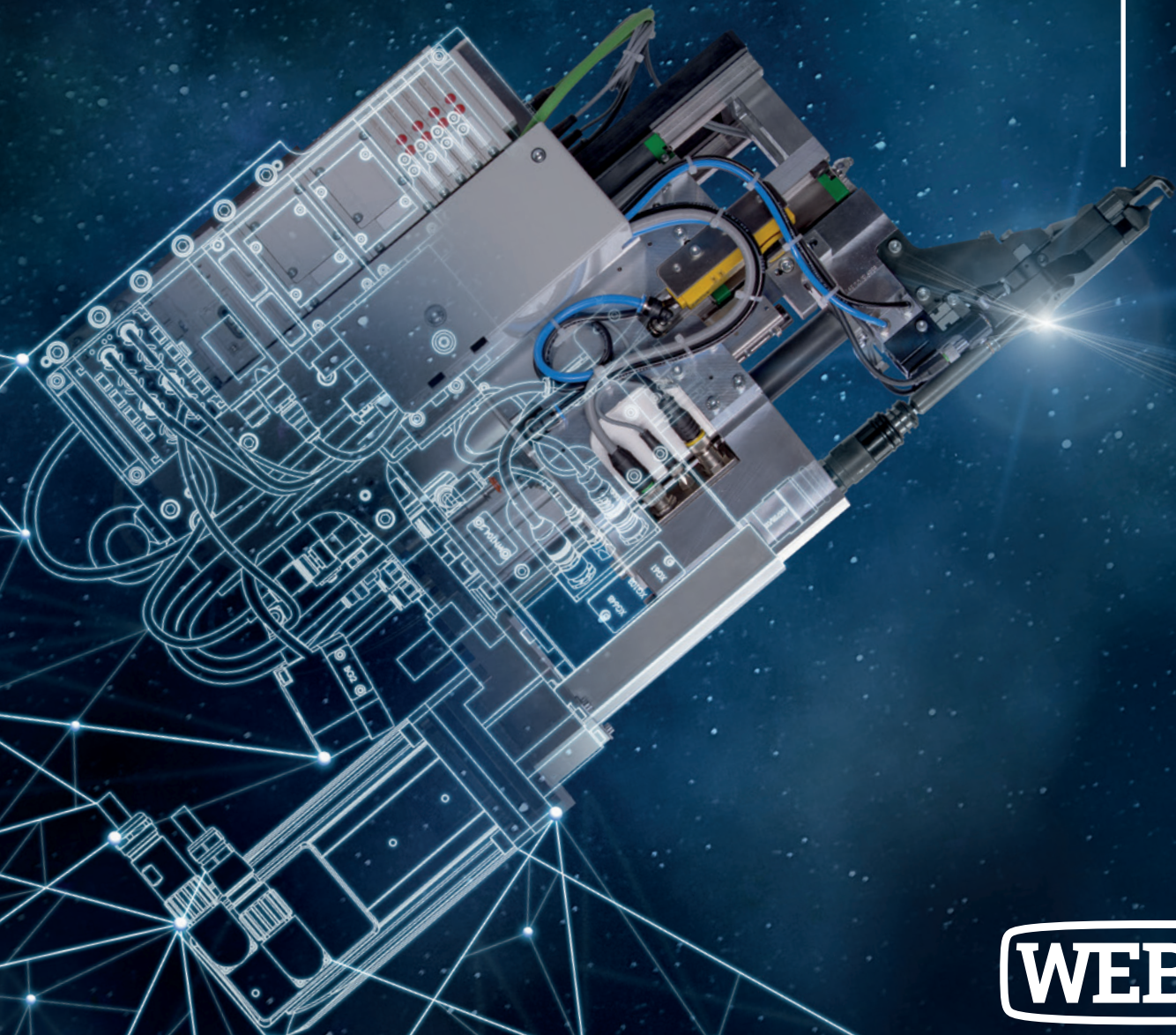


# RSF25. RETHINKING MANUFACTURING.

WHATEVER YOUR VISION  
FOR TOMORROW MIGHT  
BE: BUILD IT TODAY.



**WEBER**

TECHNOLOGY THAT CONNECTS



# For your manufacturing tomorrow: RSF25 – our model of the future.

The result of over 20 years' manufacturing experience in flow drilling screw connections and over 1,000 systems in key markets worldwide. Driven by the increasing demands and expectations of our international customers: The RSF25 from WEBER. VERSATILE as never before. FASTER than all its predecessors. The MOST INTELLIGENT model of its kind. With the patented WEBER depth gradient for PRECISE switching between the flow drill and thread forming steps. Our answer to the challenges set by industry.

## PATENTED WEBER DEPTH GRADIENT

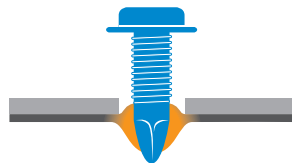
The right combination of strength and speed is the decisive factor for flow drilling joining technology: while high forces and speeds are essential for flow drilling, very little force is required during thread forming work since the thread pitch of the screw will determine the speed of penetration.

The patented WEBER depth gradient identifies changes in depth while the screw is breaking through the material and therefore always switches between these two processing steps at the optimum moment.

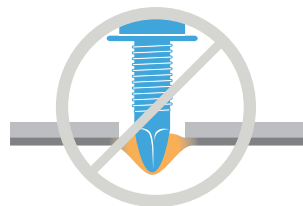


For precise switching  
between the flow drill and  
thread-forming steps

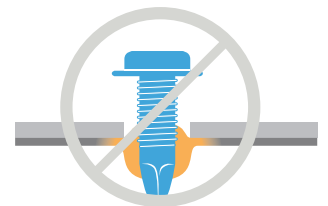
Correct switching point



Switching point too early



Switching point too late



### Analogue depth gradient vs. depth:

- + To ensure the quality of a Joint made using flow drilling technology, precise switching between the flow drill and thread-forming steps is decisive.



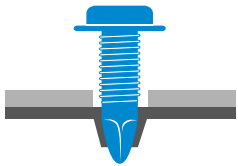
To compensate for material tolerances by adjusting the axial force during the process

## INTELLIGENT BOOST FUNCTION

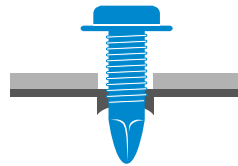
Variations in material and temperature can cause situations where the sets of parameters specified in the laboratory do not perform optimally in practice. To date, any recalibration work required has been a very time-consuming process that regularly needs to be adjusted to the ongoing production situation.

To solve this problem, WEBER uses the new boost feature offered by the RSF25. This increases both axial force and speed automatically until the depth gradient is achieved.

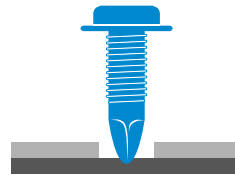
Material with standard dimensions



Material at lower end of tolerance



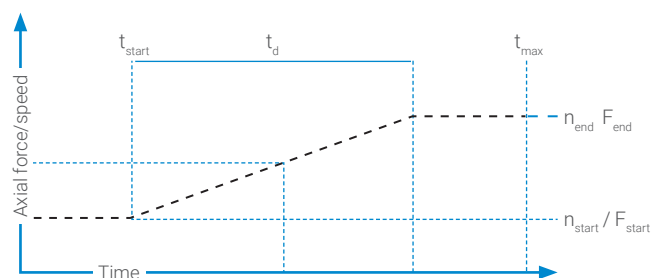
Material at upper end of tolerance



### Problems with material tolerances

- + Some materials such as sand-cast aluminum have high tolerances in terms of material or mechanical strength
- + Sets of parameters are defined in the lab for a predefined thickness or strength of material
- + During production, wear in molds or general variations in the material can cause situations where the original parameter set is no longer optimal and results in defective Joints

### Recalibration



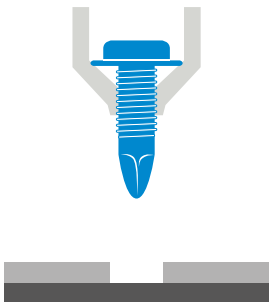
# AUTOMATIC PRE-PUNCH COMPENSATION

The screw is guided by the jaws right up to the point at which the screw tip has penetrated the material. Only then are the jaws opened and the screwing procedure can then begin.

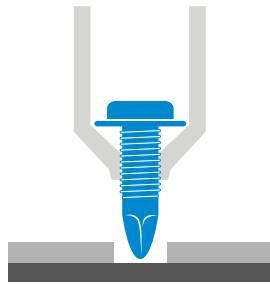


The floating head guides the screw until it has penetrated the sheet, independently of the pre-punch depth

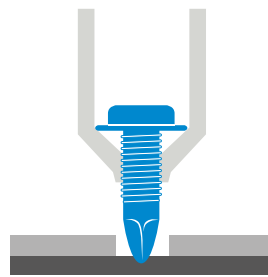
Screwdriver positioned at the sheet



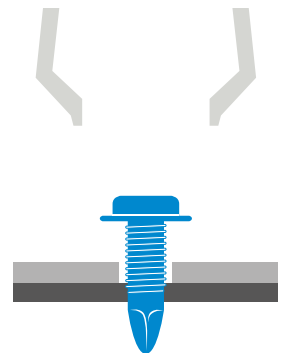
Screw tip makes contact



Screw tip penetrates sheet



Screw fixed in place



## Advantage:

- + Use of a retention plate for screws up to a length of 25 mm without protrusion of the screw tip
- + Increases flexibility in production
- + Reduces size of spare part inventory
- + Less project planning effort





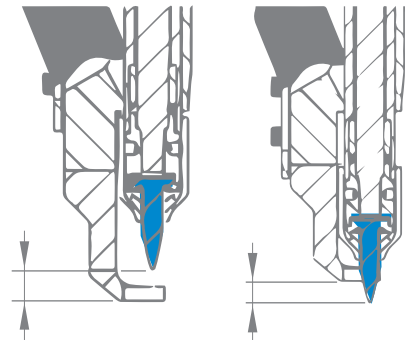


No additional  
changeover work

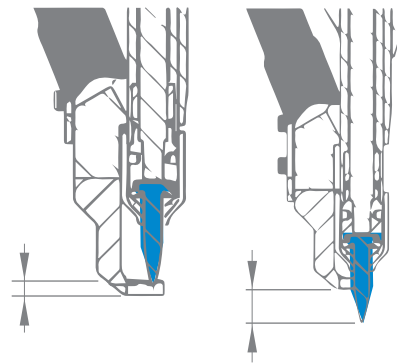
## VARIOUS SCREW LENGTHS

The longer floating path offered by the RSF makes it possible to process various lengths of screw with a single head design.

### M 5 × 20



### M 5 × 25



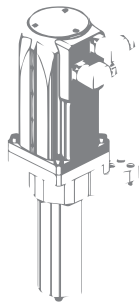
The RSF25 is designed to handle various lengths of screw. For screws up to a length of 25 mm, a retention plate is used to prevent protrusion of the screw tip.

This makes it possible to use screws of 18 to 30 millimeters in length without making changes to the design. This, in turn, increases flexibility in production while reducing the quantity of spare parts required and project planning effort.

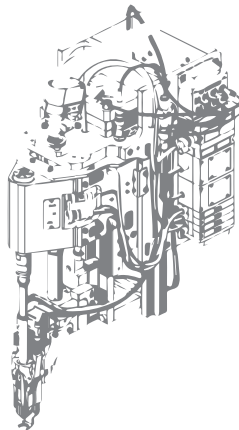
# FLEXIBLE DESIGN

The main body of the RSF25 spindle is the same for all models. This makes it possible to switch between straight and compact versions of the RSF25 with a few simple steps and just 6 screws – with the spindle as a parts-optimized interface in the center. This modular design works to unify assembly, shorten delivery times, and reduce the volume of spare parts needed.

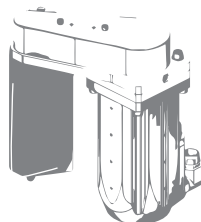
**Straight drive set**



**Spindle without drive**



**Compact drive set**



**Switch between straight and compact RSF25 versions with a few simple steps**





Thanks to the preliminary detection step, the flow drill process starts immediately after the screw is placed in position

## OPTIMIZED DRIVE DETECTION

The RSF25 detects the screw to be processed not via process force but by using low-strength spring tension. This removes the need for detection stages: process time is shortened and the screw procedure starts immediately after placement. This enables process cycle times of less than 1.6 seconds – around a whole second less than conventional techniques. At the same time, process reliability improves while bit wear is reduced.

- + With the RSF 25, the screw process is started from an intermediate position
- + This reduces the spindle thrust needed to a minimum (reduced to positioning at the component only)
- + This intermediate position causes the closure of the screw's feeding channel

### Advantage:

- + Reduces process cycle time
- + Prevents the screw falling back during an overhead screw procedure
- + Reduces air consumption since holding pressure is no longer required



## What tomorrow's control technology can offer you today:

- + Software with 1,023 intelligent screw programs
- + Maintenance interval monitoring
- + Electronic rating plate with key data (screw cycles, machine number, etc.)
- + Predictive maintenance (automatic testing of spindle, torque sensor and analogue depth sensor)
- + Straightforward 4-level parameter setting
- + Extensive curve evaluation and analysis features
- + Preconfigured for database connectivity

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