

Machine casing for the largest processing center in the field of Titanium milling

Continuous project expansions aimed at converting the processing center BTP 5000 into the largest of its kind while maintaining an excellent cost-efficiency ratio present tough construction requirements.

A NEW DIMENSION OF PRECISION

The machine housings for the Swiss manufacturer StarragHeckert were realized from one source and included the following services:

Construction development of machine casing and work platforms, production of welding and sheet metal constructions, pre-assembly of important assemblies, development of a packaging and logistics concept, just-in-time delivery and final assembly of "Titanium Profiler" for the avionic industry.

The challenge: Achieving a high precision of the sheet metal casing for a machine that is 18 meters long, 12 meters wide and 6 meters high.



PROJECT

When it comes to Titanium- or Inconel-blocks the requirements in relation to work safety and housing tightness are extraordinarily high.

ONE HUNDRED PERCENT FLEXIBILITY AND COMPATIBILITY

The prerequisites for expanding the project from a processing center of normal dimensions to the largest Titanium and Inconel milling center that has ever been built in Switzerland were the complete data compatibility with the customer and an immense flexibility of our engineers. The complex construction was checked in detail via the finite element method. Before individual adjustments and the redesign of housing components took place, the versioning of specifications and requirements was conducted via the project manager in coordination with the customer. Throughout the project our comprehensive project management ensured that the budget and the deadline were met.

HIGH PRECISION THROUGH SPECIAL CONSTRUCTIONS

When it comes to self-supporting sheet metal casings in combination with an accessible platform and a wet room sealing there are many interfaces that need to be adjusted on one another. This puts very tight limits to the assembly tolerances.

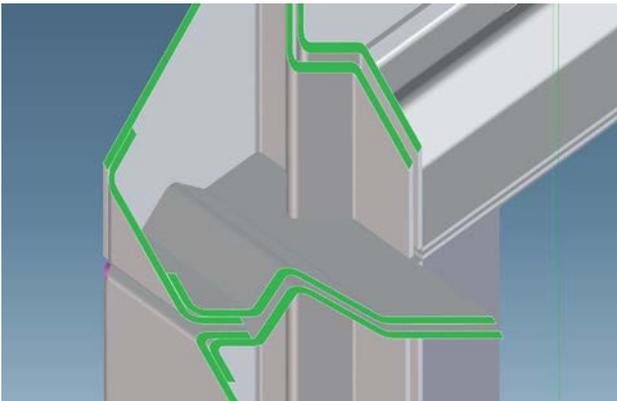
The solution was the special construction of the Frintrop GmbH. Sheet metal elements that are automatically centered during assembly. For this purpose tailor-made sheet metal parts are required. Due to the fact that the Titanium milling process leads to a chip volume of 95 percent and to a high usage of coolants, a multi-level sealing system was developed to make sure that no fluids leak out of the processing room.



The coloured effects of the design emphasize our dedication to precision as well as to a high construction and product quality.



The charging doors are activated hydraulically. There are service doors installed around the machine.



The complex, precisely calculated bends of the sheet metal edges fit exactly into each other. Thus, the self-supporting construction is stabilized, a higher compactness for the connections is achieved and the sheet metal parts are centered automatically during the assembly process.

R E P O R T

ADDED VALUE THROUGH COMPLETENESS

Due to the high milling performance during Titanium-processing an enhanced burst protection of the casing was indispensable for reasons of personal safety. Special safety glass was inserted in the doors and windows.

The double-walled housings fulfill two functions at the same time. On one hand, the coolant tightness is doubly secured and on the other hand, the exhaust channels can be integrated into the casing.

The breakthroughs for supply cables and cable channels have already been taken into consideration. Safety was also of vital importance in relation to the construction of the accessible service platform – with railings as fall protection and a special coating for a slip-resistant surface. Thanks to a special welding construction the platforms can bear a load of up to 500 kg/m² (5 kN/ m²).

DESIGNED FOR A FAST START-UP

Even in the initial development concepts manageable parts for the housing or for the assemblies were taken into consideration which can be transported via cranes and which do not make wide load transports necessary. In view of the size of the housing the assembly-friendly construction enables very short installation times

A two-way packaging and tailor-fit packaging materials comply with all requirements for a trouble-free just-in-time delivery via five semitrailers.



All parts, surfaces and safety devices
comply with common standards and requirements.



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