

Hightech bei Blech



The HR rivet nut for high strength sheets

– ARNOLD & SHINJO can now provide a solution for high strength sheets – Suitable for max sheet thicknesses of 4.5 mm – Compatible with existing ARNOLD & SHINJO processing technologies – System concept cuts costs and assures quality –

(Dörzbach) A company of the Würth Group operating worldwide ARNOLD & SHINJO has introduced a new generation of rivet nuts allowing customised solutions on all sheet thicknesses from 0.4 to 4.5 mm. This fastener is designed primarily for applications on high strength, press- and mould-hardened steels. Previously installed ARNOLD & SHINJO processing technologies can be modified easily and economically to integrate the new rivet nut system. Hence this reliable and cost cutting alternative to welding can exploit its advantages to the full extent. This new product line from the Dörzbach specialists has stood the test above all in applications on sheets that must fulfil particular demands on mechanical strength properties and vibration resistance.

Automotive engineering ranks among the central key industries in Germany characterised by high productivity and innovation density. The HR rivet nut is ARNOLD & SHINJO's response to the new demands that specifically the automotive industry places on the processing of semifinished products. Over the past years there has been growing awareness for environmental aspects in lightweight body engineering. Measures for reducing weight not only included glass fibre reinforced carbon materials on bodies, but also presented high and higher strength steels for lightweight optimisation.

Mechanical joining methods on the advance

Hightech bei Blech In the face of these new materials in conjunction with innovative material combinations and the intensified use of precoated sheets designers and producers automatically focus on joining technologies. Above all the mechanical joining methods like clinching and riveting benefit from its advantages over traditional spot welding. This technology does not give rise to environmentally harmful gases or noise. Also, there is no material embrittlement caused by welding heat, and no welding spatter requiring intensive rework. The additional galvanisation of the joining site also becomes a thing of the past.

Unlike the welding process these robust joining elements from the Dörzbach specialists do not require any external, and therefore additional operations. ARNOLD & SHINJO has calculated that the process costs after the integration of HR rivet nuts can be up to 30% lower than welding variants.

Cost cutting with maximum reliability

The new HR rivet nut is designed specifically for reliable connections with sheet thicknesses from 0.4 to 4.5 mm. The minimum number of variants, i.e. the one nut for all sheets up to 4.5 mm, assures sustainable cost cutting potential. Fulfilling property classes 8 and 10 the high material quality of the

new product line is ideal for applications with the respective sheet thicknesses and qualities. High pullout forces prevent the fastener from breaking in safety critical situations. At the same time the extreme torque strength was adapted to the profiles of greater sheet thicknesses, irrespective of the sheet strength.

PRESSEMITTEILUNG

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Standardised tool range

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For integration in industrial production the choice went to the riveting method that can perform the joining process automatically. The components to be joined are placed on a die, and a punch carrying the rivet nut and hold-down presses these down through the prepunched component in the one stroke. This operation requires high forces that are obtained only in mechanical applications.

A standardised range of tools is available for processing HR rivet nuts. Based on its system philosophy of fastener and processing technology ARNOLD & SHINJO offers the optimal automation of the mechanical joining method. The modular system technology consists of clinch heads, dies, feeders, and the requisite controllers.

The fasteners are introduced to their processing sites through feed hoses and placed on their respective piercing heads by an ARNOLD & SHINJO multidistributor. This system reduces the interfaces to the tool – for verifiable, considerable cuts in the tooling times.

To sum up

In the form of the new HR rivet nut ARNOLD & SHINJO provides in conjunction with its processing technology an integrated solution for complex joining methods on high strength sheets and press- and mould-hardened steels. The integrative approach of this processing concept is a practicable alternative to the traditional welding variant and assures maximum joining quality at considerably reduced costs.