
Lean Management / Assembly Technology / Supply Systems / Sheet Metalworking

Quick final assembly and cross-process savings effects – Shims for tolerance compensation score points as a lean management tool

Dietzenbach, Germany, May 2012. In many companies, Lean Management remains a well-intended management theory because there are no concrete instruments for its practical realization. What many people do not realize, however, is that the implementation of small measures can produce astounding results. A good example of this is the use of shims to compensate tolerance in the production of subassemblies, thus triggering great effects across all areas of the company.

“People usually can’t believe their eyes when we show them how the efficient use of shims in subassembly construction triggers tangible lean management effects,” reports Christoph Martin, managing director of Georg Martin GmbH. Only a few weeks ago his proposed solutions to an internationally active transmission manufacturer were met with enthusiastic approval. Whether in Purchasing, Construction, Production, Maintenance or Customer Service: companies who consistently use Martin shims to compensate tolerances register immediate cost and time savings in all areas.

More precise planning, quicker execution

Many subassembly manufacturers still use grinding technology to compensate tolerances at final assembly. This ties up expensive personnel and machine capacities, that could be used much more productively elsewhere. Using shims, moreover, assembly can be planned more precisely and takes less time. “Many practical examples show that the productivity gain is usually somewhere in the region of several hours,” says Managing Director Martin.

Using shims processes become leaner throughout the production chain : Designers, for example, do not have to calculate total tolerances, defining simply which shims are to be inserted at which locations. The variety of available shim designs and materials – steel, stainless steel, aluminium, brass, PET and composites – offers many design possibilities. Three product lines are available: M-Tech L laminated shims, with a total thickness of 0.50 to 3.20 mm,

consist of up to 64 layers of foil (25 to 100 µm) that can be peeled off to obtain the required shim thickness. M-Tech S shims consist of layers of sheet metal or foil (from 10 µm) and are supplied ready punched or ground to the required, customer-specified shape. M-Tech P shims are edge-bonded or bundled with cable ties. The bundled shims can be separated in the same way as a tear-off calendar.

Demand responsiveness through low stock variety

Thanks to Georg Martin's versatile portfolio, the purchasing department can place orders to precisely meet design, production and maintenance needs. With up to 60 layers of foil in a single component, peelable M-Tech L shims cover all conceivable tolerances with a single compensation element. Unlike the customary C-parts, which are ordered as bulk or assortment goods depending on their consumption, shims from Martin allows Purchasing to order from the parts lists on a demand basis. This reduces the number of variants, simplifies stock control and increases stock reliability. The service team can also carry out repair and maintenance work with a minimum of effort – no grinding work, no machining, no parts allocation management, no waiting times. Simply adjust or replace the shims and the machine is up and running again. All of these aspects boost cashflow, from which everyone benefits – from the original equipment manufacturer to the end customer.

"Many manufacturers in the fields of drive technology, automotive manufacturing, aviation and plant engineering already use M-Tech shims to achieve considerable lean management advantages, such as reduced machining requirements, faster design and fewer versions," says Christoph Martin. The managing director sees another big advantage in the ability of his company to satisfy all requirements with customer-specific, ready-to-use shims thanks to its modern machine facilities.

Illustrations:

1: M-Tech L laminated shims have a total thickness from 0.50 to 3.20 mm and consist of up to 64 sheets of foil of 25 to 100 µm that can be peeled off to the required tolerance.

2: The shims of the product line M-Tech®P are edge-bonded and can be separated easily like a tear-off calendar.

About Georg Martin:

Georg Martin GmbH manufactures metallic shims as well as punched and deep-drawn parts for mechanical and plant engineering applications. Headquartered in Dietzenbach near Frankfurt, Germany, the family company was established in 1945. Georg Martin currently employs about 100 people.

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