

Design and Manufacturing of Silencer of Blower for Sewage Treatment Plant (NMC)

Review on design of silencer for industrial noise reduction

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Abstract: This paper presents the literature review of different authors have tried to research on various sound reduction techniques and work on noise pollution which is one of the man made environmental hazard, Reduction of noise is current issue in today's life. Muffler plays a vital role in attenuation of the sound coming from various industrial application. This based on schematic study of baffles, sound reduction Material, sound damping techniques, dimple perforated pipe, pressure expanding system can be used to attenuate high Decibel sound coming from the sewage treatment plant NMC Nagpur

Index Terms: Muffler, Baffle, sound damping, dimple perforated pipe.

I. INTRODUCTION

Sound is an energy made by the vibration when particular object vibrates, causing moment in air particles or molecules which pump into other particles that close to them, that make them vibrate further and bump into more air particles this moment of air particles called sound wave

Sound wave containing Compressed air system and blowing with compressed air can often be reason for high and sudden noise levels like our industrial based project in sewage treatment plant NMC the sudden blowing noise occur when the compressed air expand out from the compressed air system or blower. If compressed air is allowed to expand freely turbulence is created which in turn generates loud noise. To reduce the noise when blowing with compressed air the turbulence has to be reduced

The mechanism of active noise control vary with different mechanism of suppressor, which help in converting high pressure air in to low pressure by expansion of air coming from the exhaust of the blower in various stages due to this turbulence is reduced. Sound coming from the blower though air is to be reduced by expanding high pressurized air through various pressure expanding system with that expansion sound frequency is randomly traveling in to chamber and strike over wall of chamber and this leads to the reduction of sound frequency.

II. PROBLEM STATEMENT

Sound produced by blower is a major problem in sewage treatment plant, This sound affects the health of worker and creates sound pollution over a 200 meter diameter of surrounding area. In that high decibel sound, workers can't work freely, Readymade silencer is not enough to control that sound and sustain in that extreme present condition.

III. OBJECTIVE

Our first objective is to design and manufacture a silencer which will reduce sound produce by the blower to overcome the problems arising due to this tremendous sound coming from the exhaust of the blower.

Sound pollution is major drawback for the smart city developments due to the sound coming from the various applications of industries are curse for the fulfillment of the idea of smartness similarly STP plant filter the sewage and create environmentally safe fluid but soul purpose of reduction of pollution is not fulfill because of this sound pollution generated by blower development of industries are more necessary for the development of smart city but our objective is to developed a industry with all precautions that would not be curse for the idea of smartness which will be given by our silencer design

Sound pollution is very harmful for the human being it can cause various health problems like stress, fatigue, to more serious issue such as cardiovascular disease, cognitive impairment etc. so there should be way out for this problems and we are going to provide solution for all this issue

The workers working in a sound polluted area can leads to the productivity losses in the work place, communication difficulties, poor concentration and workers health so that we are going to design a silencer for the various applications of industries to overcome the above problems

IV. LITERATURE REVIEW

2018 Javier Nieto, Spain RESEARCH ON CLMD TECHNIQUE this paper studies the theoretical study of the parameter that influence sandwich type constrained layer mass damper

2011 Min southeast university china STUDY OF NOISE REDCTION Noise reduction mechanisms of active noise barrier

2015 Victo Nnna University of caliber EFFECT OF SOUND ON NATURE impact of sound on human cardiovascular system Noise pollution is one of the man-made environmental hazards that is given the least attention

2013 Prof B.S. Patel DESIGN OF MUFFLER FOR EXHAUST Muffler are use in wide variety of application, restrictive environment legislation requires the silencer designer use high performance and reliable techniques.

2016 Lakshmi Narayn Rao St.peter's university DESIGN OF SILENCER FOR ENGINE present day engine are required to have more power and also required to meet the strict pollution standard.

2013 Bharat v Patel DESIGN A REVIEW ON DESIGN PARAMETER OF MUFFLER design calculation muffler such as diameter, sound attenuation absorption etc. In this paper, an attempt is made to study the effect of sound attenuation and vibration on muffler.

V. RESEARCH METHODOLOGY

- Collecting the information of necessity for the design of silencer
- Gathering the data from literature review
- Study of Existing Silencer And focus on various modification
- Identifying the noise controlling mechanism and their role
- Verify the design of silencer
- Final result to be obtain

VI. CONCLUSION

After studying the above paper we can say that design and manufacturing of silencer for the sewage treatment plant NMC will helped in reduction of noise in STP plant and it will also useful for the various industrial application for the attenuation of sound at greater extent this will help in the reduction of noise pollution as well as impact of noise on environment ,human being, work place and animals etc.

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