

STAMPER



GRASS and BRUDERER: leading with precision.

Precision and quality, a trademark of the hinges and fittings produced by the international company GRASS, are also the attributes they look for in their production lines. The latest high-tech hinge system Tiomos is produced on a BSTA 1600. A success story from the world of furniture fittings.

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It all hinges on BRUDERER precision for GRASS furniture.

For more than 60 years now, GRASS has been one of the world's leading manufacturers of furniture fittings and process machines. The company produces sophisticated movement systems for a whole host of premium furniture and kitchen manufacturers. At its Reinheim location in the Hessen area of Germany, GRASS focuses solely on the production of high-quality hinges, and when it comes to processing precision stamped parts, they rely on the high-performance automatic stamping presses from BRUDERER.

GRASS was founded in 1947 and currently employs over 2,000 people worldwide, generating sales of some 300 million Euros. The company's traditional headquarters are in Höchst in the Vorarlberg region of Austria. The GRASS Group has gone on to become a truly international one and established centres of competence at various locations which specialise in different movement systems. Focusing on specific competences was originally a historical development but it is one which now makes a great deal of economic sense.

2008 was an important year for GRASS: The company merged with Mepla-Alfit, a German firm with a long tradition of manufacturing furniture fittings, to form the GRASS Group. Both companies have been part of the Würth Group for a number of years, as is the new GRASS Group, and the merger laid the foundations for a truly global business. Furniture is not considered as merely unemotional fittings for a room but rather as individual design elements which enable end customers to bring a touch of personality to their homes. Innovation is very much the watchword, with the GRASS Group changing the market via new creations and products. To achieve this however, the technology with which the company is equipped needs to keep pace with its visions. After all, only with the right tools can ideas be turned into reality.

A new generation of hinges.

While all this has been going on, Reinheim has continued to focus on the development and production of innovative hinge systems. An example of this came in 2004 with "Soft-Close" – the first damper system for doors. The current stand-out product in the extensive GRASS range in Reinheim is called Tiomos. One of the main features of this highly-developed hinge system is the use of a Soft-Close damper which can be regulated progressively. The complex interior

of the hi-tech hinge is totally hidden from view yet provides absolutely unique damping characteristics. The closing process is even during every phase of movement and is absolutely seamless, from opening angles as tight as 20°. The tool-free damper system means that the size and weight of the door make no difference, which is certainly an advantage in the furniture sector where there are so many different applications, all of which however have to close evenly and silently.

This is where Tiomos comes in, setting new standards in hinge technology while at the same time offering an optimum movement solution.

As well as all of these functional advantages, Tiomos is also aesthetically impressive – so much so that the expert red dot jury gave the new GRASS hinge system its internationally-recognised design award.



The new award-winning generation of hinges: Tiomos.

New demands in terms of production.

Tiomos is not a conventional hinge – it is a complex movement system, and one which requires correspondingly difficult tasks when it comes to production and quality assurance. The process is made all the more complex by the lack of available space, with some 50 or so individual parts coming together to create this mini-masterpiece. "Watches no doubt have more parts to them, but their mechanics only have to move parts that weigh a few grams, if that," explains Helmut Kainrad, head of the hinge systems centre of competency in Reinheim. "Tiomos on the other hand is required to move doors weighing up to 10 kilogrammes, if not more, and in a way that is pleasant, haptic and kinematically harmonious for the consumer." "When it comes to quality, we have over 30 years of experience in the production of hinge systems across the GRASS Group," adds Andreas Wacker, head of production at GRASS in Reinheim. "The quality assurance departments in Höchst and Reinheim work together in close collaboration to achieve and maintain optimum levels of quality." For Wacker, GRASS hinge systems are produced to the same high standards as the automotive industry. "We have modelled our automatic production plants on their standards," he explains.

GRASS – facts and figures:

- Founded: 1947
- Headquarters: Höchst at Lake Constance
- 12 Locations worldwide
- 2,000 employees
- Award: red dot design award
- Sales 2013: 300 million Euros
- 2008 fusion with Mepla-Alfit
- DIN ISO 9001 and DIN ISO 14001 certification



The company headquarters in Reinheim.



Tool inspection.



Quality assurance is the highest priority.



Andreas Wacker, head of production at Reinheim.

Significant investments and vertical range of manufacture as priorities.

Anyone observing the manufacturing processes in Reinheim in any detail will quickly realise that there has been a great deal of investment over recent years. All of the assembly facilities and tools have been rebuilt and redesigned to work together perfectly. Tool-making is a particular focus for the GRASS Group. “We develop and manufacture almost all of our tools here in-house”, says Wacker. “For the Tiomos hinge system alone, that’s 100 different tools.

“You cannot argue with top quality, top service and an extremely long service life of the tools implemented.”

In general, the amount of in house manufactured components is extremely high compared with that of other producers. Other than a few plastic parts, rivets, pins and screws, we produce all the components for our products right here – it is the only way that we can truly ensure that we meet our own high standards of quality, particularly when you take into account the amounts that we produce here every year. The only way that we can achieve that is by having a correspondingly high utilisation of production means and a three-shift system throughout the week.”

High precision courtesy of BRUDERER.

As is the case with all GRASS movement systems, the highest priority is given to quality assurance. “This is also one of the reasons why we opted at an early stage for BRUDERER automatic stamping presses for our stamping technology,” says Wacker. “You cannot argue with top quality, top service and an extremely long service life of the tools implemented. When we

started using our first BRUDERER automatic stamping presses in progressive dies in 1996, we very soon realised that we would be investing further in this kind of stamping technology. Only last year, we added a BSTA 1600 to our stamping department. With its thermo-neutral ram guide system positioned at strip level to eliminate tilting, it guarantees incredibly high service life and optimum part quality. The precise mechanics and the truly unique BRUDERER drive and lever system ensure more reliability and durability in all steps of the process which is a real boost for our production. We originally did test stamping comparing the BRUDERER and other machines from the competition, but now there is no question as to using BRUDERER rather than someone else. Whenever we need a high-speed automatic stamping press, we know that there is no better choice, both in terms of the machine itself and also the service. If we encounter a ‘technical issue’, one of the BRUDERER service technicians will be here on site with us in the blink of an eye. We have also enjoyed an excellent replacement parts service for many years now. In our sector, we simply cannot afford to wait around for a service technician to arrive.”

“And of course the BRUDERER automatic stamping presses themselves provide decisive advantages for our production. Since the complexity of the tools is constantly increasing, i.e. they go through a lot more stamping and forming progressions, you need the right kind of technology to carry out these tasks. The BSTA 80 we had before was already being pushed to the limit in terms of tonnage capacity, and we could also no longer implement really large tools on it. The BSTA 1600 is therefore a logical consequence and a necessity for our new Tiomos hi-tech hinge system.”

Maximum tool service life.

The BSTA has made a name for itself in the sector primarily for its high stroke rates and speeds, meaning that it also has a glowing reputation in the field of connectors. This is an area where GRASS also has a need for speed, but the main priority for the customer was the precision of the stamping process and the service life of the tool. “The unique lever system on the BSTA automatic stamping press distributes the load generated by the stamping process across the system,” Wacker explains. “This load distribution, along with the minimal bearing clearances and the efficient lubrication system, are the main reasons behind the machine’s high levels of durability coupled with its precision. It was a real eureka moment when we did our first test stamping with a BRUDERER automatic stamping press. At the

time we already had a very good tool, but our old machine could not go beyond 100 – 120 strokes. With the BRUDERER, we got up to 400 strokes with the same tool, without having to change any aspect of it. The stroke rates are obviously not always the same, for example when we are producing plug connectors, but in our reshaping department, we have all sorts of different material thicknesses with anything up to 2 millimetres. And with batches of between half a million and a million, the tools can be in constant operation for three to four days. The precision of the BRUDERER high-performance automatic stamping press means that our tools last four times as long as before, even at speeds that are four times higher.



Reliability and longevity with the BSTA 1600-181 B2.

Otherwise we simply would not be able to achieve our production figures,” says Wacker. “In our sector, it’s not just about hinges, it’s about the whole programme, from the requisite mounting plates and the various fixing options and supports through to all the different opening angles. All of this combines to make a single hinge system incredibly complex. What is more, you cannot get a client to change to a new system nowadays unless you can offer them the whole deal from one source.

‘Market leader with flexibility’ is how our division describes itself, and for us this means giving clients what they want. This is exactly what we do here, courtesy of our expertise, quality and of course our reliability. And when it comes to stamping technology, BRUDERER certainly help us keep this promise.”