International Journal of Advance Research in Science and Engineering
Vol. No.5, Issue No. 02, February 2016
www.ijarse.com
IJARSE
ISSN 2319 - 8354

NANO IC ENGINE

Gunvant S. Bhangale[1], Shubham S. Abhang[2],Vaibhav D. Bhoj[3]

[1,2,3]Department of Mechanical Engineering, Sandip Foundation's,

Sandip Institute of Technology and Research Centre, SavitribaiPhule Pune University, (India)

ABSTRACT

Nano technology is the functional system of engineering at the molecular scale.When k.Eric Drexler a nobelprice winner popularized a word 'nanotechnology' in the 1980's,He was talking about building machines on molecule scale.Nanotechnology is sometimes referred to as a general-purpose technology.That is becausein its advanced form it will have significant impact on almost all industries and all industries.Heat engines have evolved from external combustion engine to internal combustion engines and the hot off the block is the Nano internal combustion engine.

Keywords: 0.4cc Engine,Diesel Engine,IC engine, Nano technology.

I. INTRODUCTION

Nanoscience and nanotechnology are the study and application of extremely small things and can be used across all the other science fields. In particular, things that are less than 100nm in size.There are 25,400,000 nanometers in an inch. Nanotechnology involve the ability to control individual atoms and molecules.Today's scientists and engineers are finding a wide variety of ways to deliberately make materials at the nanoscale to take advantage of their enhanced properties such as higher strength, lighter weight, increased control of light spectrum, and greater chemical reactivity than their largerscale counterparts.

Heat engine is a device that converts heat energy into mechanical energy that can be used to work. Many kinds of heat engines have been invented like external combustion engine in which combustion takes place external to the cylinder. Due to this heat engines are bulky and consumes lot of place. Second revolution of heat engine is internal combustion engine in which fuel combustion takes internally it consumes less space and became cost effective. The third revolution is NANO Internal Combustion Engine.

II. HEADINGS

1 MAIN COMPONENTS USED

1.1	Crank case.
1.2	Back plate.
1.3	Cylinder and head.
1.4	Needle valve assembly.
1.5	Connecting rods and crank shafts.
1.6	Piston and contra piston.

Crank case and cylinder rough out-

The crankcase start as a chunk of aluminum bar of about1-1/2".The photo shows the roughing out process. Note that the tool is racked back sharply while “hoggin great cuts” are made so that if it is digs in, the cut will be forced shallower not deeper as it would be when the tool were set racked forward like a regular knife tool.

Next we need to remove all the excessaluminum that does not look like a crankcase.This can easily be done with a band saw, orless easily done with a hacksaw.

The above photo shows the four basis stages in crank case manufacturing.

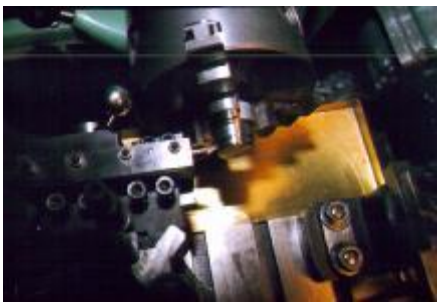
1 Bar stock blank

2 Journal turned and sawing template glued in place

3 Crankcase rough sawn to within 1mm of the template outline

4The finished crankcase

Backplate-



The backplate is simple turning with only some of work holding posing any problems. In this first shot, the backplate profile has been turned on a piece of bar stock with the interior face oriented towards the tailstock on lathe. That means we will be screwcutting towards the sholder formed by the backplate rim, so a thin (0.020") runout groove is first cut at the thread/rim junction to the depth of the thread. This also assures the backplate will form a tight seal against the rear of the crank case.

Venturi and Needle Valve Assembly-

In the previous section, the cylinder had progressed to a nearly finished state, still it is requiring a internal lapping. Lapping should be always thefinal operation on a cylinder of this type. This means the boss for attaching the side port venturi must be fitted before lapping can be done. In this session, the boss is made and the associated parts for the venturi and needle valve.

The boss will be soft soldered to the cylinder because diesel don't get that much of hot to melt the boss. ".solder does not make the joint, it only keeps the air out" and schooled me to make a good fit of parts to be soldered. The boss will be butt to the cylinder, which has an outside diameter of 0.500". So, a good fit can be achieved by profiling the boss with a 1/2" end mill.

III. APPLICATIONS

1. Nano ic engine has a various applications from race cars to space crafts
2. In race cars this IC Nano Engine was used. The engine was fully fabricated, that is, no castings were employed.

Fig:-(Nano IC Engine)

3. It can be controlled in aero planes/satellites/space ships etc., the timing of inlet and exhaust valves.
4. According to NASA reports they are experimenting about the use of nano engine in nano&pico satellites.
5. In case of a mine tragedy where harmful gases are emitted ,these nanoic engines can be employed as powerful blowers to blow out these gases is a less time saving the lives of trapped miners .We require atleast 5-6 blowers to blow these gases where as two nanoic engines could do the tick in less time.
6. Agriculture pumps sets.
7. Every field of industry.

Fig:-(Exploded view of nano ic engine)

Fig:-(Nano IC engine)

VI. BENEFITS

1. Add great power to the engine.
2. Improves engine life.
3. Cleans combustion chanber.
4. Protect the environment.

V. CONCLUSION

1. With the application of Nano is every sphere of life the 'big' may not find its name in dictionary in future.
2. If we continue this trend we will have to develop a new manufacturing technology.
3. It will let us inexpensively build Nano system with mole quantities that are moleculer in both size and precision.
4. It can be rightly said that nano technology slowly and steadily assuring in the next industrial Revolution.

REFERENCES

[1]. Khurmi.r.s, j.k. Guptha, 'a textbook of machine design' s.chand and co[2],

[2]. www.wikipedia.org[1]

[3]. www.slideshare.com[3]

[4]. www.seminarsonly.com[3]