



GROVELEY DETECTION

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Self Compensating Duct Probe

**Variants: Heated
Unheated
Filter-Heated
Filter-Unheated**

INSTALLATION AND MAINTENANCE MANUAL

| RELEASE NOTES | | | | |
|----------------------|-------------|----------------------|----------|----------|
| Rev. | Date | Revision History | Prepared | Approved |
| 6 | 19 Apr 2008 | Filter Details Added | ADC | DR |
| 5 | 09 Apr 2008 | New Drawing Added | TS | DR |
| 4 | 02 Nov 2002 | New Format | DB | ES |

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| Prepared: A.Croft | Approved: D.Rose | Date: 19 September 2008 |
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1 INTRODUCTION

This manual is designed to aid the installation and maintenance of the Groveley Detection Self-Compensating Duct Probe (SCDP), heated or unheated variants, supplied for use with a Groveley GD-A Aspirator.

The SCDP has been designed with the aim of facilitating simple, trouble free, representative sampling of duct environments.

The SCDP'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 “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. In either case the SCDP sampling holes will remain unaffected.

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

Dimensions – Each SCDP is manufactured to exactly fit the customers duct.
Maximum length 4m



2 INSTALLATION

SCDP

To install the SCDP a 20mm clearance hole should be drilled in the duct wall on the opposite side to the GD-A aspirator sample tube installation. This hole is to support the probe via the spigot welded on the end. See drawing in Appendix B.

The SCDP mounting plate should be bolted to the duct wall on the GD-A aspirator sample pipe side using dimensions shown on drawing in Appendix B.

Once the appropriate holes have been made in the duct, the SCDP 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.

See section 2.1 for final operation instructions.

Heated SCDP-H

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

The SCDP mounting plate should be bolted to the duct wall on the GD-A aspirator sample pipe side using dimensions shown on drawing in Appendix C.

SCDP-H should then be wired as per drawing in Appendix D.

See section 2.1 for final operation instructions.

- 2.1 Operating the Aspirator line purge facility diverts full pressure instrument air directly down the SCDP, 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 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.



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3 MAINTENANCE

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

Initially it is recommended the SCDP is checked every 6 months for correct operation. This period may be extended depending on site conditions and results of initial inspections. The SCDP 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 Aspirator to clear them.

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

Filtered Variants

Some versions of the SCDP include sample point filters. To ensure the duct probe continues to function correctly the filter caps should be removed and changed every 6 months.

To remove the sample point filter simply unscrew the old filter and replace with a new unit (spare part no. GD-SCDP-DF).

Do not attempt to clean the filter elements as this will permanently damage the filter material.

4 HEATED SCDP-H

The heated self compensating duct probe version operates exactly as the standard probe. However the probe is supplied with self regulating heat trace cable fitted along the leading edge of the SCDP internals and wired to an approved termination junction box.

Nominal power consumption: 230 Vac

Heat output at +10°C: 63.6 W/m

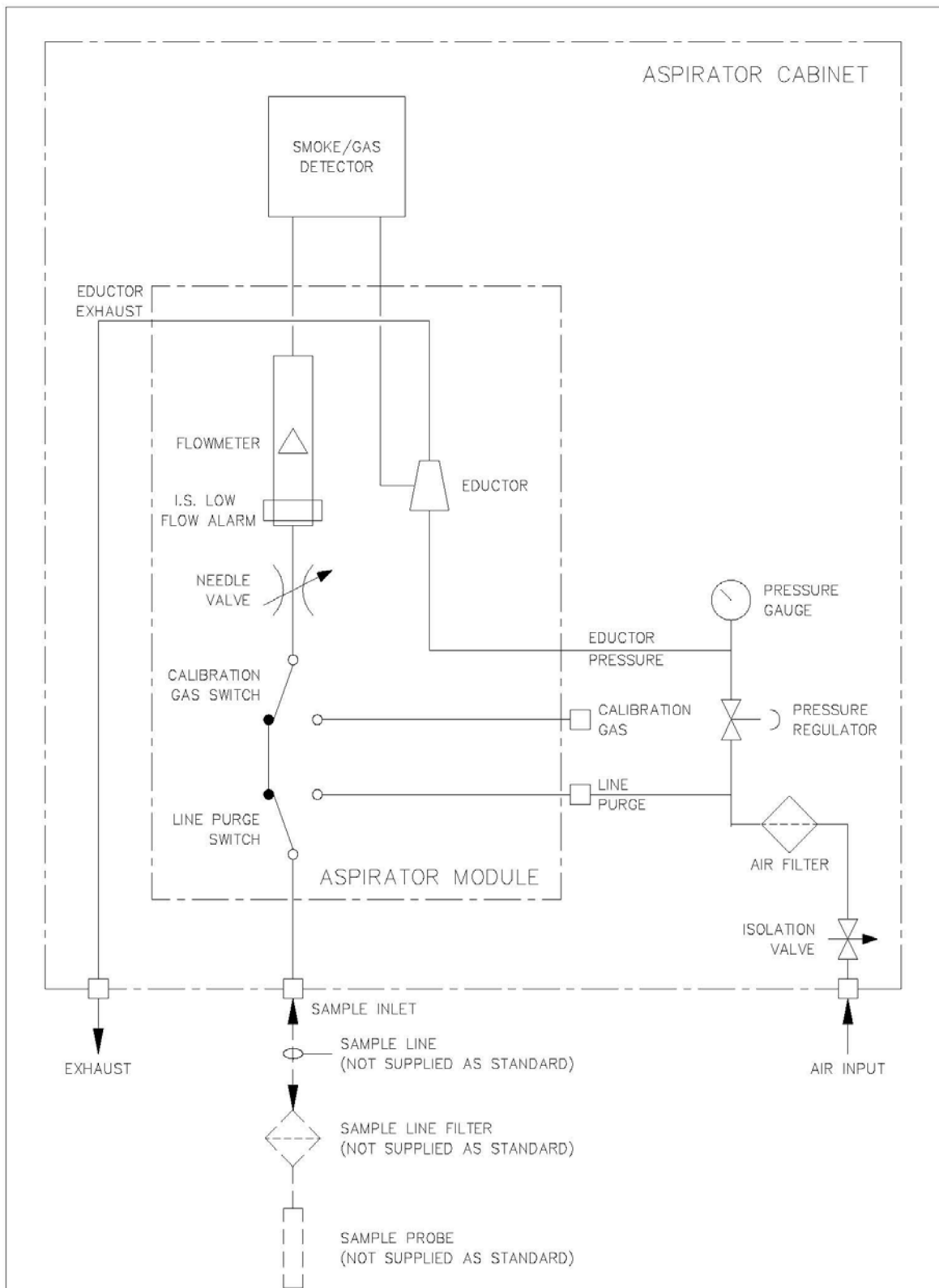
5 SPARES

Sample point filters (if used): GD-SCDP-DF

These should be replaced every 6 months.



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| No. | REVISION | BY | DATE | CHKD | DATE | 31-08-02 | Title | | |
| 0 | FOR APPROVAL | CB | 8.02 | RJB | DRAWN | C.BACHINI | TYPICAL SINGLE CHANNEL INSTRUMENT AIR DRIVEN GD-A ASPIRATOR SCHEMATIC SHOWING LOW FLOW ALARM | | |
| | | | | | CHECKED | | Scale | Drawing Number | Rev |
| | | | | | ENG.APP. | | N/A | GDA-SCH-03 | 0 |
| | | | | | JOB No. | | | | |

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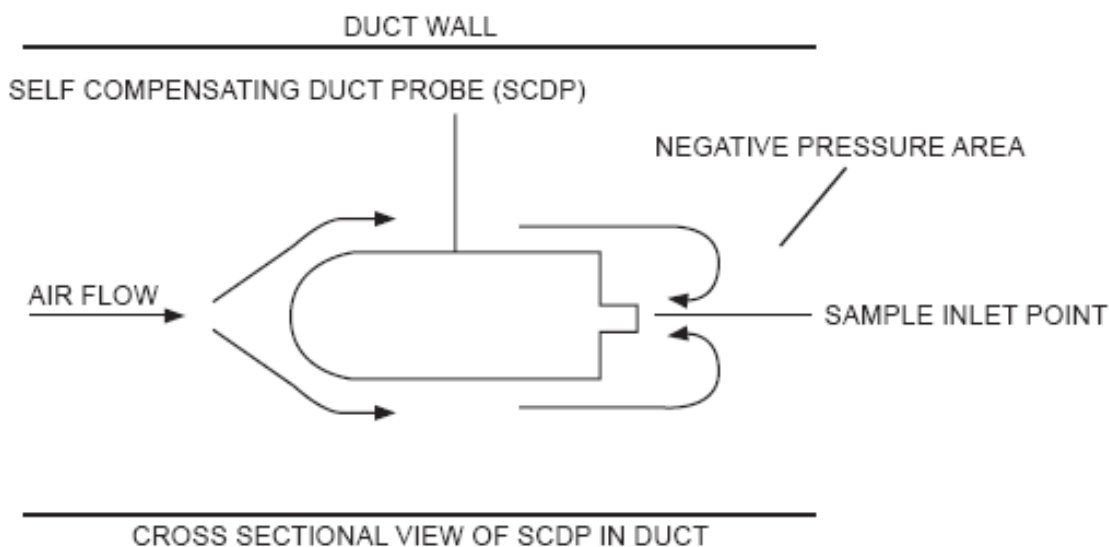
Appendix A: SCDP & SCDP-H Method of Operation

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

The SCDP 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 operates on the “reverse wing” principle (see below). The contour of the SCDP 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. In either case the SCDP sampling holes will remain unaffected.





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Appendix B: SCDP Typical Dimension and Fixing Details

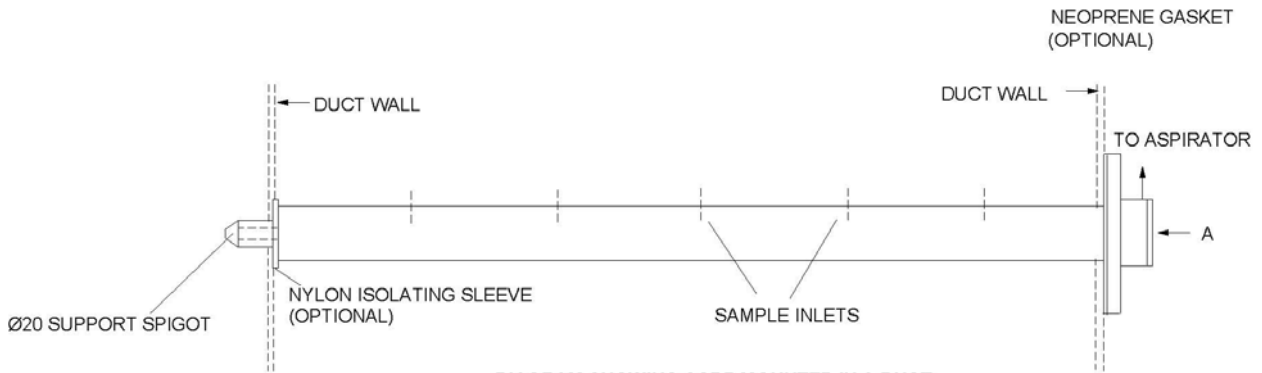
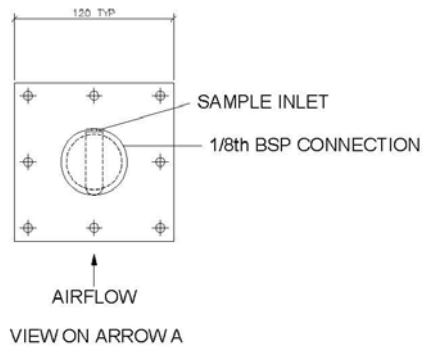


DIAGRAM SHOWING SCDP MOUNTED IN A DUCT

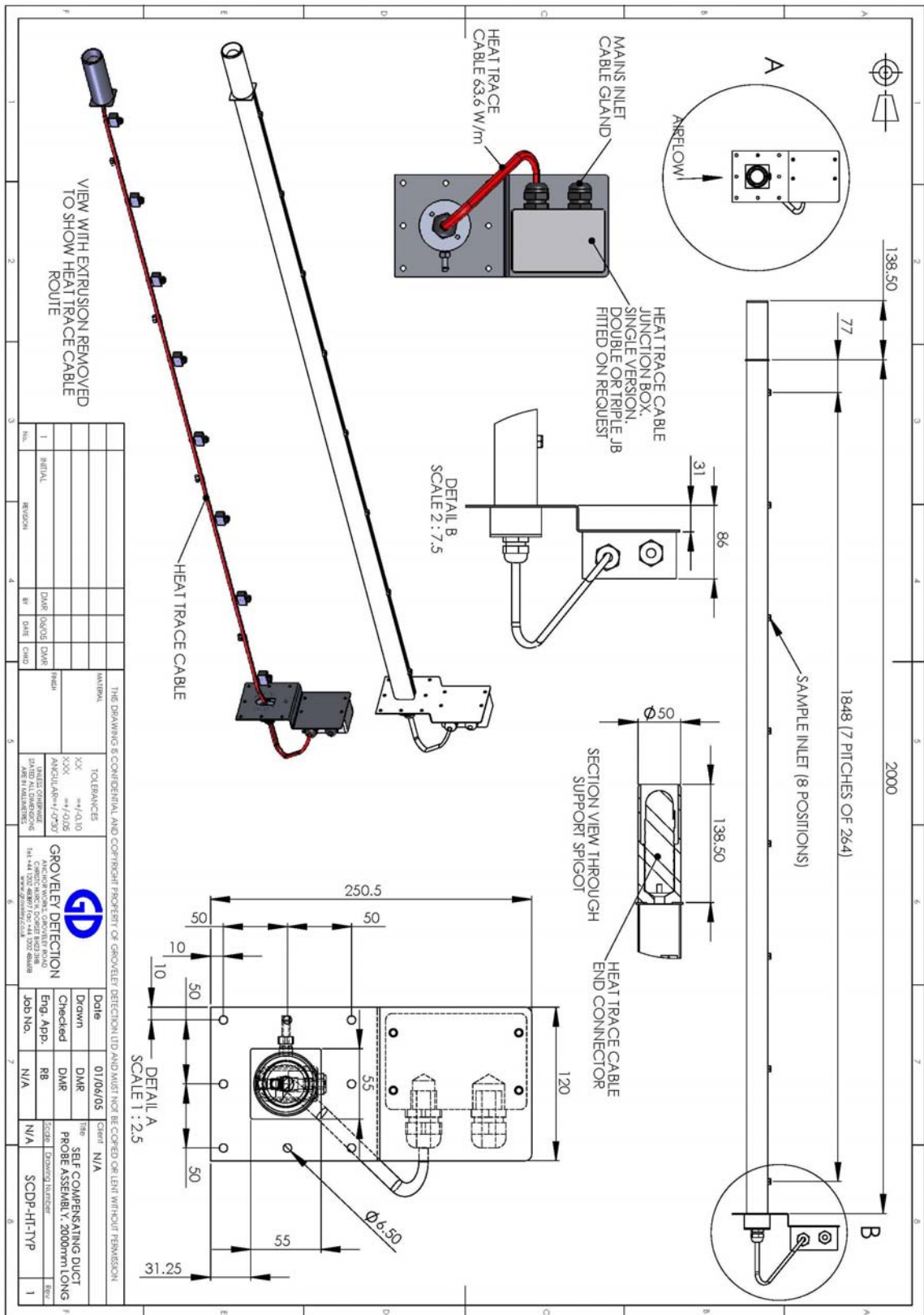


If you have a duct sampling application and need advice, please contact Groveley Detection sales staff who will endeavour to be of assistance.



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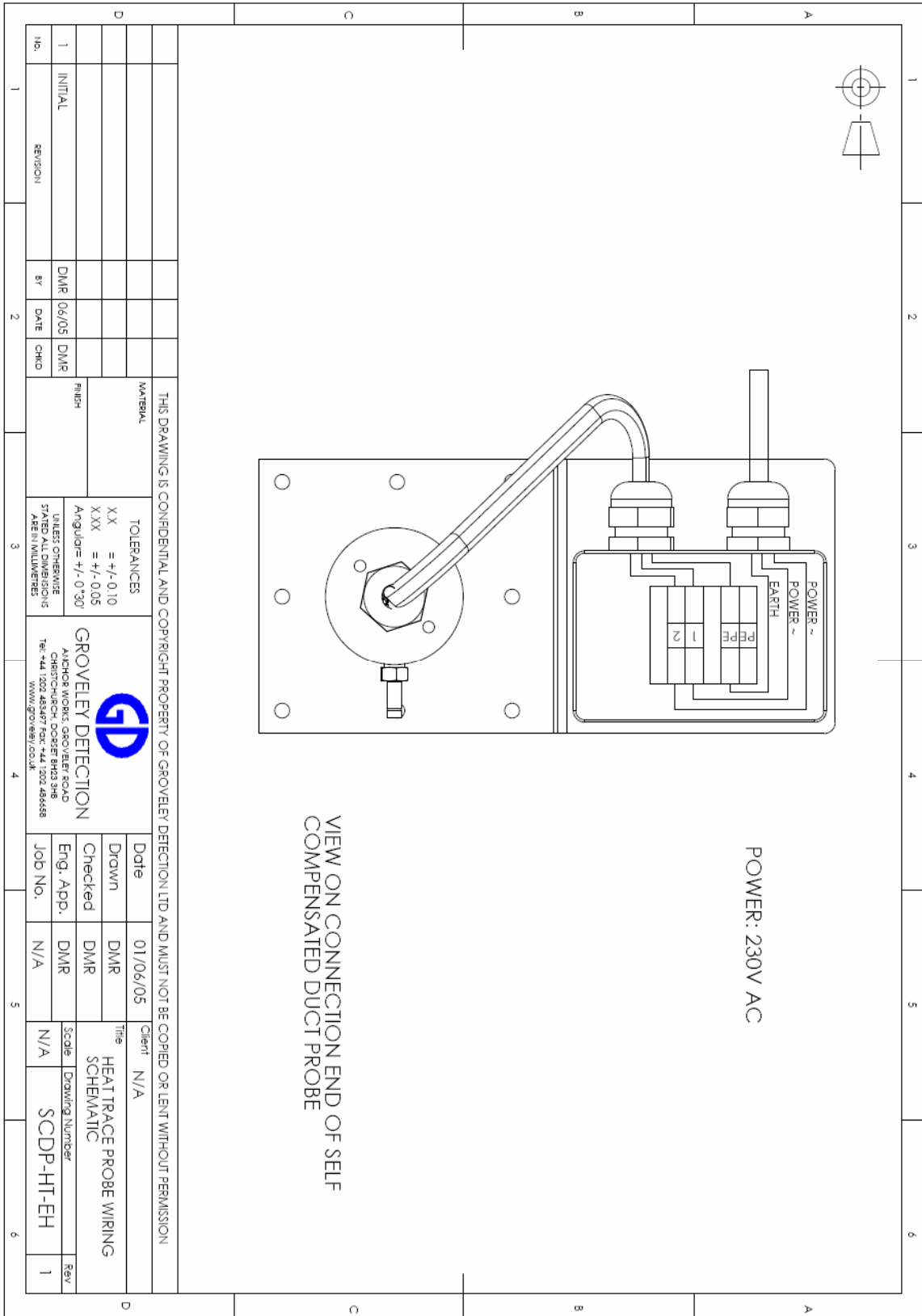
Appendix C: SCDP-H Typical Dimension and Fixing Details





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Appendix D: SCDP-H Wiring Details



| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | | | | | | | | | | |
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| MATERIAL | | | | | | | | | | | | | | | | | | | | | |
| FINISH | | | | | | | | | | | | | | | | | | | | | |
| TOLERANCES | | | | | | | | | | | | | | | | | | | | | |
| XX = +/- 0.10 | | | | | | | | | | | | | | | | | | | | | |
| XXX = +/- 0.05 | | | | | | | | | | | | | | | | | | | | | |
| Angular = +/- 0.30° | | | | | | | | | | | | | | | | | | | | | |
| UNLESS OTHERWISE STATED ALL DIMENSIONS ARE IN MILLIMETRES | | | | | | | | | | | | | | | | | | | | | |
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| Date | | | 01/06/05 | | | Client | | | N/A | | | | | | | | | | | | |
| Drawn | | | DMR | | | Title | | | HEAT TRACE PROBE WIRING SCHEMATIC | | | | | | | | | | | | |
| Checked | | | DMR | | | Scale | | | Drawing Number | | | | | | | | | | | | |
| Eng. App. | | | DMR | | | N/A | | | SCDP-HT-EH | | | | | | | | | | | | |
| Job No. | | | N/A | | | Rev | | | 1 | | | | | | | | | | | | |
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