

Industrial Electrical Controls



Crane & Hoist Control

Springer Controls is the North American distributor for **Tecno Elettrica Ravasi (TER)** of Italy. **TER** is a world leader in the manufacturing of crane and hoist controls. **Springer / TER** offer many different models of Rotary Gear Limit Switches. The **BASE** rotary gear limit switch is the most economical option. It is a small compact unit with gear ratios from 1:15 to 1:1500.

Springer Controls stocks most models in the U.S. and can customize units to meet your specification.



BASE ROTARY GEAR LIMIT SWITCH

1:15 - 1:1500 ratio | 2-6 switches

springercontrols.com



BASE

ROTARY LIMIT SWITCH



The **BASE** rotary gear limit switch is the most economical option. It is a small compact unit with gear ratios from 1:15 to 1:1500. The BASE can be equipped with 2 to 6 switches. Springer Controls can custom build any ratio required and ship immediately.

Features

- Consists of a gear motor that transfers movement through a primary input reduction stage (worm gear and helical toothed gear) and one or more secondary output stages (pairs of straight toothed gears).
- Accurate adjustment of cams by means of screws.
- Positive opening NC contacts for safety functions.
- Mechanical life of switches: 1 million operations.
- IP protection degree: Base is classified IP42, IP65 or IP66, IP67 and IP69K.
- NEMA protection degree: Base IP66, IP67 and IP69K is classified Type 3; Base IP42 is classified Type 1.
- Extreme temperature resistance: -40°F to +176°F (-40°C to +80°C).
- Features stainless steel transmission and gear driving shafts, self-lubricating technopolymer gears and driving bushes, technopolymer base and cover.
- Sintered bronze bushings are moulded into the base of the limit switch to optimize shaft rotation and prevent rubbing with plastic material.
- All materials and components used are wear resistant and guarantee protection of the unit against water and dust.

Options

- Revolution ratios from 1:15 to 1:1500, achieved by combining different secondary output stages.
- Snap action switches with 1NO+1NC change-over contacts.
- Can be equipped with a cam set with maximum 6 switches.
- Dedicated cable clamps or connectors.
- Available with anti-moisture plug fitted to the base by means of a lock nut, to improve transpiration for the limit switch whilst maintaining protection against water.
- Available with flanges, pinions and couplings.
- Available with direct control switches to enable direct action on the motor.

Certifications

- CE marking, cURus* and EAC certifications.

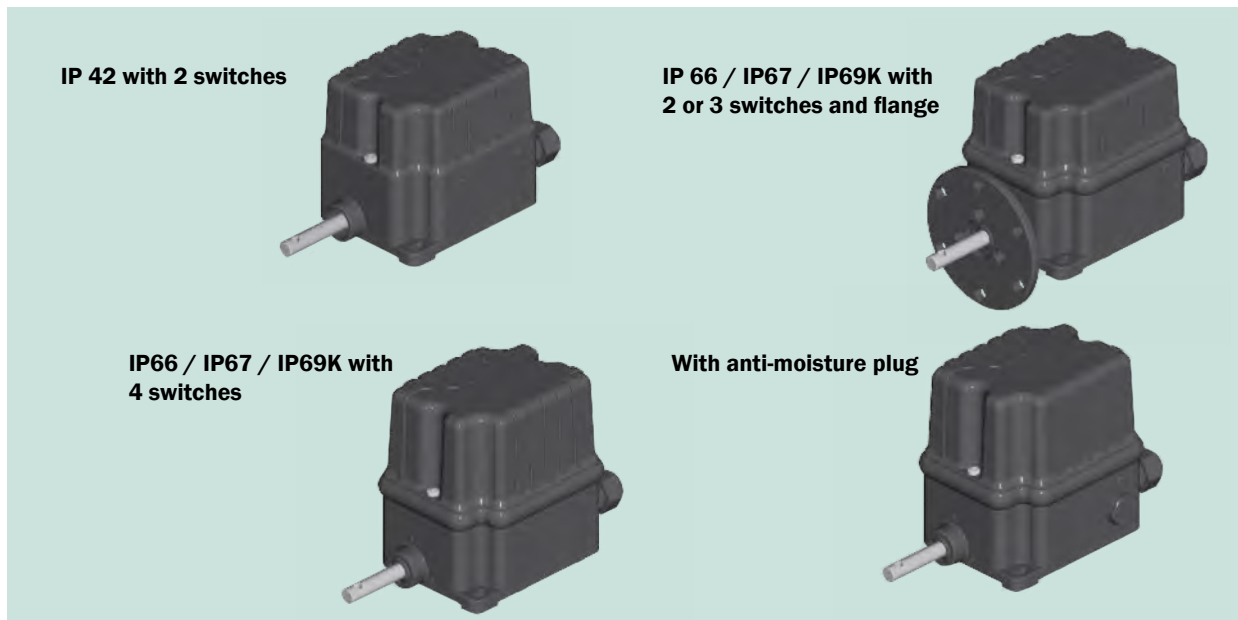


Fill-in the "request form" for a custom product configuration

* Not available on all versions

SPECIFICATIONS FOR BASE

Possible Assemblies



Certifications


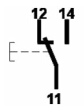


Conformity to Community Directives	2014/35/UE Low Voltage Directive
	2006/42/CE Machinery Directive
Conformity to CE Standards	EN 60204-1 Safety of machinery - Electrical equipment of machines
	EN 60204-32 Safety of machinery - Electrical equipment of machines - Requirements for hoisting machines
	EN 60947-1 Low-voltage switch-gear and control-gear
	EN 60947-5-1 Low-voltage switch-gear and control-gear Control circuit devices and switching elements Electromechanical control circuit devices
Conformity to cULus Standards	EN 60529 Degrees of protection provided by enclosures
	CSA-C22.2 No 14-13 Industrial Control Equipment
Markings and Homologations	UL 508 Industrial Control Equipment
	Version IP42 or IP65: CE EAC
	Version IP66/ IP67 / IP69K: CE cULus* EAC

General Technical Specifications

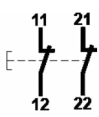
Ambient temperature	Storage: -40°F / +176°F (-40°C / +80°C)
	Operational: -40°F / +176°F (-40°C / +80°C)
IP protection degree	IP42
	IP65
	IP66 / IP67 / IP69K
NEMA protection degree	Type 3 (version IP66 / IP67 / IP69K)
Insulation category	Class II
Maximum rotation speed	800 rpm
Cable entry	Cable clamp M16
Shafts	Stainless steel AISI 430F

* Not available on all versions

Technical Specifications — Switches for Auxiliary Control

SCC Part No. →	PRSL0003XX	PRSL0011XX	PRSL0017XX	PRSL0195XX
Utilisation category	AC 15 - B300		AC 15 - C300	
Rated operational voltage	250 Vac			
Rated operational current	3 A			
Rated thermal current	5 A		2.5 A	
Rated insulation voltage	300 Vac			
Mechanical life	1 x 10 ⁶ operations			
Connections	6.3 mm Faston taps	Screw-type terminals	Screw-type terminals	6.3 mm Faston taps
Wires	-	2x0.5 mm ² , 2x1.5 mm ² , 1x2.5 mm ²	2x0.5 mm ² , 2x1.5 mm ² , 1x2.5 mm ²	-
Tightening torque	-	0.5 Nm	0.5 Nm	-
Microswitch type	Single break, snap action			
Contacts	1NO+1NC (All NC contacts are of the positive opening operation type )	1 NO+1NC	1 NO+1NC	1 NO+1NC
Scheme				
Markings and Homologations	CE  ENEC		CE 	

Technical Specifications — Switches for Direct Control

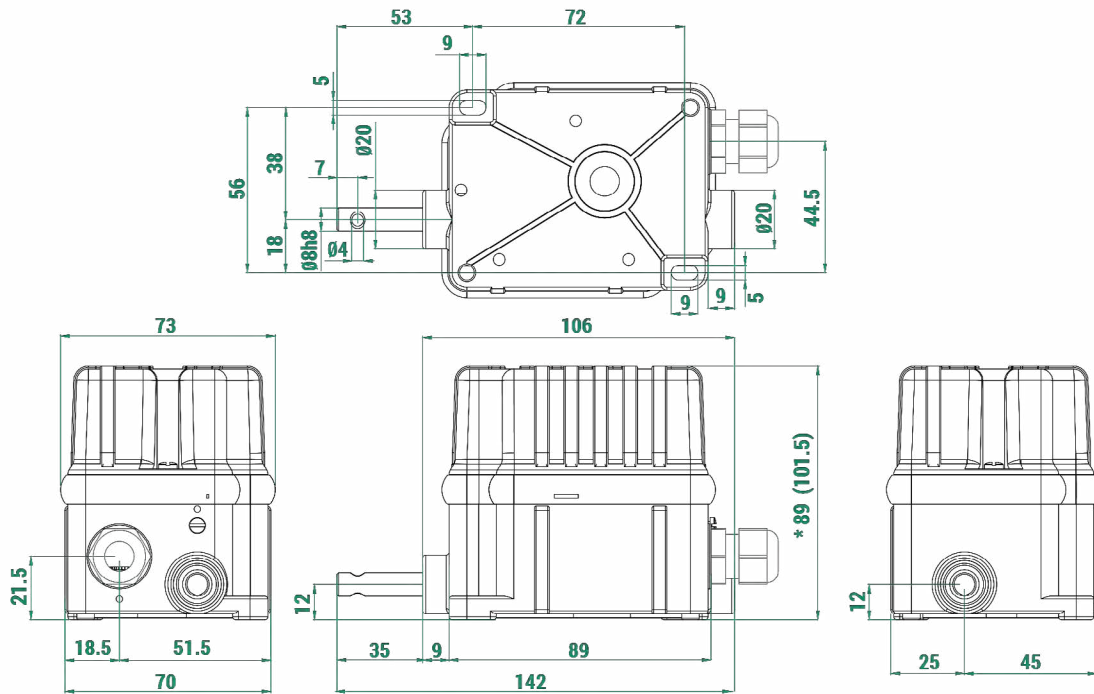
SCC Part No. →	PRSL0455PI
Utilisation category	AC 3
Rated operational current	400 Vac
Rated operational voltage	10 A
Rated thermal current	20 A
Rated insulation voltage	660 Vac
Mechanical life	1 x 10 ⁶ operations
Connections	Screw-type terminals
Wires	2 x 1.5 mm ² 1 x 2.5 mm ²
Tightening torque	0.8 Nm
Microswitch type	Two-pole
Contacts	2NC
Scheme	
Markings and Homologations	CE

BASE - OVERALL DIMENSIONS (mm)

Limit switches with sets of 5 or 6 switches PRSL0003XX / PRSL0011XX / PRSL0017XX / PRSL0195XX or with sets of 2 switches PRSL0455PI are available only with protection degree IP66 / IP67 / IP69K and a special cover, or in the IP00 version without cover. Both configurations are not cURus certified. Overall dimensions and code numbers are available upon request.

IP66 / IP67 / IP69K

- * 2/3 PRSL0003XX / PRSL0011XX / PRSL0017XX / PRSL0195XX switches or 1 PRSL0455PI switch.
- () 4 PRSL0003XX / PRSL0011XX / PRSL0017XX / PRSL0195XX switches.



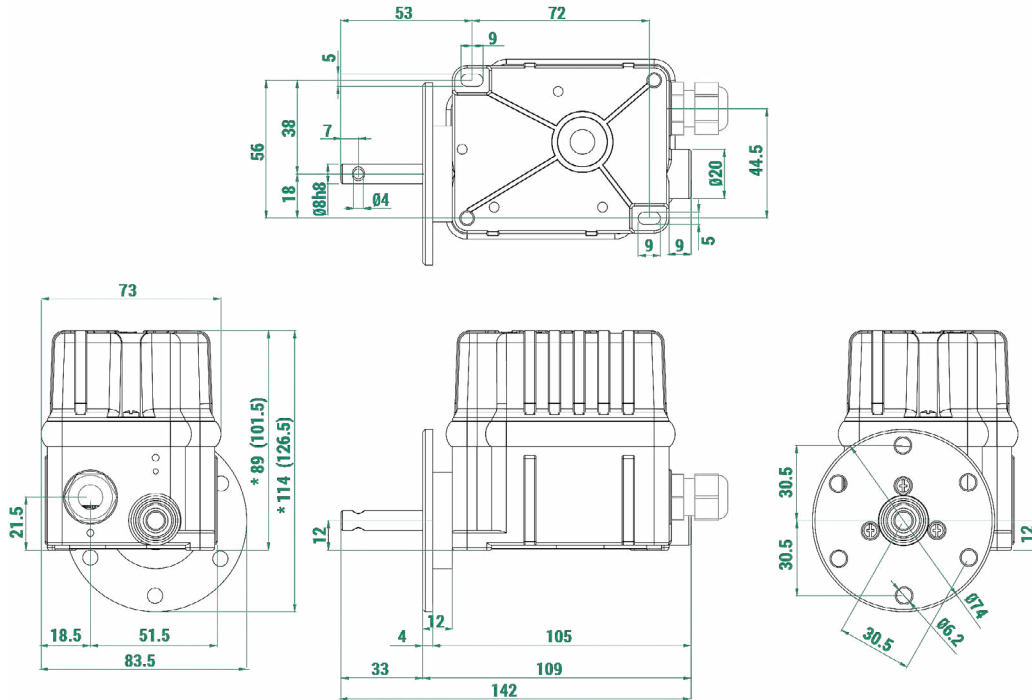
1 mm = 0.03937 inches | 1 inch = 25.4 mm

Formula: divide the mm length value by 25.4
multiply the inch length value by 25.4

BASE - OVERALL DIMENSIONS (mm)

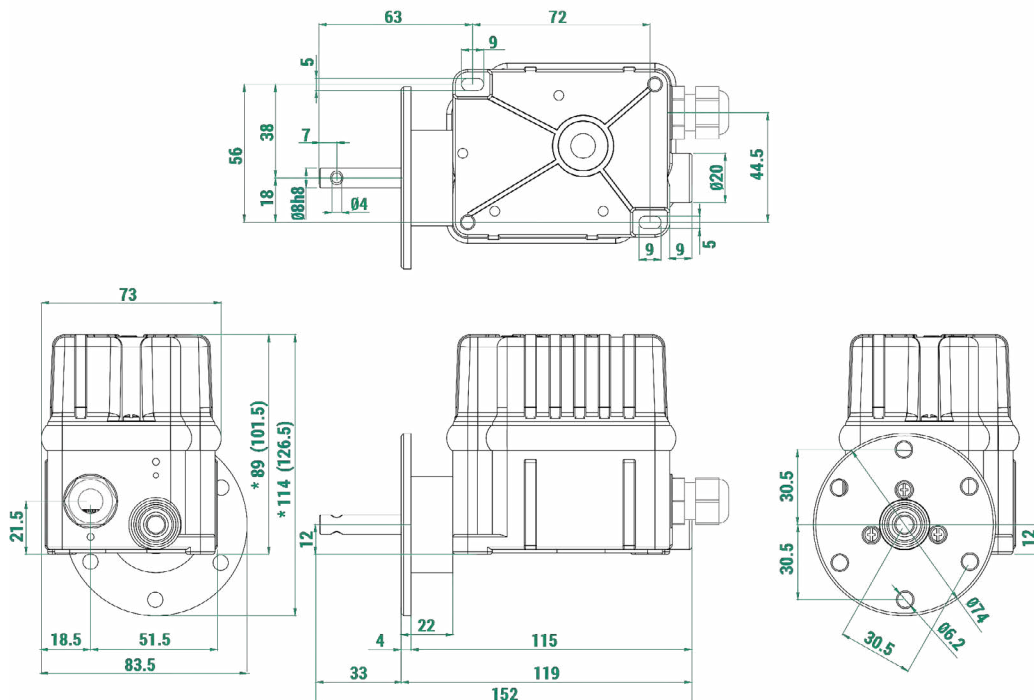
IP66 / IP67 / IP69K with 12 mm high flange

- * 2/3 PRSL0003XX / PRSL0011XX / PRSL0017XX / PRSL0195XX switches or 1 PRSL0455PI switch.
- () 4 PRSL0003XX / PRSL0011XX / PRSL0017XX / PRSL0195XX switches.






IP66 / IP67 / IP69K with 22 mm high flange

- * 2/3 PRSL0003XX / PRSL0011XX / PRSL0017XX / PRSL0195XX switches or 1 PRSL0455PI switch.
- () 4 PRSL0003XX / PRSL0011XX / PRSL0017XX / PRSL0195XX switches.

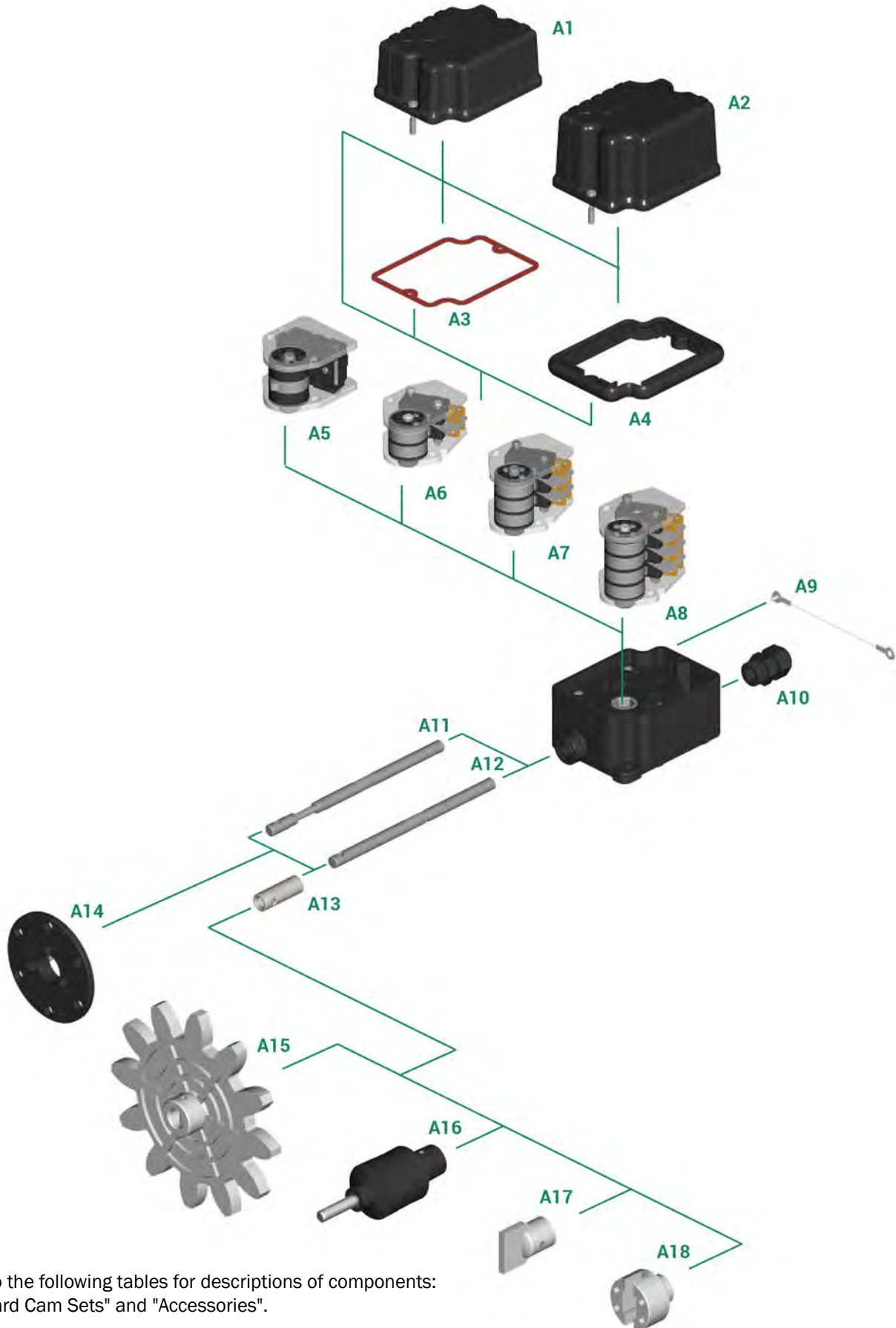


STANDARD LIMIT SWITCHES

Standard limit switches are equipped with cams PRSL7140PI  and auxiliary control switches PRSL0003XX with 1NO+1NC contacts .

Rated revolution ratio	Real revolution ratio	No. of cams and switches	IP66 / IP67 / IP69K
			CE  ^{us} ENEC
			SCC Part No.
1:15	1:15.82	2	PFA9067A0015001
		3	PFA9067A0015003
		4	PFA9067A0015002
1:20	1:20.37	2	PFA9067A0020001
		3	PFA9067A0020003
		4	PFA9067A0020002
1:25	1:25.96	2	PFA9067A0025001
		3	PFA9067A0025003
		4	PFA9067A0025002
1:50	1:50	2	PFA9067A0050001
		3	PFA9067A0050003
		4	PFA9067A0050002
1:75	1:75	2	PFA9067A0075001
		3	PFA9067A0075003
		4	PFA9067A0075002
1:100	1:103.57	2	PFA9067A0103001
		3	PFA9067A0103003
		4	PFA9067A0103002
1:150	1:158.02	2	PFA9067A0158001
		3	PFA9067A0158003
		4	PFA9067A0158002





BASE ASSEMBLY DRAWING



Refer to the following tables for descriptions of components:
"Standard Cam Sets" and "Accessories".






BASE - ACCESSORY PARTS

Standard Cam Sets

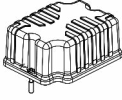


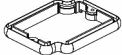



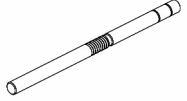



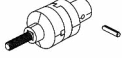


Ref.	Drawing	No. and type of cams	No. and type of switches	SCC Part No.
A5		1 cam A	1 PRSL0455PI switch	PRFC0101PC
A6		2 cams A	2 PRSL0003XX switches	PRFC0008PEC
		2 cams C	2 PRSL0003XX switches	PRFC0009PEC
A7		3 cams A	3 PRSL0003XX switches	PRFC0004PEC
		3 cams C	3 PRSL0003XX switches	PRFC0006PEC
A8		4 cams A	4 PRSL0003XX switches	PRFC0202PEC
		4 cams C	4 PRSL0003XX switches	PRFC0198PEC

Other sets with 2/3/4/5 or 6 switches PRSL0003XX / PRSL0011XX / PRSL0017XX/ PRSL0195XX or with 1 or 2 switches PRSL0455PI are available upon request.

Cam Reference Chart

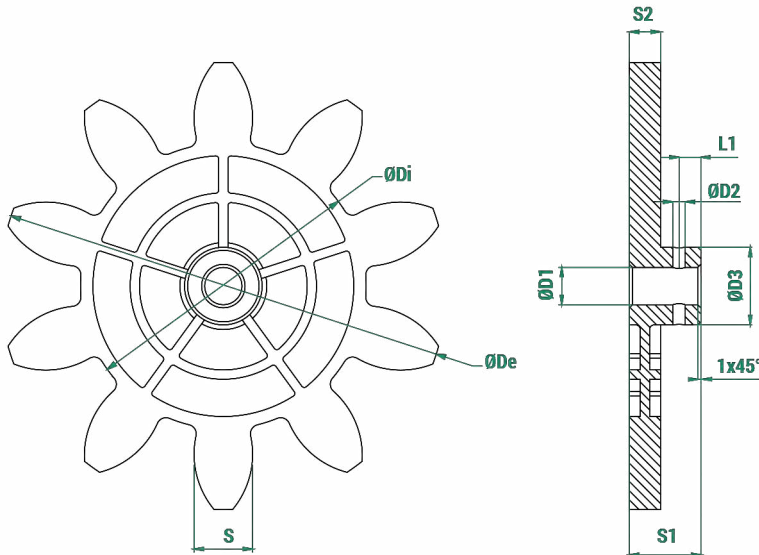
	Cam	Switching angle	SCC Part No.
A	 1 point	20.5° ±0.5°	PRSL7140PI
B	 10 points	14.0° ±0.5°	PRSL7142PI
C	 60° sector	78.0° ±0.5°	PRSL7141PI
E	 180° sector	199.5° ±0.5°	PRSL7144PI
H	 335° sector	344.0° ±0.5°	PRSL7143PI

Accessories

Ref.	Drawing	Description	SCC Part No.
A1		Cover with screws for BASE IP42 or IP65 with 2 switches	PA090013
		Cover with screws for BASE IP66 / IP67 / IP69K with 2/3 switches	PA090010
A2		Cover with screws for BASE IP42 or IP65 or IP66 / IP67 / IP69K with 2/3 switches	PA090011
A3		Gasket for BASE IP65	PRGU1085PE
A4		Tightening rubber for BASE IP66 / IP67 / IP69K	PRGU1200PE
A9		Cover holding wire + screw (bag of 10)	PRSL0358PI
A10		Cable clamp M16	PR[S0062PE
A11		Flexible shaft	ALL1F00001
A12		Standard shaft	ALL1R00001
		Shaft for 22 mm high flange	ALL1R00121
A13		Brush Ø8 to Ø12 for pinion gear/coupling	PRT01075PE
A14		12 mm high flange	PRT04040PE
		22 mm high flange	PRSL8087PI
A15		Pinion gear	See pinion gear tables
A16		Coupling with pin	PRSL0981PI
A17		Male coupling with pin	PRSL0919PI
A18		Female coupling with pin	PRSL0920PI

BASE - ACCESSORY PARTS

Moulded Pinion Gears



Legend	
Z	Number of teeth
M	Module
Dp	Primitive diameter
De	External diameter
Di	Internal diameter
a	Addendum
d	Dedendum
Alpha	Pressure angle

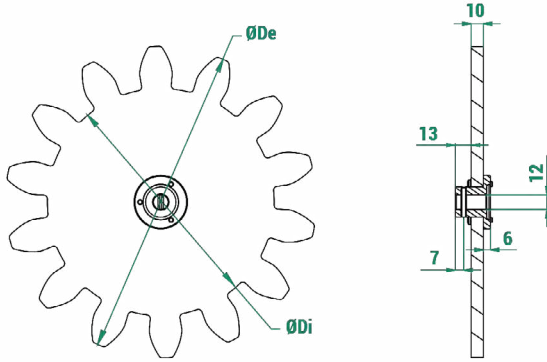
Z	M	Dp	De	Di	a	d	S	Alpha	D1	D2	D3	S1	S2	L1	SCC Part No.
8	2.50	20.00	25.00	14.15	2.50	2.93	3.93	20.00	8.00	2.50	14.00	18.00	8.00	4.00	PRSL0971PI
8	20.00	160.00	200.00	113.20	20.00	23.40	31.41	20.00	12.00	4.00	24.00	23.00	10.00	7.00	PRSL0915PI
9	2.50	22.50	27.50	16.25	2.50	3.13	3.93	20.00	8.00	2.50	13.50	18.00	8.00	4.00	PRSL0964PI
9	3.50	31.50	38.50	23.40	3.50	4.10	4.71	20.00	8.00	2.50	14.00	18.00	8.00	4.00	PRSL0963PI
9	5.00	45.0	56.00	36.00	5.50	4.50	9.19	20.00	8.00	2.50	16.00	18.00	8.00	4.00	PRSL0892PI
10	3.00	30.00	36.00	23.00	3.00	3.51	4.71	20.00	8.00	2.50	14.00	18.00	8.00	4.00	PRSL0968PI
10	12.00	120.00	144.00	92.00	12.00	14.00	18.85	20.00	12.00	4.00	25.00	23.00	10.00	7.00	PRSL0912PI
10	14.00	140.00	168.00	107.24	14.00	16.38	21.99	20.00	12.00	4.00	24.60	23.00	10.00	7.00	PRSL0913PI
10	16.00	160.00	192.00	122.67	16.00	18.67	25.13	20.00	12.00	4.00	24.00	23.00	10.00	7.00	PRSL0914PI
11	6.00	66.00	78.00	51.96	6.00	7.02	9.42	20.00	12.00	4.00	19.00	23.00	8.00	7.00	PRSL0917PI
12	5.00	60.00	70.00	48.30	5.00	5.83	7.85	20.00	12.00	4.00	20.00	23.00	8.00	7.00	PRSL0916PI
12	8.00	96.00	112.00	77.28	8.00	9.36	12.56	20.00	12.00	3.90	21.50	23.50	10.00	7.00	PRSL0918PI
12	10.00	120.00	140.00	96.67	10.00	11.67	15.71	20.00	12.00	4.00	25.00	23.50	10.00	7.00	PRSL0911PI
12	12.00	144.00	168.00	116.00	12.00	14.00	18.85	20.00	12.00	4.00	24.00	23.00	10.00	7.00	PRSL0944PI

Measuring unit: mm

1 mm = 0.03937 inches | 1 inch = 25.4 mm

Formula: divide the mm length value by 25.4
multiply the inch length value by 25.4

Waterjet Cut Pinion Gears



Legend	
Z	Number of teeth
M	Module
Dp	Primitive diameter
De	External diameter
Di	Internal diameter
a	Addendum
d	Dedendum
Alpha	Pressure angle

Z	M	Dp	De	Di	a	d	Alpha	SCC Part No.
8	18.00	144.00	180.00	102.00	18.00	21.00	20.00	PRSL0857PI
8	24.00	192.00	240.00	136.00	24.00	28.00	20.00	PRSL0855PI
9	10.00	90.00	110.00	66.67	10.00	11.67	20.00	PRSL0992PI
9	16.00	144.00	176.00	106.67	16.00	18.67	20.00	PRSL0879PI
9	18.00	162.00	198.00	120.00	18.00	21.00	20.00	PRSL0854PI
9	20.00	180.00	220.00	133.33	20.00	23.33	20.00	PRSL0871PI
9	24.00	216.00	264.00	160.00	24.00	28.00	20.00	PRSL0849PI
10	10.00	100.00	120.00	76.67	10.00	11.67	20.00	PRSL0846PI
10	18.00	180.00	216.00	138.00	18.00	21.00	20.00	PRSL0993PI
10	22.00	220.00	264.00	168.52	22.00	25.74	20.00	PRSL0970PI
10	24.00	240.00	288.00	180.00	24.00	28.00	20.00	PRSL0856PI
11	12.00	132.00	156.00	104.00	12.00	14.00	20.00	PRSL0861PI
11	18.00	198.00	234.00	156.00	18.00	21.00	20.00	PRSL0998PI
11	20.00	220.00	260.00	173.36	20.00	23.32	20.00	PRSL0997PI
11	24.00	264.00	312.00	204.00	24.00	30.00	20.00	PRSL0859PI
12	14.00	168.00	196.00	133.00	14.00	17.50	20.00	PRSL0863PI
12	16.00	192.00	224.00	154.67	16.00	18.67	20.00	PRSL0897PI
12	18.00	216.00	252.00	173.88	18.00	21.06	20.00	PRSL0972PI
12	20.00	240.00	280.00	193.34	20.00	23.32	20.00	PRSL0845PI
12	24.00	288.00	336.00	232.00	24.00	28.00	20.00	PRSL0878PI
13	6.00	78.00	90.00	63.00	6.00	7.50	20.00	PRSL0860PI
13	12.00	156.00	178.59	126.00	11.29	15.00	20.00	PRSL0853PI
13	16.00	208.00	240.00	170.67	16.00	18.66	20.00	PRSL0898PI
14	10.00	140.00	169.00	125.00	15.00	7.50	20.00	PRSL0862PI
14	16.00	224.00	256.00	186.67	16.00	18.67	20.00	PRSL0896PI
14	18.00	252.00	288.00	210.00	18.00	21.00	20.00	PRSL0999PI
14	20.00	280.00	320.00	233.33	20.00	23.33	20.00	PRSL0848PI
15	18.00	270.00	306.00	228.00	18.00	21.00	20.00	PRSL0858PI
16	20.00	320.00	360.00	273.33	20.00	23.33	20.00	PRSL0847PI
17	10.00	170.00	190.00	145.00	10.00	12.50	22.89	PRSL0973PI
17	14.00	238.00	266.00	203.00	14.00	17.50	22.89	PRSL0974PI
20	6.00	120.00	132.00	105.00	6.00	7.50	22.89	PRSL0851PI
25	1.00	25.00	27.00	22.50	1.00	1.25	22.89	PRSL0844PI

Measuring unit: mm

BASE REQUEST FORM FOR NON STANDARD LIMIT SWITCH

Instructions

(See next page for list of components and legends)

- 1 Version:** tick the required version.
 ATTENTION: Limit switches with sets of 5/6 switches PRSL0003XX/PRSL0011XX/ PRSL0017XX/PRSL0195XX or of 2 switches PRSL0455PI are available only with protection degree IP 66 / IP 67 / IP 69K and with a special cover, or in the IP 00 version without cover. These configurations are not cURus certified.
 Limit switches with switches PRSL0455PI are not EAC nor cURus certified.
- 2 Standard cam set:** write the code of the cam set required.
- 3 Customized cam set:** for non standard cam sets, fill in the scheme choosing the cams and the switches required. In case switch PRSL0455PI is required, it is possible to use max two switch.
 Customized cams are available on request.
- 4 Version with anti-moisture plug:** tick when the anti-moisture plug is required.
 ATTENTION: Limit switches with anti-moisture pluga are not cURus certified.
- 5 Cover holding wire:** tick when the cover holding wire is required.
- 6 Revolution ratio:** write the required revolution ratio.
- 7 Shaft:** tick the shaft type required.
 Customized shafts are available on request.
- 8 Coupling, flange, pinion gear:** tick the box when coupling, flange or pinion gear are required.
 When a standard pinion gear is required, write the code number listed in the pinion gear tables in the catalogue.
 When a special pinion gear is required, write the number of teeth, the module and the primitive diameter.

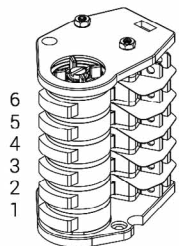
Version 1

- IP00 (without cover)
- IP42
- IP66 / IP67 / IP69K

Standard cam set 2

Cam set code _____

Customized cam set 3



Cam code	Switch code
6 _____	_____
5 _____	_____
4 _____	_____
3 _____	_____
2 _____	_____
1 _____	_____

Version with anti-moisture plug 4

Cover holding wire 5

- Revolution ratio 6**
- 1:15 1:75
 - 1:20 1:100
 - 1:25 1:150
 - 1:50 1:

Standard shaft 7

Flexible shaft

- Male coupling 8**
- Female coupling
- Coupling
- 12 mm high flange
- 22 mm high flange
- Pinion gear

Pinion gear code _____

Customized pinion gear

No. of teeth _____

Module _____

Primitive diameter _____






Notes

BASE REQUEST FORM FOR NON STANDARD LIMIT SWITCH - Legends


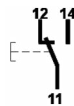

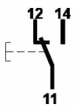
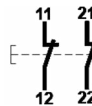
2 Legend - Standard Cam Sets

No. & types of switches	No & type of cams	SCC Part No.
1 x PRSL0455PI	1 cam A	PRFC0101PEC
2 x PRSL0003XX	2 cams A	PRFC0008PEC
	2 cams C	PRFC0009PEC
3 x PRLS0003XX	3 cams A	PRFC0004PEC
	3 cams C	PRFC0006PEC
4 x PRLS0003XX	4 cams A	PRFC0202PEC
	4 cams C	PRFC0198PEC

3 Legend - Standard Cams

Cam	Switching angle	SCC Part No.
A  1 point	20.5° ±0.5°	PRSL7140PI
B  10 points	14.0° ±0.5°	PRSL7142PI
C  60° sector	78.0° ±0.5°	PRSL7141PI
E  180° sector	199.5° ±0.5°	PRSL7144PI
H  335° sector	344.0° ±0.5°	PRSL7143PI

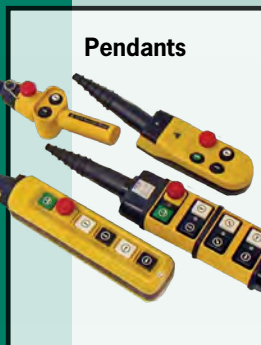
Legend - Switches

Types of switches	Auxiliary control				Direct control
	PRSL0003XX	PRSL0011XX	PRSL0017XX	PRSL0195XX	PRSL0455PI
Utilisation category	AC 15 - B300	AC 15 - B300	AC 15 - C300	AC 15 - C300	AC 3
Connections	6.3 mm Faston taps	Screw-type terminals	Screw-type terminals	6.3 mm Faston Taps	Screw-type terminals
Contacts	1NO+1NC 	1NO+1NC 	1NO+1NC 	1NO+1NC 	2NC 

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