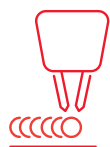


# TIPS/i

## Twin systems



Self-regulating process



High deposition rate



High-speed welding



Effortless control to unleash your welding potential



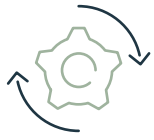
# The future of welding

## Tandem welding has never been so easy

Consistently high welding speeds with reliable penetration and deposition rates of up to 25 kg/h – welcome to the TPS/i Twin. Our latest innovation offers maximum control and time savings with intelligent welding processes that automatically adjust welding parameters and variables in the background, supported by robotic assistance systems as well as automatic changeover and cleaning systems.

TPS/i Twin systems have a modular design that enables them to be customized to the application in question. Whereas a Push system is the ideal solution for steel applications, a PushPull solution is recommended for aluminum. Anyone wishing to achieve maximum welding speed and process stability should opt for the CMT Twin process.

# TPS/i – The advantages for you



## Self-regulating process

### Only make settings that are absolutely necessary

An automatic process for better results. Our system is capable of automatically adjusting welding parameters and variables during the welding process in order to ensure optimum regulation of both arcs at all times.



## Smart assistance systems

### Time-saving support

TeachMode, TouchSense, SeamTracking, WireSense, and short circuit detection right inside the gas nozzle. Our assistance systems simplify the handling of the welding system, thereby increasing welding efficiency.



## High deposition rate

### Up to 25 kg/h

It's never been easier to process large components. Two TPS/i power sources combined in a single system provide particularly high deposition rates and good gap-bridging ability.



## High-speed welding

### Welding speeds of up to 4 m/min

Fast welding without loss of quality. The high deposition rate provides fast travel speeds with reliable penetration and notch-free welds.



## Totally stable welding

### Consistent production with a long service life

High process security thanks to reliable wire feeding. The dynamic Twin Drive unit and wire buffers ensure maximum stability.

For more details, please visit:  
[www.fronius.com/tpsi-twin-systems](http://www.fronius.com/tpsi-twin-systems)





# Twin Plus

## The system for steel

**Welding process:** PMC Twin  
**Application:** Steel

**Typical welding tasks:** Axles, rims, bogie frames, and steel girders



### TX Twin torch body change station

- Automatic torch body changeover in a matter of seconds
- Replacement of up to 8 torch bodies
- Greater output due to reduced robot downtime



### TPS/i welding torch service station

- Efficient brush cleaning, milling cutter cleaning, or magnetic cleaning as well as high-pressure purging of the wearing parts
- Regular cleaning increases the service life of the welding robot and leads to consistent weld quality.







# sh



### 2 x TPS 500i

Up to 2 x 500 A with  
40% duty cycle



### WF 30i wirefeeder

Two wirefeeders in one housing  
act as a central media conduit  
and improve accessibility.



### Twin controller

- Synchronizes the welding process
- Central robot interface
- For all commercially available welding robots

# Twin PushPull

## The system for aluminum

**Welding process:** PMC Twin

**Application:** Aluminum

**Typical welding tasks:** Aluminum profiles, wagon construction, containers, pressure vessels, tanks



### Wire buffer\*

Guarantees consistent wirefeeding and process stability



# CMT Twin

## The system for light gage sheets and nickel-based alloys

**Welding process:** CMT Twin and PMC Twin

**Applications:** Light gage sheets, aluminum, nickel-based alloys, high-strength steel

**Typical welding tasks:** Axle production, exhaust gas systems, hydraulic cylinders, mobile crane booms, pressure vessels



### Twin torch body

Compact and smart design. Improved accessibility and minimal cleaning effort thanks to reduced spatter adhesion. The water cooling also guarantees longer service life of the wearing parts.



### Twin Drive

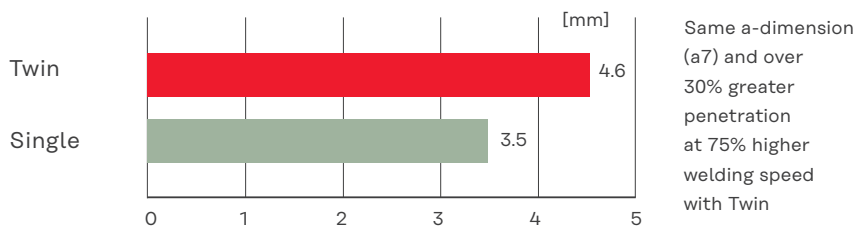
The highly dynamic drive unit uses a precise reversing wire movement to ensure absolute stability in the CMT process. The compact design enables easy access to components and allows users to change settings directly on the user interface of the Twin Drive.

# PMC Twin

PMC (Pulse Multi Control) is a further development of the pulsed arc from Fronius. It represents the technological basis for the PMC Twin process and, as is typical of Fronius, is available with various characteristics. This means that the welder can get straight to the process properties needed to suit the application at hand.

## Reliable penetration

Confidence in creating the desired weld quality: With the Twin process, an even greater penetration depth is achieved despite its enormous speed.

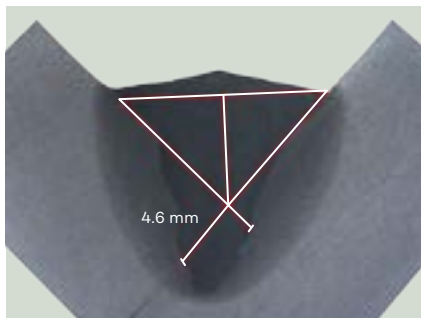


Single



Current [A]: 406, Voltage [V]: 33.1, vs [cm/min]: 40

Twin

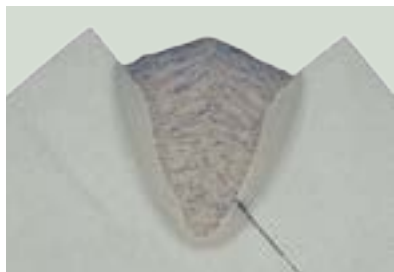


Lead: Current [A]: 440, Voltage [V]: 34.8, vs [cm/min]: 70  
Trail: Current [A]: 340, Voltage [V]: 27.2, vs [cm/min]: -

Comparison – welding a fillet weld, position: PA, shielding gas: M21 Ar+18%CO<sub>2</sub>, filler metal: ER70S-9 Ø 1.2 mm, sheet thickness: 12 mm, prerequisite: a-dimension: a7

## High deposition rate

One welding pass is all it takes. Thanks to the high deposition rate of the Twin system, welds that needed to be welded in multiple passes are a thing of the past.



Parameters	
vs [cm/min]:	120 cm/min
Dep. rate =	25.10 kg/h
Contact tip angle =	0°
Lead Vd =	PMC 27 m/min
Trail Vd =	PMC 20 m/min
a-dimension =	5,4
Penetration =	4,0 mm



Fast.  
Power  
Result  
oriented





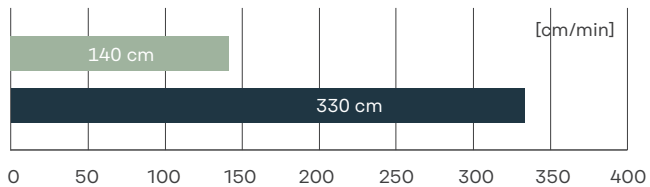
erful.  
lts-  
nted.

# CMT Twin

CMT (Cold Metal Transfer) is a welding process developed by Fronius that represents the technological basis for the CMT Twin process. By combining various processes, advantages like high speed, gap-bridging ability, and minimal spatter are brought together in a single process. The process is also available with various characteristics so that the right process properties are instantly to hand according to the application in question.

## Full speed ahead to the perfect result

Reliable penetration. Thanks to the high deposition rate, the tandem process enables speeds of up to 330 cm/min. This makes welding 2.5 times faster than with just one arc.



Single



Current [A]: 406, Voltage [V]: 33.1, vs [cm/min]: 140

Twin



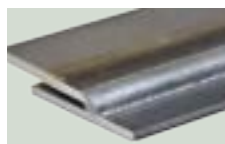
Lead: Current [A]: 440, Voltage [V]: 34.8, vs [cm/min]: 330  
Trail: Current [A]: 340, Voltage [V]: 27.2, vs [cm/min]: -

Comparison – welding a lap joint, position: PB, shielding gas: M21 Ar+18%CO<sub>2</sub>, filler metal: ER70S-9 Ø 1.2 mm, sheet thickness: 3 mm

## Gap-bridging ability

4 x welding speed and optimum gap-bridging ability with Twin welding despite the 3 mm air gap!

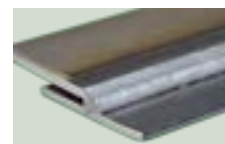
Single



Current [A]: 155, Voltage [V]: 12.3, vs [cm/min]: 30



Twin



Lead: Current [A]: 280, Voltage [V]: 28.0, vs [cm/min]: 110  
Trail: Current [A]: 125, Voltage [V]: 17.0, vs [cm/min]: -

# Intelligent welding

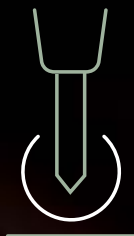
Precise welding, faster—this is what our Twin series can achieve with various auxiliary systems. These, in combination with the robot controller, support welders in making the production process as efficient as possible. This not only saves time and minimizes errors, but means that welds can be reproduced at any time in the desired quality—without the need for manual fine adjustments. And all this in the best possible design to withstand the highest loads and fulfill the most stringent requirements.



## Slaghammer

### **Start welding safely and cleanly.**

Before welding starts, slag that has formed on previous welds is chipped away by reversing wire movements.



## SFI – Spatter free ignition

The spatter-free ignition with SFI ensures both safe and clean ignition.



## Our assistance systems at a glance

### SeamTracking

Compensates for clamping and component tolerances during the welding process, thereby preventing weld faults as well as unnecessary rejects.

### TouchSense

Developed for welding fillet welds and prepared butt welds. The wire or gas nozzle scans the component in detail and transmits the start and end position to the robot, which calculates the exact seam path.

### ShortCircuitDetection

The welding system detects any accumulation of welding spatter within the gas nozzle. This enables cleaning routines to be optimized and process reliability to be increased.

### TeachMode

Efficient programming of robotic weld seam positions. The wire is retracted before a collision can occur with the component, thereby preventing the wire from bending. The set stick out remains unchanged.

### WireSense

Reduces time-consuming rework. The wire electrodes measure component deviations such as varying air gaps or clamping tolerances and transmit the values to the robot.



# Function overview

Areas of application	Twin Push (PMC Twin)	Twin PushPull (PMC Twin)	CMT Twin
Welding speed	●●●●○	●●●●○	●●●●●
Deposition rate	●●●●●	●●●●●	●●●●○
Minimal spattering	●●●○○	●●●●○	●●●●●
Low heat input	●●●●○	●●●●○	●●●●●
Gap-bridging ability	●●●○○	●●●○○	●●●●●
Long wirefeed distances	●●○○○	●●●●○	●●●●●

Material	Twin Push	Twin PushPull	CMT Twin
Steel	●●●●●	●●●●●	●●●●●
CrNi	●●●●○	●●●●●	●●●●●
Aluminum	●○○○○	●●●●●	●●●●●

## We take responsibility



### We believe in sustainability

Long service life, reparability, and recyclability. Like all Fronius products, the TPS/i is designed and produced with sustainability in mind. We use the latest technology to help protect people and the environment, and ensure a worthwhile future for coming generations.

### Environment and resources

From production to application, all TPS/i Twin components are environmentally friendly and resource-conserving. Consistently designed with a long service life and reparability in mind, the TPS/i Twin series uses water cooling to guarantee a particularly long service life of wearing parts such as gas nozzles and fittings.

**Fronius Canada Ltd.**  
2875 Argentia Road, Units 4,5 & 6  
Mississauga, ON L5N 8G6  
Canada  
T +1 905 288-21 00  
F +1 905 288-21 01  
sales.canada@fronius.com  
www.fronius.ca

**Fronius USA LLC**  
6797 Fronius Drive  
Portage, IN 46368  
USA  
T +1 877 FRONIUS  
sales.usa@fronius.com  
www.fronius-usa.com

**Fronius UK Limited**  
Maidstone Road, Kingston  
Milton Keynes, MK10 0BD  
United Kingdom  
T +44 1908 512 300  
info-uk@fronius.com  
www.fronius.co.uk

**Fronius International GmbH**  
Froniusplatz 1  
4600 Wels  
Austria  
T +43 7242 241-0  
F +43 7242 241-95 39 40  
sales@fronius.com  
www.fronius.com