L137 A	CB41GB2		90° 55°±5° 0° 55°±5° 90° Act.
			40°±5° 40°±5° Rev.
L137 B	CB41GB2		90° 75°±5° 55°±5° 55°±5° 75°±5° 90° Act.
			25° 15° 0° 15° 25° Rev.
L137 C	CB41GB2		90° 55°±5° 0° 55°±5° 90° Act.
			40°±5° 40°±5° Rev.



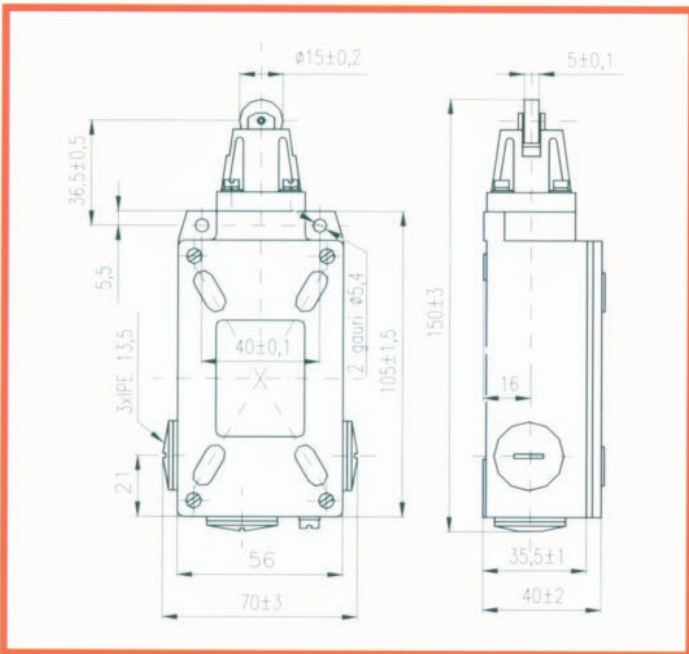
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L138	CS41GB5		55°±5° 30°±5° 0° 30°±5° 55°±5° Act.
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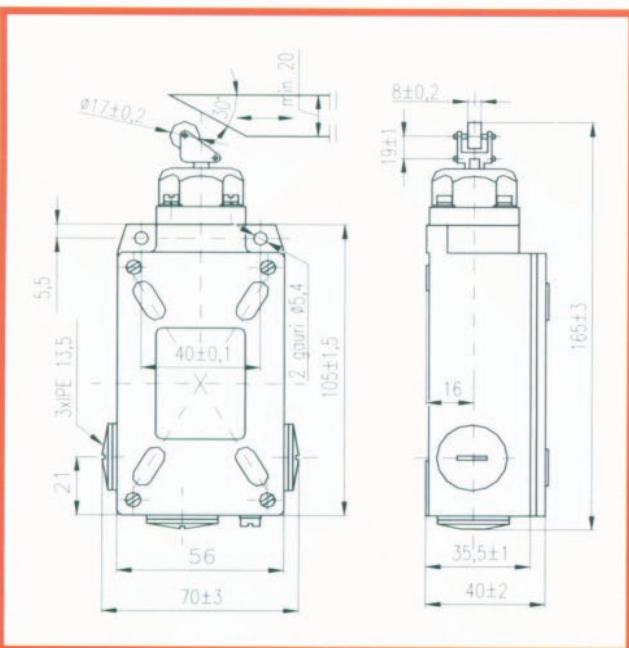
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L142	CT31T		0 1,5±1 3,5±1 6,5±1 Act.
			6-8 Rev.
L143	CT32T		0 1,5±1 3,5±1 6,5±1 Act.
			1-3 Rev.
L144	CT33T		0 1,5±1 6,5±1 Act.
			1-3 Rev.



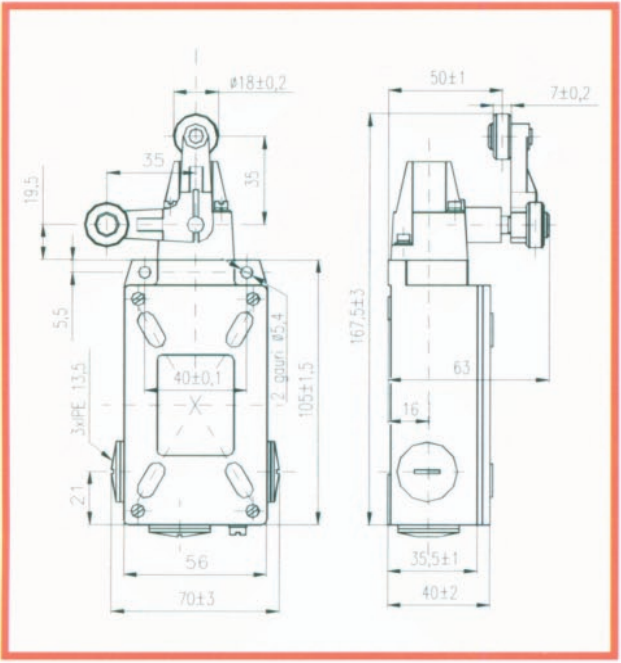
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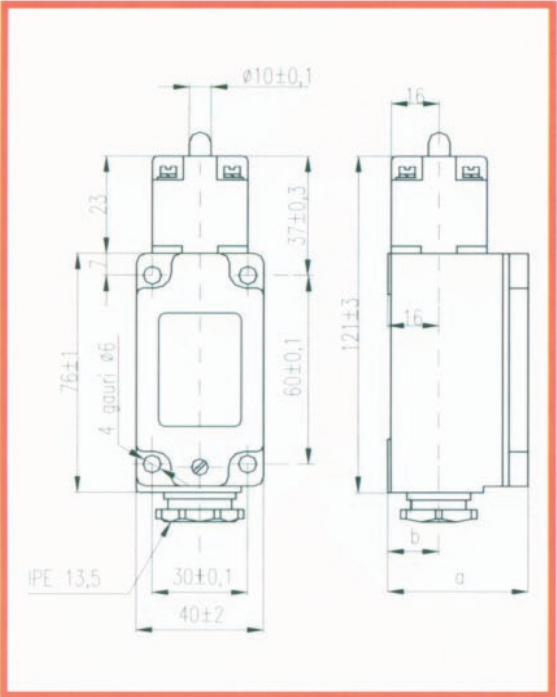
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L150	CT33R		<table border="1"> <tr><th>0</th><th>1,5±1</th><th>6,5±1</th></tr> <tr><td>1-3</td><td>█</td><td></td></tr> <tr><td>5-7</td><td></td><td>█</td></tr> <tr><td>9-11</td><td></td><td></td></tr> <tr><td>1-3</td><td></td><td></td></tr> <tr><td>5-7</td><td></td><td></td></tr> <tr><td>9-11</td><td></td><td></td></tr> </table>	0	1,5±1	6,5±1	1-3	█		5-7		█	9-11			1-3			5-7			9-11									
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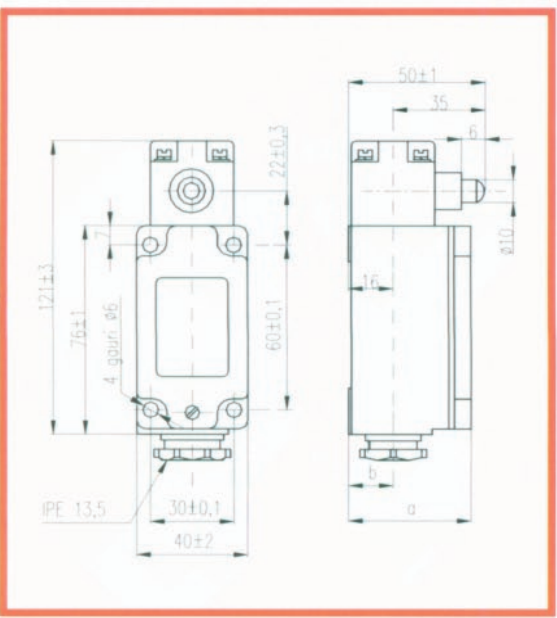
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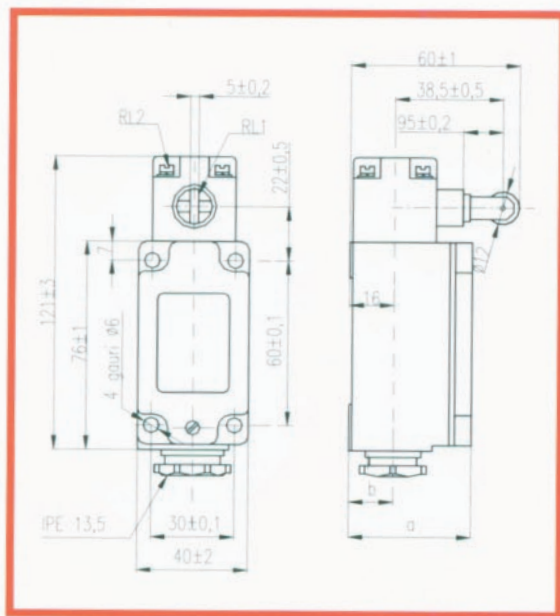
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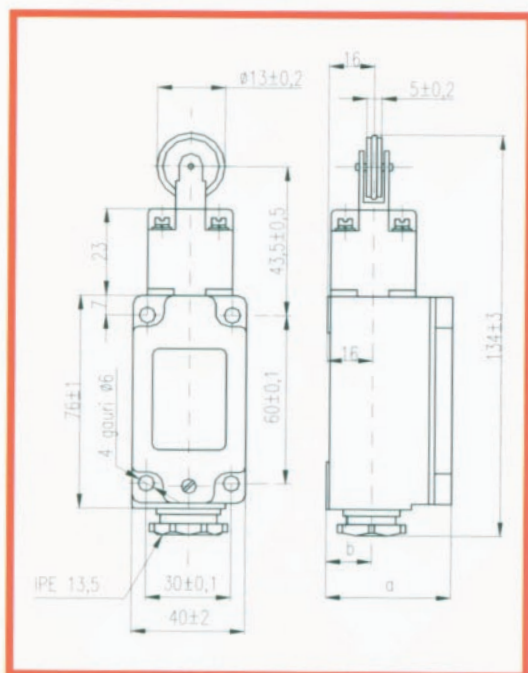
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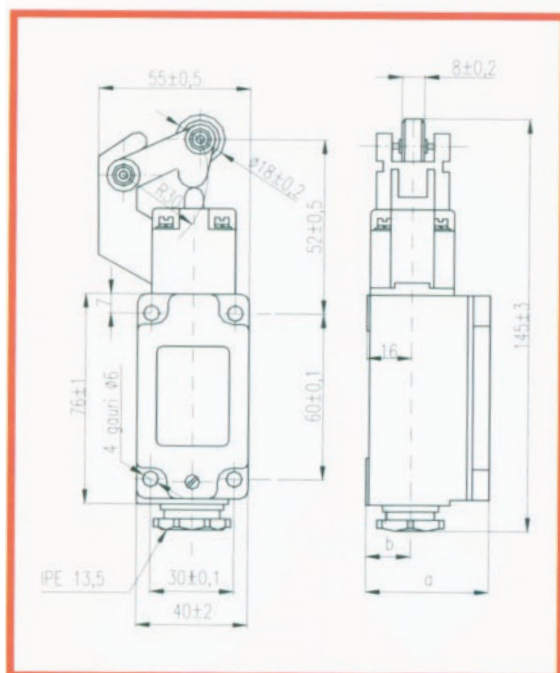
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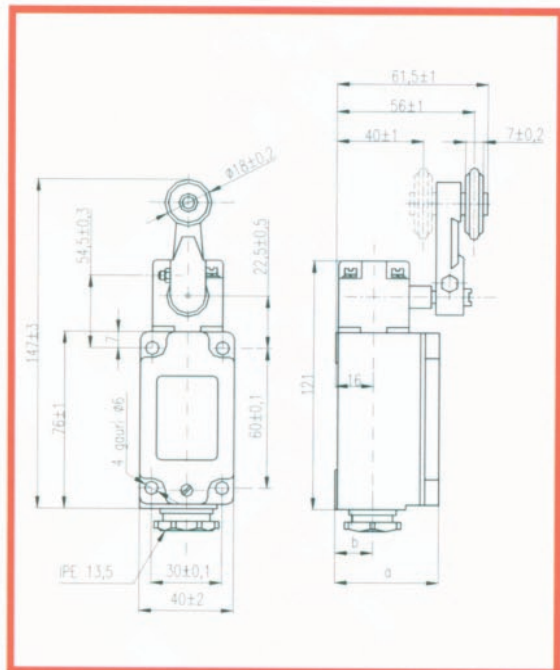
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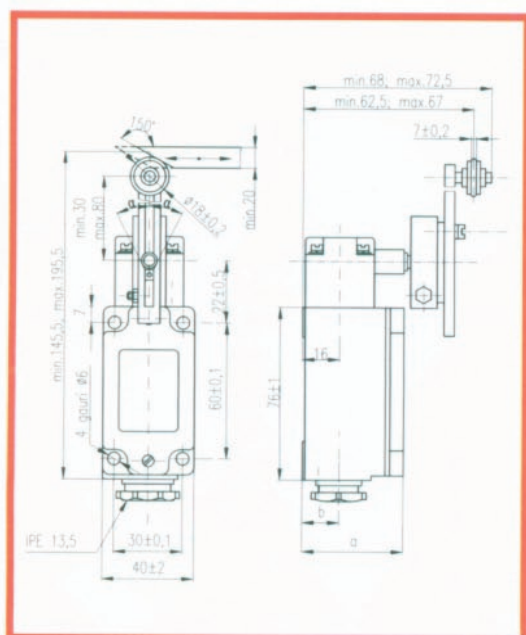
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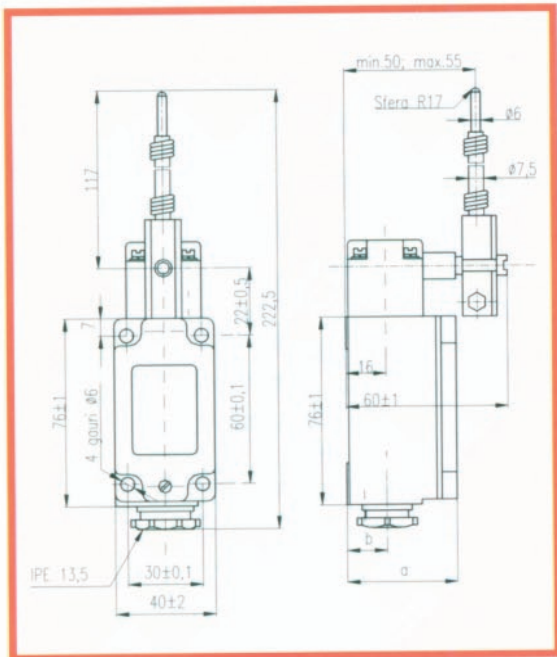
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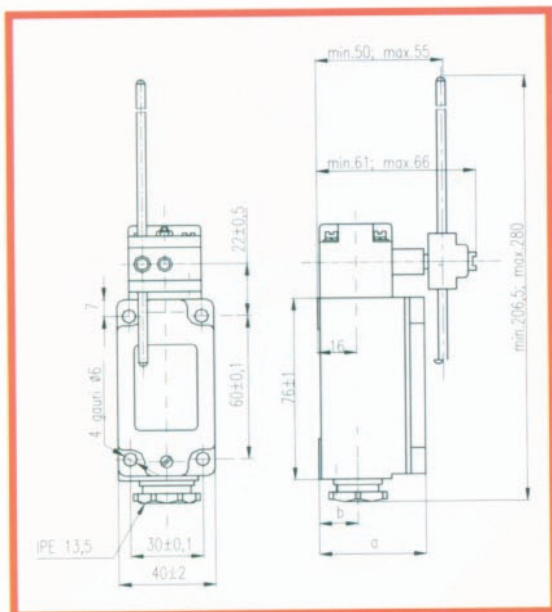
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	MS2FB1D				
	MS2FB1SD				
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	MS41FB1D				
	MS41FB1SD				
L182	MS42FB1S			47±1	21
	MS42FB1D				
	MS42FB1SD				
L182	MS42FB1SD			47±1	21
	MS42FB1SD				
	MS42FB1SD				
L234	MT2FB1S			40±1	16
	MT2FB1D				
	MT2FB1SD				



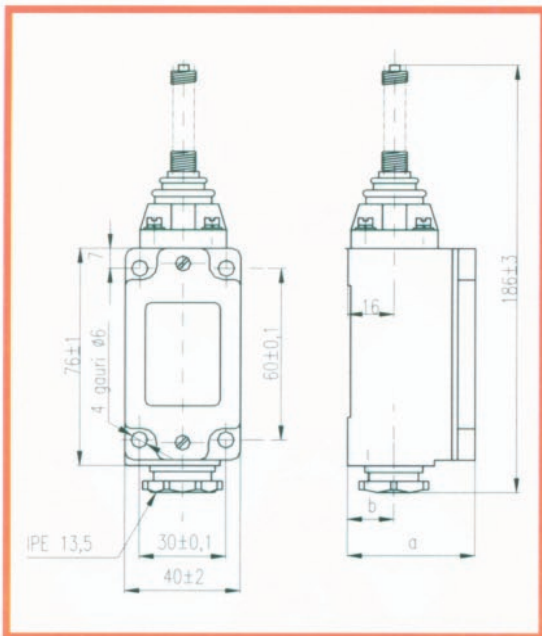
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	MS2FB2SD				
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	MS41FB2D				
	MS41FB2SD				
L185	MS42FB2S			47±1	21
	MS42FB2D				
	MS42FB2SD				
L185	MS42FB2SD			47±1	21
	MS42FB2SD				
	MS42FB2SD				
L235	MT2FB2S			40±1	16
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	MT2FB2SD				



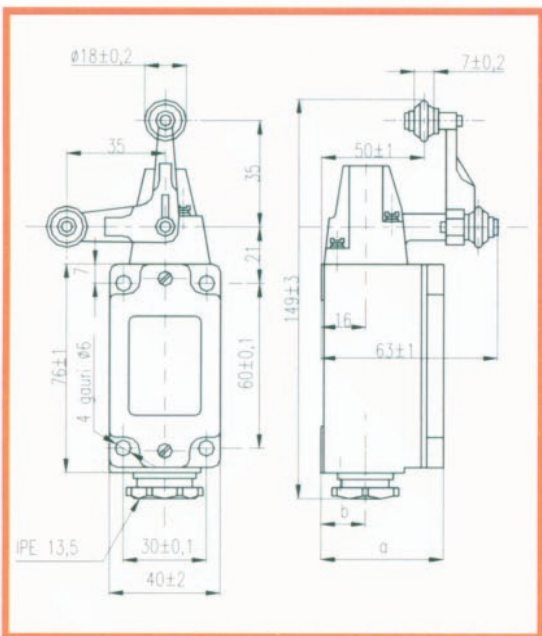
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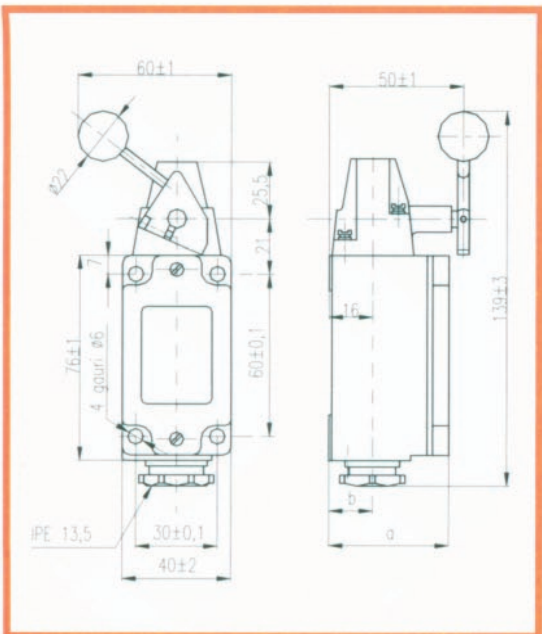
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2-4	6-8	[Diagram]		Act.																										



Cod	Tip	Schemă electrică	Diagrama electrică	a	b																									
L194	MS2GB1S MS2GB1D		<table border="1"> <tr> <td>0°</td> <td>30°±5°</td> <td>55°±5°</td> <td>80°±10°</td> <td></td> </tr> <tr> <td>1-3</td> <td colspan="3">[Diagram]</td> <td>Act.</td> </tr> <tr> <td>2-4</td> <td colspan="3">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>1-3</td> <td colspan="3">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>2-4</td> <td colspan="3">[Diagram]</td> <td>Act.</td> </tr> </table>	0°	30°±5°	55°±5°	80°±10°		1-3	[Diagram]			Act.	2-4	[Diagram]			Rev.	1-3	[Diagram]			Rev.	2-4	[Diagram]			Act.	41±1	16
0°	30°±5°	55°±5°	80°±10°																											
1-3	[Diagram]			Act.																										
2-4	[Diagram]			Rev.																										
1-3	[Diagram]			Rev.																										
2-4	[Diagram]			Act.																										
L195	MS41GB1S MS41GB1D		<table border="1"> <tr> <td>0°</td> <td>30°±5°</td> <td>55°±5°</td> <td>80°±10°</td> <td></td> </tr> <tr> <td>1-3</td> <td>5-7</td> <td colspan="2">[Diagram]</td> <td>Act.</td> </tr> <tr> <td>2-4</td> <td>6-8</td> <td colspan="2">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>1-3</td> <td>5-7</td> <td colspan="2">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>2-4</td> <td>6-8</td> <td colspan="2">[Diagram]</td> <td>Act.</td> </tr> </table>	0°	30°±5°	55°±5°	80°±10°		1-3	5-7	[Diagram]		Act.	2-4	6-8	[Diagram]		Rev.	1-3	5-7	[Diagram]		Rev.	2-4	6-8	[Diagram]		Act.	47±1	21
0°	30°±5°	55°±5°	80°±10°																											
1-3	5-7	[Diagram]		Act.																										
2-4	6-8	[Diagram]		Rev.																										
1-3	5-7	[Diagram]		Rev.																										
2-4	6-8	[Diagram]		Act.																										
L238	MT2GB1S MT2GB1D		<table border="1"> <tr> <td>0°</td> <td>30°±10°</td> <td>50°±10°</td> <td></td> <td></td> </tr> <tr> <td>1-3</td> <td colspan="3">[Diagram]</td> <td>Act.</td> </tr> <tr> <td>2-4</td> <td colspan="3">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>1-3</td> <td colspan="3">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>2-4</td> <td colspan="3">[Diagram]</td> <td>Act.</td> </tr> </table>	0°	30°±10°	50°±10°			1-3	[Diagram]			Act.	2-4	[Diagram]			Rev.	1-3	[Diagram]			Rev.	2-4	[Diagram]			Act.	40±1	16
0°	30°±10°	50°±10°																												
1-3	[Diagram]			Act.																										
2-4	[Diagram]			Rev.																										
1-3	[Diagram]			Rev.																										
2-4	[Diagram]			Act.																										



Cod	Tip	Schemă electrică	Diagrama electrică	a	b																									
L196	MS2GB3S MS2GB3D		<table border="1"> <tr> <td>0°</td> <td>20°±5°</td> <td>55°±5°</td> <td>80°±10°</td> <td></td> </tr> <tr> <td>1-3</td> <td colspan="3">[Diagram]</td> <td>Act.</td> </tr> <tr> <td>2-4</td> <td colspan="3">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>1-3</td> <td colspan="3">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>2-4</td> <td colspan="3">[Diagram]</td> <td>Act.</td> </tr> </table>	0°	20°±5°	55°±5°	80°±10°		1-3	[Diagram]			Act.	2-4	[Diagram]			Rev.	1-3	[Diagram]			Rev.	2-4	[Diagram]			Act.	41±1	16
0°	20°±5°	55°±5°	80°±10°																											
1-3	[Diagram]			Act.																										
2-4	[Diagram]			Rev.																										
1-3	[Diagram]			Rev.																										
2-4	[Diagram]			Act.																										
L197	MS41GB3S MS41GB3D		<table border="1"> <tr> <td>0°</td> <td>20°±5°</td> <td>55°±5°</td> <td>80°±10°</td> <td></td> </tr> <tr> <td>1-3</td> <td>5-7</td> <td colspan="2">[Diagram]</td> <td>Act.</td> </tr> <tr> <td>2-4</td> <td>6-8</td> <td colspan="2">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>1-3</td> <td>5-7</td> <td colspan="2">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>2-4</td> <td>6-8</td> <td colspan="2">[Diagram]</td> <td>Act.</td> </tr> </table>	0°	20°±5°	55°±5°	80°±10°		1-3	5-7	[Diagram]		Act.	2-4	6-8	[Diagram]		Rev.	1-3	5-7	[Diagram]		Rev.	2-4	6-8	[Diagram]		Act.	47±1	21
0°	20°±5°	55°±5°	80°±10°																											
1-3	5-7	[Diagram]		Act.																										
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1-3	5-7	[Diagram]		Rev.																										
2-4	6-8	[Diagram]		Act.																										
L239	MT2GB3S MT2GB3D		<table border="1"> <tr> <td>0°</td> <td>30°±10°</td> <td>50°±10°</td> <td></td> <td></td> </tr> <tr> <td>1-3</td> <td colspan="3">[Diagram]</td> <td>Act.</td> </tr> <tr> <td>2-4</td> <td colspan="3">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>1-3</td> <td colspan="3">[Diagram]</td> <td>Rev.</td> </tr> <tr> <td>2-4</td> <td colspan="3">[Diagram]</td> <td>Act.</td> </tr> </table>	0°	30°±10°	50°±10°			1-3	[Diagram]			Act.	2-4	[Diagram]			Rev.	1-3	[Diagram]			Rev.	2-4	[Diagram]			Act.	40±1	16
0°	30°±10°	50°±10°																												
1-3	[Diagram]			Act.																										
2-4	[Diagram]			Rev.																										
1-3	[Diagram]			Rev.																										
2-4	[Diagram]			Act.																										

LIMITATOARE DE CURSĂ DE ROTAȚIE COD 4471A, 4472A, 4473A, 4474A

Domeniul de utilizare

Limitatoarele de cursă cu rotație se folosesc în schemele de protecție ale mașinilor de ridicat și transportat, fiind montate în cadrul circuitelor principale ale acestora.

Numărul de rotații între două comutații: min. 2 max. 75 rotații

Numărul de rotații în gol la capăt de cursă: 20 rotații

Viteza de rotație a axului: min. 5 rot./min. max. 100 rot./min.

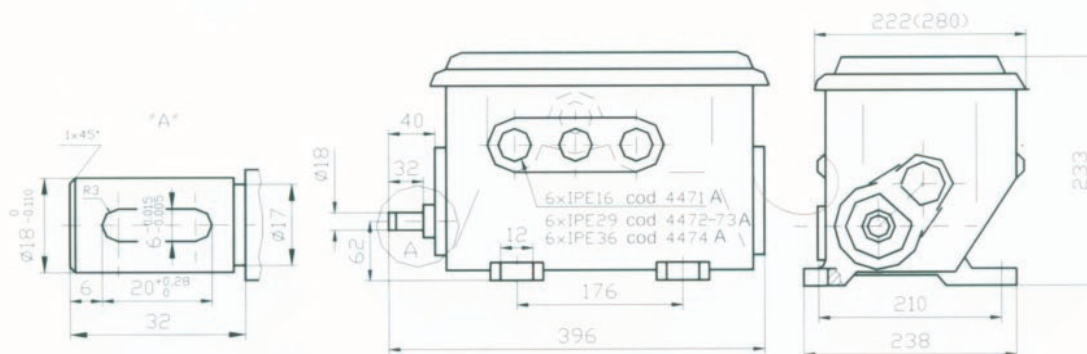
Greutatea: 16,5 Kg.

Material carcasă: Al.

Numărul de contacte: 4 + punctul de nul.

Gradul normal de protecție: IP54.

Dimensiuni de gabarit: (cota 280 este pentru Codul 4474A)



LIMITATOARE DE CURSĂ CU TRANSLAȚIE PENTRU CIRCUITELE SECUNDARE COD 4463, 4464

Domeniul de utilizare

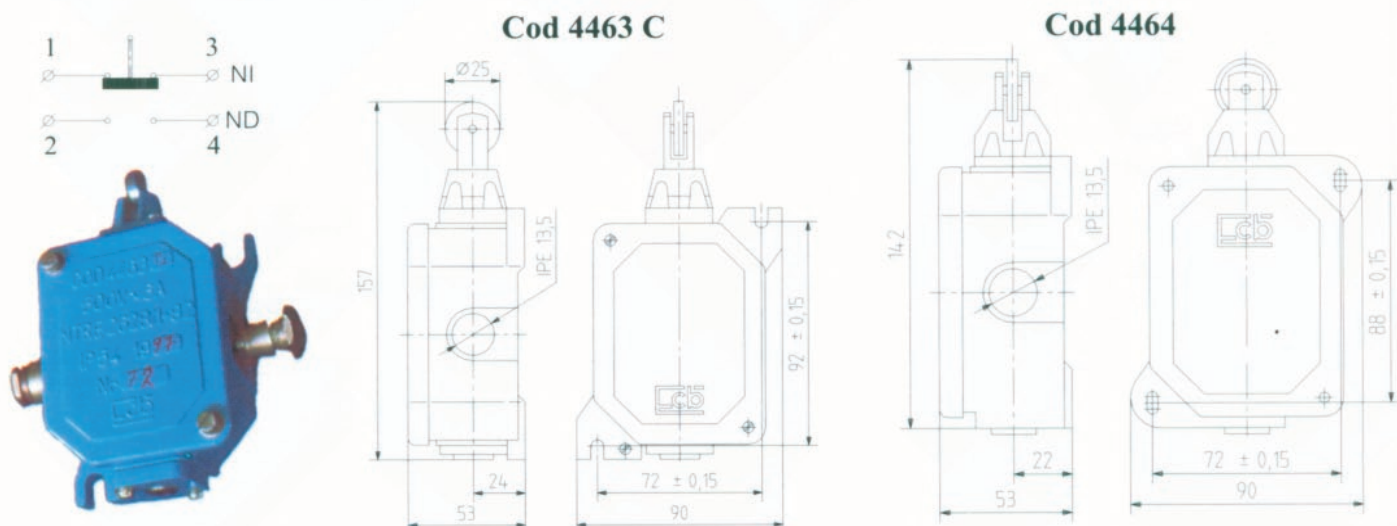
În schemele electrice ale podurilor rulante, fiind montate numai în circuitele secundare ale acestora.

Material carcasă: Al – pentru Codul 4463 C; bachelită – pentru codul 4464.

Numărul de contacte: 2.

Gradul normal de protecție: IP54.

Dimensiuni de gabarit și schema electrică:



LIMITATOARE DE CURSĂ CU PÂRGHIE TIP FURCĂ PENTRU CIRCUITELE SECUNDARE DE 6a COD 4481 A, 4482 A

Domeniul de utilizare

Aceste produse servesc ca element de protecție în schemele electrice ale instalațiilor de ridicat și transportat.

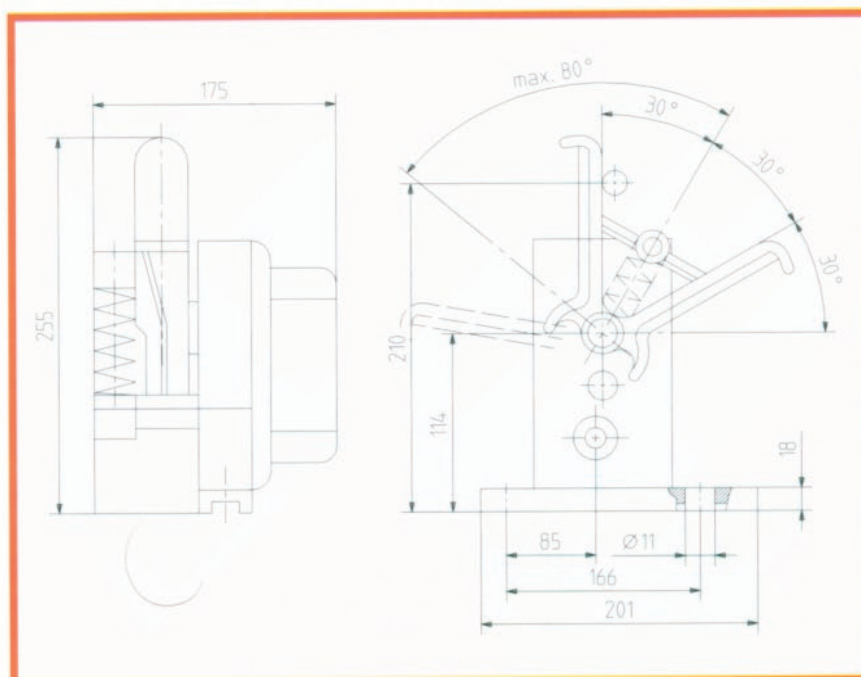
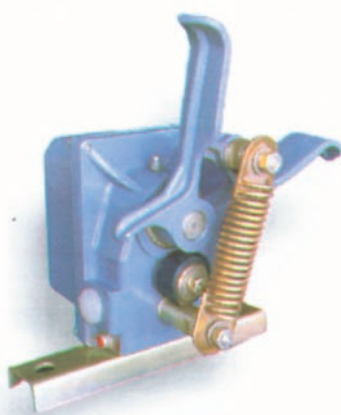
Greutatea: 3,5 Kg.

Material carcasă: Al.

Numărul de contacte: 2 pentru Codul 4481A, 1 pentru codul 4482A.

Gradul normal de protecție: IP54.

Dimensiuni de gabarit și schema electrică:



LIMITATOARE DE CURSĂ CU BRAȚ ȘI ROLĂ PENTRU CIRCUITELE PRINCIPALE COD 4485, 4486

Domeniul de utilizare

Limitatoarele de cursă cu braț și rolă pentru circuitele principale (tip LPP) servesc ca element de protecție în schemele electrice ale instalațiilor de ridicat și transportat, fiind montate în cadrul circuitelor principale ale acestora.

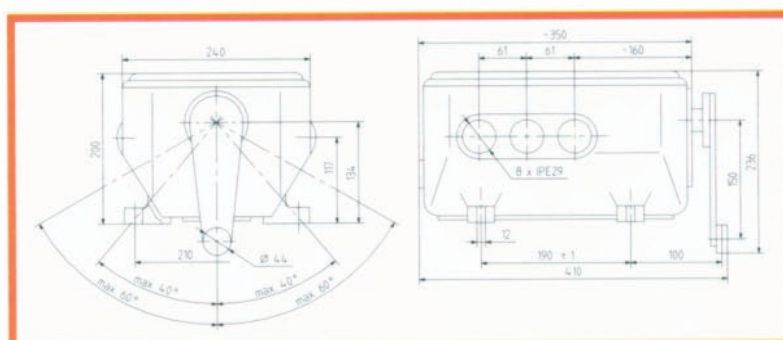
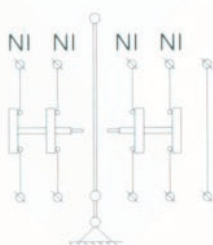
Greutatea: 15 Kg.

Material carcasă: Al.

Numărul de contacte: 4 + punctul de nul.

Gradul normal de protecție: IP54.

Dimensiuni de gabarit și schema electrică:



LIMITATOR DE CURSĂ CU ȘURUB PENTRU CIRCUITELE SECUNDARE COD 4475

Domeniul de utilizare

Limitatorul de cursă cu șurub pentru circuitele secundare se utilizează ca element de protecție în schemele electrice ale podurilor rulante fiind montate în circuitele secundare ale acestora.

Numărul de rotații între două comutații: min. 2 max. 25 rotații

Numărul de rotații în gol la capăt de cursă: 5 rotații la ambele capete.

Viteza de de rotație a axului: min.5 rot./min. max. 100 rot./min.

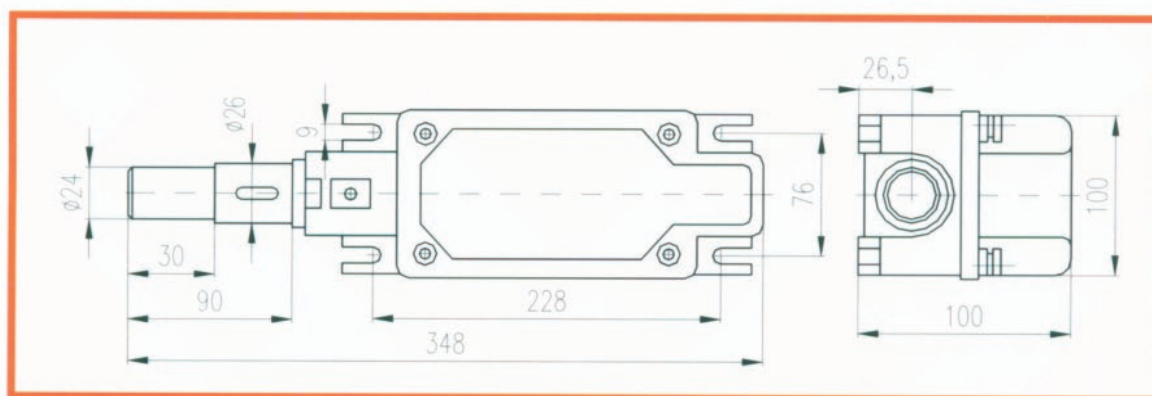
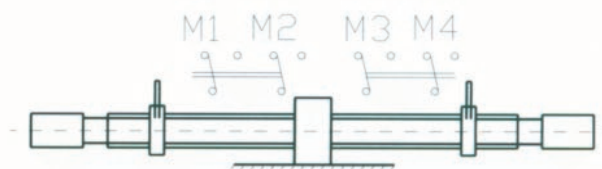
Greutatea: 2,9 Kg.

Material carcasă: Al.

Numărul de contacte: 4.

Gradul normal de protecție: IP54.

Dimensiuni de gabarit și schema electrică:



LIMITATOARE CU CURSĂ CU ȘURUB PENTRU CIRCUITELE SECUNDARE CODE 2330, 2334

Domeniul de utilizare

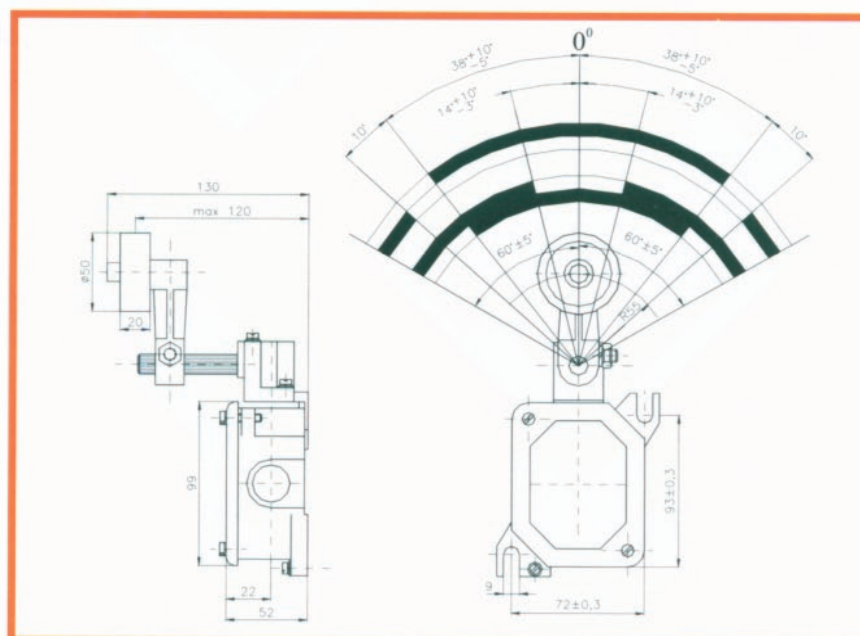
Limitatoarele de cursă cu pârghie se folosesc în schemele de protecție ale mașinilor de ridicat și transportat, fiind montate în cadrul circuitelor secundare ale acestora.

Material carcasă: Al – pentru Codul 2330; tablă – pentru codul 2334.

Numărul de contacte: 1CND + 1CNÎ.

Gradul normal de protecție: IP54.

Dimensiuni de gabarit și diagrama de contacte:



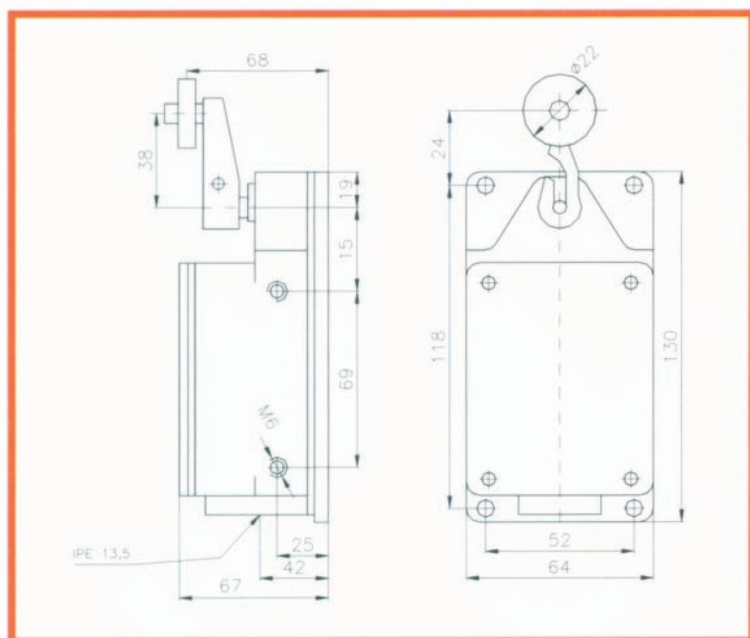
LIMITATOARE DE CURSĂ CU PÂRGHIE PENTRU CIRCUITELE SECUNDARE PENTRU SIDERURGIE TIP L.P.S.S. COD 2260

Domeniul de utilizare

Limitatoarele de cursă tip L.P.S.S. sunt destinate a fi utilizate ca elemente de protecție în schemele de acționare și automatizare ale diferitelor utilaje din sectoarele cu condiții grele de funcționare.

Gradul normal de protecție: IP65.

Dimensiuni de gabarit și diagrame de contacte electrice:



	75°±10°	15°±10°	0	15°±10°	75°±10°	
1-3						A
2-4						R
1-3						R
2-4						R

	75°±10°	15°±10°	0	15°±10°	75°±10°	
1-3						A
2-4						R
1-3						R
2-4						R

	75°±10°	0	10°	20°	75°	
1-3						A
2-4						R
1-3						R
2-4						R

	75°±10°	15°±10°	0	75°±10°	
1-3					A
2-4					R
1-3					R
2-4					R

	75°	15°±10°	0	15°±10°	75°	
1-3						A
2-4						R
1-3						R
2-4						R

	75°±10°	20°	10°	0	75°±10°	
1-3						A
2-4						R
1-3						R
2-4						R

	75°±10°	0	15°±10°	75°±10°	
1-3					A
2-4					R
1-3					R
2-4					R

	75°±10°	15°±10°	0	75°±10°	
1-3					A
2-4					R
1-3					R
2-4					R

	75°±10°	0	15°±10°	75°±10°	
1-3					A
2-4					R
1-3					R
2-4					R

CARACTERISTICI TEHNICE GENERALE

Cod	Tensiunea nominală (V AC)	Tensiunea de serviciu (V AC)	Curentul nominal (A)	Durata relativă de comutare	Frecvența de conectare (con./oră)	Resistența la uzură mecanică (RUM)	Rez. la uzură sub sarcină (RUE)	Temp. mediului ambiant
4471A	660 (500)	380	25	100%	120	25x10 ⁶ rotații	5x10 ⁵ manevre	-30 ⁰ ÷ +60 ⁰ C
4472A			63				3,5x10 ⁵ manevre	
4473A			100				2,5x10 ⁵ manevre	
4474A			200				1,25x10 ⁵ manevre	
4475	660 (500)	380	6	100% for NC 40% for NO	300	5x10 ⁶ manevre	5x10 ⁵ manevre	-30 ⁰ ÷ +60 ⁰ C
4485	660 (500)	380	63		300	10 ⁶ manevre	3,5x10 ⁵ manevre	-30 ⁰ ÷ +60 ⁰ C
4486			100		120		2,5x10 ⁵ manevre	
4481A	660 (500)	380	6	40%	300	10 ⁶ manevre	5x10 ⁵ manevre	-30 ⁰ ÷ +60 ⁰ C
4482A								
4463	500	380	10		300	2x10 ⁶ manevre	1,5x10 ⁴ manevre	-30 ⁰ ÷ +60 ⁰ C
4464								
2330	500	500, 380	10	100%	300	10 ⁶ manevre	1,5x10 ⁴ manevre	-30 ⁰ ÷ +60 ⁰ C
2334				40%				
2260	500	380	16		360	10 ⁶ manevre	5x10 ⁵ manevre	-35 ⁰ ÷ +75 ⁰ C

MICROÎNTRERUPĂTOARE CAPSULATE

1. Domeniul de utilizare

În schemele electrice de acționare și automatizare ale diverselor instalații industriale, mașini utilaje sau în alte scopuri similare.

2. Funcții

De comandă în instalațiile electrice automatizate.

3. Condiții de utilizare

3.1. Temperatura mediului ambiant: $-33 \dots +40^{\circ} \text{C}$
 $-25 \dots +70^{\circ} \text{C}$ pentru cod L201

3.2. Umiditatea relativă: $95\%+3\%$ la 25°C
 max. 90% la 20°C
 max. 50% la 40°C

3.3. Altitudinea: max. 2000m.

4. Caracteristici tehnice: tabel 1; tabel 2

Tabel 1

Nr. crt.	Denumirea	Tip carcasă	Cod	Forța de acționare Fa (gf)	Forța de revenire	Unghiul de acționare Cursa de acționare	Unghiul de revenire Cursa de revenire	Cursa de contact (mm)	Schema electrică	Unghiul maxim Cursa maximă
1	Limitator de cursă pentru mașini unelte	siluminiu masă plastică	6102 6102M	100÷300	1/3 Fa	4°	7°	4,8	1	9°
2	Limitator de mers în gol	siluminiu masă plastică	6122A 6122M	300÷500	1/3Fa	$15^{\circ}+16^{\circ}$	$8^{\circ}+9^{\circ}$	2	1	20°
3	Microîntrerupător tip CM capsulat cu tijă cu fixare frontală	siluminiu masă plastică	6131A 6131AM	100÷300	1/3Fa	0,5÷2 mm	0,2÷0,6 mm	3	1	5 mm
4	Microîntrerupător tip CM capsulat cu rolă cu fixare laterală	siluminiu masă plastică	6132A 6132AM	100÷300	1/3Fa	0,5÷2 mm	0,2÷0,6 mm	3	1	5 mm
5	Microîntrerupător tip CM capsulat cu rolă cu fixare frontală	siluminiu masă plastică	6136A 6136AM	300÷400	1/3Fa	0,5÷2 mm	0,2÷0,6 mm	3	1	11°
6	Microîntrerupător tip CM capsulat cu rolă cu fixare laterală	siluminiu masă plastică	6137A 6137AM	300÷400	1/3Fa	0,5÷2 mm	0,2÷0,6 mm	3	1	11°
7	Microîntrerupător tip CM capsulat pentru autovehicule	siluminiu	6140	$1750 \pm 15\%$	1/3Fa	1,3÷2,1 mm	0,2÷0,6 mm	2	1	4,1 mm
8	Microîntrerupător tip CM capsulat de uz general cu tijă și rolă	siluminiu masă plastică	6210 6210M	180÷450	1/3Fa	0,3÷2 mm	min.0,06 mm	1÷4	1	6 mm
9	Microîntrerupător tip CM capsulat de uz general cu tijă și rolă	siluminiu masă plastică	6210A 6210AM	180÷450	1/3Fa	0,3÷2 mm	min.0,06 mm	1÷4	1	6 mm
10	Microîntrerupător tip CM capsulat de uz general cu tijă și rolă	siluminiu masă plastică	6211 6211M	180÷450	1/3Fa	0,3÷2 mm	min.0,06 mm	1÷4	1	6 mm
11	Microîntrerupător tip CM capsulat de uz general cu tijă și rolă	siluminiu masă plastică	6211A 6211AM	180÷450	1/3Fa	0,3÷2 mm	min.0,06 mm	1÷4	1	6 mm
12	Microîntrerupător tip AM capsulat cu tijă telescopică scurtă	siluminiu masă plastică	6212 6212M	500÷700	1/3Fa	max. 1,7 mm	0,1÷0,5 mm	min. 1	1	3,5 mm
13	Microîntrerupător tip AM capsulat cu tijă telescopică scurtă cu cap sferic	siluminiu masă plastică	6212B 6212BM	500÷700	1/3Fa	max. 1,7 mm	0,1÷0,5 mm	min. 1	1	3,5 mm
14	Microîntrerupător tip AM capsulat cu tijă telescopică lungă	siluminiu masă plastică	6212A 6212AM	600÷900	1/3Fa	max. 3 mm	0,1÷0,4 mm	min. 3	1	5,5 mm
15	Limitator de cursă cu acționare laterală tip LTL *	siluminiu masă plastică	L201	1700÷2000	1/3Fa	2,5÷7,5 mm	0,5÷3,5 mm	max. 7,5	2	10 mm
16	Microîntrerupător tip H capsulat cu tachet	siluminiu masă plastică	L301 L301M	700÷1800	1/3Fa	max.1,5 mm	0,5÷1,5 mm	min. 0,5	1	2,5 mm
17	Microîntrerupător tip H capsulat cu tijă sferică	siluminiu masă plastică	L301S L301SM	700÷1800	1/3Fa	max.1,5 mm	0,5÷1,5 mm	min. 0,5	1	2,5 mm

* produs scos din fabricație

18	Microîntrerupător tip H capsulat cu rolă	siluminiu masă plastică	L301R L301RM	700÷1800	1/3Fa	max.1,5 mm	0,5÷1,5 mm	min. 0,5	1	2,5 mm
19	Microîntrerupător tip KB capsulat	siluminiu	L302 L302S L302R	900÷1900	1/3Fa	2±0,2 mm	0,4÷1,5 mm	max. 3	1	5 mm
20	Microîntrerupător tip M necapsulat *		M100	100÷300	1/3Fa	0,5÷2 mm	0,2÷0,6 mm	3	3	5 mm
21	Microîntrerupător tip CM necapsulat		M107	600÷1000	1/3Fa	1,8÷2,8 mm	0,2÷0,6 mm	0,8÷1,2	3	5 mm

Tabel 2

Nr. crt.	Caracteristica Cod	Tensiunea nominală de izolare (V)		Curent nominal termic (A)	Tensiunea nominală de utilizare (V)		Curentul nominal de utilizare (A)		Frecvența nominală (Hz)	Frecvența maximă de acționare (Con/h)	Durata de acționare	Factorul de putere (cosj)	Constanta de timp L/R (ms)	Gradul de protecție (IP)
		AC	DC		AC	DC	AC	DC						
1	6212 6212M	380	220	10	380 220	220 110 60 24	2 10	0,3 0,5 3 6	40...60	1800	100%	0,3	5	54
2	6212A 6212AM													
3	6212B 6212BM													
4	L301 L301M	220	-	5	220 125	48 24	2 5	1 1,5						66
5	L301S L301SM													
6	L301R L301RM													
7	6102 6102M	380	60	4	380 220	48 24	4	0,5						42
8	6122A 6122M													
9	6140													
10	6132A 6132AM 6136A 6136AM													
11	6137A 6137AM													
12	6131A 6131AM													
13	6210 6210M													
14	6210A 6210AM													
15	6211 6211M 6211A 6211AM													
16	M100 *													
17	M107													
18	L201 *	380	-	10	380 250 220	110 60 24	6 8; 6 10	1 3 6						64
19	L302													
20	L302S													
21	L302R	380	-	10	380 250 220	110 60 24	6 8; 6 10	1 3 6						54
16	M100 *													
17	M107													

5. Scheme electrice:



schema 1

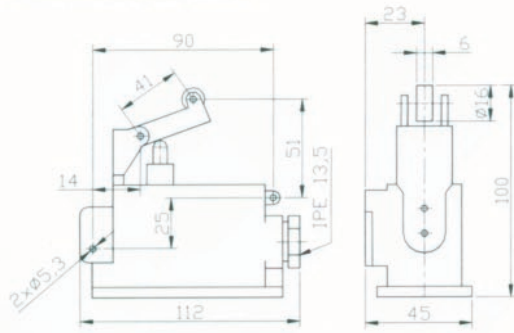


schema 2

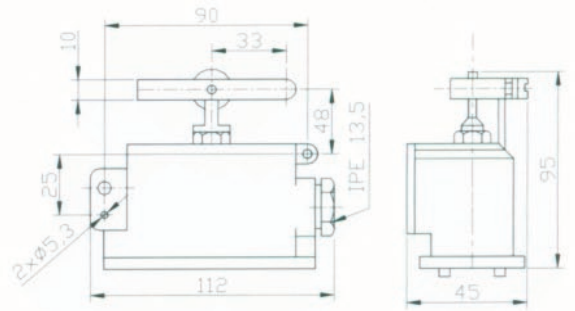


schema 3

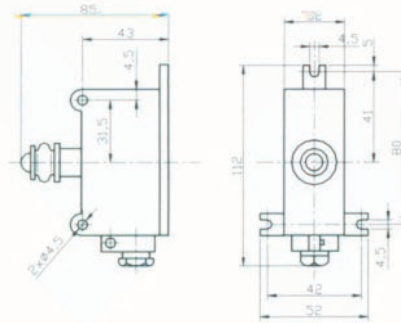
Dimensiuni de gabarit:



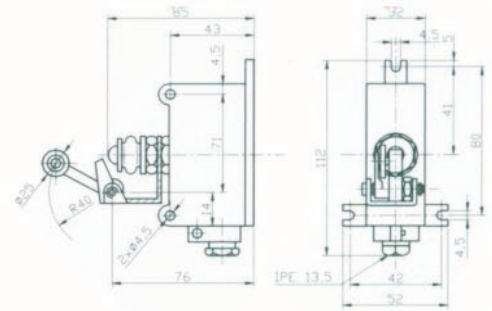
Cod: 6102, 6102M



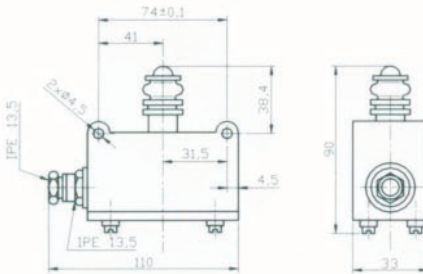
Cod: 6122A, 6122M



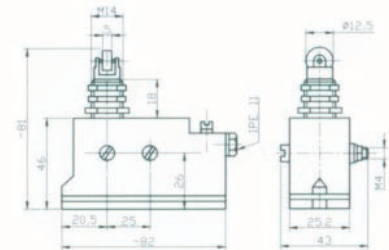
Cod: 6131A - 6132A; 6131AM - 6132AM



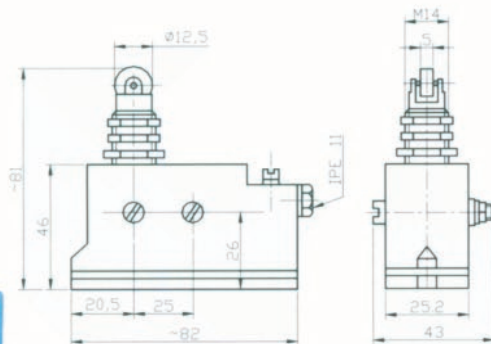
Cod: 6136A - 6137A; 6136AM - 6137AM



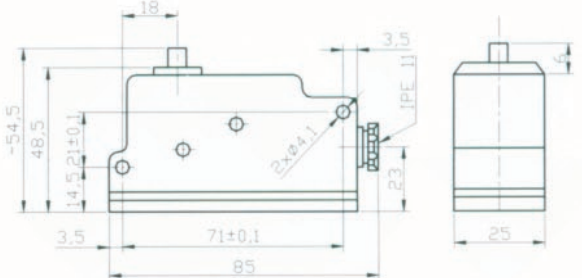
Cod: 6140



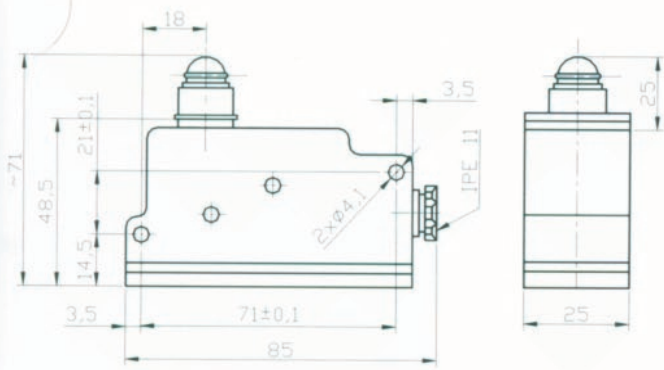
Cod: 6210 - 6210A
6210M - 6210 AM



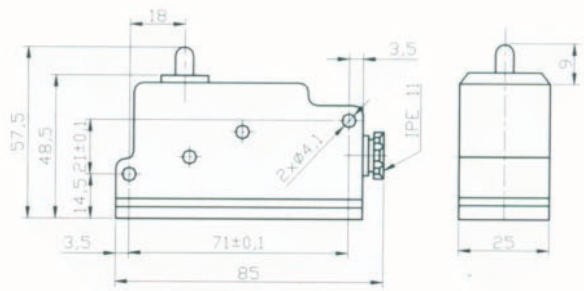
Cod: 6211 - 6211A
6211M - 6211AM



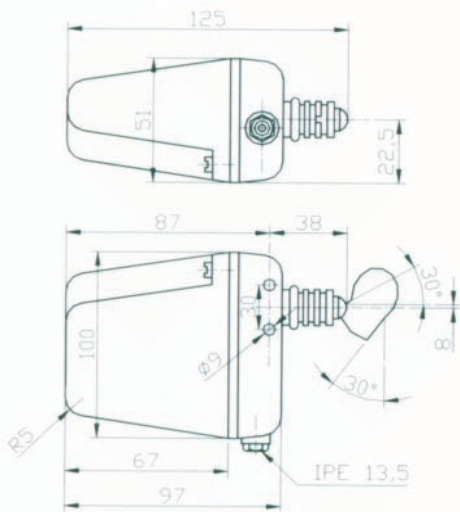
Cod: 6212 - 6212M



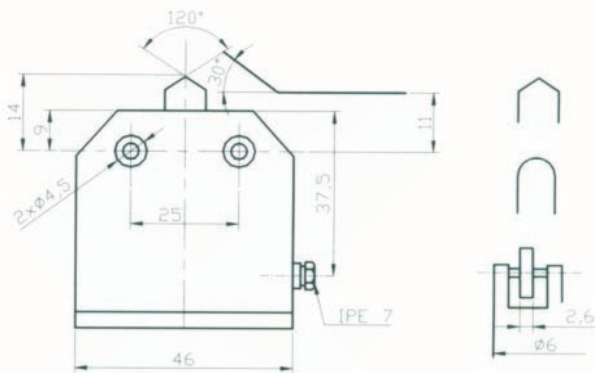
Cod: 6212A - 6212AM



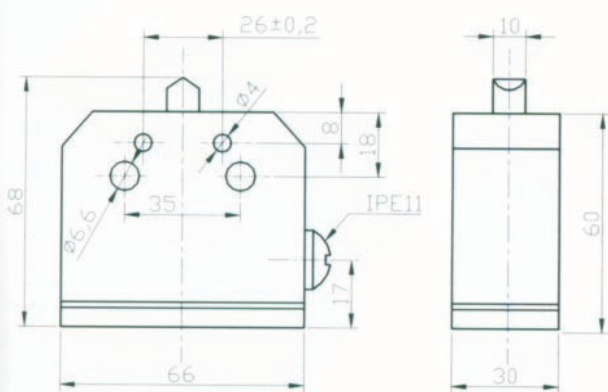
Cod: 6212B - 6212BM



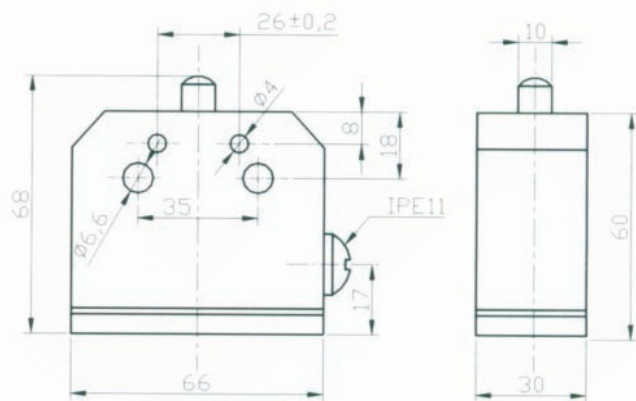
Cod: L201 *



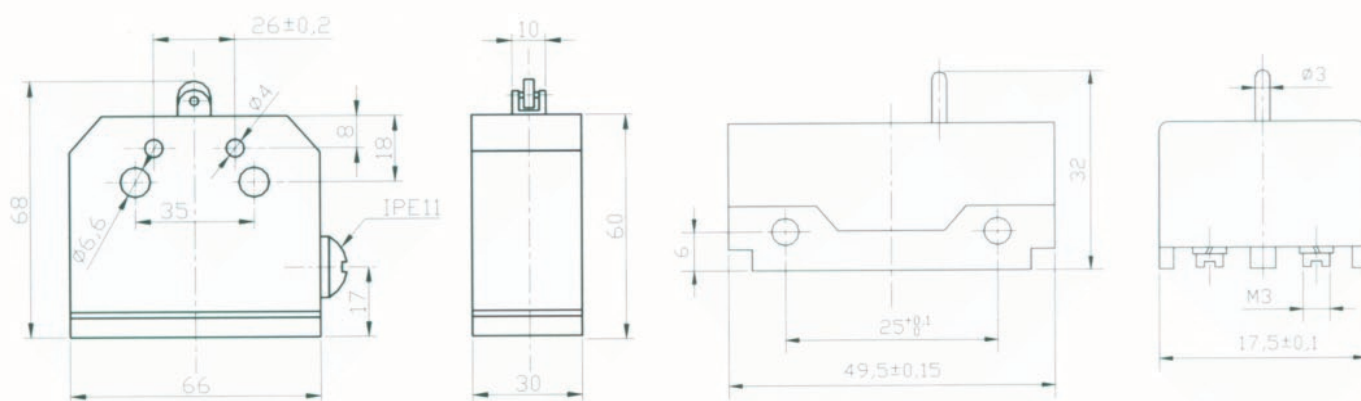
Cod: L301, L301M, L301S, L301SM, L301R, L301RM



Cod: L302

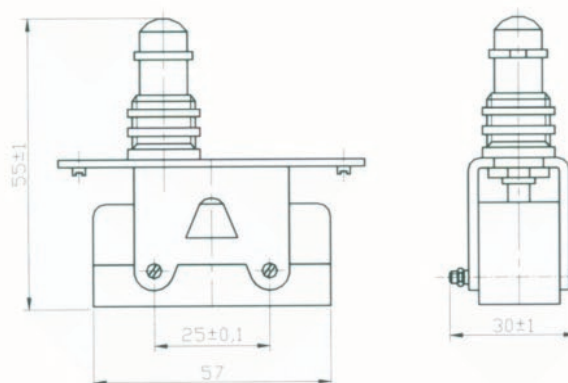


Cod: L302S



Cod: L302R

Cod: M100 *



Cod: M107

BLOCURI CU MICROÎNTRERUPĂTOARE

1. Domeniul de utilizare

Blocurile cu microîntrerupătoare sunt utilizate în instalațiile de automatizare a comenzilor mașinilor-unelte.

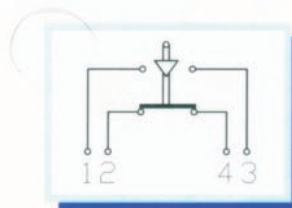
2. Părți componente

2.1. Carcasă de siluminiu

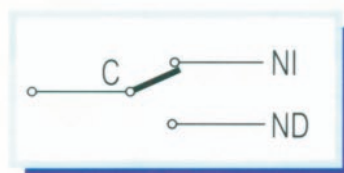
2.2. Capac

2.3. Sistem de comutare (microîntrerupătoare)

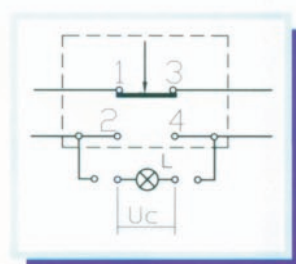
2.3.1. Microîntrerupătoare cu contact cu rupere bruscă și circuite separate pentru pas de 16 mm și 12 mm.



2.3.2. Microîntrerupătoare cu contact cu rupere bruscă și circuit cu punct comun pentru pas 8 mm.



2.3.3. Microîntrerupătoare cu contact cu rupere bruscă și circuite separate, cu semnalizarea schimbării stării contactelor pentru pas 16 mm și pas 12 mm (microîntrerupătoare cu semnalizare luminoasă).



U_c - tensiunea de comandă

$U_c=6; 12; 18; 24; 36; 48; 60; 110; 220; 380V$

3. Sistem de acționare

3.1. cu tchet



3.2. sferic



simbol S

3.3. cu rolă



simbol R

Viteza de acționare

10 mm/min

8 m/min

15 m/min.

4. Condiții de lucru

4.1. Blocurile cu microîntrerupătoare sunt destinate a funcționa în medii specifice halelor industriale.

4.2. Temperatura mediului ambiant: $-15 \dots +55^{\circ}C$

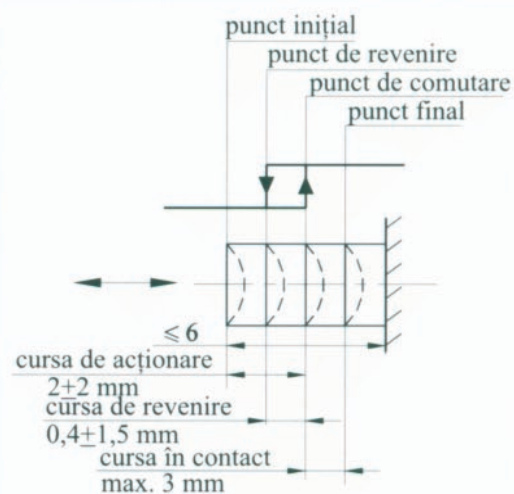
4.3. Umiditatea relativă: $95\%+3\%$ at $25^{\circ}C$

5. Caracteristici tehnice

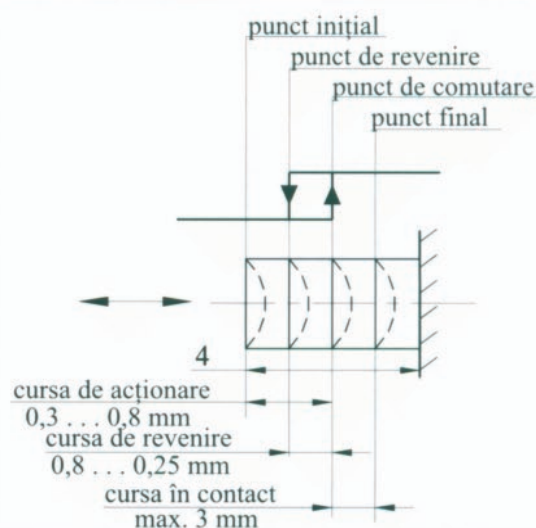
Nr. crt.	Tipul aparatului	Tensiunea nominală de izolare Un (V)	Curentul nominal termic In (A)	Tensiunea de utilizare Ue (V)	Curent de utilizare (A)				Uzura electrică (cicluri)	Uzura mecanică (cycles)
					Cosφ=0,3	Cosφ=0,8	L/R (ms)	L/R (ms)		
1	Blocuri cu microîntrerupătoare pas 16 mm	380 AC	10	380		6			42x10 ⁴	10 ⁶
				250		8			25x10 ⁴	
						6			10x10 ⁴	
				220	10	10	0,3		50x10 ⁴	
									100x10 ⁴	
									42x10 ⁴	
				110				1	10x10 ⁴	
60				3	30x10 ⁴					
24				10	5	2x10 ⁴				
					6	10x10 ⁴				
2	Blocuri cu microîntrerupătoare pas 12 mm	380 AC	10	380		6			50x10 ⁴	10 ⁶
				250		8			30x10 ⁴	
						6			80x10 ⁴	
				220	10	10	0,3		10x10 ⁴	
					2				50x10 ⁴	
					1				100x10 ⁴	
				110				1	10x10 ⁴	
60				3	30x10 ⁴					
24				10	5	2x10 ⁴				
					6	10x10 ⁴				
2	Blocuri cu microîntrerupătoare pas 8 mm	220 AC	5	380	2				10x10 ⁴	10 ⁶
				250	0,1				100x10 ⁴	
					1					
				125	5				10x10 ⁴	
				48				1	10x10 ⁴	
24					1,5					

6. Diagrame de comutație

Blocuri cu microîntrerupătoare pas 16 mm și pas 12 mm

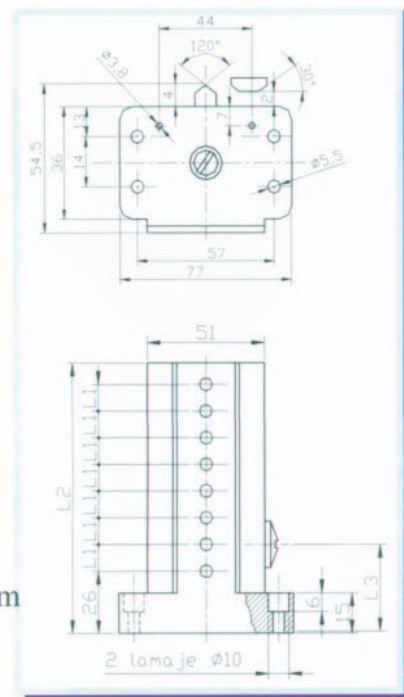


Blocuri cu microîntrerupătoare pas 8 mm



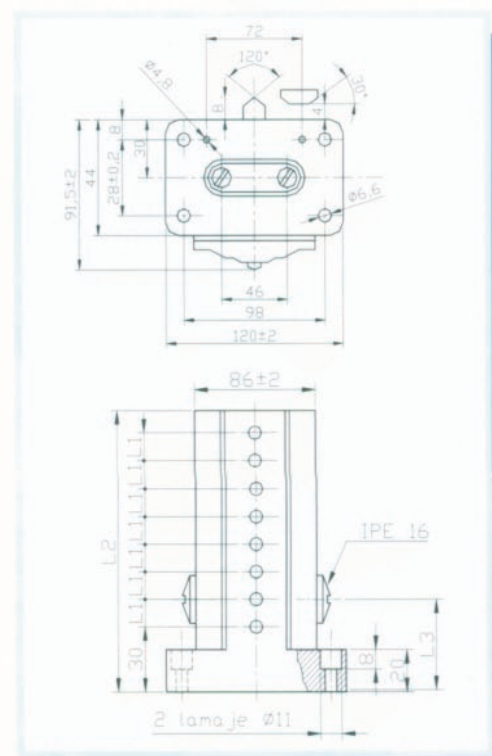
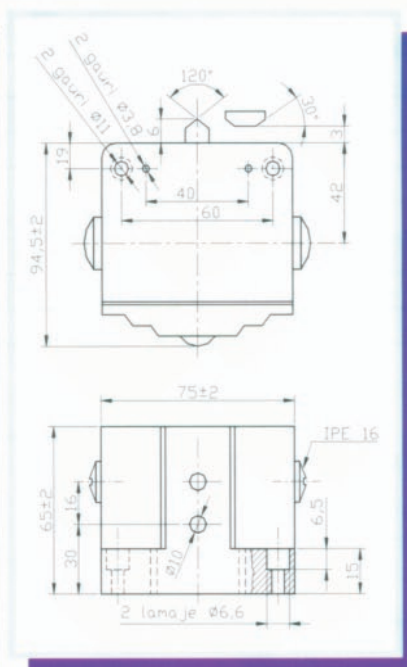
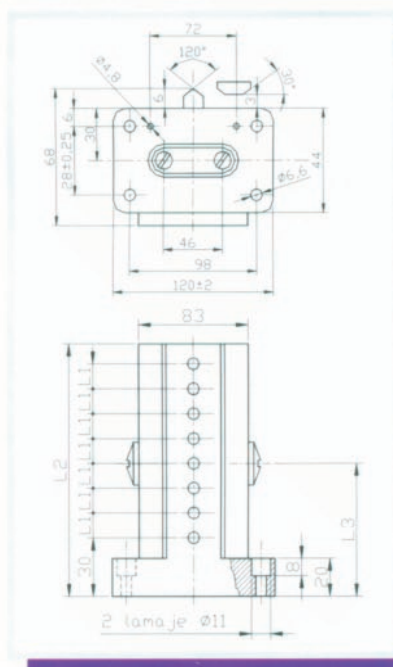
7.3. Blocuri cu microîntrerupătoare pas 8 mm

Nr. microîntr.	2		4		6		8	
	6238		6226		6227		6228	
Cod	S	R	S	R	S	R	S	R
L1	8	8	8	8	8	8	8	8
L2	52	52	68	68	68	84	84	100
L3	30	30	30	30	30	30	30	30
Nr. racorduri IPE16	1	1	1	1	1	1	1	1
Nr. racorduri IPE11	1	1	1	1	1	1	1	1



7.4. Blocuri cu microîntrerupătoare cu semnalizare luminoasă pas 16 mm

Nr. microîntr.	2		2		4		6		8	
	6219		6219A		6230		6232		6234	
Code	S	R	S	R	S	R	S	R	S	R
L1	16	16	16	16	16	16	16	16	16	16
L2	64	64	65	65	98	98	128	128	160	160
L3	38	38	46	46	42	42	61	61	77	77
Nr. racorduri IPE16	4	4	2	2	4	4	4	4	4	4



7.5. Blocuri cu microîntrerupătoare cu semnalizare luminoasă pas 12 mm

Nr. microîntr.	4		6		8	
	6231		6233		6235	
Cod	S	R	S	R	S	R
L1	12	12	12	12	12	12
L2	85	85	109	109	109	133
L3	46	46	46	46	46	46
Nr. racorduri IPE 16	4	4	4	4	4	4