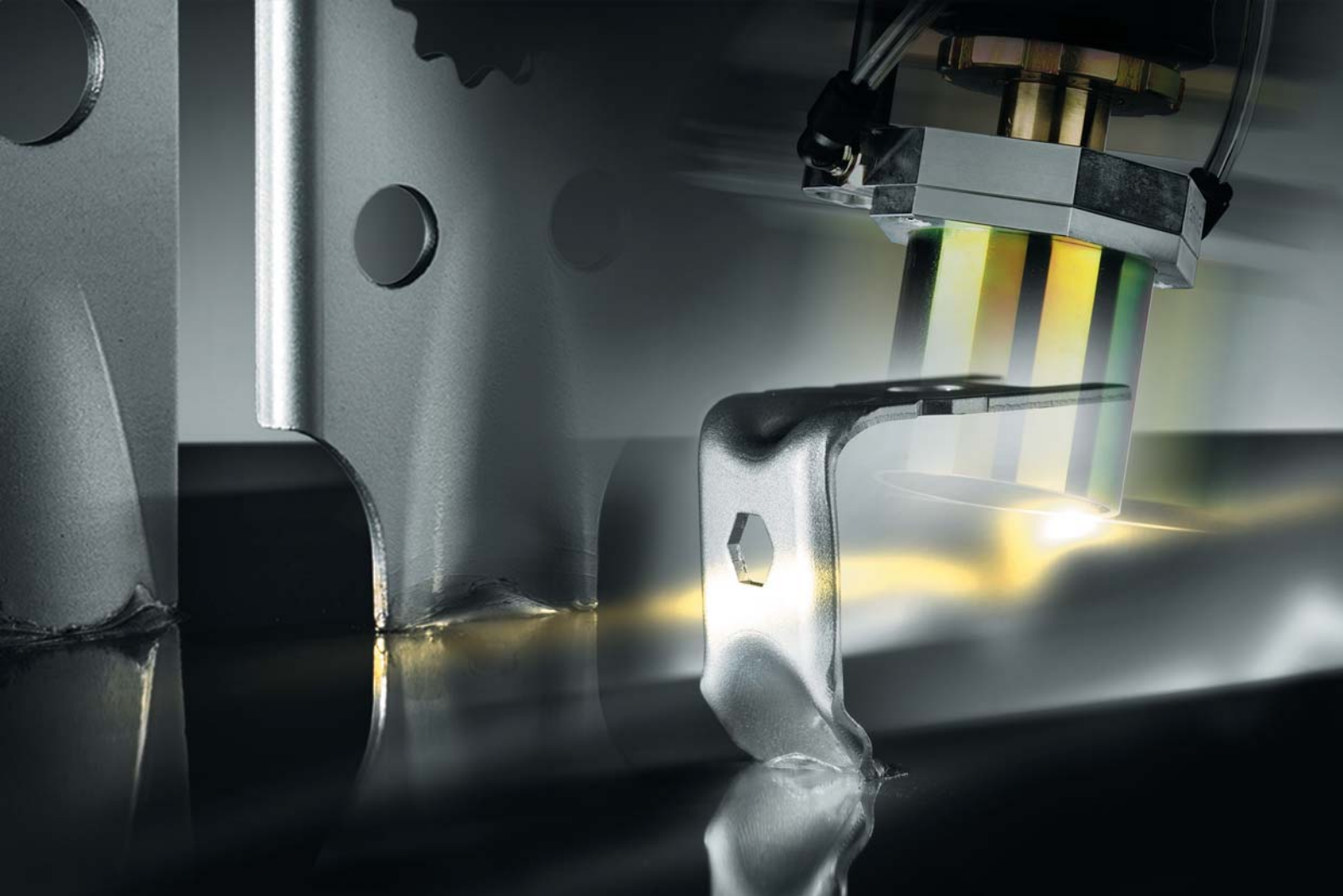


# TUCKER WELDFAST. The Innovation!

**New dimensions in drawn arc welding!**



**Metal pressings with complex shapes are welded directly onto metal surfaces.  
For use in automated manufacturing – as simple and efficient as stud welding.**

**Emhart<sup>®</sup>  
Teknologies**  
**WELDFAST™**

A  **BLACK & DECKER** COMPANY

# WELDFAST. The Innovation in Drawn Arc Welding.

## Advantages in every respect!

### Forget conventional spot welding for fixing smaller metal parts. Forget electrodes and welding wire.

Up to now drawn arc welding without welding wire could only be used for the welding of parts with round cross sections. WELDFAST technology offers you new possibilities for economies. Without having to use additional materials like welding wire, solder or electrodes, you are now able to attach parts with any geometry: square, rectangular or oval parts - round ones too, of course.

This innovation, which looks simple at first glance, is a revolution of the fastening technologies in the entire sheet metal processing industry.



#### Less material, less weight!

Unlike spot-welded parts, WELDFAST components do not need additional angle brackets. This means a reduction in weight and material consumption!

#### Easier assembly!

In contrast to resistance spot welding, the weld area needs to be accessed only from one side. This means additional parts can be easily welded on at a more advanced stage in the manufacturing process.

#### Easy to integrate into automated processes!

Ideally suited for use with assembly robots! After automatic feeding to the weld head, which functions as a gripper, the components are positioned and welded in a single step.

#### Fast and precise!

Up to six parts per minute can be welded by the robot: precisely positioned and without reference marks or prior provisional fastening on the work piece!

#### Safer weld joints!

The WELDFAST joint is not just spot-welded but covers the entire cross section of the part. The result is a higher load bearing capacity, which in turn makes it possible to reduce the part size. This way further saving potentials can be achieved.

#### Convincing technology in comparison!

## The WELDFAST-procedure.

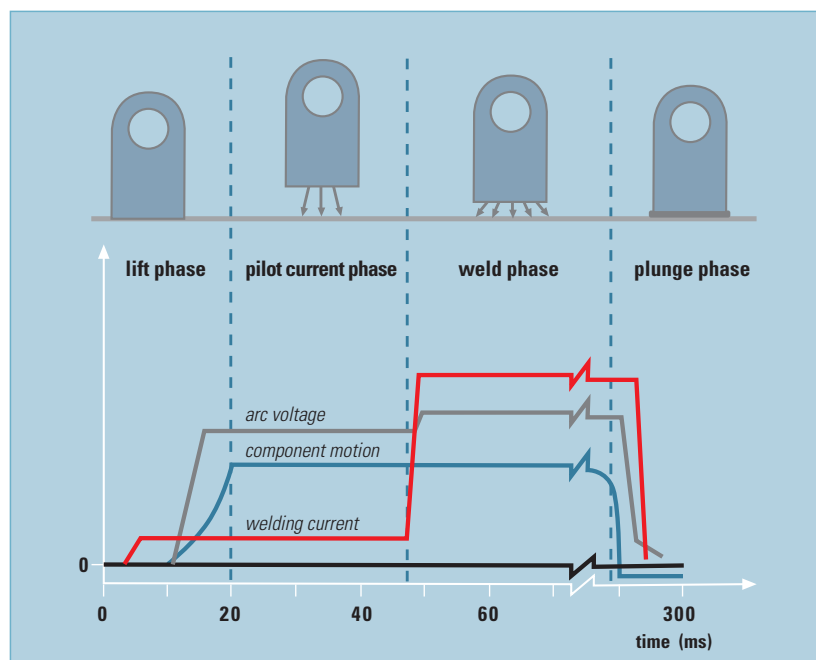
Universally suited for numerous welding tasks:

Length of weld zone:	up to 30 mm
Material thickness:	0.8 – 4.0 mm
Sheet thickness:	0.7 – 4.0 mm

#### A safe weld joint in four phases.

The process of short-time welding with drawn arc:

- The part is positioned on the metal sheet surface.
- The pilot current is switched on ( $I_r = 20$  amp) and the part is lifted - a pilot arc is induced.
- The main welding current is released (220 to 1500 amp) - the intensity of the weld arc increases, the material melts.
- The component is plunged into the molten pool and the welding current is then switched off.





### The LM weld head.

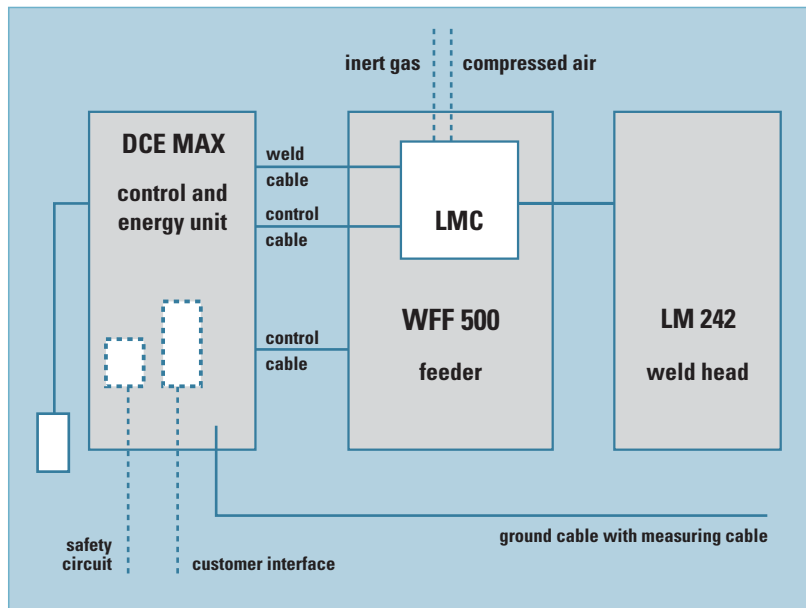
A weld head design based on stud welding technology. Its linear motor drive guarantees that the lift will be performed precisely as defined. It ensures a controlled plunge at a constant press-on force. Speeds can be pre-set variably.

Due to an electronic real-time control, the system is able to react without delay to variations in the geometry of the parts; even the slightest tolerances will be automatically compensated for.

Depending on the component to be welded on, the weld head is equipped with either spring grippers or a pneumatic gripper system.



## The System.



### 100% constant quality due to a comprehensive system.

Integrated in production lines, different configurations for either manual, semi- or fully automated operation is possible.

Microcontrollers connected by optical fiber cables ensure task-specific and precise process control.

#### WELDFAST feeder

- 1 WELDFAST feeder WFF 500
- 2 Vibration Conveyor
- 3 Sorter Rail

### The Control and Energy Unit DCE MAX.

The DCE MAX is a control and energy unit developed further in a consistent manner for the welding of all metal fasteners made by TUCKER, like steel studs, aluminum studs, TUCKER Nuts or WELDFAST brackets.

### Constant energy, constant welding.

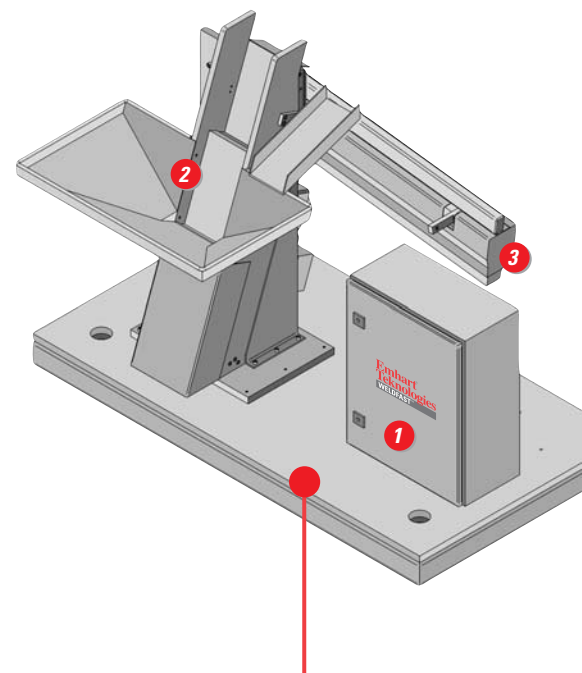
The automatic optimization of parameters controls the light arc voltage and, if necessary, adjusts the weld current or the welding time. This feature ensures that possible disruptive factors like oil, surface coating and soiling are compensated for. The result is constant welding energy enabling optimum weld results.

#### The most important features at a glance:

- automatic parameter optimization
- flash memory
- intelligent software
- real-time control
- 220 – 1500 amp weld current
- 12 – 350 ms welding time

#### Optionally available:

- 2 outputs to welding systems
- extension software for aluminum, Nutfast, SWS
- DCE-Link
- feeder interface



### The WELDFAST Feeder WFF.

The hopper of the feed unit can hold up to 500 fastening components.

Due to its fully automatic sorting, loading and feeding functions, the WELDFAST system is optimally suited for operation in complex production lines.

Fastening elements are fed to the weldhead by a pick-and-place procedure. It is suitable for robot as well as stationary use.

# WELDFAST. The Innovation in Drawn Arc Welding.

**No danger of corrosion –  
welding without gaps!**

Fastening elements attacked by corrosion are a thing of the past with the WELDFAST welding procedure!

The WELDFAST joint is not just spot-welded but **covers in the entire cross section of the part**. There are no gaps. Prime coating will seal the component completely and so additional sealing against corrosion is redundant!

**Less is more –  
one fastener per function!**

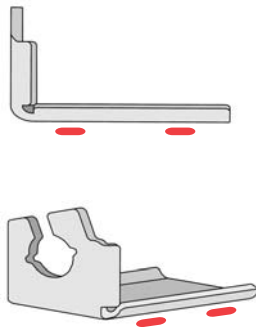
WELDFAST fasteners are welded directly onto the sheet metal, no additional angle bracket is necessary.

This means for example that **one fastening component** can be used for the fixing of a pipe **at any location**. The geometry of the mounting environment and the fastener itself will no longer pose a problem.



**Resistance spot welding –  
2 spots of a diameter of 5 mm  
constitute the joint between  
the complete fixing compo-  
nent and the metal sheet.**

**Conventional fastening component**



In resistance spot welding however, up to four differently shaped angle brackets are needed. In addition, the mounting location has to be prepared using the appropriate tools.

WELDFAST creates saving potentials and flexibility of application!

This conventional fastening component weighs 44g, the WELDFAST component below only 9g. **This means 80% less material and weight - with exactly the same performance!**

**Service right from the begin-  
ning – from the design of the  
fastener component to the  
complete welding system!**

As suppliers of complete systems we offer a comprehensive service right from the beginning.

It all begins with an on-site service. Traditional procedures are compared with the new WELDFAST technology. We will show new possibilities while taking your manufacturing processes into consideration. After that we will develop new fastening solutions and design fasteners with new geometries for you.

It goes without saying that the manufacturing of all system components is a part of our service. This way you will receive highest quality products and complete systems from a single source.

**WELDFAST weld joint**



This new weld joint does not only enable a reduction in part weight, material costs and process steps but also provides a higher weld quality.

**WELDFAST –  
the entire surface of the  
cross section is welded on  
the metal sheet.**



## Technical specifications overview.

### Weldhead for WELDFAST LM

Dimensions (w x d x h):	approx. 87 x 359 x 131 mm
Weight:	approx. 8 kg
Slide travel:	max. 50 mm
Slide compensation:	max. 11 mm
Component dimensions:	variable
Weld lift:	variable 0.5 – 6 mm
Inert gas:	optional

### Fully automatic feed unit WELDFAST for stationary and robot use

Dimensions of fastening component:	variable
Dimensions (w x d x h):	approx. 1250 x 2000 x 1500 mm
Weight (net):	800 kg

### Control and Energy Unit DCE MAX

Power supply:	380 – 500 V
Frequency:	fN: 50/60 Hz
Weld current range:	DI 220 – 1500 amp
Weld time range:	Dt 12 – 350 ms
Dimensions (w x d x h):	approx. 560 x 565 x 965 mm
Weight:	approx. 90 kg

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