



Huf Mexico and Erska

The location of Huf Mexico in Puebla.  
Picture: Huf Mexico

# VERSASCAN: The right program for sure!

The Huf Hülbeck & Fürst GmbH & Co. KG is a manufacturer of car locking systems and was established in 1908. Today, Huf is represented on three continents and together forms the Huf Group with around 7,800 employees. The Mexican subsidiary was founded in 2008 and is located in sunny Puebla, just a few hours from the capital Mexico City. With 800 employees in Mexico alone, Huf is a leader in the

development of mechatronic products in the CASIM segment – short for “Car Access, Security and Immobilisation”. Huf Mexico produces locking systems, door handles, injection moulded parts and circuit boards for electric door openers. Huf produces an average of 120,000 car keys or ID givers, 60,000 external door handles and 24,000 steering locks per day.

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Equipping workplace at the beginning of the line with VERSASCAN in the Huf Mexico production.  
Picture: Huf Mexico

As a long-standing customer, Huf has been using various soldering systems from Ersa since 2003. With this trustful business relationship behind him, Huf came to Ersa with a new idea: The idea was to build a production line under the sign of the future – a soldering system that could automatically and fully traceably monitor every single production step. During the preliminary discussions, the customer requirements quickly became clear, the planned production line was geared towards maximum machine availability, fast cycle times and a minimum error rate – the high-tech selective soldering system of system supplier No.1 for electronics production was urgently needed: a VERSAFLOW 3/45. The selection was quite simple for both sides, as 1,670 machines from VERSAFLOW are already in use worldwide without complications.

Full traceability is understood to mean that the printed circuit boards have a separate code and are additionally placed and loaded with master code in a frame carrier. If the results from the machine are linked to the codes, all data is available at any later time. In principle, VERSAFLOW is already equipped to request data to be passed on and traced, but the data must first be made available. Ersa has therefore decided to make this possible for a customer for the first time. For this purpose, a VERSASCAN camera system was installed in front of the soldering system. VERSASCAN is an in-house development of Ersa and takes over quality assurance

as an optical inspection system directly after manual assembly of the PCBs. If a component is forgotten or placed incorrectly, it is detected with the same precision every day and transmitted to the machine as information, stored in the master code on the frame carrier and code on the individual circuit board. If a frame carrier moves into the system, the master code indicates which inspection program is to be selected automatically. In addition, the correct soldering program is selected by the master code. All information is already in the master code on the frame carrier. The operator is optimally supported: It is not possible to load a program that does not match the product, since everything is specified by the code read. If an error occurs during the inspection by VERSASCAN, this is detected and passed on to the soldering system. In this way, the soldering system knows, for example, that there is a PCB in a nest of the frame carrier that does not comply with the specifications even before the soldering process. There is no added value for the customer to process this faulty printed circuit board – which would only be rejects anyway. The soldering system receives exactly this information and omits fluxing and soldering for the faulty PCB, which saves resources, time and money.

## Huf Mexico

### in numbers:

Founded 2008

800 employees

Production area:  
16.500 m<sup>2</sup>

Production technologies:  
electronic products,  
mechanical products,  
electronic encapsulation

[www.huf-group.com](http://www.huf-group.com)

Huf operator in front of the VERSAEYE.  
Picture: Huf Mexico



#### FAULT-FREE PRODUCTION FOR SAFETY-RELEVANT COMPONENTS

After the soldering process, which only processes the correctly assembled PCBs, an expert opinion is required again due to the traceability of the production steps. This is because other machines and subsequent processes also require access to the data. Often the last step is still carried out manually – and: Where people work, mistakes can happen. However, this must be avoided under all circumstances for safety-relevant components. This is exactly what the automatic optical inspection system (AOI) called VERSAEYE is used to ensure. VERSAEYE works day after day with the same precision and helps reliably to maintain the high standards in daily production permanently and reproducibly. Only PCBs that have passed the VERSASCAN without errors are inspected by VERSAEYE at the end of the line.

The preset criteria can also detect small solder balls. A telecentric lens is used for the complex testing of the pilot points. Only this telecentric lens enables optimum use of the entire Field of View (FOV) – i.e. the entire area that the camera makes visible with an image. The sensor takes high-resolution images of the inspection area and calculates the results of the solder joint virtually in real time. The telecentric lens eliminates parallax and shadow effects. Thanks

to the different illuminations offered by VERSAEYE, a statement can also be made about the shape of the meniscus. This means that it is no longer just a question of whether a solder joint is present – now it is also possible to assess whether it is optimally designed according to IPC. Therefore, a simple image comparison (pattern matching), as it is known from SMD production, is dispensed with. VERSAEYE works with one histogram and multiple color channels simultaneously, as each pin in the pad may move minimally and look different before and during soldering. If a fault is detected, a detailed image of the fault location can optionally be taken for closer inspection via the additional eight side cameras. Of course, important components can also be inspected separately with the side cameras. The final result of the automatic optical check per PCB is also linked and stored separately with the same code on the PCB – so there is no possibility of confusion!

The Huf line does not require a repair workstation, which is otherwise common in AOI systems. A display is mounted at the outlet of the soldering machine, which provides a simple visualization for good and bad parts. The result from the AOI can be classified immediately without any further work step – and without moving the PCB to another location. According to the frame carrier, a green field is shown at the positions with good printed circuit boards and a red image at faulty PCBs. If the frame carrier has not been fully loaded, the empty space is highlighted in yellow.

#### LIFTING AND LOWERING STATION FOR RETURN

For the first time, a specially developed lifting and lowering station from Ersa Automations is used to return the empty frame beams after classification. The machine modules were manufactured by Ersa Automations at the 100% Kurtz Ersa subsidiary Conline GmbH. On the function of the lifting and lowering station: All frame supports are circulated and return automatically to the machine infeed. This relieves the operator and eliminates the need to carry the empty frame girders around until the beginning of the line.

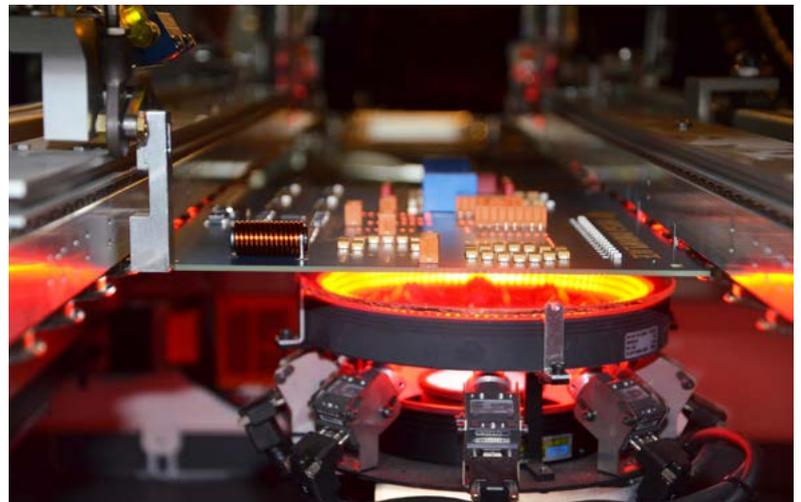


Complete line in Huf Mexico production – everything from one source.  
Picture: Huf Mexico

The interaction of the individual modules ensures a smooth process. The special feature of this line: All machine components come from a single supplier or machine manufacturer – a good feeling for the customer, which naturally includes first-class service.

ABOUT THE VERSAFLOW 3/45 WITH VERSASCAN + VERSAEYE

Ask Juan Diaz, chief engineer for the new production line at Huf Mexico, what to expect from the latest technology on the market: "Until now I have seen that it is a very robust and reliable system equipped with complete traceability. Something else is very important to us: the locking system that works with iTac. The operator is at the end of the line to divide into good and bad parts. In case the operator makes a mistake and swaps the PCBs, we still have the correct data in the iTac. The PCB is not accepted in the next step, since the code with the result is queried again. In addition, the user interface is intuitive, and with the intelligent overall concept we assume extremely low downtimes. The user-friendly user interface saves us a considerable amount of time – in fact, this caused quite a few problems on another system and we lost a lot of time when dividing into good and bad parts. That's why we needed the new system with AOI, which displays the results easily and comprehensibly. I am completely convinced of the Ersa concept and we will definitely continue the promising cooperation with Ersa!" ■



Ersa VERSAEYE – documented solder joint quality.  
Picture: Ersa GmbH

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