

CHAPTER 1

INTRODUCTION

1.1 GENERAL REMARKS

Spring valve play an important role in controlling the breathing in internal combustion engines. The valves are mechanically opened by a camshaft, via valve lifters or tappets, and closed by the valve springs. A typical of example of spring valve as shown in Fig 1.

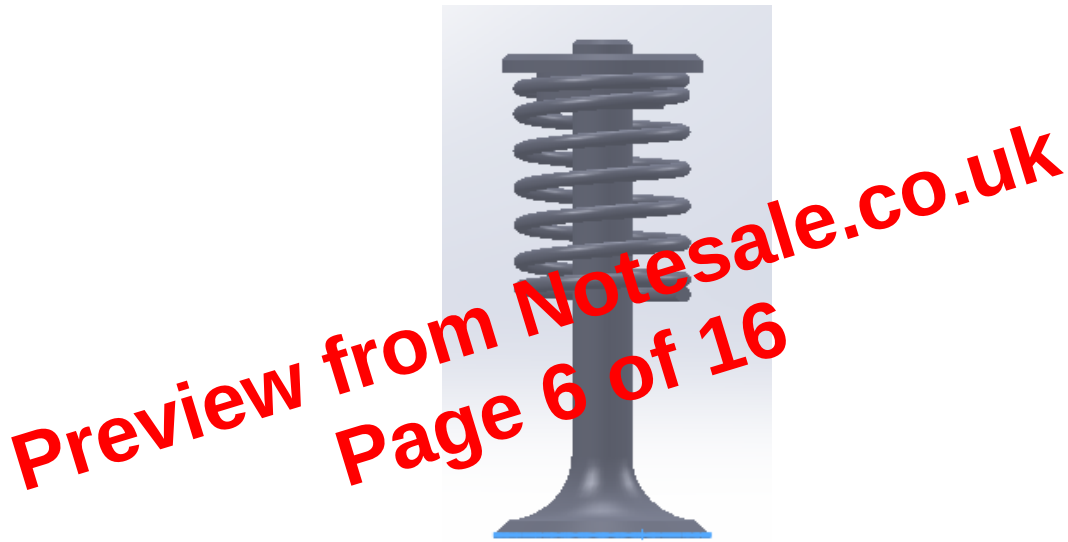


Figure 1.1.1 : Solidwork 2016 design of Spring Valve

The spring valve consists valve spring plate, safety lock disc, valve, spring etc. The upper part of the spring valve is a rocker arm that hold the spring valve. The upper part of the valve was touch by the surface of the rocker arm. It is to ensure it moves up and down, when the camshaft move upward the rocker arm will hold the valve so that the spring valve doesn't move. All the parts relate to each other. The spring valve is a symmetrical object. So all the loads are equally distributed in each side of the spring

CHAPTER 4

FEM MODELING

The Mechanical Simulation is used to determine the stress, strains, displacement and force in the spring valve caused by the load. The procedure is the assembly all component in solidworks and then transfer it to Mechanical Simulation to run the analysis.

Meshing is applied to the model of spring valve and components. Boundary condition are applied to the upper part of the valve, the surface contact between the valve and spring. Finally, the load is applied, we have observed the behavior of the spring and analyzed to get the stresses, displacements and strains.

Meshing is done on spring valve model in fig 4.1.1.

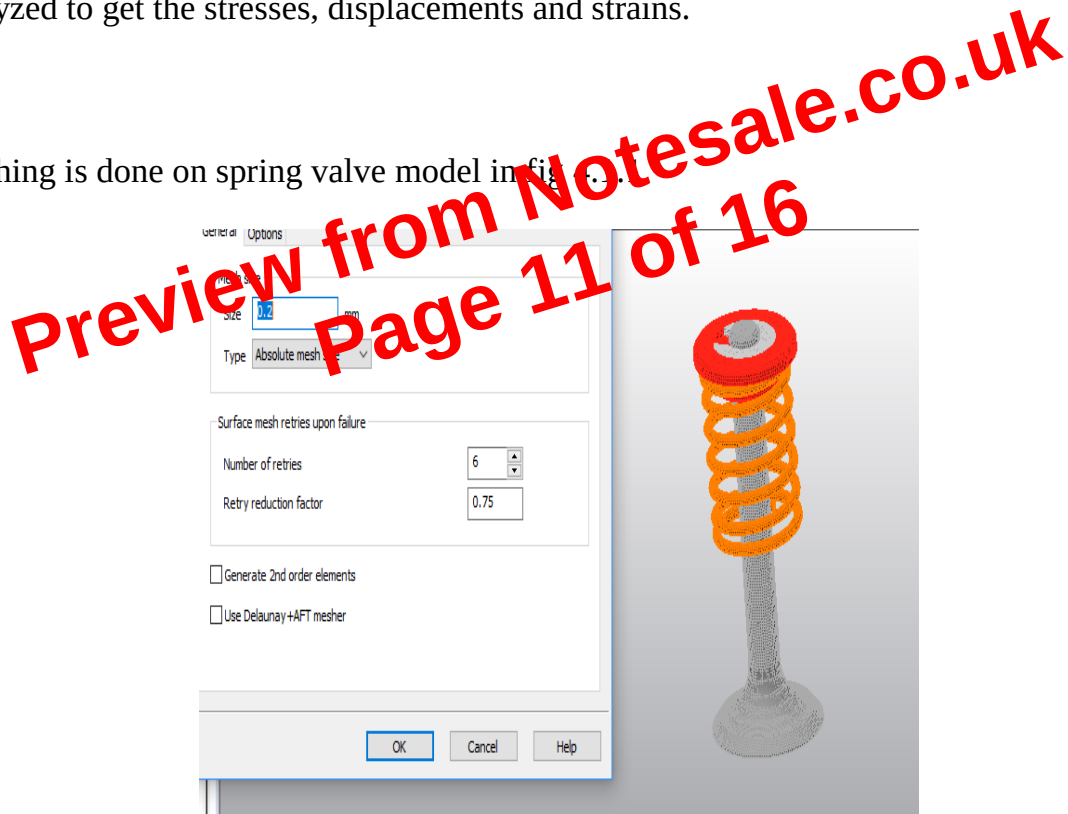


Figure 4.1.1 : Meshing