

Highly efficient thick plate welding processes

The OTC DAIHEN D-Arc process

The new D-Arc process from OTC enables the one layer welding of thick materials with high efficiency.

Deep in the electric arc-generated melt



High speed wire conveyor system up to a maximum of 100 m/min

Current flow control developed for high-power current source of up to a maximum of 1,000 A

The unique LSI welding processor "Welbee", developed by OTC, controls and regulates the D-Arc high-performance welding process.



The OTC Welbee processor

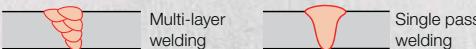
Further development of thick plate welding processes

The rotating, oscillating arc generates high maximum material input with controlled heat input and reduced seam preparation.

70 % less effort for seam preparation and wire consumption



80 % time and gas saving

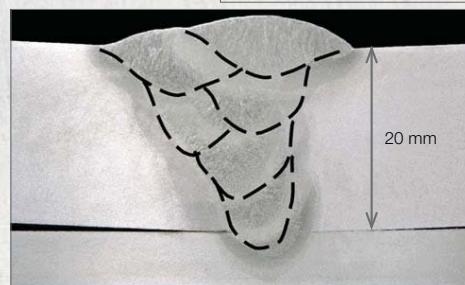
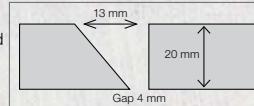


85 % reduced welding time



Conventional multilayer welding

CO₂, 1.6 mm solid wire, 300 A, 30 V, welding speed 30 cm/min



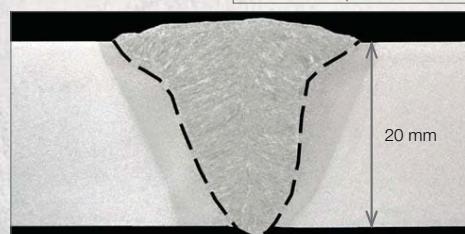
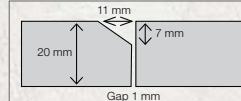
Number of layers: 6

Gap space: 123.5 mm²

Delay: 7°

D-Arc welding

CO₂, 1.6 mm solid wire, 650 A, 45 V, welding speed 30 cm/min



Number of layers: 1

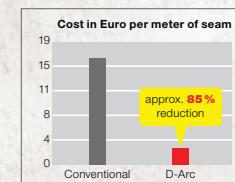
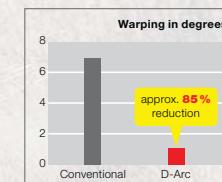
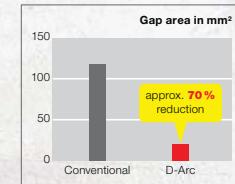
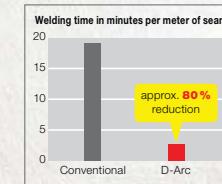
Gap space: 38.5 mm²

Warping: 1°

Allows optimum root formation without counter-welding

Advantages

- Reduced seam preparation by unilateral chamfering
- Strong reduction of the process time by single-layer welding
- Immense savings in gas consumption
- Less wire consumption
- Reduced rework by low warping



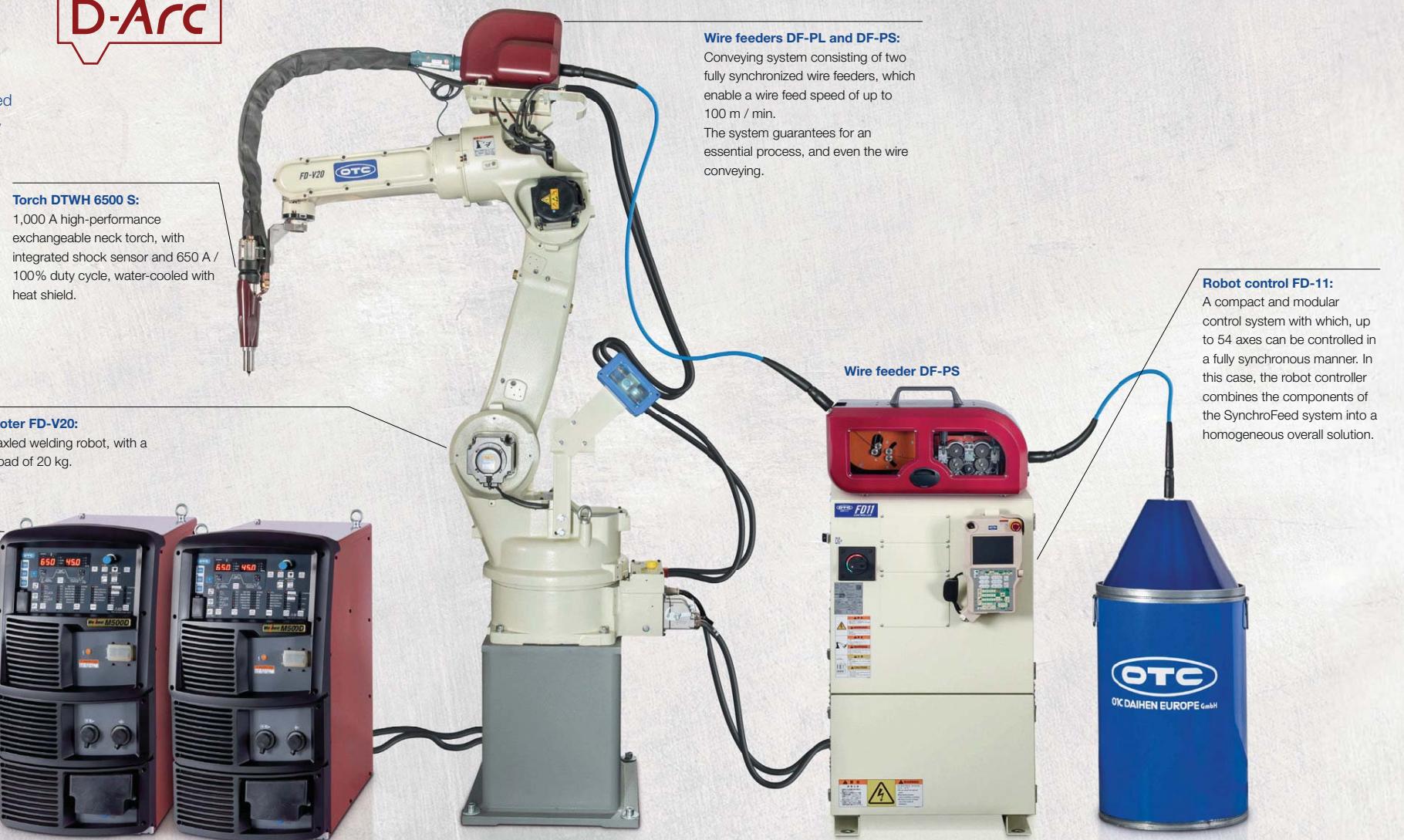
D-Arc welding pattern



Welding system D-Arc

The complete welding system for thick plate applications

The OTC system combines the development of welding robots and new welding processes to a perfect synchronized total solution. The developed components are harmonised to each other and lead to optimal easy usability which makes the tuning of welding processes very easy.



Welbee DPS welding machine:

In this system, two digital inverter welding machines with an integrated Welbee processor are connected in parallel.

The unique "Welbee" developed by OTC is based on the future-oriented nanotechnology. Welbee enables high-quality welding with the help of the precise regulation of the current/voltage profile via ultra-fast control circuits.

External high-performance cooling unit:

For stable temperature control through integrated cooling.

(Ohne Abb.)

Wire feeders DF-PL and DF-PS:

Conveying system consisting of two fully synchronized wire feeders, which enable a wire feed speed of up to 100 m / min.

The system guarantees for an essential process, and even the wire conveying.

Robot control FD-11:

A compact and modular control system with which, up to 54 axes can be controlled in a fully synchronous manner. In this case, the robot controller combines the components of the SynchroFeed system into a homogeneous overall solution.