
VESDA-E VEU DESIGNLESS PIPE NETWORKS APPLICATION NOTE

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Preface

Xtralis has generated pre-engineered pipe network tables for VESDA-E VEU detector. The pre-engineered pipe network tables presented in this Application Note aim to provide for easy VESDA-E VEU detector deployment in the field.

Related Products

VESDA-E VEU detector.

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1 Introduction

VESDA-E VEU supports many pre-engineered pipe network designs to simplify field installations. All pre-engineered pipe networks presented in this document are linear and follow EN54 configuration (Class A, B and C).

2 EN54 Designs

VESDA-E VEU & Pipe Requirements & Limitations

VESDA-E VEU - ASD & Pipe Requirements & Limitations				
Parameters	Limits	Class C	Class B	Class A
Distance from VEU to 1 st Hole (m)	Min	4	4	4
	Max	35	10	10
Hole Spacing (m)	Min	5	3	3
	Max	11	7	7
Max Smoke Transport Time (sec)		<120	<90	<60
Indicative Hole Sensitivity –Fire 1 (Obs %/m)		Set to - 8%/m (4.5 - 10%/m) (Fire 1)	Set to 3%/m (1.5 - 4.5%/m) (Fire 1)	Set to 1%/m ≤1.5%/m (Fire 1)
Pipe / Bends		21mm ID E700 – SB / PIP-005		
Pipes		Symmetric layout		
Maximum Pipe Length	1 Pipe	1 x 160m		
	2 Pipes	2 x 150m		
	3 Pipes	3 x 130m		
	4 Pipes	4 x 100m		
Min System Balance		70%		
Aspirator Speed		10 *		

* Refer to VESDA-E VEU Product Guide for power calculations.

Note: All holes are evenly spaced (±20%).

3 Class A Pipe Networks (Ø21mm Pipe ID)

Class A - 1 Pipe Network									
Number of Sampling Holes	2 – 3	4	5	6	7	8	9 - 10	11	12 - 19
Sampling Hole Ø (mm)	6	5.5	5	4.5	4	3.5	3	2.5	2
Max. Indicative Fire1 Level (%/m)	0.320 – 0.490	0.230	0.182	0.150	0.128	0.110	0.098 – 0.1	0.08	0.046 – 0.081

Note: Max distance from 1st to last hole: 55m.

Class A - 2 Pipe Network									
Number of Sampling Holes / Pipe	2 – 4	5	6	7	8	9 - 10	11	12 - 17	
Sampling Hole Ø (mm)	6	5.5	4.5	4	3.5	3	2.5	2	
Max. Indicative Fire1 Level (%/m)	0.11 – 0.247	0.088	0.075	0.064	0.056	0.047 – 0.053	0.043	0.027 – 0.04	

Note: Max distance from 1st to last hole: 50m.

Class A - 3 Pipe Network									
Number of Sampling Holes / Pipe	2 – 3	4	5	6	7	8 - 9	10	11 - 16	
Sampling Hole Ø (mm)	6.5	6	5	4	3.5	3	2.5	2	
Max. Indicative Fire1 Level (%/m)	0.102 – 0.16	0.073	0.062	0.05	0.042	0.033 – 0.038	0.031	0.019 – 0.029	

Note: Max distance from 1st to last hole: 45m.

Class A - 4 Pipe Network									
Number of Sampling Holes / Pipe	2 – 3	4	5	6	7	8 - 9	10 - 14		
Sampling Hole Ø (mm)	6.5	6	5	4	3.5	3	2.5		
Max. Indicative Fire1 Level (%/m)	0.075 – 0.119	0.055	0.039	0.037	0.032	0.026 – 0.027	0.015 – 0.023		

Note: Max distance from 1st to last hole: 40m.

4 Class B Pipe Networks (Ø21mm Pipe ID)

Class B - 1 Pipe Network								
Number of Sampling Holes	2 – 4	5	6	7	8	9 - 10	11	12 - 21
Sampling Hole Ø (mm)	7	5.5	4.5	4	3.5	3	2.5	2
Max. Indicative Fire1 Level (%/m)	0.740 – 1.470	0.590	0.450	0.410	0.340	0.267 – 0.32	0.26	0.125 – 0.243

Note: Max distance from 1st to last hole: 65m.

Class B - 2 Pipe Network								
Number of Sampling Holes / Pipe	2 – 4	5	6	7	8	9 - 10	11	12 - 20
Sampling Hole Ø (mm)	7	5.5	4.5	4	3.5	3	2.5	2
Max. Indicative Fire1 Level (%/m)	0.32 – 0.735	0.26	0.22	0.192	0.169	0.13 – 0.15	0.122	0.066 – 0.115

Note: Max distance from 1st to last hole: 60m.

Class B - 3 Pipe Network								
Number of Sampling Holes / Pipe	2 – 3	4	5	6	7	8 - 9	10	11 - 19
Sampling Hole Ø (mm)	7	6	5	4	3.5	3	2.5	2
Max. Indicative Fire1 Level (%/m)	0.33 – 0.49	0.230	0.185	0.155	0.135	0.095 – 0.1	0.092	0.046 – 0.085

Note: Max distance from 1st to last hole: 55m.

Class B - 4 Pipe Network								
Number of Sampling Holes / Pipe	2 – 3	4	5	6	7	8 - 9	10 - 14	15 - 17
Sampling Hole Ø (mm)	7	6	5	4	3.5	3	2.5	2
Max. Indicative Fire1 Level (%/m)	0.22 – 0.355	0.16	0.12	0.11	0.095	0.073 – 0.084	0.047 – 0.066	0.04 – 0.046

Note: Max distance from 1st to last hole: 50m.

5 Class C Pipe Networks (Ø21mm Pipe ID)

Class C - 1 Pipe Network							
Number of Sampling Holes	2 – 3	4	5	6	7	8	9 - 13
Sampling Hole Ø (mm)	7	6	5	4	3.5	3	2.5
Max. Indicative Fire1 Level (%/m)	2.450 - 3.91	1.76	1.39	1.2	1.025	0.898	0.58 – 0.8

Note: Max distance from 1st to last hole: 75m.

Class C - 2 Pipe Network							
Number of Sampling Holes / Pipe	2 – 3	4	5	6	7	8	9 - 13
Sampling Hole Ø (mm)	7	6	5	4	3.5	3	2.5
Max. Indicative Fire1 Level (%/m)	1.2 – 1.95	0.875	0.69	0.594	0.51	0.45	0.272 – 0.4

Note: Max distance from 1st to last hole: 70m.

Class C - 3 Pipe Network							
Number of Sampling Holes / Pipe	2	3	4	5	6	7 – 8	9 - 12
Sampling Hole Ø (mm)	7	6.5	5	4	3.5	3	2.5
Max. Indicative Fire1 Level (%/m)	1.25	0.775	0.59	0.461	0.41	0.291 – 0.345	0.195 – 0.266

Note: Max distance from 1st to last hole: 65m.

Class C - 4 Pipe Network						
Number of Sampling Holes / Pipe	2 - 3	4	5	6	7	8 - 12
Sampling Hole Ø (mm)	7	5	4	3.5	3	2.5
Max. Indicative Fire1 Level (%/m)	0.65 – 0.98	0.43	0.358	0.295	0.255	0.148 – 0.22

Note: Max distance from 1st to last hole: 60m.