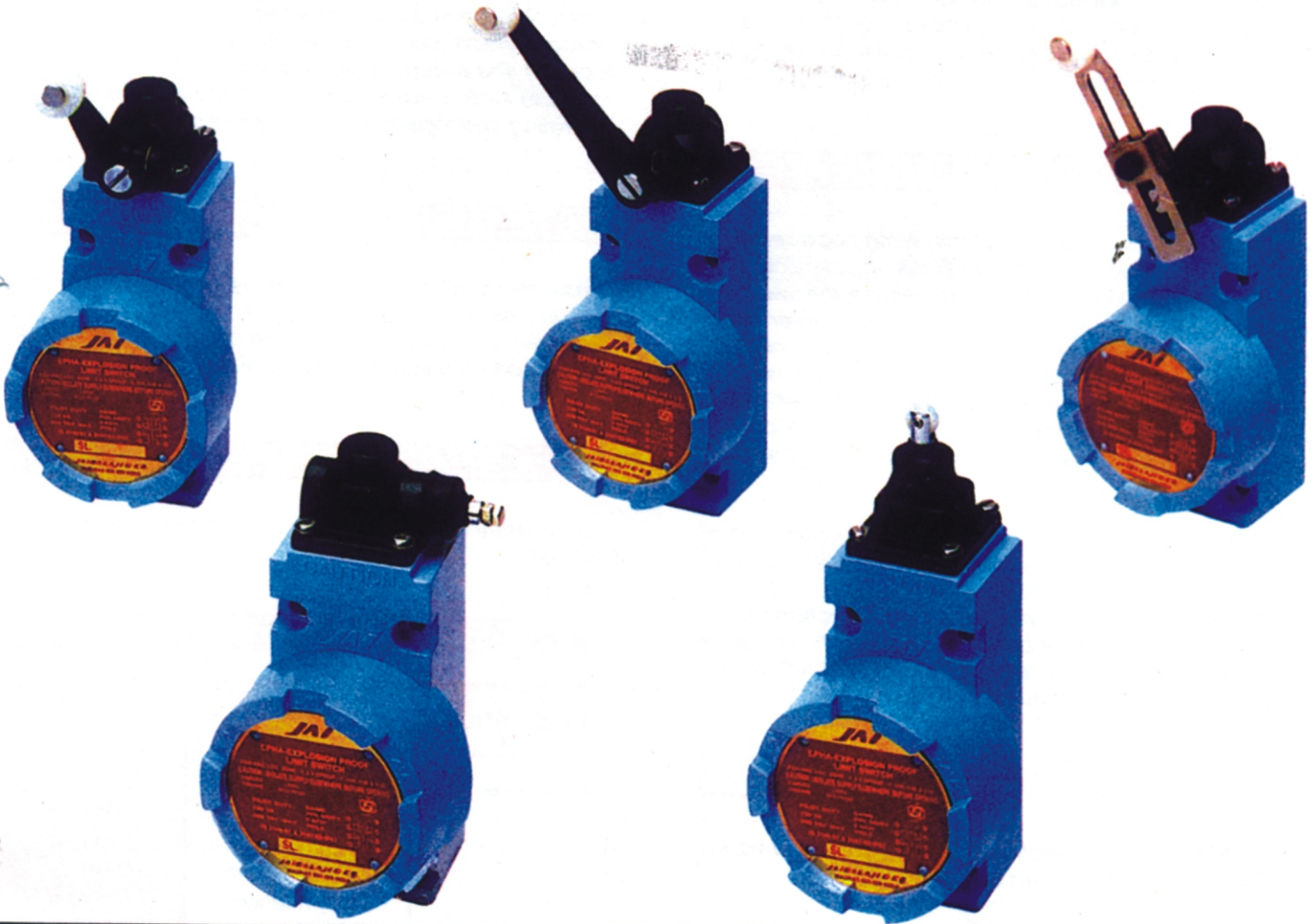




# EPHA LIMIT SWITCHES EXPLOSION-PROOF HAZARDOUS ATMOSPHERE

IS : 13947  
  
Pt 5 / Sec - 1



## DESCRIPTION

*Jai Balaji & Co., offers the EPHA LIMIT SWITCHES in an enclosure suitable for use in hazardous atmosphere. The EPHA type is available in 2 NO + 2 NC output.*

*JAI EPHA LIMIT SWITCHES are for use either indoor or outdoor in hazardous atmospheres, as they are completely sealed explosion proof device.*

*Mounting holes are provided for front or rear mounting making the switch interchangeable with other hazardous location switches.*

*Various types of heads helps to suit in any type of cam and-application.*

ENCLOSURE CONFIRMS TO IS : 2148 ZONE 1&2  
GROUP I, IIA, IIB, IIC & PERFORMANCE AS PER  
IEC -947-5-1 & IS : 13947 / PT 5 / SEC 1 OF 1993.

**CMRI/TC/H45 & H46 DT. 22.8.94**  
**CMRI/TC/H121 & H122 DT. 7.9.94**

- \* NON SPARKING ACTUATORS
- \* SIX TYPES OF OPERATING HEADS
- \* ROTABLE OPERATING HEADS
- \* OPERATES UPTO 121°C
- \* AMPLE WIRING SPACE
- \* MULTIPLE CONTACTS
- \* COMPACT MACHINE TOOL TYPE
- \* FLEXIBILITY OF MOTION



## GENERAL INFORMATION

**JAI EPHA** switches feature the smallest housings available in India for use in hazardous locations. Flame paths within the housing cool exploding gases below the kindling temperature before they reach to explosive gases surroundings the housing.

## SEALS

Application proven heavy duty limit switch head seals are retained to seal the top of the **JAI EPHA**. The circular cover on the front is easily unscrewed to expose the switching elements for wiring or replacement. A screw driver or bar used on the wrenching lugs extending from the front of the cover allows easy removal or tightening. An 'O' ring the seal is located between the housing and cover, flame paths are provided by the cover housing threads and an extended plunger between the switch cavity and head.

## INTERCHANGEABILITY

**JAI EPHA** flame proof limit switches are interchangeable with any standard heavy duty limit switch with a adapter plate. **JAI EPHA** has a recessed back into which the adapter plate fits and mounts using two screws.

## JAI EPHA MODELS

\***JAI EPHA** type limit switches are available with a variety of operating heads to meet diverse applications.

## ROTARY LEVER OPERATING HEADS

They are available in spring return and maintained type. The rotary shaft can be readily changed to operate clockwise, counter clockwise or both. The operating levers may be rotated and locked in any position through 360°. The operating head can be positioned in any of the four sides. The lever rollers are 19mm diameter and 8mm width. The levers are available fixed and adjustable lengths.

## FORK LEVER OPERATING HEADS

Each of the two arms of the length 38 mm has a roller either in line or offset. Available in spring return or maintained type.

## TOP PUSH OPERATING HEADS

They are available in two designs. One has an adjustable push button, the length of which can be adjusted upto 8 mm. (Adjustment is accomplished by turning the threaded, hexagon head, operating plunger and securing it with a lock nut). The second type has a roller of 11.1 mm dia. The top push roller is easier to apply because the direction of operating and repeat accuracy is less critical.

## SIDE PUSH OPERATING HEADS

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

## CABLE ENTRY

Cable entry available either in 1/2" NPT or 3/4" NPT or 1/2" BSPT

## SELECTION CHART

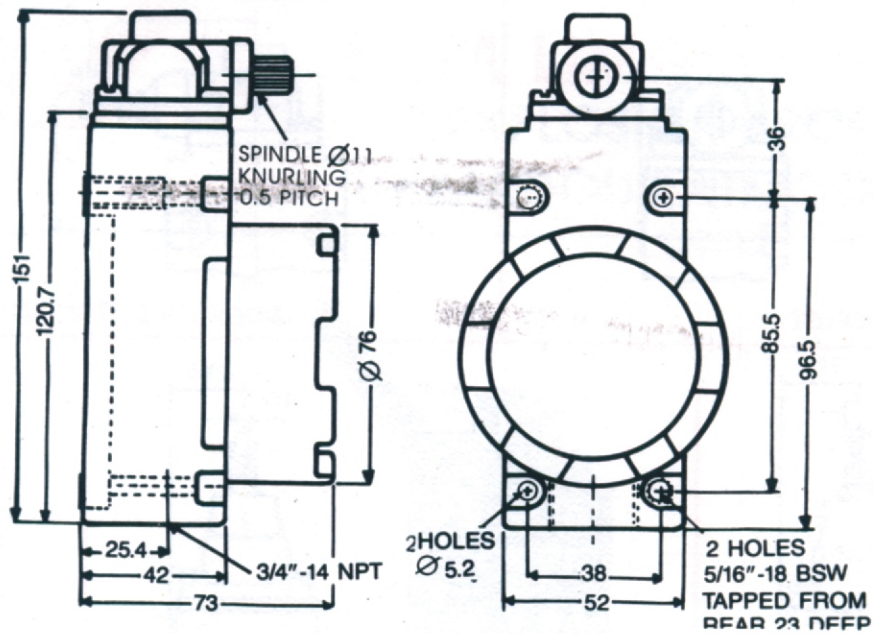
DESCRIPTION	TYPE	ORDERING CODE
Roller Lever	38 mm length 76 mm length 50 mm length 64 mm length 50 mm length (Offset)	EPHA - 1* EPHA - 2* EPHA - 3* EPHA - 4* EPHA - 0*
Adjustable Roller Lever	47 to 75 mm	EPHA - A*
Antina type lever	134 mm length	EPHA - JW*
Fork Lever	Roller in Line With Offset Roller	EPHA - F* EPHA - FO*
Top Push	Roller type Button type	EPHA - TPR EPHA - TPBA
Side Push	Roller type Button type	EPHA - SPR EPHA - SPBA

\* Also available with maintained contact, add M as suffix to code while ordering

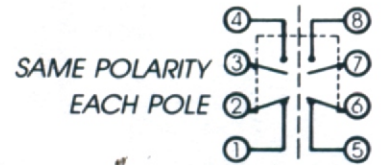


**DIMENSIONS (mm)**

**LEVER TYPE LIMIT SWITCH**



**WIRING DIAGRAM**



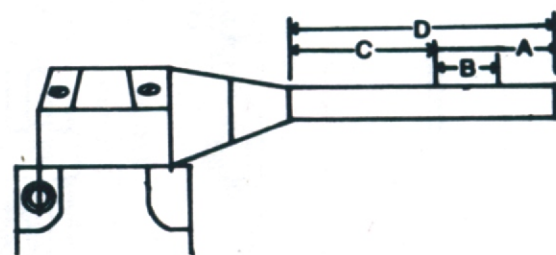
**OPERATING DATA**

MODELS	EPHA 1 EPHA 2 EPHA 3 EPHA 4 EPHA 0 EPHA F EPHA FO EPHA A EPHA JW	EPHA 1M EPHA 2M EPHA 3M EPHA 4M EPHA 0M EPHA FM EPHA FOM EPHA AM EPHA JWM	EPHA TPR EPHA TPBA (mm)	EPHA SPR EPHA SPBA (mm)
Travel to Trip A	10°	50°+	1.3+	2.0+
Travel to reset from trip point B	6°	50°+	1.1	1.7
Overtravel C	60°	40°*	5.7	5.0
Total travel D	70°	90°+	7.0	7.0
Force to trip (max) kg	—	—	2.0	2.0
Operating Torque (max) kgfm	0.046	0.02	—	—

+ Maximum \*Minimum

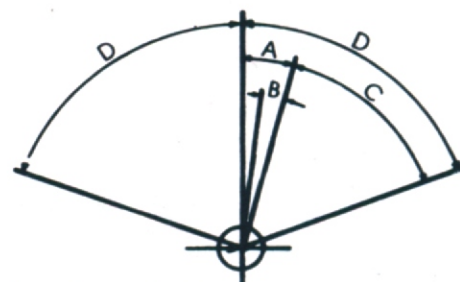
**CHARACTERISTICS**

- Contact Material : Silver
- Electrical Data : 10A-120, 240, 480  
(Maximum available) or 600 V AC
- Performance : As per IEC 947-5-1  
18139/pt 5/Sec 1 of 1993.
- Temperature Range : - 12°C to 121°C
- Sealing : IS : 2147 & IS : 2148
- Housing Material : Aluminum
- Frequency of Operation : 2500 operations  
per hour
- Mechanical Life : 10x10<sup>6</sup> Operations
- Enclosure Category : 1.5mm<sup>2</sup>
- Weight : 700 gms. approx.

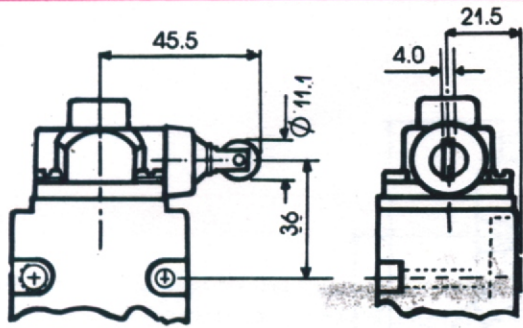


**LINEAR MOTION**

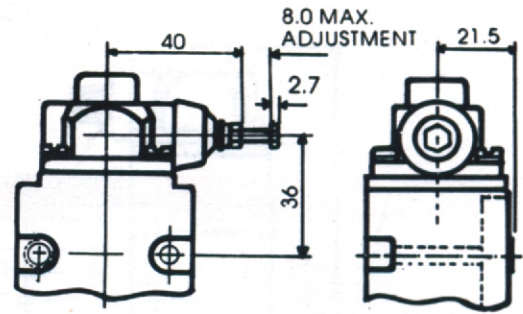
**ANGULAR MOTION**



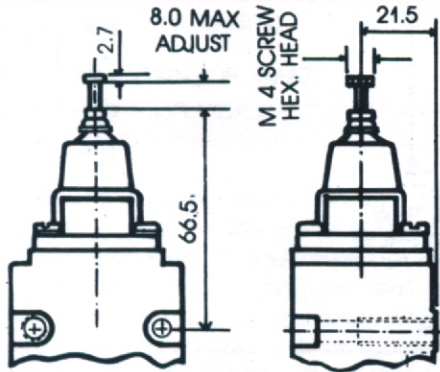
- A = Travel to trip
- B = Travel to reset from trip point
- C = Over travel
- D = Total travel



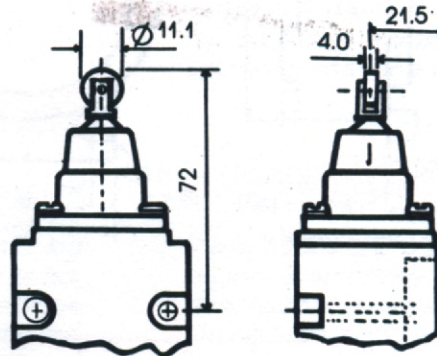
SIDE PUSH ROLLER



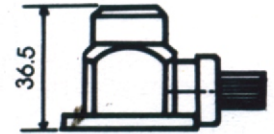
SIDE PUSH BUTTON ADJUSTABLE



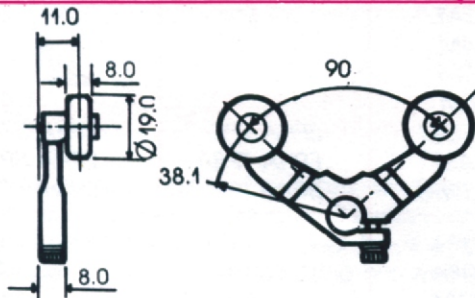
TOP PUSH BUTTON ADJUSTABLE



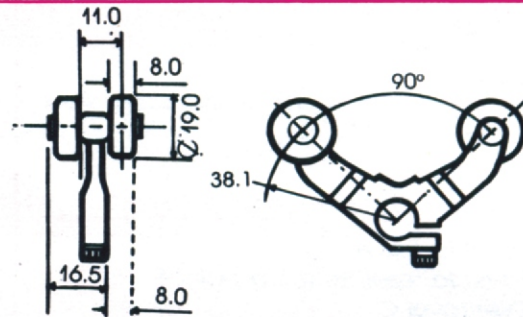
TOP PUSH ROLLER



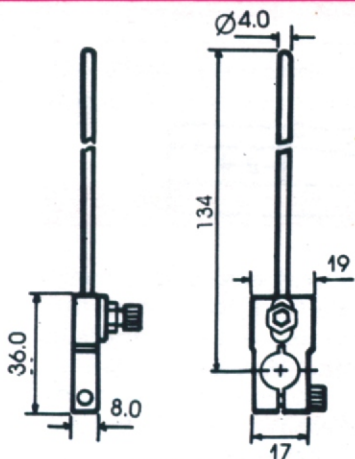
HEAD FOR MAINTAINED CONTACT



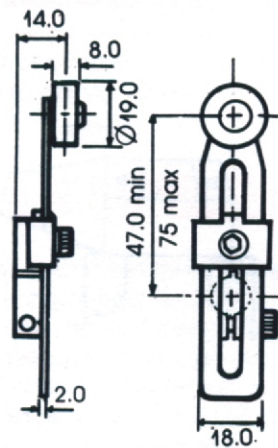
FORK TYPE-INLINE ROLLERS



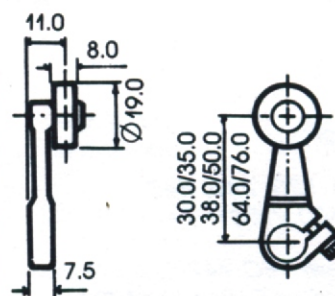
FORK TYPE-OFFSET ROLLERS



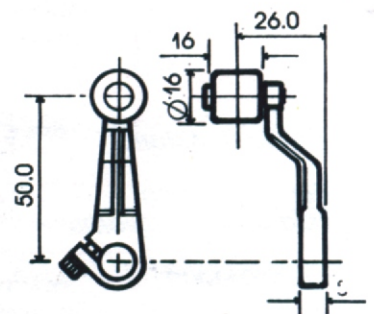
ANTINA TYPE LEVER



ADJUSTABLE LEVER



ROLLER LEVER



OFFSET LEVER

Manufactured by:

**JAI BALAJI & CO.**

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