

Reliable since 1965...



Heavy Duty Limit Switches



BCH
ELECTRIC
LIMITED

Heavy Duty Limit Switches

BCH Limit Switches are designed with one aim only to help you produce better and faster with less production down time. Every limit switch that comes off the BCH assembly line passes through rigid quality tests before it reaches you. These limit switches are meant to work in highly contaminated atmosphere and extremely high shock and vibration conditions.

International Standards

Entire range of BCH make heavy duty limit switches are :

- Tested and certified as per IS / IEC 60947-5
- CE marked
- BIS certified (ISI marked)

Ingress Protection (IP 67)

The IP 67 degree conformity makes it more suitable for all adverse applications like oil tight & dust proof environment.

BCH Heavy duty limit switches are available in following versions

- 1NO+1NC Screw Terminals
- 2NO+2NC Screw Terminals
- 1NO+1NC Pre-cabled
- 2NO+2NC Pre-cabled

Operating Heads

– Rotary lever operating heads - Standard (Spring return) & Maintained type

Rotary lever heads are designed with unique rotary cam mechanism, helps in achieving very high mechanical endurance of limit switches. Rotary head can be rotated in all the four positions 90° apart, which gives complete flexibility to the user. Operating levers can be operated in both clockwise and anti-clockwise directions. The levers are provided with 19mm dia. Metal rollers. There are three types of roller lever operators : Fixed length of 38mm, 76.2mm and adjustable length between 32mm to 82.5mm.

– Top push operating heads

These are available in two designs. One has an adjustable push button, the length of which can be adjusted up to 8 mm. The second type has a metal roller of 11.1mm diameter.

– Side push operating head

The head is also available with an adjustable push button alternatively a metal roller of 11.1mm dia. These are designed for small space and low travel application where the actuator travel is perpendicular to the switch.

– Cat whisker operating head

This head has been designed for applications where extremely low operating force is available. The operator consists of a nylon covered wire or steel rod, which is a spring return switch moving the extension in any direction from the centre, to operate the contacts.

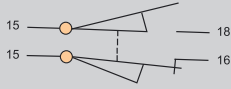
– Fork type operating head - Standard (Spring return) & Maintained type

This head as the name suggest is having fork type shape with two rollers one on each side of fork. There are two type of fork levers - Inline rollers & offset rollers.

Contact Block

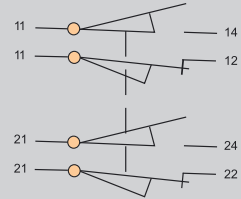
The contact mechanism is enclosed in a phenolic moulding with a transparent thermoplastic front cover. The complete unit can be removed and released without the risk of changing the operating characteristic of the limit switch. The single pole double throw, twin break silver contacts (normally open / normally closed change over) provide quick make, quick break action and full contact pressure at all times. There is no point of zero contact pressure - no matter how slowly the switch is operated. Both the normally open and normally closed contacts can be used simultaneously, provided they are connected on the same polarity.

1NO + 1NC



Must be same polarity

2NO + 2NC

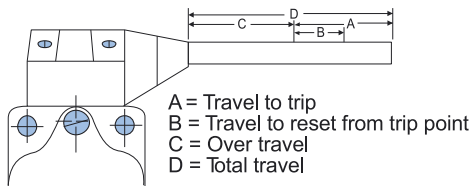


Must be same polarity

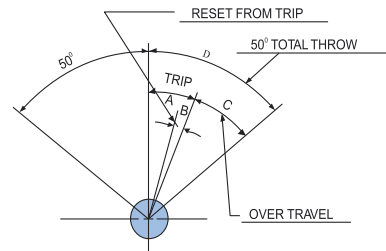
Application areas for BCH heavy duty limit switch :

- Coveyor Systems
- Tapping Machine
- Foods & Beverages
- Hydraulic Power Presses
- Packaging Machine
- Injection Moulding
- Drilling Machine
- Special Purpose machine
- Material Handling
- EOT cranes

Linear Motion*



Angular Motion*



* Refer operating data table on page no.3

Product Specifications

Enclosure	Zinc die cast
Features	Interchangeable heads ensures complete modularity and flexibility
Contact Arrangement	Snap Action
Rated Insulation voltage, Ui	600 VAC & 240 VDC
Thermal current (I _{th})	10A
Conforming to standards	IS / IEC 60947-5
Product Certifications	CE & ISI Marked
Ambient air temperature	(-5°C to +40°C) as per standard, However product can work satisfactorily at (-25°C to +70°C) ambient
Degree of protection	IP 67
Mechanical durability	20x10 ⁶ operations
Frequency of operations	2500 operations per hour
Cable entry or connector	19.0 mm dia (PG11)
Earthing Connections	M3.5 Earthing Screws (2-NOS)












For Pre-cabled version

Cable length	2 Mtrs.
Cable size	for 1NO + 1NC 3 Core x 1.5 sq. mm PVC flexible Cu wire
	for 2NO + 2NC 6 Core x 0.75 sq. mm PVC flexible Cu wire

Contact block Characteristics

	(1 NO +1 NC)	(2 NO + 2 NC)
Rated operational characteristics - AC voltage (AC 15)	110 V - 6.0 A	110 V - 3.0 A
	220 V - 3.0 A	220 V - 1.5 A
	440 V - 1.5 A	440 V - 0.8 A
	550 V - 1.2 A	550 V - 0.6 A
	24 V - 1.0 A	24 V - 1.0 A
Rated operational characteristics - DC voltage (DC 13)	60 V - 0.5 A	60 V - 0.5 A
	110 V - 0.2 A	110 V - 0.2 A
	220 V - 0.1 A	220 V - 0.1 A
	2.5 kV	2.5 kV
Rated impulse withstand voltage	10A	10A
Short circuit protection HRC fuse	2.5mm ² solid or stranded	2.5mm ² solid or stranded
Terminal wire sizes	0.8 Nm (max.)	0.8 Nm (max.)
Tightening torque for terminal screw		

OPERATING DATA

NLL1	NLL2	NLLA			
			Rotary Lever 1NO+1NC Screw Terminals*	NLL1/NLL2 NLLA	NLL1M/NLL2M NLLAM
			Travel to trip A	7 - 12°	Max. 50°
			Travel to reset from trip point B	6°	Max. 50°
			Over travel C	34	Min. 40°
			Total travel D	45•	Min. 90°
			Force to trip (max.) kg.	1.0•	0.5
			Force to be applied at a radius of (mm)	28	38
Roller Lever (38 mm)	Roller Lever (76.2 mm)	Roller Lever Adjustable (32 mm - 82.5 mm)			
NLTPR	NLTPBA				
		Top Push 1NO+1NC Screw Terminals*	NLTPR/NLTPBA		
		Travel to trip A	1.3		
		Travel to reset from trip point B	1.1•		
		Over travel C	5.5		
		Total travel D	6.8		
		Force to trip (max.) kg.	2		
Top Push Roller	Top Push Button Adjustable				
NLSPR	NLSPBA				
		Side Push 1NO+1NC Screw Terminals*	NLSPR/NLSPBA		
		Travel to trip A	2		
		Travel to reset from trip point B	1.7•		
		Over travel C	5.1		
		Total travel D	Max. 7		
		Force to trip (max.) kg.	2		
Side Push Roller	Side Push Button Adjustable				
NLCW	NLJW				
		Cat Whisker 1NO+1NC Screw Terminals*	NLCW	NLJW	
		Travel to trip A	Max. 20	7 - 12°	
		Travel to reset from trip point B	Max. 18	6°	
		Over travel C	Min. 5	34	
		Total travel D	Min. 25	45•	
		Force to trip (max.) kg.	0.285	10•	
		Force to be applied at a radius of (mm)	25.5	28	
Cat Whisker Nylon Rod	Cat Whisker Steel Rod				
NLLF	NLLFO				
		Fork Type 1NO+1NC Screw Terminals*	NLLF/NLLFO	NLLFM/NLLFOM	
		Travel to trip A	7 - 12°	Max. 50°	
		Travel to reset from trip point B	6°	Max. 50°	
		Over travel C	34	Min. 40°	
		Total travel D	45•	Min. 90°	
		Force to trip (max.) kg.	1.0•	0.5	
		Force to be applied at a radius of (mm)	28	38	
Fork Type Inline Rollers (■Max. ●Min.)	Fork Type Offset Rollers				

* For 1NO+1NC Pre-cabled, suffix 'C', For 2NO+2NC Screw terminals, suffix '-22'
For 2NO+2NC Pre-cabled, suffix '-22C', • Above data remains same for all versions

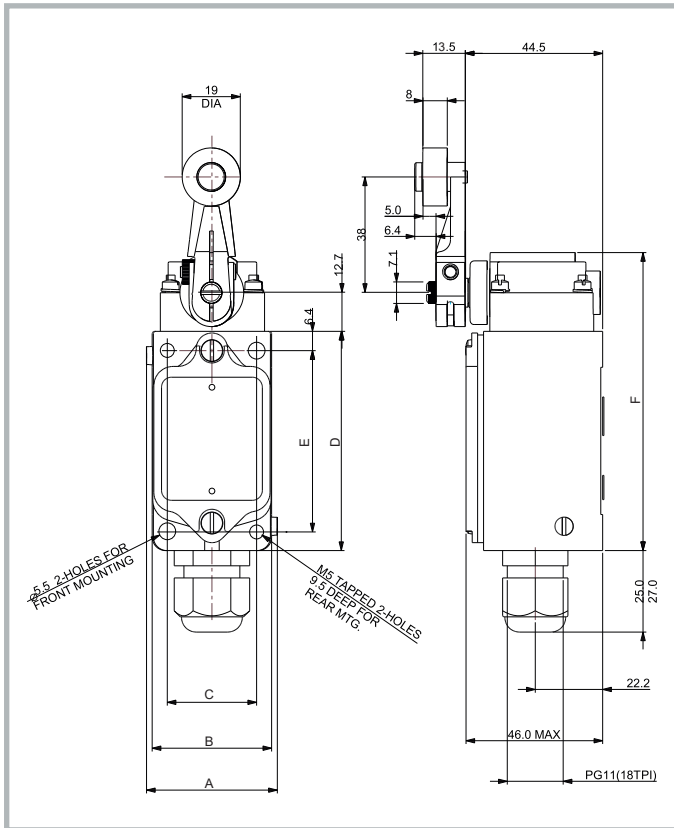
Oil Tight Limit Switch - Spares

Spare Part Description	Suitable for Limit Switch [#]	Cat. No.
38 mm lever	NLL1	SP40L1
76.2 mm lever	NLL2	SP40L2
Adjustable lever	NLLA	SP40LA
Fork lever in Line	NLLF	SP40LF
Fork lever Offset	NLLFO	SP40LFO
Operating Head	NLL1, NLL2, NLLA, NLLF, NLLFO	SP40HL
Operating Head Maintained	NLL1M, NLL2M, NLLAM, NLLFM, NLLFOM	SP40HLM
Operating Head	NLTPR, NLTPBA	SP 40HTP*
Operating Head	NLSPR, NLSPBA	SP 40HSP*
Operating Head	NLCW	SP40CW
Operating Head	NLJW	SP40JW
Limit Switch Unit Assembly 1NO+1NC	'NL' Limit Switches	SP40S1
Limit Switch Unit Assembly 2NO+2NC		SP40S2
Oil tight Conduit	'NL' Limit Switches	SP40CE

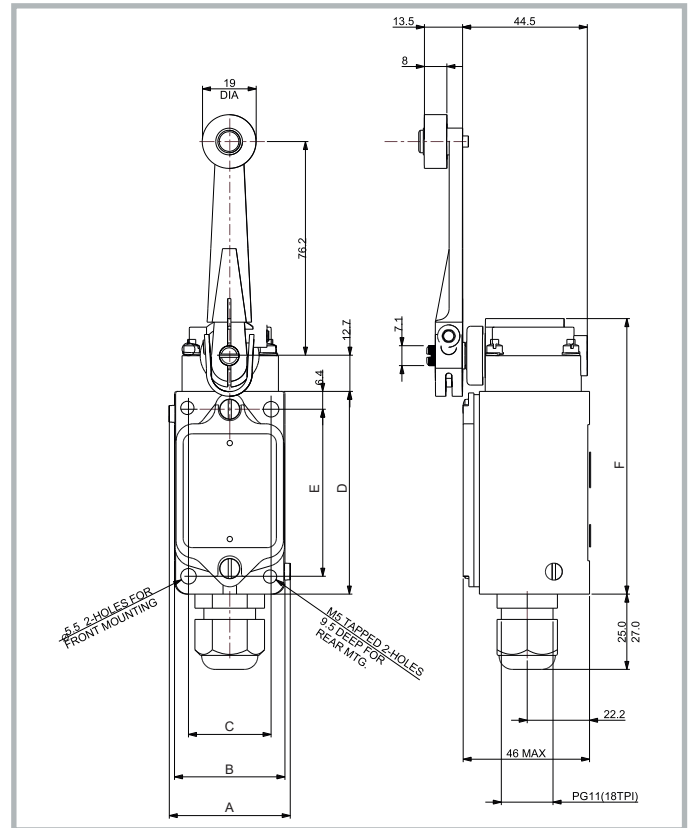
* B= Button R= Roller

Also suitable for corresponding '2NO+2NC', pre-cabled & maintained type (wherever available) versions

Dimensions in mm



NLL1 / NLL1-22

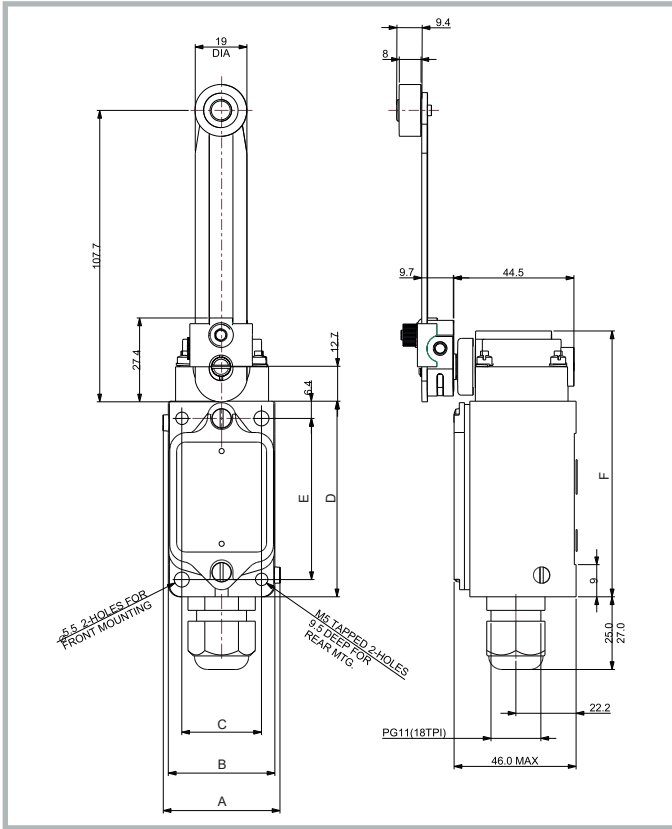


NLL2 / NLL2-22

Cat code *	Contacts	A	B	C	D	E	F
NLL1 / NLL2	1NO+1NC	44.0	39.7	29.4	72.0	59.5	97.5
NLL1-22 / NLL2-22	2NO+2NC	44.5	40.5	30.6	77.0	65.0	102.5

* Dimensions of corresponding maintained type & pre-cabled versions remain same.

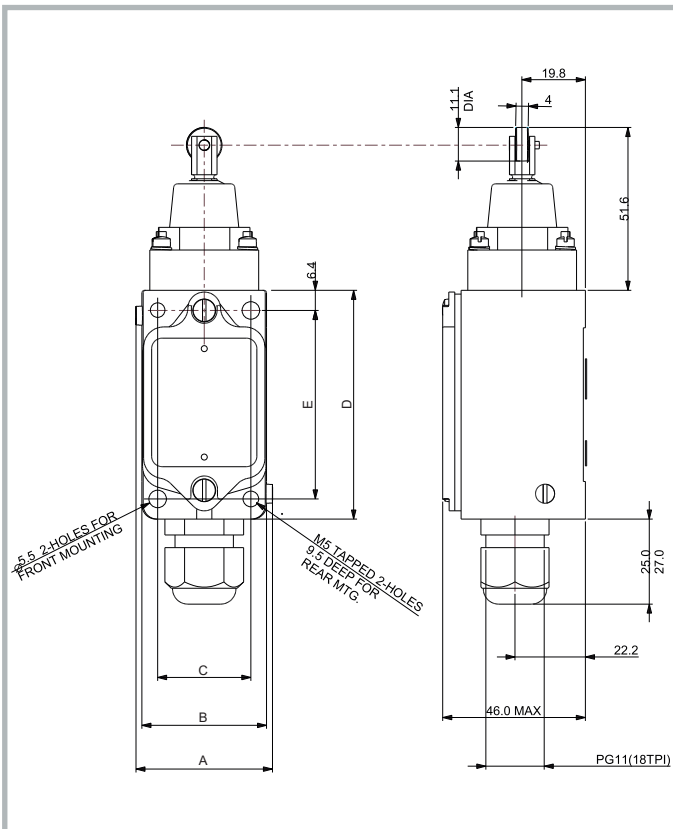
Dimensions in mm



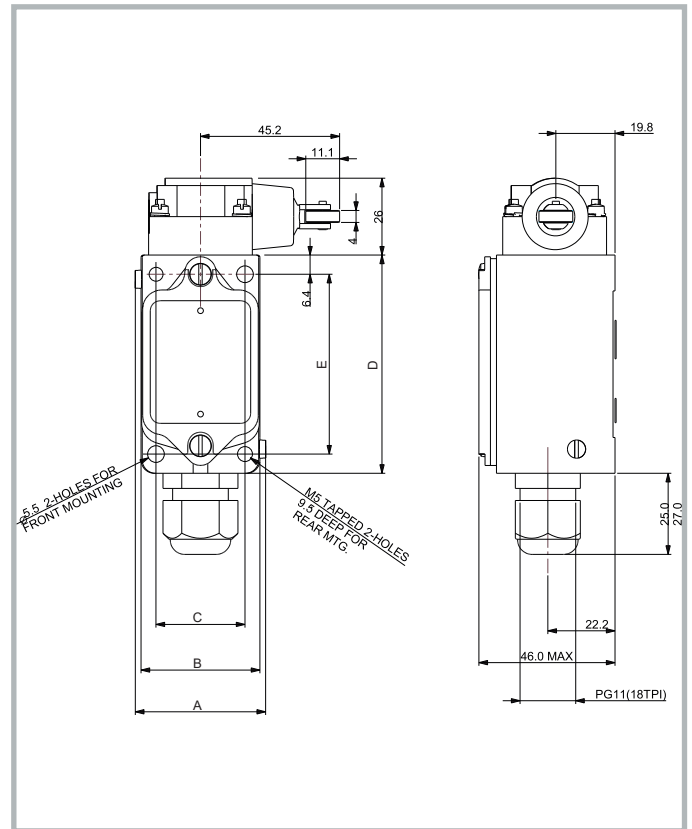
NLLA / NLLA-22

Cat code *	Contacts	A	B	C	D	E	F
NLLA NLTPR NLSPR	1NO+1NC	44.0	39.7	29.4	72.0	59.5	97.5
NLLA-22 NLTPR-22 NLSPR-22	2NO+2NC	44.5	40.5	30.6	77.0	65.0	102.5

* Dimensions of corresponding maintained type (wherever available) & pre-cabled versions remain same.

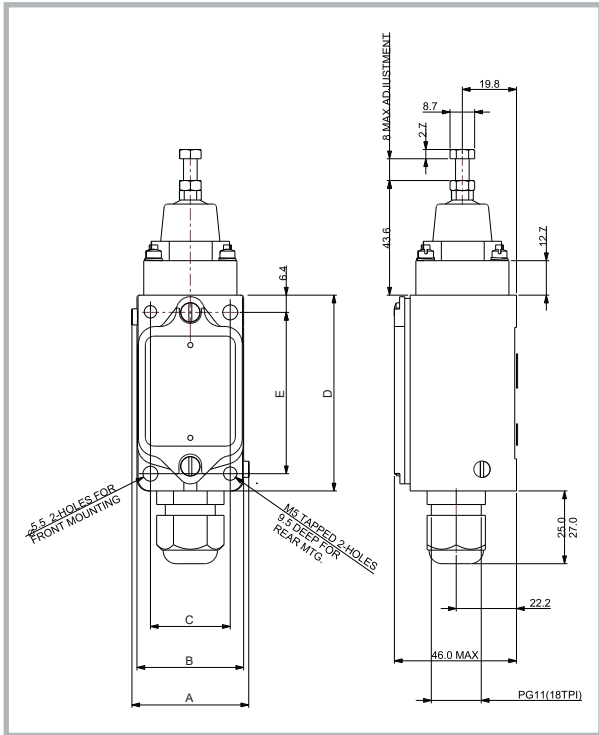


NLTPR / NLTPR-22

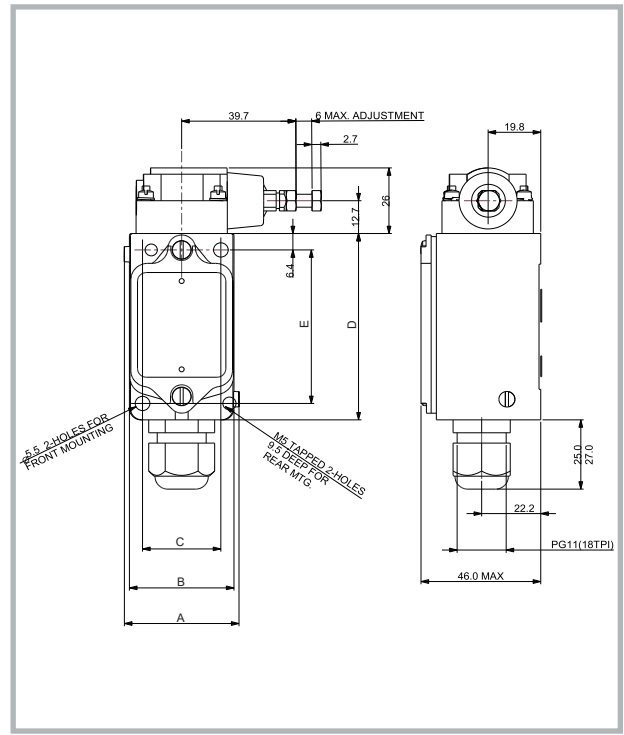


NLSPR / NLSPR-22

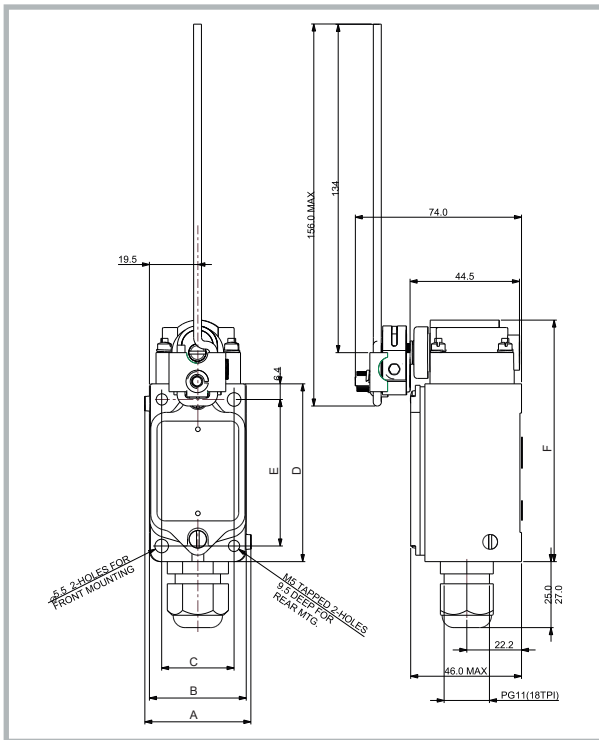
Dimensions in mm



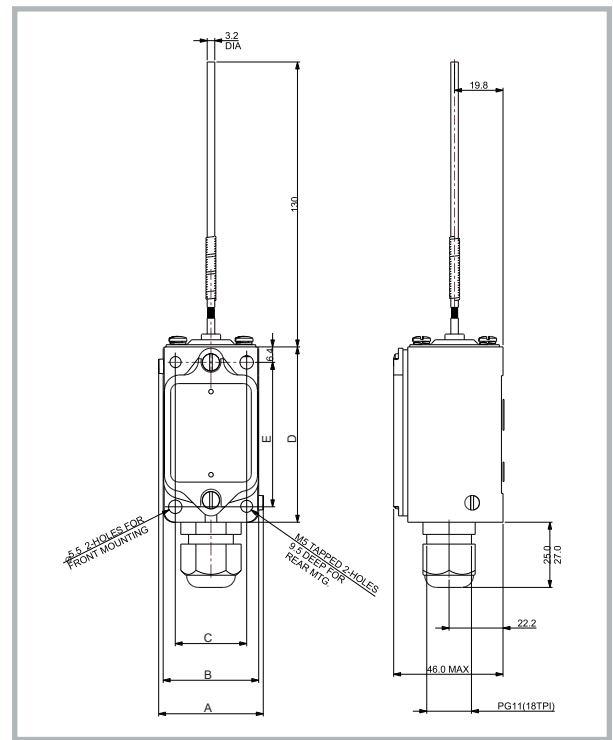
NLTPBA / NLTPBA-22



NLSPBA / NLSPBA-22



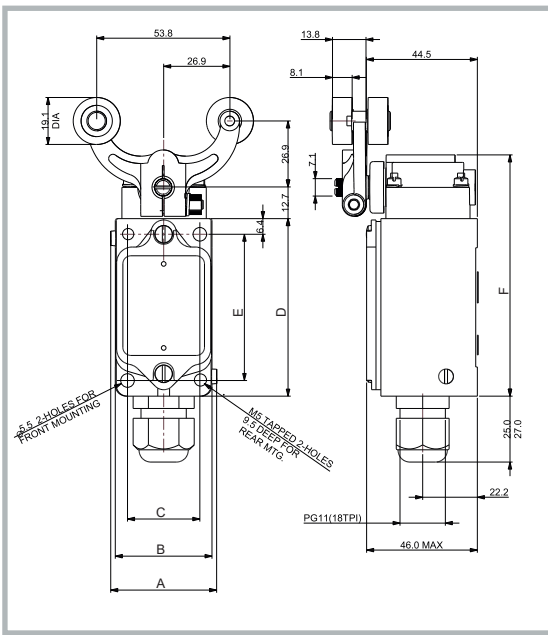
NLJW / NLJW-22



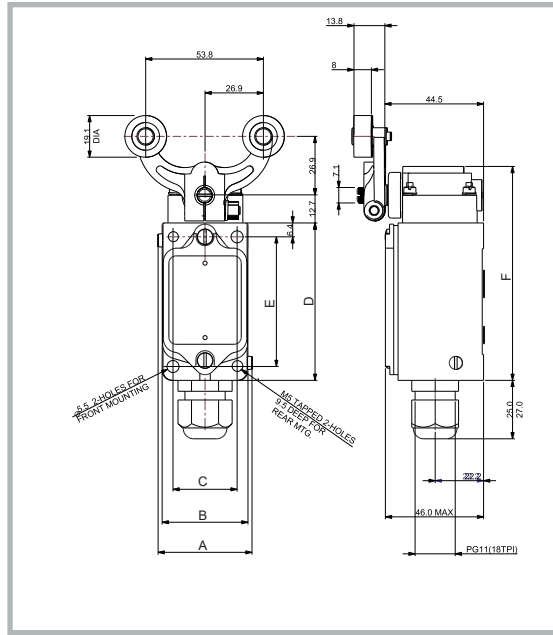
NLCW / NLCW-22

Cat code *	Contacts	A	B	C	D	E	F
NLTPBA / NLSPBA / NLJW / NLCW	1NO+1NC	44.0	39.7	29.4	72.0	59.5	97.5
NLTPBA-22 / NLSPBA-22 / NLJW-22 / NLCW-22	2NO+2NC	44.5	40.5	30.6	77.0	65.0	102.5

* Dimensions of corresponding pre-cabled versions remain same.



NLLFO / NLLFO-22



NLLF / NLLF-22

Cat code*	Contacts	A	B	C	D	E	F
NLLFO	1NO+1NC	44.0	39.7	29.4	72.0	59.5	97.5
NLLFO-22	2NO+2NC	44.5	40.5	30.6	77.0	65.0	102.5

* Dimensions of corresponding maintained type (wherever available) & pre-cabled versions remain same.



BHARTIA

BCH

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