



**GROVELEY DETECTION**

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## **SCDP-H Self Compensating Duct Probe (Heated)**

### **INSTALLATION AND MAINTENANCE MANUAL**

<b>RELEASE NOTES</b>				
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1	12 Sept 2007	Initial Issue	RJB	DR

Prepared: R.J. Bennet	Approved: D. Rose	Date: 14 September 2007
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## 1 INTRODUCTION

This manual is designed to aid the installation and maintenance of the Groveley Detection heated version Self-Compensating Duct Probe (SCDP-H), supplied for use with a Groveley GDA Aspirator.

The SCDP-H has been designed with the aim of facilitating simple, trouble free, representative sampling of duct environments in cold climates.

The SCDP-H's internal design enables equal volume samples to be drawn from across a duct before combining the samples prior to introduction in to the Aspirator.

The SCDP-H is manufactured with EEx d approved trace heating cable potted down the full length and terminated in the duct mounting spigot at the far end. The cable is also terminated in an EEx d JB at the sampling end of the SCDP-H.

The “reverse wing” contour of the SCDP creates an area of negative pressure on the sample inlet side of the probe. The vacuum draws gases and vapours into this area.

Any large particles carried by the flow in the duct, which may block sampling points of the more traditional probes, will either be too heavy to be drawn into the negative pressure area, or will impact on the leading face of the SCDP-H. In either case the SCDP-H sampling holes will remain unaffected.

For a schematic diagram showing the operating principle of the SCDP-H, see Appendix A.

Dimensions – Each SCDP-H is manufactured to exactly fit across the whole width of the duct to be sampled. Maximum length 4m



## 2 INSTALLATION

To install the SCDP-H a 50mm clearance hole should be drilled in the duct wall on the opposite side to the GDA aspirator sample tube installation side. This hole is to support the probe via the spigot welded on the end. See drawing in Appendix B.

The SCDP-H mounting plate should be bolted to the duct wall on the GDA aspirator sample pipe side.

Once the appropriate holes have been made in the duct, the SCDP-H should be inserted to check it fits, i.e. bolt holes are in line, spigot fits through the mounting hole, etc. Remove the probe and connect to the Aspirator sample line.

The line purge facility on the GDA aspirator should then be activated. Operating the Aspirator line purge facility diverts full pressure instrument air directly down the SCDP-H, blow any dross clear of the sample tubes, ensuring air is emitted from each of the sample holes.

The Aspirator should now be turned on to check that each sampling point of the SCDP-H is pulling a sample before final installation. This can be achieved by blocking all the sample points and then removing and replacing one individually. This will register as a low flow on the aspirator if a sample point is blocked.

When the SCDP has been successfully checked for operation it can be fixed into the duct. Ensure the neoprene gasket supplied is in place prior to inserting into the duct. Once installed the spigot hole should be sealed with mastic or equivalent to retain the integrity of the duct.

Once the SCDP-H is inserted into the duct the power cable for the heat trace cable should be connected into the EEx e JB, see Appendix C for wiring details.

The main technical details relating to the SCDP-H are:-

Nominal power consumption:	230 Vac
Heat output at +10°C:	63.6 W/m



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### 3 MAINTENANCE

Maintenance frequency is determined by conditions in the duct being sampled. The SCDP-H will be blown clean every time the GDA Aspirator line purge facility is used in association with routine GDA Aspirator maintenance. This action alone should keep the SCDP-H in working order.

Initially it is recommended the SCDP-H is checked every 6 months for correct operation. This period may be extended depending on site conditions and results of initial inspections. The SCDP-H will need to be removed from the duct when operating conditions allow.

Visually inspect the probe, and ensure none of the sample points are blocked. If so, operate the line purge facility on the GDA Aspirator to clear them.

If problems are encountered, please contact Groveley Detection for further information.



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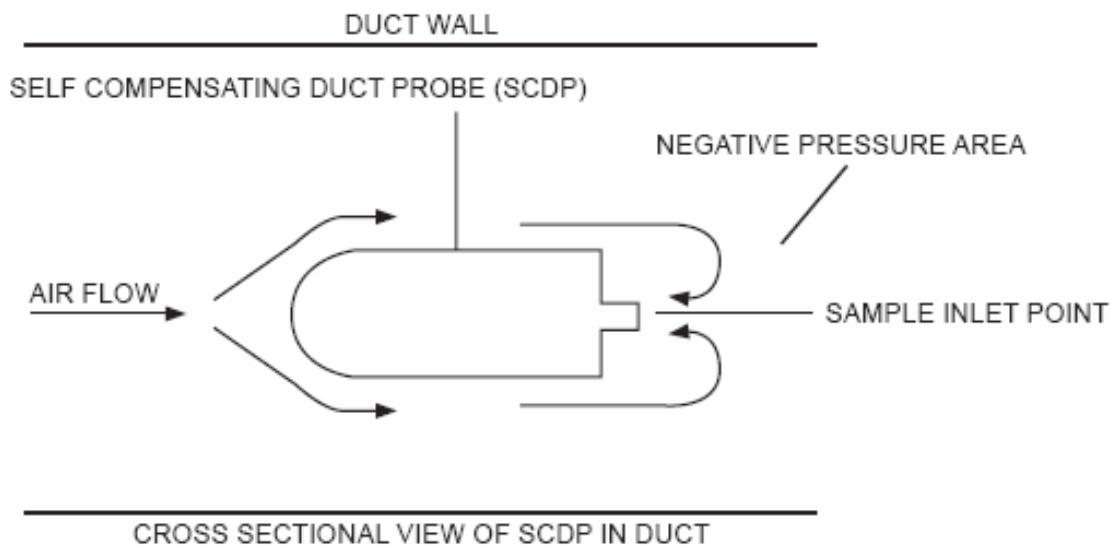
### Appendix A: Self Compensating Duct Probe Method of Operation

The Groveley Heated Self Compensating Duct Probe (SCDP-H) has been designed to allow simple, trouble free, representative sampling of duct environments. When used in conjunction with a Groveley GDA aspirator it provides a complete duct sampling system capable of operating in hazardous areas.

The SCDP-H draws a representative sample from the whole width of a duct, no matter what the flow rate or pressure in the duct. The design ensures equal volumes of sample are drawn from each duct sampling point, before combining them prior to introduction to an aspirator.

The SCDP-H operates on the “reverse wing” principle (see below). The contour of the SCDP-H creates an area of negative pressure on the opposite side to the airflow direction. The samples are drawn from this area behind the probe protecting the sample holes from becoming blocked by particulate in the duct.

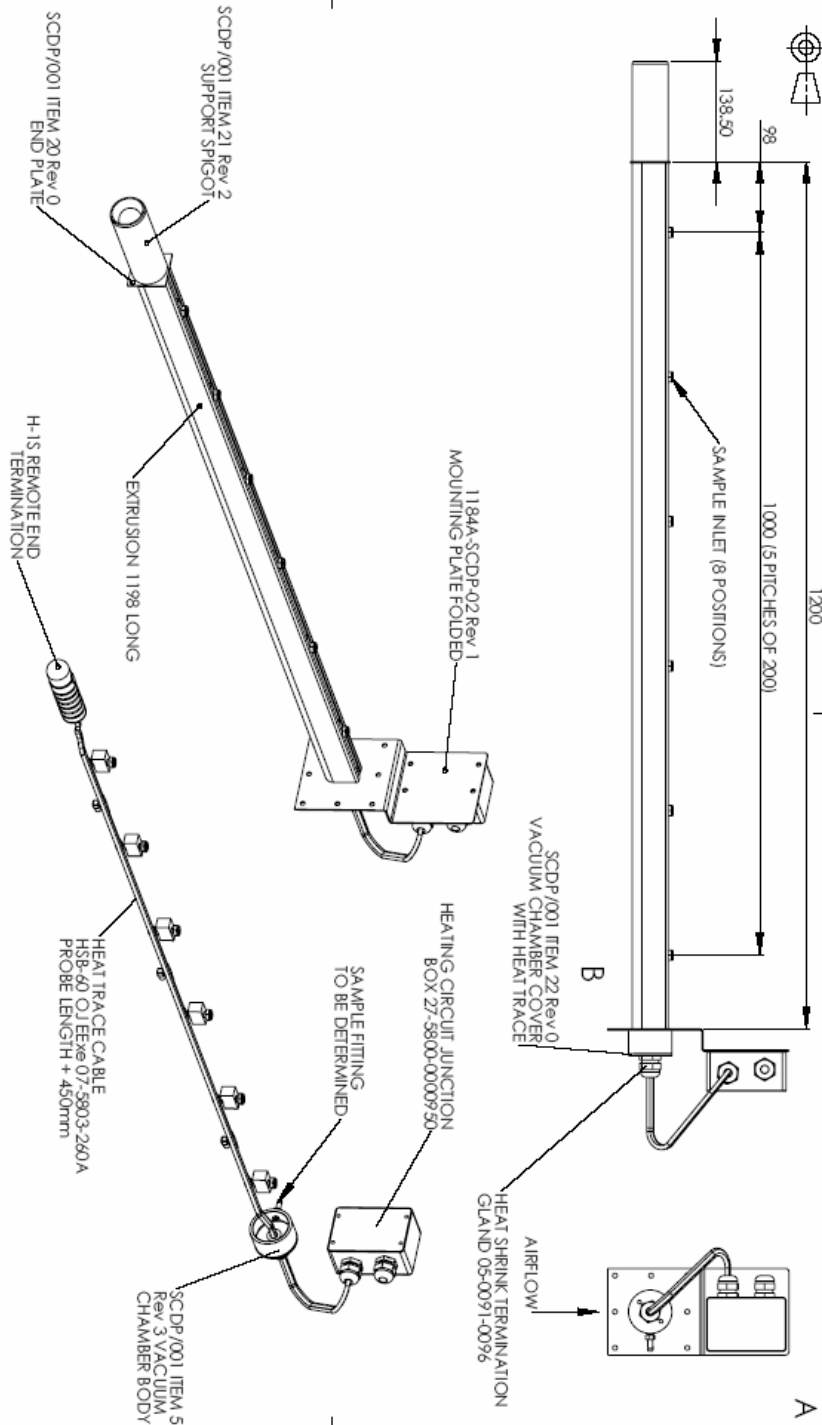
Large particles carried by the flow in the duct, which may block sampling points of traditional probes, will either be too heavy to be drawn into the negative pressure area, or will impact on the face of the SCDP-H. In either case the SCDP-H sampling holes will remain unaffected.





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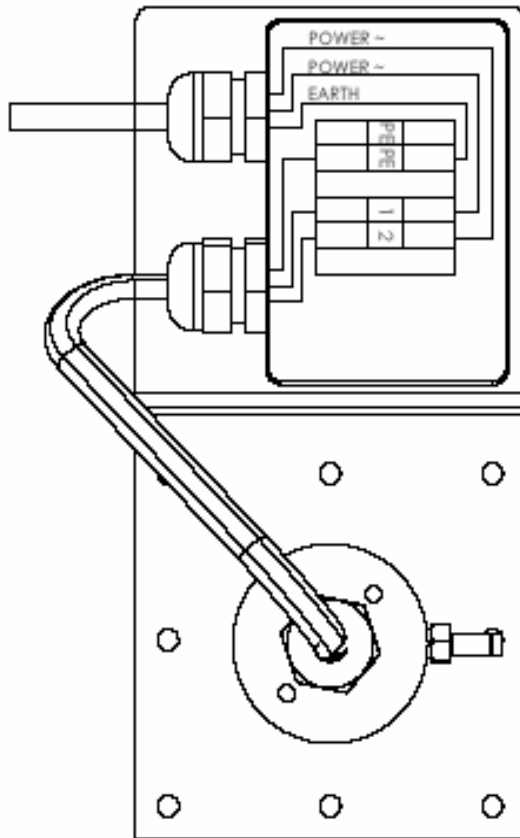
Appendix B: SCDP-H Typical Dimension and Fixing Details





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Appendix C: SCDP-H Typical Wiring Details



POWER: 230V AC

VIEW ON CONNECTION END OF SELF  
COMPENSATED DUCT PROBE



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Groveley Detection Limited would greatly appreciate being informed of any errors or omissions that may be found in our documents. To this end we include a form, below, for you to photocopy, complete and return to us so that we take the appropriate action. Thank you.

Please fax or e-mail your response to:

a) Fax: +44 (0) 1202 486658

b) E-mail: sales@groveley.co.uk

From:	
Tel :	
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Email :	
<b>I suggest the following corrections/changes be made to Section .....</b>	
Marked up copies attached (as appropriate):	Yes/No
Please inform me of the outcome of this change:	Yes/No
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Actioned by: _____	Date: _____
Response: _____	Date: _____