

# Hochiki SDP-3 Duct Probe

## Installation Instructions

Hochiki's Duct Probe housing allows a standard photoelectric smoke detection device, either a conventional detector or an analogue sensor, to be mounted on the outside of an air duct for the purpose of monitoring the air within the duct. Air within the duct is drawn via a pipe into the duct probe's housing. This allows constant sampling with a standard, LPCB approved smoke detector and makes smoke detection within the duct simple, effective and easy to maintain.

Compatible Hochiki devices that can be used within the SDP-3 are:

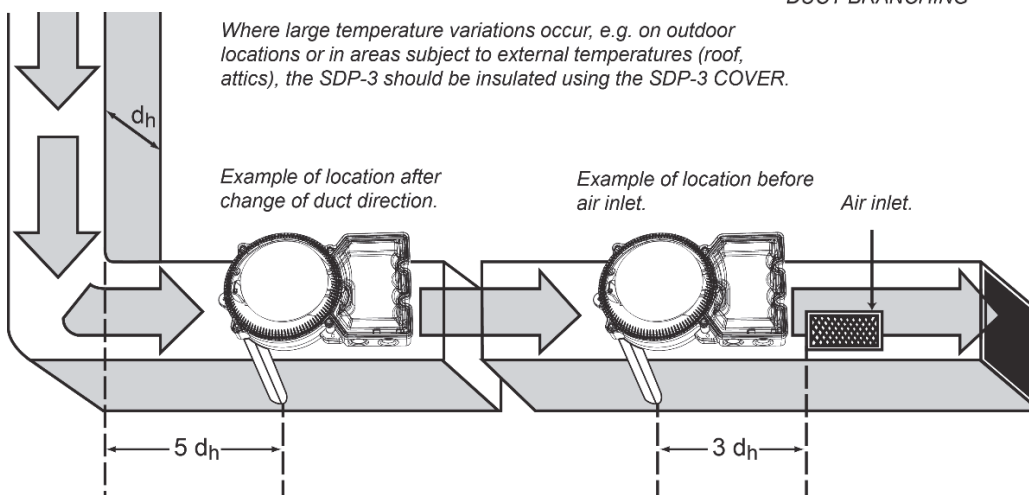
<b>ESP</b> Analogue Sensors	ACA (inc all variants), ACC (inc all variants), ALG (inc all variants), ALN (inc all variants), ALK (inc all variants)
<b>CDX</b> Conventional Detectors	SLR (inc all variants) SLV (inc all variants)

Compatible Hochiki Bases that can be used within the SDP-3 are:

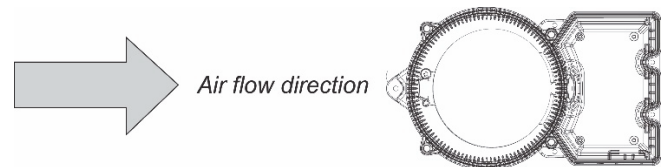
<b>ESP</b> Analogue	YBN-R/3, YBN-R/3(SCI), YBO-R/SCI
<b>CDX</b> Conventional	YBN-R/6, YBN-R/6SK, YBO-R/6R, YBO-R/6RN, YBO-R/6RS.

## Mounting Position

The SDP-3 should be installed with the arrow on the cover corresponding to the direction of airflow in the duct.



The SDP-3 can be placed horizontally or vertically, on the top, side or bottom of the duct. Hochiki recommends that the unit is mounted away from heating, cooling or humidity devices following the same guidelines for flow monitors.

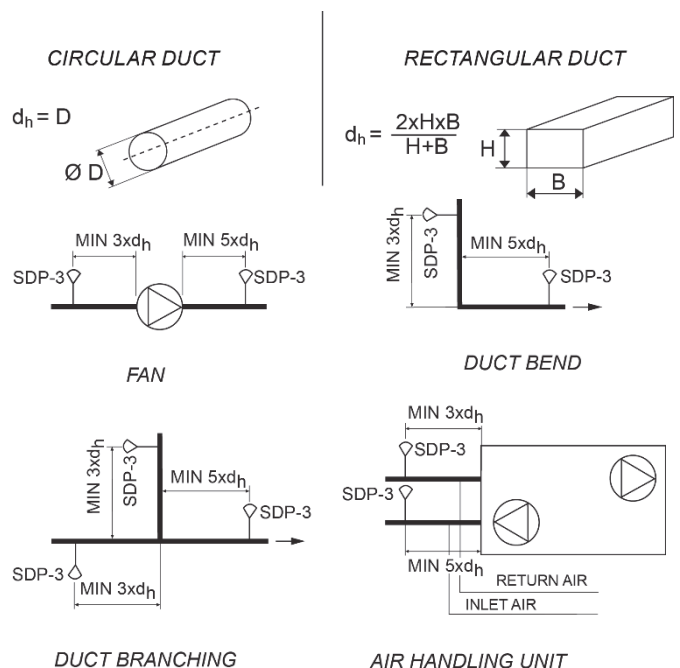


The SDP-3 smoke detector must be installed pointing towards the air flow direction.

A distance of 3 times the duct diameter should be left **before** a damper, filter or change of the duct direction, and 5 times the diameter **after** these devices.

NOTE: The word "diameter" has been used throughout. In the case of square-section ducts this should be read to mean width.

## Hydraulic Diameters



## Example of installations at sources of interference

- Fan
- Damper
- Silencer
- Battery
- Air handling unit
- Duct Bend
- Duct Branching
- Duct Narrowing or Expansion

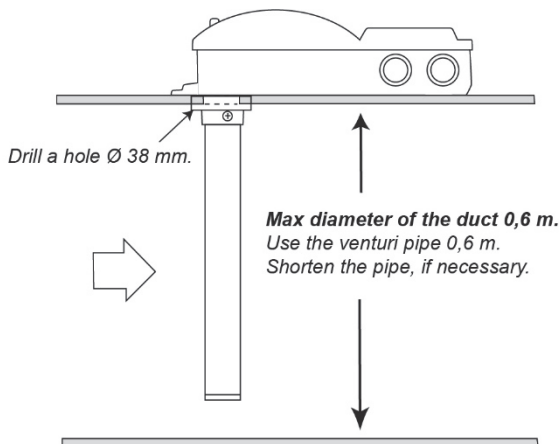
## Installation Procedure

### STEP 1 - Selecting Pipe Length

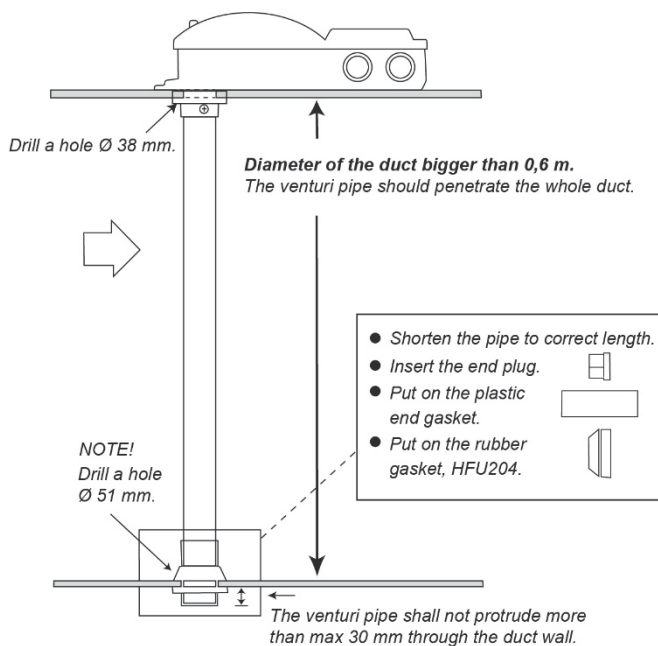
The supplied 600mm sampling pipe can only be used with ducts up to a maximum diameter of 600mm, but the pipe can be shortened if required (see STEP 2).

For ducts with a diameter greater than 600mm use the 1500mm sampling pipe cut to size but penetrating the whole width of the duct (see "Large Diameter Ducts" on Page 2).

For ducts with a diameter greater than 1500mm contact Hochiki Europe Customer Support for advice (psupport@hochikieurope.com).

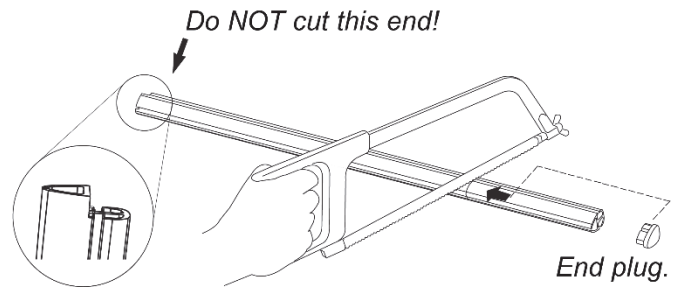


For ducts with a  $\phi$  of less than 0,6 m use the 0,6 m pipe, standard.  
For ducts with a  $\phi$  of between 0,6 m and 1,4 m use the 1,5 m pipe.  
For ducts which are larger than 1,4 m use the 2,8 m pipe.



### STEP 2 - Adjusting Pipe Length

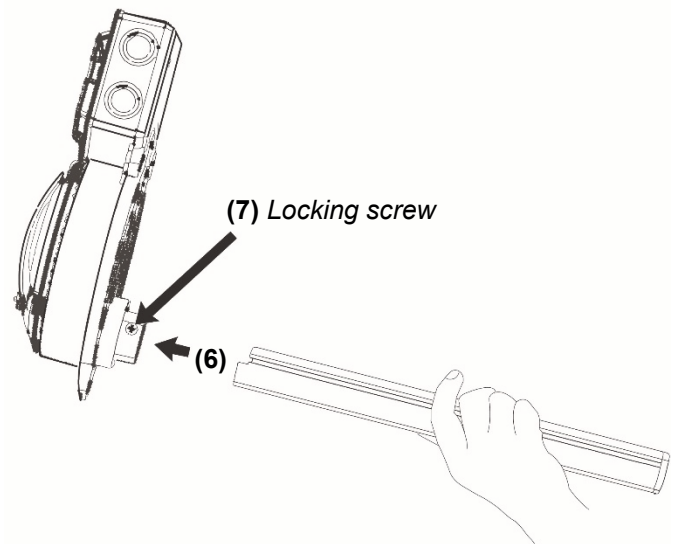
- After measuring the diameter of the duct and deducing the length of pipe required, shorten the pipe if necessary.
- The pipe should penetrate a minimum of 90% of the width of the duct.
- Do not cut the end of the pipe with warning label.
- Only cut between sampling holes.
- Once cut to length, insert the end plug.



#### Large Diameter Ducts

- When using a sampling pipe within a duct greater than 600mm diameter the pipe should penetrate the whole duct.
- Shorten the pipe to correct length if required
- Insert the end plug
- Fit the end plastic gasket
- Fit the sealing sleeve

### STEP 3 – Insert Pipe into SDP-3



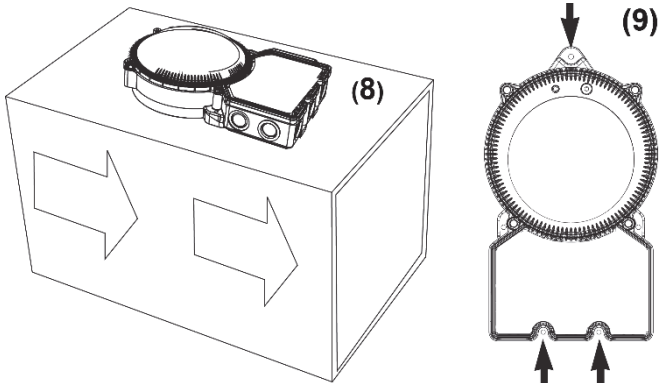
- Insert the pipe into the bottom of the SDP-3.
- Secure the pipe with the locking

## STEP 4 – Drill Hole in Duct

Before mounting the SDP-3, drill a hole in the duct for the sampling pipe:

- Without bracket – hole diameter = 38mm
- With bracket – hole diameter = 51mm (see “Using the Optional Mounting Bracket” on page 4)

## STEP 5 – Mounting the SDP-3 on the Duct

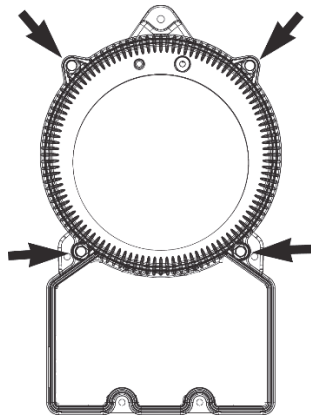


- Carefully mount the SDP-3, inserting the sampling pipe into the drilled hole in the duct wall.
- Secure the SDP-3 with the three supplied three 25mm self-tapping screws (positions shown).

## STEP 6 – Base & Detector Installation

Remove the housing cover (four screws).

**Remove the airflow guide before installing the base and detector. This part MUST be replaced (see STEP 7).**



The smoke detector or sensor is mounted on a base which is fixed and wired to the SDP-3. The mounting base needs to be mounted on the centreline of the unit, using the provided fixing holes.

Once the base is fitted refer to the wiring table at the end of these instructions and follow the colour coding for connecting the flying wires to the mounting base terminals.

**NOTE - IMPORTANT!** When using Hochiki CONVENTIONAL Optical Smoke Detectors. If only one smoke detector is connected to the Control Panel, this detector's base should be fitted with an End Of Line (EOL) device compatible with that Control Panel.

When several smoke detectors are connected to one Control Panel, the EOL device should be connected to the last base. There should only be one EOL device per zone.

The two tables below explain which mounting holes are used to fix the specific mounting bases for each detector type.

ESP Sensors:	ALG or ALK
ESP Bases:	YBN-R/3, YBN-R/3(SCI), YBO-R/SCI
CDX Detectors:	SLR or SLV
Bases:	YBN-R/6, YBN-R/6SK, YBO-R/6R, YBO-R/6RN, YBO-R/6RS.
Fit Base to Mounting Holes 2 and 3	

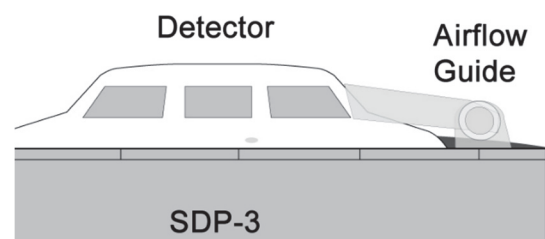
ESP Sensors:	ALN or ACC
ESP Bases:	YBN-R/3, YBN-R/3(SCI), YBO-R/SCI
Fit Base to Mounting Holes 2 and 9	

- Connect the base to the wires from the terminal block within the SDP-3. Use the wiring guide on page 4.
- External cabling should be passed through the knock-out holes located at the end of the SDP-3 housing. The unit features one central cable opening, two additional cable opening knock-outs are provided.
- Suitable glands must be used such as PG13.5 or M20.
- Once base is fixed and connected, mount the sensor/detector ensuring the rib lines up with one on the base.

## STEP 7 – Fitting the Airflow Guide

The airflow guide ensures sampled air from the duct directly enters the smoke detection chamber of the installed sensor/detector and **its position and correct fitting are critical to the unit's performance.**

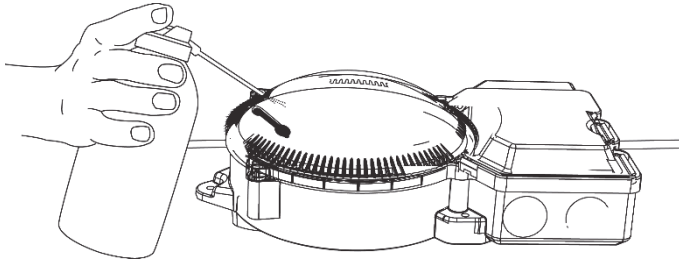
Insert the airflow guide into its mounting pillar and adjust the hinged nozzle to rest directly on the detector, thus ensuring the air from the duct is directed into the detector's smoke chamber.



The airflow guide features a metallic airflow indicator strip which oscillates when a suitable airflow is present. If this strip isn't moving check the airflow in the duct and the mounting position of the unit.

Replace the unit's cover using the four screws.

## STEP 8 – Testing the Sensor/Detector



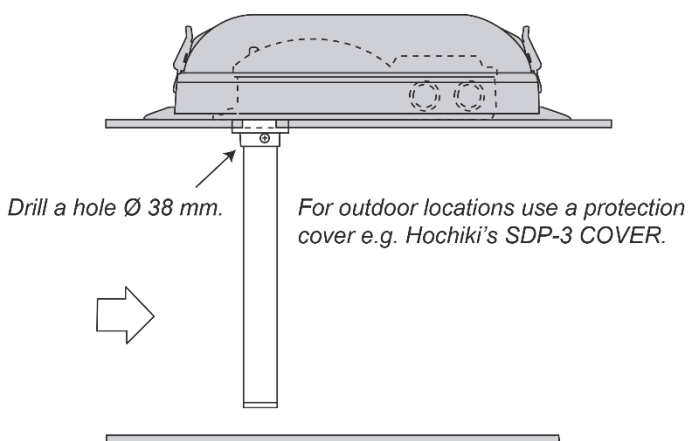
Check the airflow around the detector with a suitable smoke detector tester. Move the “test hole plug” to the side and briefly release a spray of aerosol smoke. Check the detector goes into alarm, i.e. the red alarm LEDs are activated. Also inspect the appropriate fire control panel indicators.

**IMPORTANT! Replace the “test hole plug”.**

**DO NOT** drill any holes in the unit's cover. Holes will cause air leakages and seriously disturb the function of the unit.

## Fitting a Cover

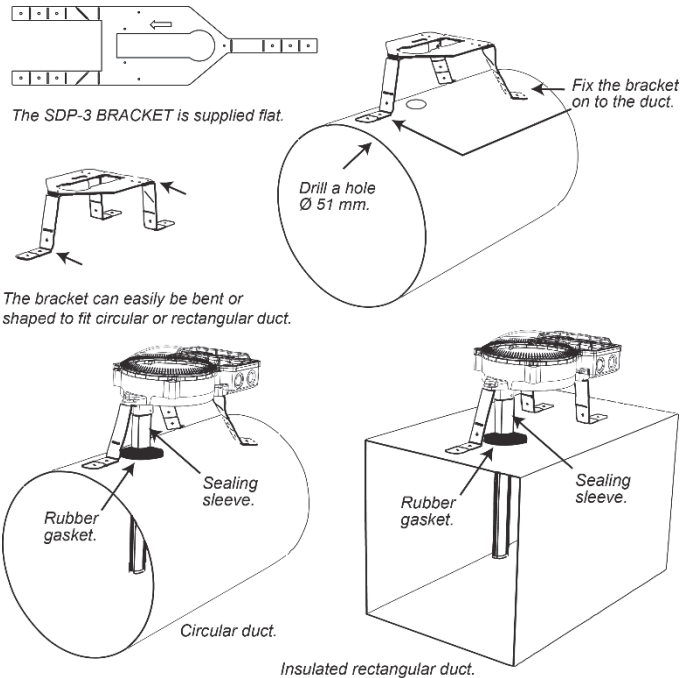
Use the SDP-3 COVER when mounting the unit in places where condensation problems could arise, e.g. cold attics or outdoors.



## Fitting a Bracket

When installing the SDP-3 on circular ducts or on insulated rectangular ducts use the optional Bracket (SDP-3 BRACKET). The bracket can also be used on ducts with a diameter as small as 100mm.

- The SDP-3 BRACKET is supplied flat and can easily be bent or shaped to fit a circular or rectangular duct.
- When using the bracket the diameter of the hole in the duct wall should be 51mm.
- The bracket should be fixed to the duct wall with appropriate fixings (not supplied).
- The supplied rubber gasket and sealing sleeve should be used.



## Final Checks

- Check that the unit has been installed facing into the flow of air within the duct (in other words the slot in the sampling pipe is facing into the air flow).
- Check that the circular rubber gasket between the cover and top edge of the SDP-3 is air-tight.
- Check that the plastic plug of the test hole is also air-tight.
- Check that the air flow indicator oscillates ensuring proper air-flow through the detector.
- It is recommended that smoke from a smoke generator is introduced into the duct to check the function of the unit.

## Trouble Shooting

### If only the Control Panel indicates an alarm/fault:

- Check that the EOL device is fitted in the last smoke detector base on the zone (conventional panels only).
- Check that the EOL device is the correct type (conventional panels only).
- Check the loop for bad connections or short-circuits.
- Check the detector base with a voltmeter for approx 24Vdc and ensure the voltage is the correct polarity.

**If the Smoke Detector and Control Panel indicate an alarm without smoke (and cannot be reset):**

- Check the detector; it may be contaminated with dirt or condensation.
- Replace the detector as it may be faulty.

### Terminal Block to Base Wiring

Refer to LOOP/ZONE CABLES column featuring the intended mounting base in the wiring table opposite.

Wire the loop/zone cables to the terminal block within the SDP-3 as shown. Connect the coloured wires from the terminal block to the base terminals as shown.

BASE TERMINALS				SDP-3 TERMINALS ▼	LOOP/ZONE CABLES			
YBO-R/6R YBO-R/6RN YBO-R/6RS	YBO-R/SCI	YBN-R/6 YBN-R/6SK	YBN-R/3 YBN-R/3(SCI)		YBN-R/3 YBN-R/3(SCI)	YBN-R/6 YBN-R/6SK	YBO-R/SCI	YBO-R/6R YBO-R/6RN YBO-R/6RS
1	1	1	2	1 B	LOOP + OUT	ZONE + OUT, REM IND +	LOOP + OUT	ZONE + OUT, REM IND +
2	2	2	1	2 BL	LOOP + IN, REM IND +	ZONE + IN	LOOP + IN	ZONE + IN
6	5	6	5	3 R	LOOP - OUT	ZONE - OUT	LOOP - OUT	ZONE - OUT
5	6	5	6	4 P	LOOP - IN	ZONE - IN	LOOP - IN	ZONE - IN
4	4	4	4	5 Y	REM IND -	REM IND -	REM IND -	REM IND -
3	3	3	3	6 G	SCREEN	SCREEN	REM IND +	SCREEN
7	7			7 BR			SCREEN	R/C
8				8 W				R/C

B=BLUE, BL=BLACK, R=RED, P=PINK, Y=YELLOW, G=GREEN, BR=BROWN, W=WHITE



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