

# Compressed Air/Gas Leak Detection

It is estimated that 30% of the compressed air that is generated in the UK is wasted through leakage.

**Rectifying your leaks can significantly reduce your operating costs.**

**Maxaura's leak detection surveys identify and pin-point the location of the leaks from a compressed air or gas system. Not only does the survey identify where the leaks are, but it can (in almost all cases) determine the magnitude and hence the cost of each leak. The study also illustrates the potential savings that can be won.**

To achieve this level of detail in our surveys we use state of the art ultrasonic leak detectors. These units can identify the smallest of leaks, even those which are *inaudible* to the human ear. They operate by only detecting sound in a specific frequency range and therefore disregard other noises and sounds normally associated with production and manufacturing processes.

During the survey each leak is allocated a unique number and listed on the summary sheet. A label, detailing the following information, is fixed to the system as close to the source as possible.

- Leak Number
- Severity of the Leak
- Area on Site
- Location in Area
- Additional Comments

Additionally, if there is a drawing of the system available, the leaks will be clearly marked on it, allowing a quick visualization of the location of the leaks to hasten the repair process.

On completion of the survey a detailed report is issued, incorporating the following sections:

- Summary of Departmental Leak Detection Result
- Breakdown of Each Departmental Leak Detection Results
- Graphs and Charts illustrating Leaks by Area and Potential Savings

A leak detection survey and the subsequent rectification of the leaks:

- Significantly improves system efficiency
- Reduces system operating costs
- Reduces carbon footprint
- Improves working environment by reducing noise levels
- Reduces maintenance requirements



## A typical report includes the following

A table summarising the number of leaks found in each department or area, the total for the site and the estimated cost on an annual basis.

SUMMARY OF DEPARTMENTAL LEAK DETECTION RESULTS											
Calculations Based on the following:						Client: <b>Sample Client</b>					
Annual Running Hours: 8760 hours						Location: <b>The Site</b>					
Unit Electricity Cost: 3.14 p/kWh											
Generation Efficiency: 22 kW/100cfm											
Page & Area	Number Of Leaks	CFM	Estimated Cost Of Leakage p.a	Number	Remaining Leaks	CFM	Cost	Number	Repaired Leaks	CFM	Cost
Page1	PM2/Basement	9	28.5	£ 1,725	9	28.5	£ 1,725	0	0	£ -	-
Page2	PM2/Machine floor	1	2.5	£ 151	1	2.5	£ 151	0	0	£ -	-
Page3	No.2 Stock prep room	1	8	£ 484	1	8	£ 484	0	0	£ -	-
Page4	No.2 Stock prep room	1	4	£ 242	1	4	£ 242	0	0	£ -	-
Page5	No.5 compressor room	1	1.5	£ 91	1	1.5	£ 91	0	0	£ -	-
Page6	PP1	20	117	£ 7,080	20	117	£ 7,080	0	0	£ -	-
Page7	PM1 Basement	4	26.5	£ 1,604	4	26.5	£ 1,604	0	0	£ -	-
Page8	PM1 Miscellaneous areas	12	62	£ 3,752	12	62	£ 3,752	0	0	£ -	-
Page9	PM1 Stock preparation	15	70.5	£ 4,266	15	70.5	£ 4,266	0	0	£ -	-
Page10	PM3 Miscellaneous areas	15	69	£ 4,175	15	69	£ 4,175	0	0	£ -	-
Page11	PP1 and PP2	19	128	£ 7,746	19	128	£ 7,746	0	0	£ -	-
Page12	12	0	0	£ -	0	0	£ -	0	0	£ -	-
Page13	13	0	0	£ -	0	0	£ -	0	0	£ -	-
Page14	14	0	0	£ -	0	0	£ -	0	0	£ -	-
Page15	15	0	0	£ -	0	0	£ -	0	0	£ -	-
Page16	16	0	0	£ -	0	0	£ -	0	0	£ -	-
Page17	17	0	0	£ -	0	0	£ -	0	0	£ -	-
Page18	18	0	0	£ -	0	0	£ -	0	0	£ -	-
<b>TOTALS</b>		<b>98</b>	<b>517.5</b>	<b>£ 31,316</b>	<b>98</b>	<b>517.5</b>	<b>£ 31,316</b>	<b>0</b>	<b>0.0</b>	<b>£ -</b>	<b>-</b>
SUMMARY OF LEAKS BY SIZE											
Scale	Number	% of Total	Leakflow	TotFlow	LeakKW	TotKW	Leak£	Tot£			
1	0	0%	0.50	0.0	0.11	0.0	£ 30	£ -	<b>Total Cost of Leakage £ 31,316</b>		
2	5	5%	1.50	7.5	0.33	1.7	£ 91	£ 454	<b>Leakage Flow 517.5CFM</b>		
3	12	12%	2.50	30.0	0.55	6.6	£ 151	£ 1,815	<b>KW for Leakage 113.85KW</b>		
4	30	31%	4.00	120.0	0.88	26.4	£ 242	£ 7,262			
5	27	28%	6.00	162.0	1.32	35.6	£ 363	£ 9,803			
6	21	21%	8.00	168.0	1.76	37.0	£ 484	£ 10,166			
7	3	3%	10.00	30.0	2.20	6.6	£ 605	£ 1,815			
8	0	0%	15.00	0.0	3.30	0.0	£ 908	£ -			
9	0	0%	25.00	0.0	5.50	0.0	£ 1,513	£ -			
10	0	0%	100.00	0.0	22.00	0.0	£ 6,051	£ -			
<b>Totals</b>	<b>98</b>	<b>100%</b>	<b>517.50</b>			<b>113.85</b>		<b>£ 31,316</b>			
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Secondary tables in the report provide details on all of the leaks in each of the departments or areas. Again this indicates the size of each leak and its cost on an annual basis, which allows the rectification of the leaks to be prioritised in order of the cost savings. Full details of the nature of the leak are provided along with its location.

Sample Client - The Site		Calculations assume:		Running hours	8760 hrs/a	
Department: PP1		Electricity Cost:		3.14 p/kWhr		
		Generation Efficiency:		22 kW/100cfm		
Departmental Leak Detection Survey						
Leak No.	Location of Leak	Nature of Leak (Location, Description)	Severity of Leak (1-10)	Estimated Leak Size (cfm)	Estimated Max Cost (£)	Date Repaired
14	Fine screen annex	Filter bowl on wall between panels	3	2.5	151.29	
15	PP1 preparation / Primary screen	12mm nylon pipe next to screen chuffed through	7	10.0	605.14	
16	PP1/21P Sidehall screen	Fractured 6mm pipe nylon pipe at top of stairs	10.0	605.14		
17	PP1/21C Behind switch 4X	8mm nylon pipe chuffed through	5	6.0	363.08	
18	PP1/21C Below Valve LCV-21-3104	Open ended 8mm nylon pipe	5	6.0	363.08	
19	PP1/21C By Valve LCV-21-310A	8mm nylon pipe poorly blanked off	5	6.0	363.08	
20	PP1/21C Below isolation valve 48X	Fittings of pipe manifold MA-21-12	4	4.0	242.06	
21	PP1/21C Under panel (2nd Sidehall)	Pipe into 1" gate valve	3	2.5	151.29	
22	PP1/21D Panel MA-21-5	Auto drain valve on filter below panel	4	4.0	242.06	
23	PP1/21D Valve HS-45X	Door seal of pneumatic cylinder	7	10.0	605.14	
24	PP1/21G Valve-30X	Nylon pipe connection to valve	6	6.0	363.08	
25	PP1/21G Posited pump	From body of filter/regulator	4	4.0	242.06	
26	PP1/21G Air main above deck A drive fan	From 1.5" pipe coupling	4	4.0	242.06	
27	PP1/21G Belt press control panel	Nylon pipe fitting into panel	5	6.0	363.08	
28	PP1/21B Panel MA-21-7	Auto drain valve of filter next to panel	5	6.0	363.08	
29	PP1/21B Valve HS-12X	Fractured nylon pipe to pneumatic valve	4	4.0	242.06	
30	Not used					
31	Dispurger area. Panel MA.21.15	Nylon pipe fitting into panel	5	6.0	363.08	
32	PP1/21B Drum thicken filtrate pump	Connection to filter/regulator (top) mounted on tank	4	4.0	242.06	
33	Stock brightening tower. Valve 447B	Nylon pipe fractured on supply to valve	6	6.0	363.08	
34	Towers HDS & HDS. Valve HS-22-704	Cylinder piston to seal	4	4.0	242.06	



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