

## TBi PPPG / PPPW PowerPull Welding torches

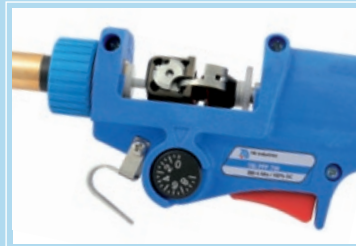
Our recommended solution for soft wires

Cable lengths up to 25 m possible

Can be used with all power sources

### Advantages of the TBi PowerPull System

- No deformation of soft wires
- Reduced friction in the cable assembly, longer cables are possible
- Better contact of the wire in the tip, therefore excellent ignition properties
- Compact and lightweight torch
- Wire pull-back is possible with suitable power sources
- Swivel torch necks, suitable for all applications



■ Cable assemblies and torch necks



The TBi PowerPull welding torch is equipped with an integrated planetary drive mechanism. This compact drive system allows for unsurpassed feeding power with cable assemblies up to 25 m length.

**Function principle**

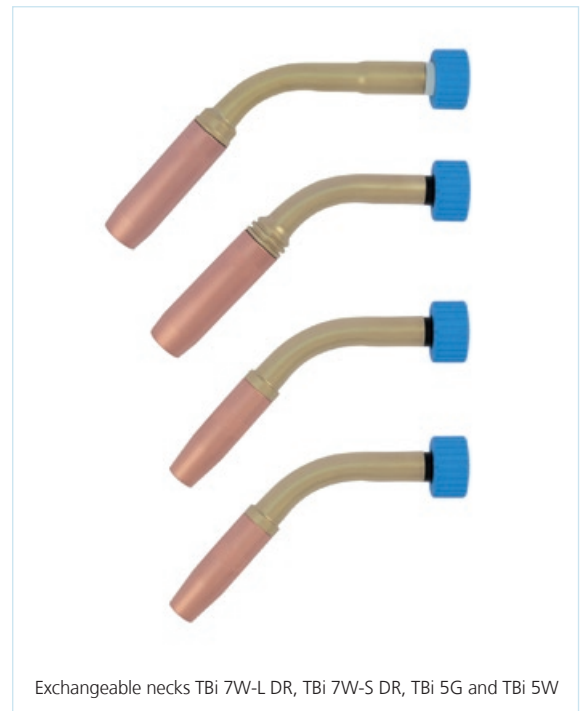
The two rollers are tilted against the axis of the wire and rotate around it. In the process, they move forward on the wire like a nut on a threaded pin. As the rollers are held in their cage, the wire is forced to move instead. The big advantage of this principle is the large contact surface between rollers and wire, which reduces the contact pressure on the wire, avoiding deformation of the wire and excessive abrasion.

**Technical data**

**MIG/MAG handheld welding torch with planetary push-pull drive**

Rating (mixed gas)	
- PPPG with 5G DR:	210 A at 60% duty cycle
- PPPG with 7G DR:	300 A at 60% duty cycle
- PPPW with 5W DR:	300 A at 100% duty cycle
- PPPW with 7W-S DR:	380 A at 100% duty cycle
- PPPW with 7W-L DR:	380 A at 100% duty cycle
- PPPW with 7W Carbon DR:	240 A at 100% duty cycle
Wire diameter	0.8-1.6 mm
Motor voltage	max. 42V, connection only to TBi Syntronic!
Wire speed	max. 16 m/min
Gas flow	16 l/min
Integrated potentiometer	10 kΩ
Weight with 1.5 m cable	PPPG: 2.0 kg PPPW: 1.7 kg
Technical specification	according to IEC 60974-7

Torch rating will be reduced when using pulsed-arc power sources.



Exchangeable necks TBi 7W-L DR, TBi 7W-S DR, TBi 5G and TBi 5W

**Ordering information**

**Air cooled** TBi PPPG handheld welding torch, Euro-connection, 186P291B\_\_\*  
cpl. with torch neck TBi 7G DR, 50°

**Water cooled** TBi PPPW handheld welding torch, Euro-connection, 196P291B\_\_\*  
cpl. with torch neck TBi 7W-S DR, 50°

**Suitable torch necks**

Exchangeable neck TBi 5G DR, 50°	167P101010
Exchangeable neck TBi 7G DR, 50°	166P101130

Exchangeable neck TBi 5W DR, 50°	174P101091
Exchangeable neck TBi 7W-S DR, 50°	174P101516
Exchangeable neck TBi 7W-L DR, 50°	174P101065
Exchangeable neck TBi 7W Carbon DR, 50°	174P101040

\* At the blank, please insert 04, 06, 08, 10 or 12 for a torch length of 4, 6, 8, 10 or 12 m. Custom length up to 25 m are possible!

## TBi Syntronic



TBi Syntronic Reverse

The TBi Syntronic is responsible for the perfect synchronization of wire feeding speed between the main wire feeder of the power source (master) and the compact planetary drive in the handheld torch (slave). Even the most complicated wire speed profiles will be precisely replicated in the torch (including the pull-back of the wire with the Syntronic Reverse).

### Function principle

The Syntronic measures the voltage applied to the main feeder motor. From this value, the optimized output voltage for the push-pull motor is calculated, and the motor is energized by means of the integrated power amplifier. The measurement port of the Syntronic has a high internal resistance in order to eliminate any influence on the behavior of the power source controller. Additionally, the push-pull motor is protected by specially dimensioned safety circuits.

### Technical Data

#### TBi Syntronic

Function	Electronic adaptation of the characteristics of main feeder and TBi Planetary Push-Pull system. The power amplifier for the push-pull motor is integrated with the unit.
Supply voltage	24 V, 42 V, 115 V, 230 V AC, 50/60 Hz, see ordering information
Power consumption	max. 45 W
Output voltage	
- Syntronic Standard	0 – 42 V DC
- Syntronic Reverse	-42 – 42 V DC
Control voltage	
- Syntronic Standard	0 – 42 V, $R_i = 100 \text{ k}\Omega$
- Syntronic Reverse	-42 – 42 V, $R_i = 100 \text{ k}\Omega$
Operating temperature	0 – 40 °C, the device automatically switches off when overheated
Status display	Ready, Running, Fault, Motor current
Compatible drive systems (master)	all known drive systems with a motor voltage of max. 42 V
Dimensions	200 x 56 x 110 mm (l x w x h)
Weight	1.5 kg
Technical specification	conform with CE regulations

### Applications

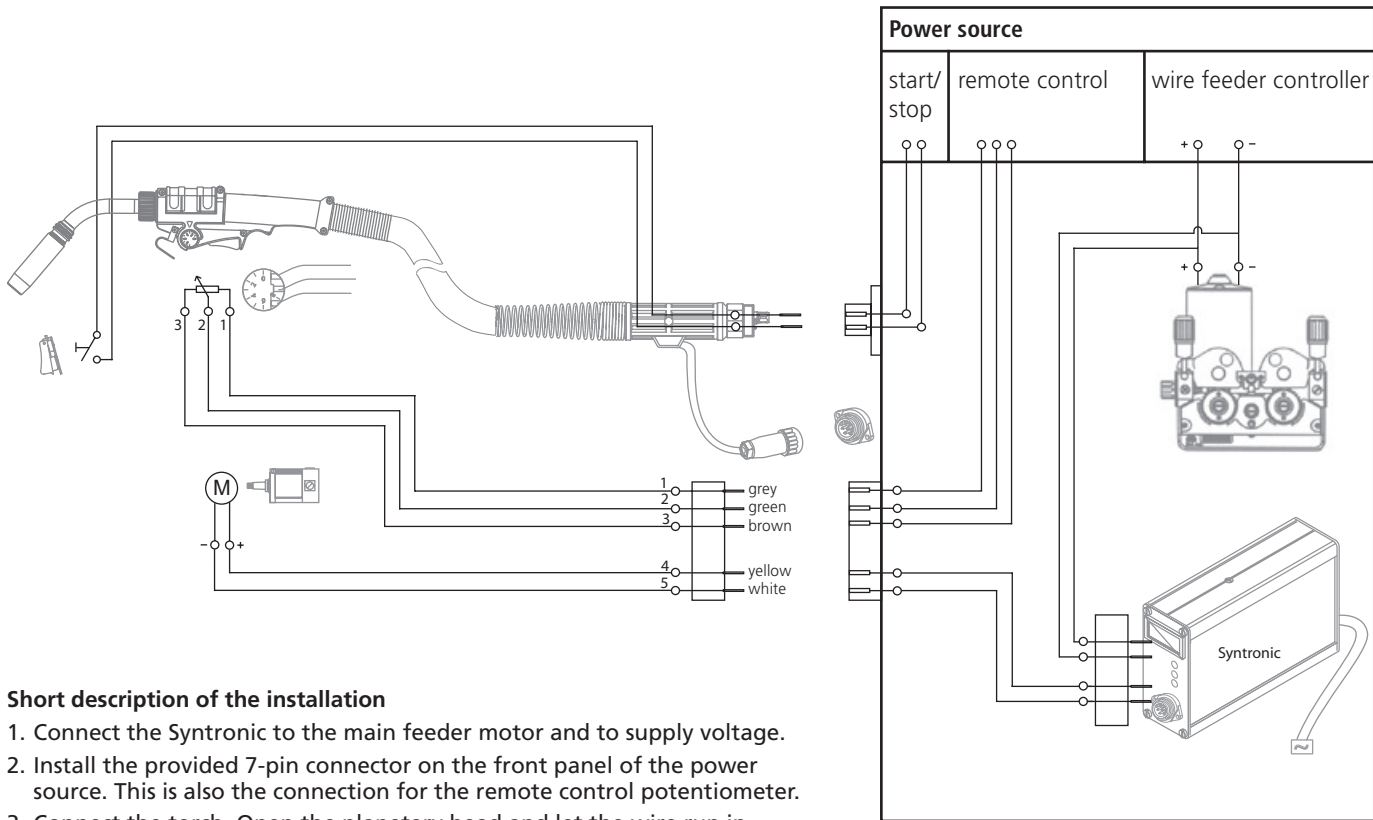


### Ordering Information

Supply voltage (50/60 Hz)	24 V AC	42 V AC	115 V AC	230 V AC (Standard)
TBi Syntronic Standard, incl. cable connections	590P101005	590P101010	590P101004	590P101011
TBi Syntronic Reverse, incl. cable connections	590P101165	590P101160	590P101155	590P101150

The maximum cable length of 25 m allows for comfortable and efficient work even in hard to reach places. The TBi PowerPull torches are used in railroad car, ship and container production.

## Connection diagram



### Short description of the installation

1. Connect the Syntronic to the main feeder motor and to supply voltage.
2. Install the provided 7-pin connector on the front panel of the power source. This is also the connection for the remote control potentiometer.
3. Connect the torch. Open the planetary head and let the wire run in.
4. Adjust the motor characteristics on two set-points:
  - Choose a low wire speed, adjust the Syntronic with the help of the built-in LCD-meter, while the wire is running (see detailed manual for more information).
  - Choose a high wire speed, adjust the Syntronic on the second set-point as before.

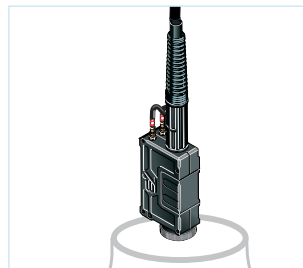
## Other system modules



TBi PowerPull  
Intermediate drive



TBi PowerPull Box



TBi PowerPull  
Barrel feeder

The TBi PowerPull system can be used for many applications, e.g. as very lightweight intermediate drive and for robot installations.