

RLS-51 Geared Cam Limit Switches

Rotary CAM Limit Switches allow a set of limit switches to be fitted to translating or rotating screw jacks by mounting them directly to the screw jacks worm shaft or in-directly via connecting shafts or gearboxes linking to the screw jacks worm shaft. These limit switches are fully adjustable for position over the entire length of the screw jacks stroke. RLS-51 limit switch features include:-

- Usable revolutions from 4.1 to 16,000
- 2 to 8 position limit switch units
- Enclosure IP66 as standard
- Mounting options for B5 Flange, B14 Face and B3 Foot mounted
- Available in three voltages 250V AC, 24V DC & 80V DC
- Modular design to allow a variety of options
- Operating Temperature: -40°C to +80°C

Illustrated Examples

All units shown are of the 2 limit switch type.



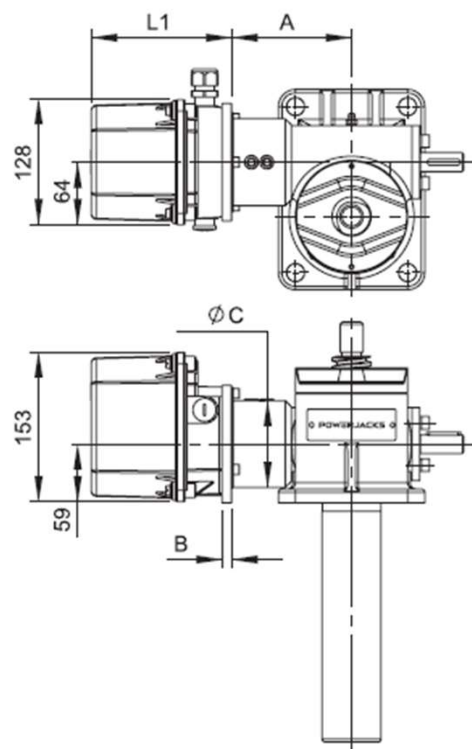
B14 Face Mount



B3 Foot Mount



B5 Flange Mount



Rotary limit switches can be used as end of travel limit switches, with the option of intermediate switches as well. These units are mounted onto a screw jacks free worm shaft and offer an alternative where bottom pipe mounted limit switches are not possible e.g. rotating screw jacks. Up to 8 limit switches can be accommodated in one enclosure (IP66). Operating temperature -40°C to +80°C.

More RLS-51 rotary limit switch details in System Components section of design guide

Screw Jack Capacity (kN)								
Adapter Mounting	Std. Part	25			Std. Part	50		
		A	B	ØC		A	B	ØC
B5	x	-	-	-	x	-	-	-
B14	✓	117	10	70	✓	133	10	89

Screw Jack Capacity (kN)								
Adapter Mounting	Std. Part	100			Std. Part	200		
		A	B	ØC		A	B	ØC
B5	✓	150	13	98	✓	174	13	125
B14	x	-	-	-	x	-	-	-

The mounting kit includes the flexible coupling and drive adapter.

Gear Size	Usable revs. selected	Usable revs. theoretical with 15° cam discs	Gear Ratio	1 rev. of the drive shaft - corresp. to an ang. motion of cam disc =°	Change - over contact reset rev. at driving shaft	Max drive speed (RPM)	Min drive shaft speed (only for change - over contact)	L1 (mm)			
								Limit Switches			
								2	4	6	8
1	4.1	4.16	4.285	84	0.00714	1000	0.67	132	132	157	157
	6.5	6.88	7.083	50.8	0.0118	1200	1.1				
	11	11.23	11.56	31.14	0.0193	1500	1.8				
2	17.5	17.84	18.361	19.6	0.0306	1800	2.9	132	132	157	182
	29	29.5	30.35	11.86	0.0505	1800	4.7				
	48	48.13	49.538	7.27	0.0825	1800	7.7				
3	75	76.45	78.678	4.57	0.131	1800	12.2	132	132	157	182
	125	126.39	130.054	2.77	0.2166	1800	20.2				
	205	206.26	212.272	1.69	0.3536	1800	33				
4	323	327.6	337.135	1.06	0.5616	1800	52	132	157	182	207
	540	541.5	557.284	0.65	0.9284	1800	87				
	880	883.8	909.59	0.4	1.515	1800	141				
5	1384	1403.7	1444.62	0.25	2.406	1800	224	132	157	182	207
	2288	2320.2	2387.96	0.15	3.978	1800	371				
	3735	3787.1	3897.58	0.09	6.493	1800	606				
6	5900	6014.77	6190.204	0.06	10.313	1800	*	157	157	182	207
	9800	9942.2	10232.407	0.04	17.047	1800	*				
	16000	16227.6	16701.17	0.02	27.824	1800	*				

Note

1. More than 8 contacts on request.
2. Dimensions with more than 8 contacts and with special executions, eg. potentiometer, on request.
3. RLS-51 B5 Flange thickness = 4mm.
4. Options available include Anti-condensation heaters, potentiometer, pulse transmitter, encoder, aluminium housing and VBG-70 STAGE technology.
5. Mounting kits available for all screw jacks. For those not listed, consult Power Jacks.

SPECIFICATIONS BASED ON
STROKE & GEAR RATIO & LEAD

Basic Formula:

$$\left(\frac{\text{Stroke}}{\text{Lead}} \right) \times \left(\text{Gear Ratio} \right) = \text{RR\#}$$

Required Revolutions
From Limit Switch

Choose RLS51 Gear Size and Usable Revolutions based on this RR#

Chart One: RR# (Required Revolutions based on Stroke, Ratio & Lead)

E-Series METRIC Machine Screws

			Stroke	Stroke	Stroke	Stroke	Stroke	Stroke	Stroke
	Lead	Ratio	150	300	450	600	900	1200	1500
10KN	5	5	150	300	450	600	900	1200	1500
10KN	5	20	600	1200	1800	2400	3600	4800	6000
10KN	10	5	75	150	225	300	450	600	750
10KN	10	20	300	600	900	1200	1800	2400	3000
25KN	6	6	150	300	450	600	900	1200	1500
25KN	6	24	600	1200	1800	2400	3600	4800	6000
25KN	12	6	75	150	225	300	450	600	750
25KN	12	24	300	600	900	1200	1800	2400	3000
50KN	9	6	100	200	300	400	600	800	1000
50KN	9	24	400	800	1200	1600	2400	3200	4000
50KN	18	6	50	100	150	200	300	400	500
50KN	18	24	200	400	600	800	1200	1600	2000
100KN	12	8	100	200	300	400	600	800	1000
100KN	12	24	300	600	900	1200	1800	2400	3000
100KN	24	8	50	100	150	200	300	400	500
100KN	24	24	150	300	450	600	900	1200	1500
200KN	12	8	100	200	300	400	600	800	1000
200KN	12	24	300	600	900	1200	1800	2400	3000
200KN	24	8	50	100	150	200	300	400	500
200KN	24	24	150	300	450	600	900	1200	1500
300KN	16	10.667	100	200	300	400	600	800	1000
300KN	16	32	300	600	900	1200	1800	2400	3000
300KN	32	10.667	50	100	150	200	300	400	500
300KN	32	32	150	300	450	600	900	1200	1500

SPECIFICATIONS BASED ON
STROKE & GEAR RATIO & LEAD

Basic Formula:

$$\left(\frac{\text{Stroke}}{\text{Lead}} \right) \times \left(\text{Gear Ratio} \right) = \text{RR\#}$$

Required Revolutions
From Limit Switch

Choose RLS51 Gear Size and Usable Revolutions based on this RR#

Chart Two: Gear Size and Usable Revolutions
E-Series METRIC Machine Screws

			Stroke	Stroke	Stroke	Stroke	Stroke	Stroke	Stroke
	Lead	Ratio	150	300	450	600	900	1200	1500
10KN	5	5	3-205	4-323	4-540	4-880	5-1384	5-1384	5-2288
10KN	5	20	4-880	5-1384	5-2288	5-3735	5-3735	6-5900	6-9800
10KN	10	5	3-125	3-205	4-323	4-323	4-540	4-880	4-880
10KN	10	20	4-323	4-880	5-1384	5-1384	5-2288	5-3735	5-3735
25KN	6	6	3-205	4-323	4-540	4-880	5-1384	5-1384	5-2288
25KN	6	24	4-880	5-1384	5-2288	5-3735	5-3735	6-5900	6-9800
25KN	12	6	3-125	3-205	4-323	4-323	4-540	4-880	4-880
25KN	12	24	4-323	4-880	5-1384	5-1384	5-2288	5-3735	5-3735
50KN	9	6	3-125	3-205	4-323	4-540	4-880	4-880	5-1384
50KN	9	24	4-540	4-880	5-1384	5-2288	5-3735	5-3735	6-5900
50KN	18	6	3-75	3-125	3-205	3-205	3-125	4-540	4-540
50KN	18	24	3-205	4-540	4-880	4-880	5-1384	5-2288	5-2288
100KN	12	8	3-125	3-205	4-323	4-540	4-880	4-880	5-1384
100KN	12	24	4-323	4-880	5-1384	5-1384	5-2288	5-3735	5-3735
100KN	24	8	3-75	3-125	3-205	3-205	4-323	4-540	4-540
100KN	24	24	3-205	4-323	4-540	4-880	5-1384	5-1384	5-2288
200KN	12	8	3-125	3-205	4-323	4-540	4-880	4-880	5-1384
200KN	12	24	4-323	4-880	5-1384	5-1384	5-2288	5-3735	5-3735
200KN	24	8	3-75	3-125	3-205	3-205	4-323	4-540	4-540
200KN	24	24	3-205	4-323	4-540	4-880	5-1384	5-1384	5-2288
300KN	16	10.667	3-125	3-205	4-323	4-540	4-880	4-880	5-1384
300KN	16	32	4-323	4-880	5-1384	5-1384	5-2288	5-3735	5-3735
300KN	32	10.667	3-75	3-125	3-205	3-205	4-323	4-540	4-540
300KN	32	32	3-205	4-323	4-540	4-880	5-1384	5-1384	5-2288

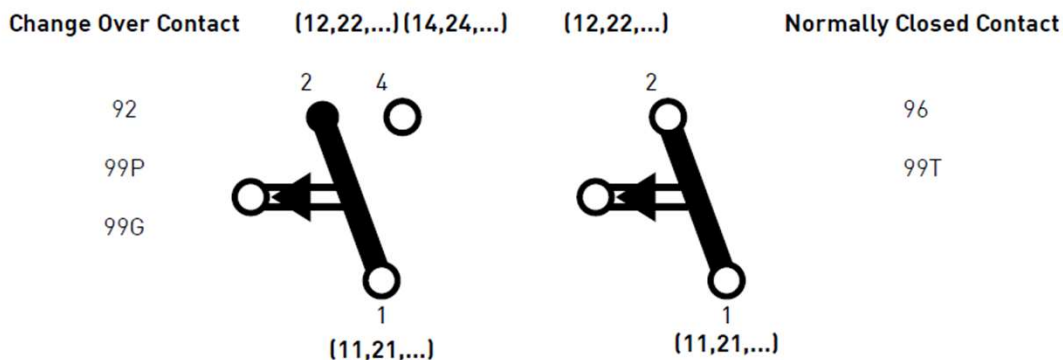
RLS-51 Switching Contacts

The contacts can either be connected through screw terminals for a cable cross section of 0.75mm² to 1.5mm² or through flat plugs 6.3 x 0.8mm or through a printed card with cage tension spring terminals for a cross section of 0.14 to 2.5mm². For contacts with flat - plug connection, insulated flat - plug receptables must be used at voltages above 25V AC and 60V DC.

Contact Designation	Contact Type	Contact Material	Switch Actuation	Type of Connection	Electrical Data				Mechical life in millions of switching operations			
					AC - 15		DC - 13					
					A	V	A	V				
99 ¹⁾	Change-Over	Silver	Snap Action	Screw Terminal	1.5	230	0.5	60	10			
99P ¹⁾	Change-Over	Silver	Snap Action	Flat plug 6.3								
99G ^{1) 3)}	Change-Over	Gold	Snap Action	Screw Terminal								
92 ²⁾	Change-Over	Silver	Snap Action	ScrewTerminal			-	-				
97 ^{2) 3)}	Change-Over	Gold	Snap Action	Screw Terminal								
96 ²⁾	Normally Closed Cotact	Silver	Push Action	Screw Terminal								
99T ⁴⁾				0.5			60					

Note

1. Thermal permanent current I_{th} = 10A; Reference insulation voltage U_i = 250V at pollution degree 3
2. Thermal permanent current I_{th} = 6A; Reference insulation voltage U_i = 250V at pollution degree 3
3. Contacts 99G and 97 for PLC applications (gold contacts)
4. For screw terminal admissible cable cross section AWG 22 - 16
5. Positive opening to EN60947T5 - 1 & IEC947 - 5 - 1



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