

Commissioning Report & Test of Local Exhaust Ventilation (LEV)

In accordance with COSHH Regulations RG4 & HSG258

COM REPORT NUMBER: **COM-7125**

REPORT DATE: 08/12/2022

Assessment Engineer: Paul Ford

Examination & Test Date: 08/12/2022

Person & Company Responsible for LEV System

Company:	Wartsila	Contact:	Mr G Barnett
Address:	4 Maples Way Havant	Telephone No:	01753216400
Post Code:	PO9 1NX	Email	beth.higgins@wartsila.com
		Location:	Havant

About the LEV System

Com Report No:	7125	LEV System Ref:	COM 1
Inspection of Last LEV Report	N/A	System Location:	Workshop
Next Inspection Due:	08/12/2023	Logbook Available:	N/A

Process Sources:

Hazardous Substances:

CNC & Milling	Composite dust
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LEV Benchmark & Performance Details

Designed Extract Rate:	11165 m³/hr	No of Hoods on system:	0
No of outlets on system:	13	Maximum No of outlets to be used simultaneously:	13
System Plan available:	yes	System Layout Change:	N/A

Test Conditions

Tested During normal conditions:	Yes	Workshop Temperature:	12.8°C
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Overall Result?

Is control adequate?	Yes	Failure labels issued?	No
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Introduction

To ensure the Local Exhaust Ventilation (LEV) system is working properly it is required to be tested at least every 14 months under the current C.O.S.H.H regulations and employers have the statutory duty to ensure that the LEV equipment is properly used, maintained and in efficient working order.

This report has been provided to help you comply with your obligations.

Procedures

Before undertaking any assessment, our engineer carried out a risk assessment to ensure that hazards and risks were minimised.

If none were already available, Test Points were established at key points in the LEV system to measure the systems effectiveness. The Test Points were labelled; 'TP' followed by their respective number and easily identified.

A Pitot tube connected to a manometer was inserted at these points where duct pressure and velocity was recorded. (3-point linear check with average recorded)
These test points were also used to obtain the static pressure of the duct.

Discharge and face velocities were also tested.

All test points were sealed once the testing had been completed.

Using a Tyndall lamp effect and or a smoke generator we carried out a qualitative test with the visualisation of dust patterns.

Both tests produced positive results.

A list of testing equipment with serial numbers can be found on page 5.

Observations

Your Dust extraction LEV system was tested to make sure it is effectively controlling your hazardous substances and its general condition in accordance to COSHH (2002) regulation 9.

The dust extraction equipment necessary for the controlling of these substances must be maintained 'in an efficient state, in efficient working order, in good repair and in a clean condition'.

It is mandatory for regular system checks to be made by the user and to be recorded in a logbook. Any defects should be reported immediately.

A major part of an LEV system is the point of capture, where possible these should be fully enclosed. If this is not possible then a specific hood should be fitted as close as possible to enclose the contaminated source as much as possible.

How you should use this Report

Please read the report summary. We will outline any defects / problems (?) and provide a list of remedial actions that you will need to take.

If the system is not controlling the exposure to hazardous substances, then you should make sure our recommendations are carried out as soon as possible.

If you are having difficulty understanding this report or have any queries regarding this report, please contact our Assessment Engineer who will be happy to assist you.

You should keep this report for at least 5 years, and we recommend a copy of the report is located close to the LEV system and is readily available for your employees to read.

Qualitative Methods used to determine the efficiency of the system

We will thoroughly check all parts of the system to verify that the LEV system is in efficient working order, in good repair and in a clean condition.

Using a smoke generator and/or dust lamp we will visually check movement and behaviour of the dust clouds in the workplace and to ascertain the effectiveness of the LEV Hoods.

Quantitative Methods used to determine the efficiency of the system

We will measure air flow, static pressures, pressure drops, temperatures and dust levels to determine the technical performance of the LEV system.

Air Sampling – proof of effective control is a critical test. Where possible Air Sampling is carried out with a Real-time Particulate Monitor in the operators breathing zones to check the LEV systems effective control of dust etc.

Static air sampling may also be carried out to check dust levels on any filtered return-air system.

Process Conditions

Our examination and tests were carried out during normal day to day operating conditions.

All results and conclusions pertain only to the conditions prevailing on **Thursday 8th of December 2022 at Wartsila Havant.**

REPORT SUMMARY

Summary Analysis	Yes / No	Comment
Was system being used correctly?	Yes	
System in good working order?	Yes	
Ductwork Damage / leakages?	Yes	See remedials page 10.
System Filter Media in Good Condition?	Yes	
Hoods effectively dealing with hazardous substances?	Yes	
System Maintenance Logbook present?	Yes	
Was a Fail Label issued?	No	

Final Comments

This LEV System Is working well & controlling the contaminant with the transport velocities within or above the targeted 15-20m/s. Exceptional housekeeping.

Examiner Signature... 
On behalf of Wood Waste Control (Eng.) Limited

Date... 08/12/2022....

Printed Name... Paul Ford

Testing Equipment

All test equipment has been calibrated and certificated.

- | | |
|---|-------------------------|
| • Testo 512 Digital Manometer | Serial: - BA470085/111 |
| • Testo 410-1 Vane Anemometer | Serial: - 38492811/0921 |
| • Magnehelic pressure Gauge | Serial: - W34ACRF |
| • Precision gold Sound Level Meter | Serial: - 161000628 |
| • Draper DRA26538 Halogen Lamp | Serial: - 20051303014 |
| • Casella AMS930 Particle Monitoring System | Serial: - 020907 |
| • ATP DT-8880 Hot Wire Anemometer | Serial: - 211221639 |

Information about the last LEV Examination

N/A

Maintenance Logbook

Regulation 9 - Maintenance of COSHH stipulates that LEV systems are regularly maintained.

You should carry out a visual check at least once a week and all maintenance checks should be recorded.

New LEV System, A Logbook has now been issued.

Reference Sources / Useful Information

A.C.G.I.H Industrial Ventilation Handbook
www.hse.gov.uk

HSG258 Controlling airborne contaminants at work
Regulation 9 of the COSHH
www.woodwastecontrol.co.uk/lev

Test Data

1. Machinery Data:

Machine No (MC)	Description	Serial No	Location	Contaminant
MC01	Mori Seiki CNC	n/a	Workshop	Fine Dust
MC02	Solauluce CNC	n/a	Workshop	Fine Dust
MC03	Webster & Bennett CNC	n/a	Workshop	Fine Dust
MC04	Varnsdorf WH10 Milling CNC	n/a	Workshop	Fine Dust

2. Test Point Data:

MC No	Test Point No (TP)	Duct Size (mm)	Duct Velocity (PA)	Duct Velocity m/s	Air Volume (M3/hr)	Static Pressure (PA)	System Status	Condition		
								Duct	Blast Gate	Flex
00	1-Main	450	3101	19.5	11165.02	3112.5	Pass	Ok	n/a	n/a
01	1-1	150	295	16.7	1062.43	1618.5	Pass	Ok	Ok	Ok
01	1-2	125	413	33.2	1466.76	2440.2	Pass	Ok	n/a	Ok
01	1-3	125	207	16.9	746.63	1618.5	Pass	Ok	Ok	Ok
01	1-4	300	1166	16.5	4198.81	1693.2	Pass	Ok	n/a	Ok
02	1-5	100	118	15.0	424.12	1867.5	Pass	Ok	n/a	Ok
03	1-6	150	161	9.1	578.93	1245	Pass	Ok	Ok	n/a
03	1-7	150	399	22.6	1437.77	1494	Pass	Ok	Ok	Ok
03	1-8	200	770	24.5	2770.93	1294.8	Pass	Ok	Ok	Ok
03	1-9	125	090	7.3	322.51	1618.5	Pass	Ok	n/a	No
03	1-10	125	366	29.8	1316.55	1693.2	Pass	Ok	n/a	Ok
03	1-11	200	732	23.3	2635.21	2116.5	Pass	Ok	n/a	Ok
04	1-12	180	529	20.8	1905.5	996	Pass	Ok	Ok	Ok
04	1-13	125	157	12.8	565.5	1743	Pass	Ok	OK	Ok

5. System Photographs / Visual Aids

MC01 Morii Seki SL400 CNC



MC02 Heidenhain Solaluce CNC



MC03 Webster & Bennett CNC



MC04 Varnsdorf WH10 Milling CNC



7. Filter Details

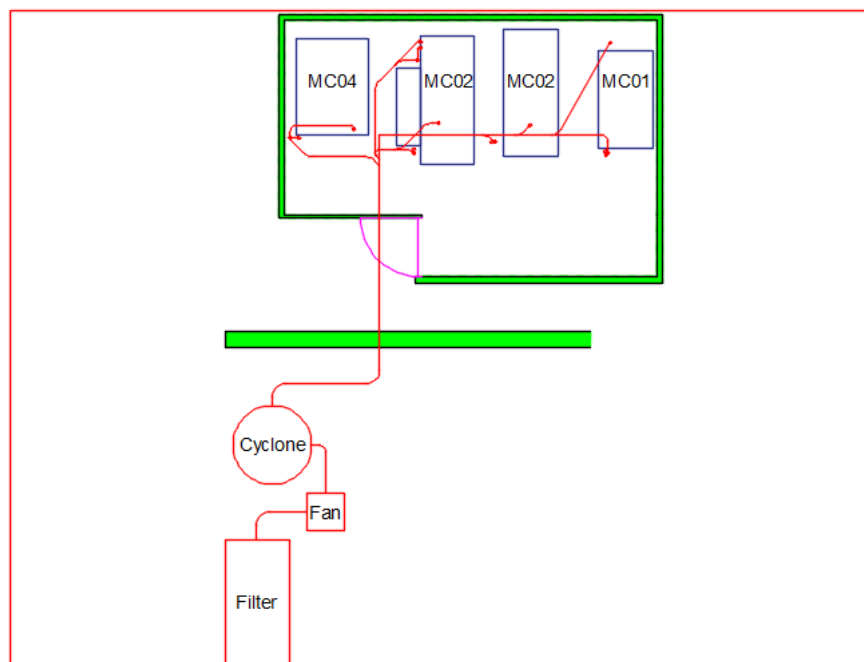
Manufacture Details:	Wood Waste Control Ltd
Model:	H/V 2000 Cyclone on Existing Donaldson Filter
Description	Cyclone Filter
Serial No.	S12220
Year of Manufacture:	2022 / Donaldson Existing
Condition:	Good
Filter Media Type:	Ultra-Web Spun Bond Anti-Static
Filter Cleaning Method:	Cyclone then compressed Air Cleaning
Examiner Comments	Working well

8. Main Fan Details

Manufacture Details:	Wood Waste Control Ltd
Model:	1040-A245 Cleanair Fan 37 Kw 16"
Description	37Kw 36" Paddle Blade
Serial No.	S11899
Year of Manufacture:	2022

Rotation of Fan (Correct?):	Yes
Drive Type:	Direct Drive
Motor Voltage & Power	415volt 37KW
Condition of Fan:	Good
Examiner Comments	Working well

9. System schematics



Remedial Actions / Improvements (Listed in prioritised order)

1. There are some remedial works we have to complete which will be done in the near future and we will fit already supplied air flow meters whilst doing the other works.
2. There was a damaged sweep up point hose on MC03 (the Webster & Bennet CNC machine) which needs replacing.

Useful Information

Typical Carrying Velocities Used in Ductwork

Type of Contaminant	Examples	Typical Velocity M/s
Vapours, gases, smoke, fumes	All Vapours & gases etc. Welding	5.2 -12.7
Fine light Dust	Cotton, lint & Wood flour	12.7 - 15
Dry dust & Powders	Fine rubber mouldings, cotton dust, light shavings	15.2 – 20.3
Industrial Dust	Sawdust, grinding dust, metal turnings, moist dust and chips, lead dust	18 – 20.3
Heavy Dusts	Heavy/Wet Sawdust, metal turnings, wood chips	20.3 – 22.9

*Recommended Air Velocity based on A.C.G.I.H Industrial Ventilation Handbook

The Need for Airflow Indicators

Airflow Indicators / Extraction Flow Indicators from Wood Waste Control (Eng) Limited

Regulation 9 of the C.O.S.H.H 2002 (Maintenance, Examination and Testing of Control Measures) states that all LEV systems must be maintained in "efficient working order".

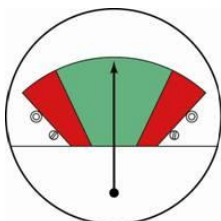
As an employer you do by law have to make sure your LEV system keeps working properly.

Are Airflow Indicators Required by Law?

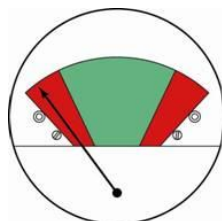
No - Although Airflow Indicators are not a specific legal requirement, they are a very simple way of checking that the flow rate is maintained.

How does it help me?

The Airflow Indicator is marked with a "green" safe zone, this allows the machinery operator to easily check whether your LEV system is adequately controlling your hazardous substances.



Adequate Airflow



Inadequate Airflow



For More Information, please contact us on
01628 525290

More information on Local Exhaust Ventilation in the Workplace can be found at the Health and Safety Executive Website www.hse.gov.uk/lev/