

A machine shop that has successfully adapted to the future market

Nacher mecanizados S.L. is a machining company situated in the Valencia region of Spain. They have since 1978 supplied the market with machined pieces and has a very good reputation as a reliable quality supplier. But, that would possibly not have been enough to successfully adapt to the downturn in demand if Nacher Mecanizados would not have made a strategic decision already several years ago. Seeing that many workshops could make small and medium sized machined components they decided to focus on the sector for large pieces for repair and maintenance. Investing in a large fully automated Correa milling machine with a 2000x6000 mm table and learning how to effectively manufacture large pieces. Even more important was probably their decision in not only supplying the pieces but also offering the full maintenance including material selection and welding.

A sector where Nachos Mecanizados have seen that their expertise is very valuable is in repair of recycling machines. Several times they have repaired a commonly used machine for recycling of transparent PET plastic bottles. The machine is working 24 hours per day and therefore reliability of the materials in the machine is fundamental. High strength steels are needed since the forces created by the rotation of the machine axles are very high. Also very important is that the crack resistance of the steels guarantees that early failures can be avoided.

The above combination of demands on the steel made it logical for Nacher Mecanizados to chose a steel from the Toolox family for the supports of the recycling knives. Toolox steels are delivered already heat treated with the mechanical properties tested and guaranteed. The high crack resistance of the

Toolox steels (guaranteed by a plate by plate ultrasonic testing) minimize the risk of catastrophic failures

The availability of Toolox family steels in the necessary plate thickness of 150 mm made the choice even easier. Using plates for these kind of pieces is much more effective than the alternative of round material. The fact that round bars are delivered with the manufacturer and properties largely unknown make the alternative not suitable for high performance machinery


Crucial for the success of the manufacture of the 143x163x1597 mm supports was to obtain the necessary close tolerance of 0.1 mm on the geometry in a practical and economical way.

The milling was carried out in three steps using Walter tools. In each step a cutting speed of 100-125 m/min were obtained.

In the first rough milling of the steel surface a feed of 900, a rotation speed of 750 rpm and 2 mm of material could be taken off each pass. Even if the residual stresses in Toolox steels are minimum these parameters still created some distortions in the supports. Therefore in the second and third machining steps when the opening of the support should be made, the parameters were lowered. First a tool with round inserts was used with a feed of 500 and a rotation speed of 715 rpm. The same pass depth of 2 mm were kept. In the final machining a tool with octagonal inserts were chosen, rotation was lowered to 400 rpm and feed increased to 400. Still with same pass depth of 2 mm.


The whole machining procedure could be made with the same setup. There was no need to compensate geometry changes through turning the piece and machining from different sides.

Manuel Nacher, owner of Nacher Mecanizados feels that even if also his company feel the downturn in market demand, his expertise in a large machinery repair gives him a guaranteed customer base also in difficult times. His growing knowledge in the usage of modern high performance materials for the repair also gives Nacher Mecanizados a competitive advantage compared to other workshops still working in more old fashioned ways

Fig.: 1 



Milling machine at Nacher Mecanizados

Fig.: 2 



Recycling knives to be repaired

Fig 3



Support for recycling knives made in Toolox

Fig 4



Tooling used at machining of the supports