

magnetic DRIVE

The Weldolution

NIMAK magneticDRIVE

The revolution in resistance welding.

Patented

Faster, more gentle, more precise.
The new, high-dynamic drive technology
for spot and resistance welding.

 **NIMAK**

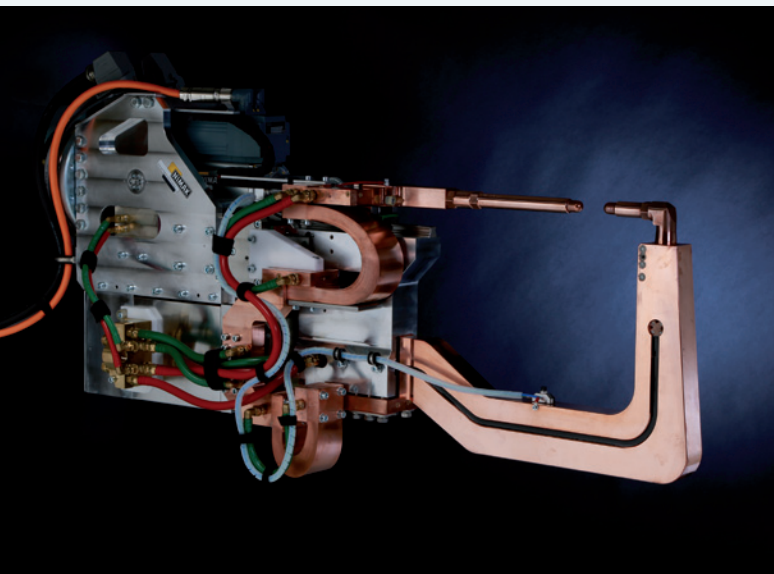
Die perfekte Verbindung

Controlled force.

The connection between two components during resistance welding is realised by heat (current) and pressure (force).

The current flow for **heat generation** has been able to be optimised continually – particularly due to the advanced development of medium-frequency and capacitor discharge technologies.

However, the pneumatic or electromotive systems used have been increasingly reaching their physical limits in terms of **pressure build-up** and **follow-up characteristic**.



We have now broken through these limits – using electro-magnetism!
Only NIMAK offers a completely unique drive and follow up unit:
the **magneticDRIVE**.

We use the heavy, controlled and regulated force and in particular the immense speed and dynamic of the latest microprocessor-controlled electromagnets for resistance welding which is unique worldwide.

Already successfully used in various applications, this system is available for all resistance welding applications and for robot welding guns.

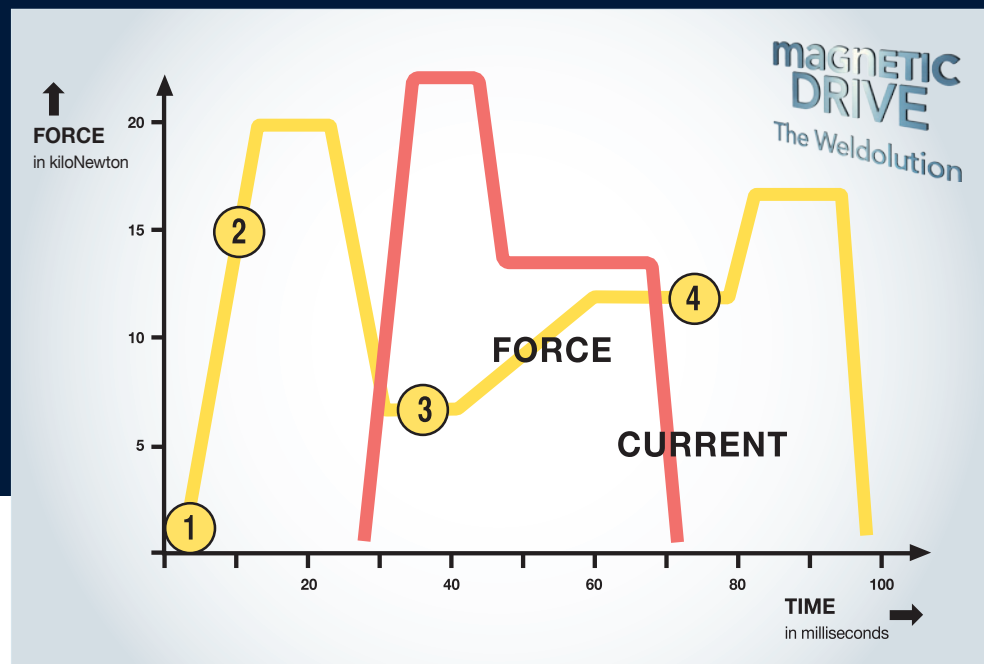
The moment of truth (in milliseconds).

The revolutionary drive unit **magneticDRIVE** always has its immense force under complete control:

Different force impulses are now possible within one welding process – and these can even be timed precisely.

In addition to the current impulse, users can now also set up an **exact force profile** for the welding job, which controls the increase and drop in force over large ranges to the millisecond.

A **specific increase or decrease in force** over a defined period (upslope or downslope) is no longer a problem thanks to the controlled force of the magneticDRIVE.



- 1 Gentle electrode contacting:**
 - prevents deformation of the surfaces and the welding projection
 - goes easy on the electrodes and machines
- 2 Extremely fast increase in force:**
 - positively presses the components together
 - replaces the holding time required by conventional systems
- 3 Reduced force during current supply:**
 - increases resistance between the components, producing more heat
 - saves energy
 - reduces the heat affected zone
- 4 Force-locked follow-up at lightning speed:**
 - presses the metal together during hardening
 - reduces splatter formation
 - optimises the quality of the weld connection

Faster, more gentle, more precise.

The perfected interaction allows welding current and force to be reduced by up to 30%.

This **saves energy**.

Welding is **more gentle** and goes **easier on the material**. Less wear and longer maintenance intervals are the result.

The entire welding system can now be downsized. Every welding process in a series is executed with precisely the same electrode force – and can be **reproduced exactly**.

This **increases quality**.

The **perfect follow-up characteristic** prevents the electrode force being broken at any time – neither during melting of the welding projection nor during sinking of the electrodes during spot welding, eliminating welding splatter completely.

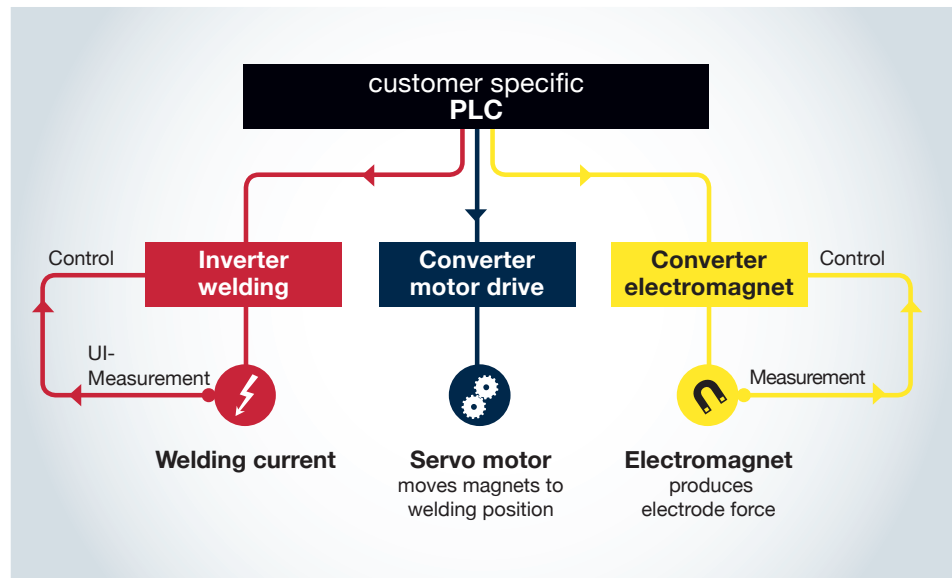
This opens up new options in lightweight engineering. The precise control of the follow-up characteristic is particularly suitable for aluminium and high-strength steels.



magneticDRIVE characteristics.

Electromagnetic drive unit with force levels 20 kN, 40 kN, 60 kN for use in:

- spot welding machines
- projection welding machines
- capacitor discharge welding systems
- 10 kN module for robot welding guns



Speed & precision:

- force/repeat accuracy:
+/- 10 Newton
- speed of increase in force:
20 kN / 30 ms
- force delta (change):
5 kN max. 10 ms

Quality-related advantages:

- welds aluminium and high-strength steels
- clean welding without splatter
- always welds with the pre-selected force
- without bounce impact and material deformation
- reduces tarnishing

Productivity-related advantages:

- shortens cycle times
- reduces welding spot rework
- cuts machine wear
- reduces welding spot rework
- extends maintenance intervals
- significantly lowers noise levels

Saving potentials:

- downsizes power electronics
- cuts energy costs



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