

# Intelligent welding torch (MIG/MAG/TIG)

## The innovation

Manual welding of complex parts and difficult accessible areas with high standard of quality is a major production area and requires high qualification on staff in terms of technical knowledge, skills and physical fitness.

### Challenge:

Different welding positions and situations require different process parameter settings. Moreover, the adaptation of parameters in large work areas and with complex components is hampered by physical separation between welder and welding source. Consequently, suboptimal parameter settings lead to quality and time losses.

### Innovation:

The solution to this challenge is provided by the combination of conventional welding torch technology with **sensors for determining spatial orientation**.

These determine the current welding position at any time, regardless of the geometry of the welding torch. Through a **programmable interface**, the welding parameters can be adjusted **automatically** and dependent to the position during the welding process. The technology can be combined

with common welding sources to expand existing functionalities. Welding errors can be sharply reduced using the **automatically selected parameters**. As a result, a high-quality welding process can be attained even for continuous welding.

**Flexible control** options permit automatic, **continuous** parameter adaptation and/or **position-dependent (discrete)** programme selection. The modular technology concept provides a wide variety of special application solutions for inert gas and arc welding (MIG/MAG/TIG), which permit task-specific adaptation to various operating conditions.

### Areas of application:

In combination with inert gas and arc welding (MIG/MAG/TIG), the technology is applicable in many areas of industrial manufacturing such as serial production with high repetition rates in the **automotive and railway vehicle** manufacturing, engineering of complex components in **shipbuilding** and challenging jointing technology work with increased demands on process capability and documentation in **container construction**.



## Advantages at a glance

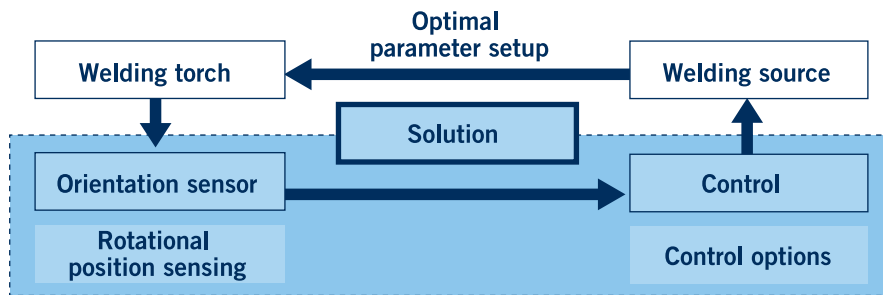
- **Time saving** at same quality enables **increased productivity** and **cost savings**
- **Relief of welder** thanks to automatic adaptation of parameter sets
- **Compact, integrated design** without additional peripherals
- **Improved quality** enabling **less re-checkings**
- **Easy implementation** in existing welding systems

## Control options

- **Continuous** parameter adaptation using angle-precise position determination
- **Discrete** programme selection by definition of welding positions / angle ranges

### 1. Automatic detection of the welding position, e.g. torch orientation

### 2. Parameter setup dependent on torch orientation



## Patent status

The invention is filed internationally and partially granted. It is owned by Dritte Patentportfolio Beteiligungsgesellschaft mbH & Co. KG. The application was filed in October 2004.

**To acquire a licence for this new technology, please don't hesitate to contact us!**



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