



Targa on Top Form

The tailgate of the Targa has never been wider. The latest generation of the legendary Porsche 911 Targa 4 is characterized, among other things, by its highly curved rear wing. In order to ensure optimum production of such complicated components at an early stage, Porsche teamed up with Porsche Consulting to develop a new method. Working in collaboration with tool management means that the quality of the sophisticated tools required to produce the components is also ensured while the new model itself is still in its development phase.

Reiner Schloz, Porsche

Targa—five letters, one profession of faith. No other sports car has succeeded in combining coupé and convertible in one car for over forty years as well as the 911 Targa, and it's getting younger and younger in the process. Porsche unveiled its interpretation of a “safety cabriolet” to the public for the first time at the Frankfurt International Motor Show in 1965. It featured a brush-finished rollbar, two removable roof halves and a fold-away rear window. Since then, things have moved on a step or two. The new generation Targa owes its captivating appearance to its modern glass roof which can be opened wide at the touch of a button. Its folding rear window also facilitates loading. Experts have attested to the unusual sports car's conservatory-like feel and breathtaking power.

But this is not the only reason why the Targa is on top form. Both models, the Targa 4 (3.6 liter engine ca-

capacity, 325 bhp) and the Targa 4S (3.8 liter engine capacity, 355 bhp) are now supplied with all-wheel drive as standard for the first time ever. The spectacular increase in driving pleasure is also noticeable as a result of certain visual features of the car. The tailgate has been technically modified, and has been made 82 mm wider than its predecessor. This means that the rear wings, which form part of the side of the car, had to be drawn much further out than previously. The shapely side of the car is also distinguished by a complex sill.

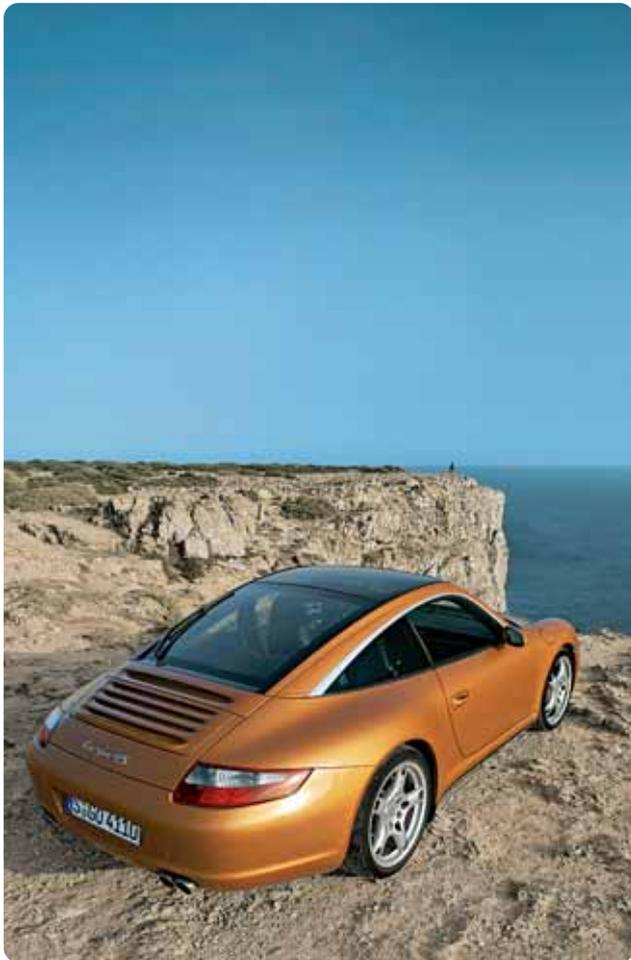
The production of such complex components places particular demands on the tools required and hence also on the toolmakers themselves. For this reason, Porsche Consulting has teamed up with Porsche, working in collaboration with tool management, to develop a quality tool for the production of complex components at an early stage. It was first used as part of a pilot project ▶

during the development of the Targa. Dr. Jörg Zürner, Quality Manager of the planning, bought-in parts and bodywork division at Porsche says: “In the future, we wish to gain an even better understanding of what suppliers make, and we also want to know exactly how the tools for making the components are produced and how they work.” This is an understandable desire, since with a production volume of twenty percent, Porsche obtains many of its components from suppliers, who also often do not produce the tools required to make the components themselves.

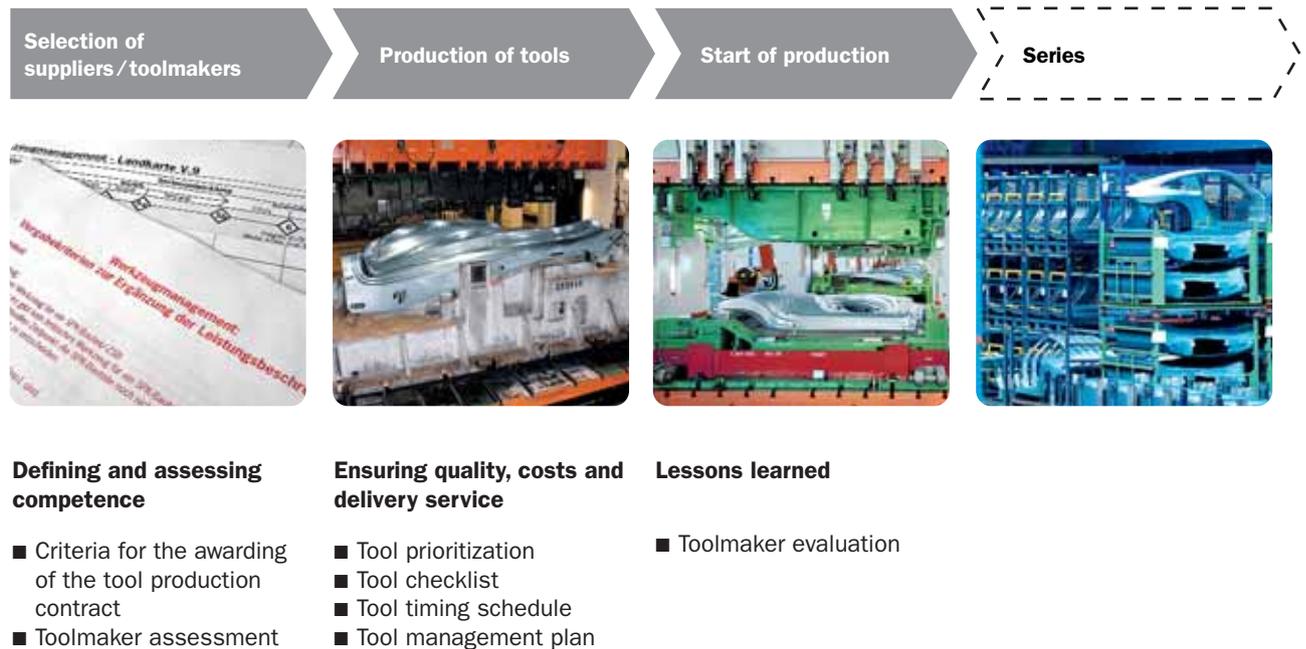
On average, 2,700 tools are needed to produce all of the components for a Porsche. Some forty of these receive “special treatment” from tool management, due to their exacting function. These tools are determined by assessing the ratio of risk to priority, with the help of the experience of Porsche experts. These are usually tools that are involved in the processes deemed critical: deep drawing, plastic injection molding, aluminum die casting and aluminum chill casting. Tools used to produce components with a superior surface or components made from new materials also deserve special attention, as do tools used to produce components having a complex shape, such as the side of the Porsche 911 Targa 4, or components that fulfill an important function.

Tool management is involved in all three stages of the tool creation process (see figure). A technical specification acts as a basis and guide for the entire production process. At the start of the process, all of the criteria for awarding the contract to tool makers, and all of the tool requirements, are logged here. This document forms the basis for intensive collaboration with suppliers and tool manufacturers. In order to find the right manufacturer, potential candidates are tested, using a competency assessment as part of the tool assessment process. During this test, potential candidates must meet uniformly established standards set by Porsche, as well as the tool- and process-specific criteria in terms of experience, technical competence and capacity for development. In addition, they must satisfy the high demands made in areas such as project management, quality and costing. According to Oliver Deutsch from Porsche Consulting: “By doing this, we are able to establish whether the toolmaker is sufficiently competent to meet our requirements even before the tool creation process has begun.”

In order to ensure that the sophisticated tools can be prepared for the start of production at the required level of quality, on time and within the defined budget, the



In a class all of its own: The new Targa is shaped by great craftsmanship



Efficient tool management is actively involved in all three stages of the tool creation process, so as to ensure that the start of production is not put at risk, and in order to eradicate possible faults at an early stage

tool creation process is tracked by means of a tool controlling process. The process map serves as the basis, and determines and describes the most important key points in the stages of development from design, construction and simulation through to creation of the prototype and mass-produced tools. In addition, experts assess the status of the tools at defined milestones, using a tool checklist. The tool management plan gives a brief overview of the quality and the current deadline status. In this way, all of the risks arising at all of the relevant stages are identified early on, and possible measures can be introduced in good time. Finally, at the start of production, only the toolmaker evaluation remains to be carried out. Whereas up until now, Porsche's tool technology experts only got involved when problems arose with the finished

tool, they are now involved in developing the tool right from the start. "Eliminating faults at a relatively late stage in the production process takes exponentially more time and costs more money than eliminating possible sources of error well in advance," says Porsche consultant Klaus-Dieter Pannes.

The findings gained from having worked in collaboration with a tool manufacturer are recorded with the aid of the toolmaker evaluation and are stored in the same database as the results from the previous assessments. This combined information is accessible at the touch of a button, and is a valuable point of reference when reaching a decision with regard to the selection of manufacturers for future projects. ▶

After being successfully involved in the development of the Porsche 911 Targa 4, the company intends to make extensive use of this tool management system in future Porsche developments. In fact, the new system is already being applied for the development of the fourth Porsche series, the Panamera, which will be available on the market in 2009. According to Planning Manager Dr.

Jörg Zürner, the innovation is well underway: “The new tool-management system has been fully integrated into the production process of the Panamera from the very beginning.” The new series will thus be the first Porsche to be built from Day One under this new production concept—not the most visible superlative of the new car, but not the least important, either. ◀



Black or white: The new Targa on a voyage of discovery in the Algarve

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