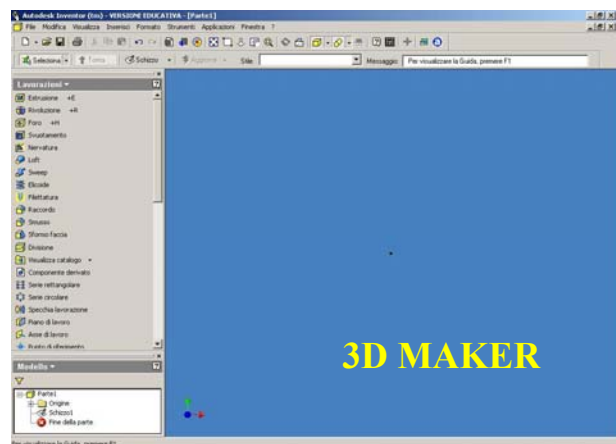
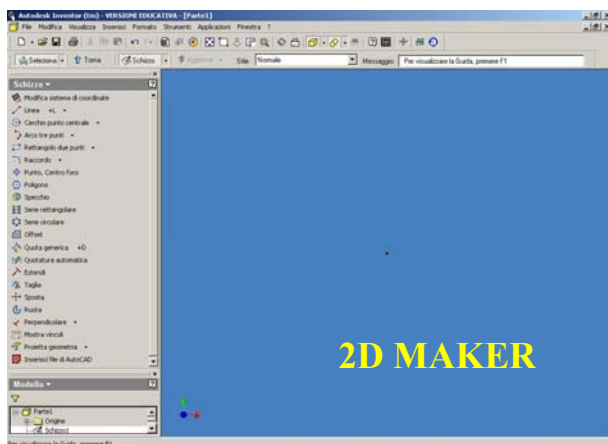


Relationship summer stage 2002

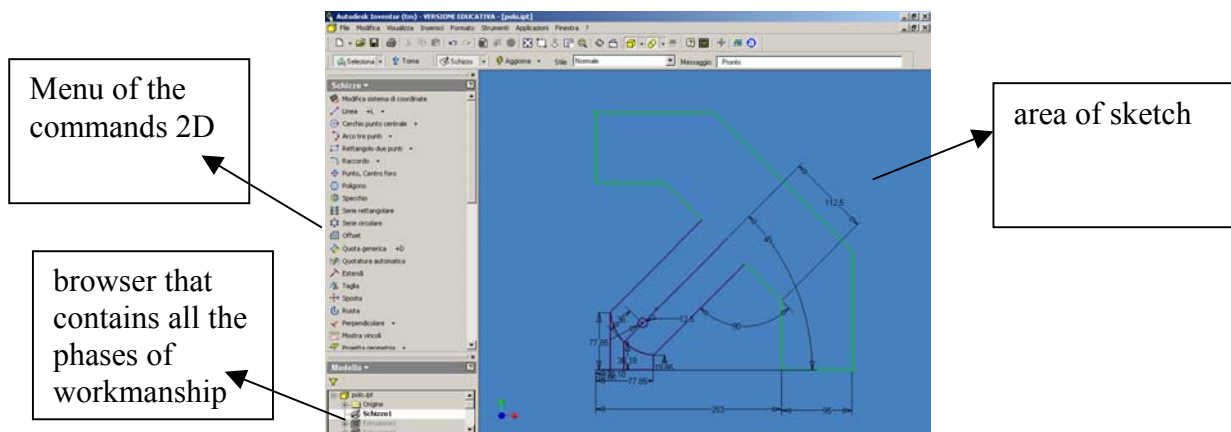
In the three weeks passed for INFN with the help of the tutors, we have learned the rudiments essential in the use of the program of modelling 3D Inventor; then the tutor have helped us in the organization of the job doing us , to see and to use, the essential means to design as the Technical Manual and the search of information in specialized magazines and internet, all to realize to the best quality - cost relation of the general.

It has been interesting to see like the planning has changed in the time; in fact in the file of the technical office we have seen the old sketches, some also very complex realized to tecnigrafo, while now thanks to the use of the computer technologies all that sketches are converting in to new fully grown three-dimensional ones. The whole structure of daϕne was in workmanship to convert the old sketches from two-dimensional in three-dimensional.

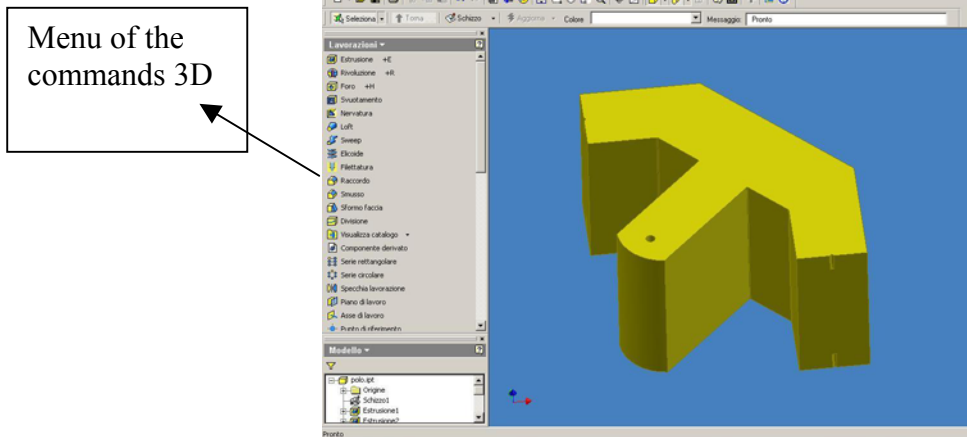
We have worked in this period with the program of planning **Inventor**. It's a product of the autodesk therefore it follows a logic common to other product of the same house as Autocad, only with some differences to level of commands. Inventor is a very versatile program and it was made for make think the least possible the planner, in fact all the operations of calculus and verification has executed by the program.



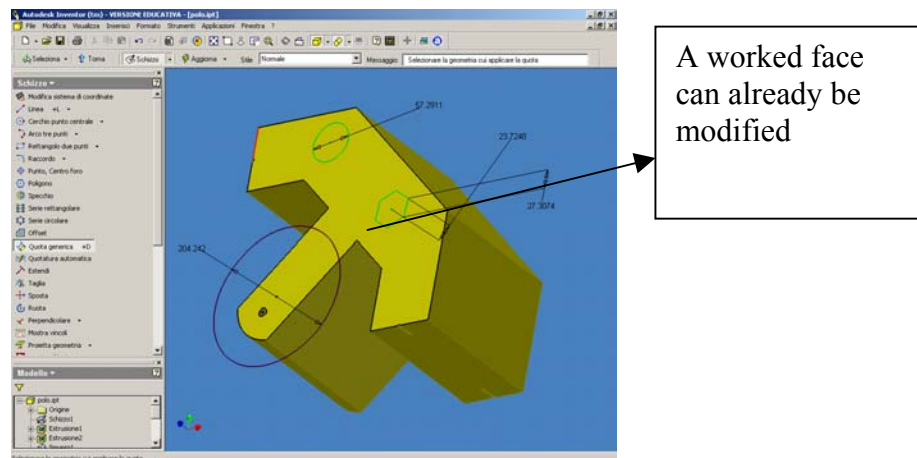
In fact in the initial phases of realization of the sketch in three-dimensional the basic shape of solid is realized in 2D; when the sketch has designed in approximate manner we could defined the form defining, the dimensions and fixing the ties.



Once realized the basic structure on it realizes that three-dimensional, in the commands reorganize them there are commands base as Extrusion, Revolution and Perforation and so away...



But does it form it or the point in the project 2D has not been drawn? Then a squirt can be realized on the surface from to work, bringing references from other surfaces or creating them to us ourselves. in case the draftsman wants to add some workmanships on a solid's face, he can create a plane of additional job that can be positioned in any point of the solid.

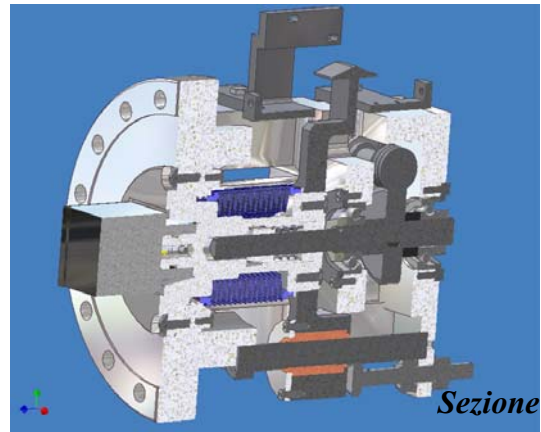
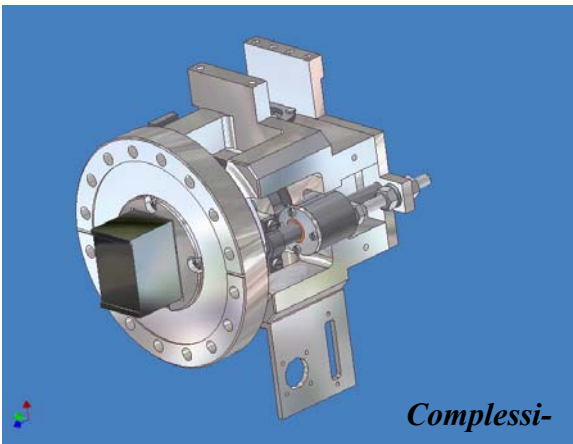


Another function that makes this very versatile program is the fact what if it builds a general composed by so much pieces, modifying a single component the pieces that surround it if made *adapt* they are adapted you to the change without the draftsman has to put again the hands on the other pieces; besides if a piece is modified in the table of the particular one, in the general one the pieces are ad-journed instantly therefore in job it's simplified.

However over the same sketch, the phase of planning also requires that is owed to make some choices to level of components and elements of fixing over that to the calculation of the sollicitations in game and to the sizing of the piece or the structure of the general one. And the use of the manual (**Vademecum del progettista meccanico**) in this phase of the job is also essential because to make mechanical organs or of other kind they are have respect the normative, and it's useful to build an object economic and of easy maintenance. On the manual of mechanics beyond to contain tables and formulas. With the tutors we have taken in examination any subject on the manual like the tolerances and the

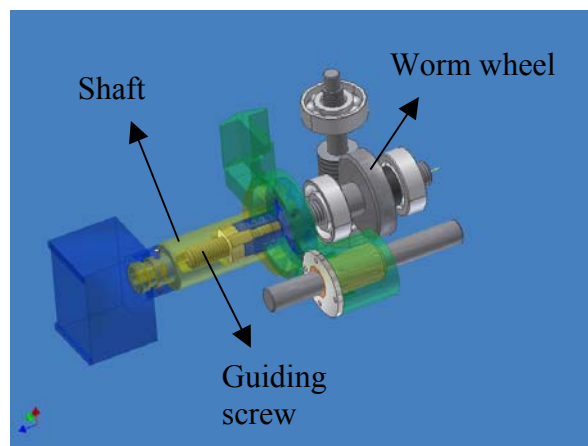
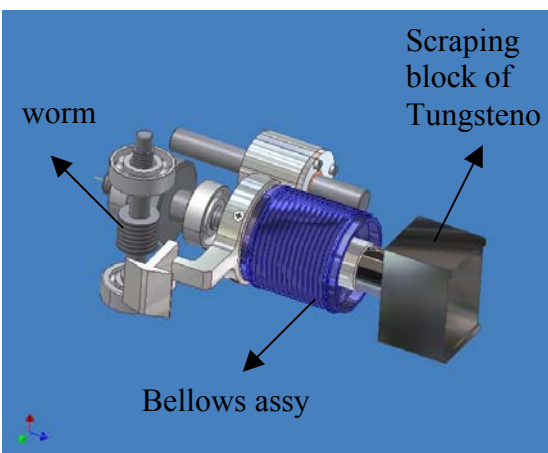
wheels; we have also seen other specialized magazines in which the novelties of the greatest houses builders and the last technological discoveries can be found in the sector.

After having examination these things, we have realized from sketch tables in 2D a general mechanic that is together that it must be united some car together to the DAFNE, this object is called SCRAPER. we initially have disposition varied tables of the general and of the particular varieties that compose it. From all these tables must realize a solid computerized model. In all this phase of work, the tutor have us helped in the realization of the varied parts.



In substance this *scraper* that must be connected to the void room of daΦne, it serves to clean flow from the particles that it could create trouble to the surveys. It is constituted by a scraping block of tungsteno that goes each other to insert in the void room with a system of rectilinear move.

The movement is given by a system worm and worm wheel, and to the worm wheel has connected in axle through a tongue to a guiding screw that transmits the rectilinear motion to the shaft in both the verses that support the scraping block. The everything is kept in a frame and content in under empty through a bellows assy. Everything is contained in supporting frame that connects to daΦne's void room through a flange of connection.



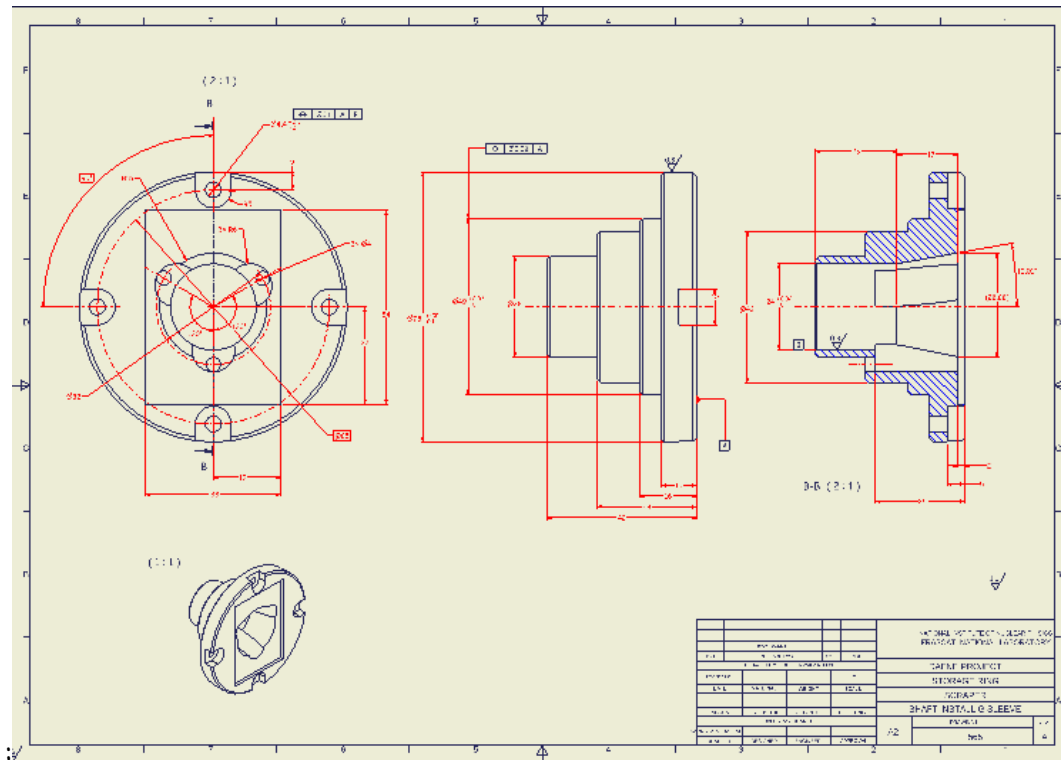
the worm has operated by a motor connected with a joint and supported to the frame.

The worm rotating transmits the rotation to the worm wheel that it in turn makes rotate the guiding screw that it's connected to the shaft that makes go forward and behind the scraping block with very small shifts that they make it bring near to the flow.

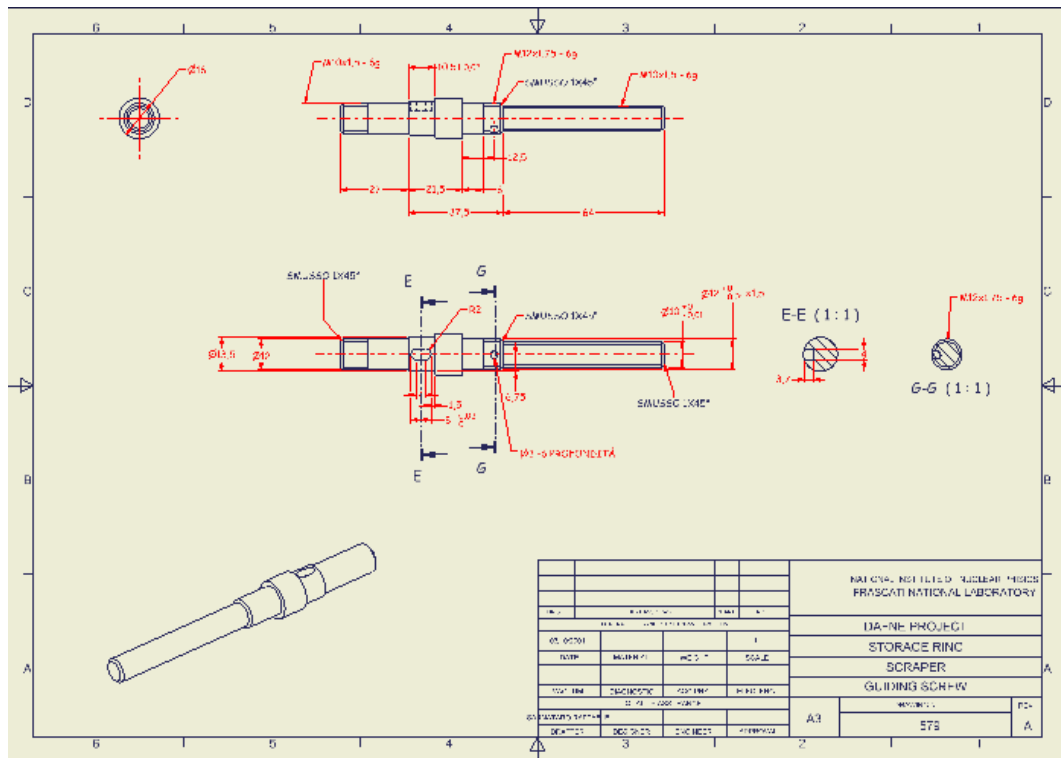
Of everything has been realized in three-dimensional and then of the single pieces and of the general one have been made some tables with daΦne seen ortogonaleis, axonometric and complete of specific sections:

these is the details that represent any of the principal parts of the scraper:

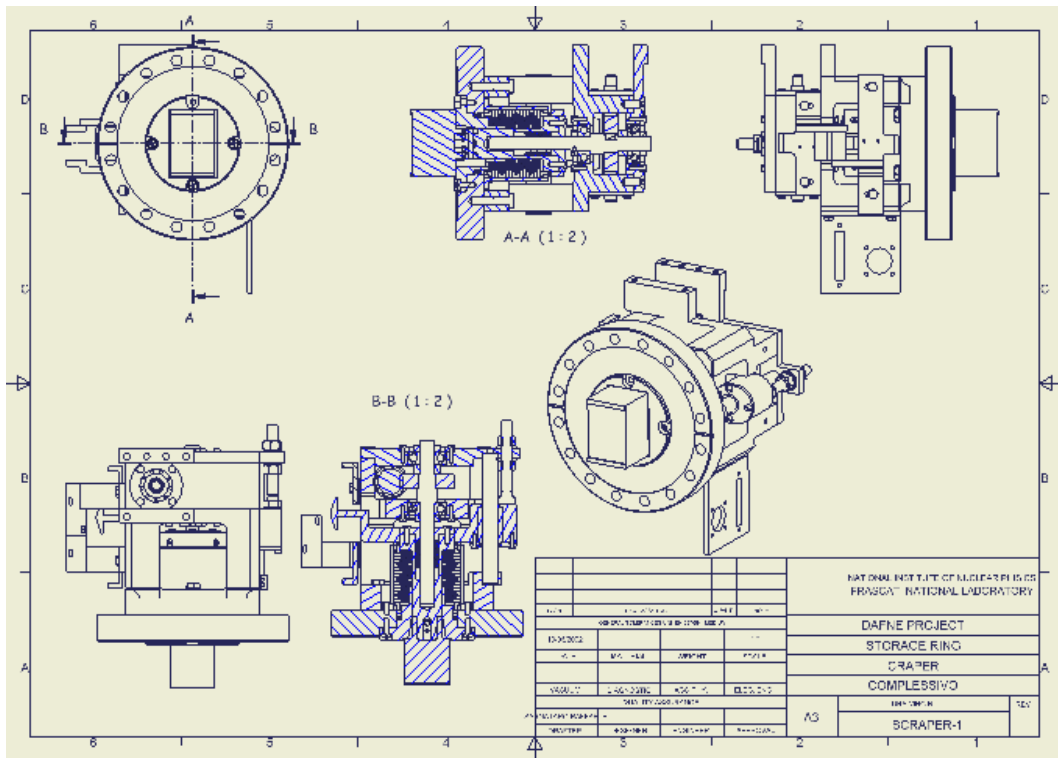
1.



2.



This is a layout that represent the general with its sections:



CONSIDERATIONS

In general the job has not been so much difficult, beyond that the original [layout] had any incongruities or were little precise to level of disposition of the views and the same visualization of the is. at school in the subject of design we makes design using the Iso standards and Americans primarily; therefore analysing the sketch before proceed to realize them in 3D, we have had difficulty to understand them, being made the majority of the [layouts], not respecting these standards.

How experience of job has been the best, the school like structure is all other different of the organized of infn and more in general the world of the job. In our school there is so much opportunity of see practically what we study, it has so much laboratories of mechanics to disposition; but to see the laboratories of the infn and the office where we have been assigned, the technical office, it's really different. It was interesting to see like the job he has organized for then catch up an objective common. Also if I must have abdicated to as many thinks for come here it for these 4 weeks has been worth it some.