



TransPuls Synergic 2700

MIG/MAG, TIG DC & rod electrode (MMA) welding



PERFECT WELDING

What do you get when you cross digital quality with portability?

GENERAL REMARKS

A high-performance system

The TPS 2700 is a very special power source indeed: It is totally digitised, so it delivers high-precision welding results. Its “synergic mode” makes it extremely simple to operate. Weighing only 27 kg, it is portable and suitable for any type of on-site/maintenance use, thanks also to its integral wirefeed drive. What’s more, it comes with just the right accessories for every possible application. From torches to cooling units to remote-control units. All exactly fine-tuned to the capabilities of the power source, and optimised as a complete overall system.



TPS 2700 Duo: Makes it easy to weld two different materials at once using an extra wirefeeder

UTILISATION

Versatile professionals

The TPS 2700 machines offer an amazingly wide spectrum of possible applications. This is partly because of their portability, which makes them so ideal for the construction site, the workshop, and for repair and maintenance work. It is also due to their multiprocess capability – which means that you can weld using any welding process, be it MIG/MAG, TIG or MMA, all with one and the same machine. Another reason is that there are so many different versions of the machine for you to choose from.

One machine, many variants

The *TPS 2700 AluEdition*, for instance – a solution developed specially for welding aluminium. Complete with extensive aluminium-specific functions and accessories; for classic aluminium applications or for working with very soft aluminium wires and/or long hosepacks.

And then there is the *TPS 2700 Duo*: On this version, an extra wirefeeder can be mounted on the machine. This allows you to weld two different materials without having to constantly retool the machine with a different torch and welding wire.

Finally, there is the *TPS 2700 TIG*, which comes with some special TIG-welding capabilities. Like TIG Comfort Stop, for example. This function cures the arc of its annoying habit of breaking at the end of welding. Uninterrupted gas shielding is ensured, and the end crater is filled to perfection.



TPS 2700 TIG: Perfect TIG welding, thanks to special functions and multiprocess capability

Perfection is the measure of all things

WELDING PROPERTIES

Ideally programmed ignition sequence

What prompted the development of the digital machines was a desire to achieve absolute perfection in the welding process, and 100 % reproducibility of any welding result once this has been optimised. This may be seen first and foremost in the ignition. The TPS 2700 features an ignition sequence that has been optimised and programmed right down to the very last detail, and that is available time and time again, in the same high quality.

Depending on the application in question, there are various different ignition variants. One of these is conventional welding start-up. Here, the ignition parameters are precisely matched to the diameter and quality of the wire. Quiet, jerk-free ignition is the result. At the end of welding, a controlled current pulse sheds the last molten droplet, preventing a solid globule from forming at the tip of the electrode. And in conjunction with the PT-Drive push-pull torch, SFI ignition makes spatter-free welding start-ups a reality.

Start-up program for aluminium

There is an extra ignition variant for aluminium: In order to prevent fusion defects, the base metal has to start being melted right away, in the start-up phase. For this reason, ignition is effected at considerably higher power. After this, the welding power is lowered again. However, in order to avoid any risk of drop-through, it is also possible to immediately lower the welding power down to the crater-fill current.

The custom-tailored arc

With digital machines, all sorts of things become possible. They adapt to any and every task. Particularly in the case of the arc, very different requirements may be made, depending on the application. The digital inverter power source permits tailor-made solutions here. When it comes to pulsed arcs, for example, there is a special pulse-form to go with every material. The TPS 2700 functions so precisely that only one single droplet of filler metal is detached for each current pulse. This results in virtually spatter-free welding, and means that for the first time, precision working is possible at the lower end of the power range: a 0.6 mm aluminium sheet can be welded under a pulsed arc using a 1.2 mm wire electrode with no difficulty at all.

The digital arc-length control opens up wholly new perspectives as well. It works with such speed and precision that the arc length remains constant at all times; even when the stick-out changes, there is hardly any spatter.

In addition, the SyncroPuls function was developed for the machines. This function superimposes a low-frequency pulse over the normal pulse, resulting in seam quality that is comparable with that of a TIG weld, and ensuring immaculate weld-seam appearance.

Spatter free ignition:

Wirefeed forwards

Wirefeed stop: short-circuit recognition

Wirefeed backwards: pilot arc is ignited

Wirefeed backwards: ar-length is set

Wirefeed forwards: ignition is complete – pulsed arc starts up

Metal transfer





COST EFFICIENCY AND SERVICING

It pays to be intelligent

The well thought-out modular principle of these machines not only makes them so easy and pleasant to work with, it also has a direct impact on their efficiency and ease of servicing. For instance, the Fronius welding systems have a loss-free gas supply to the torch.

Savings are all part of the deal

What is more, some very handsome savings are generated all the time, as a direct result of the machines' digital intelligence. Some examples: practically spatter-free welding (meaning next-to-no post-weld machining), automatic cooling-unit cut-out, low open-circuit power, high efficiency, updates via laptop, easy accessibility for servicing.

Extremely service-friendly

While we're on the subject of servicing: Because the TPS 2700 power sources are designed for simplicity, with a small number of separate subassemblies, all the components are easily accessible. To make service work easier still, the machines display service codes such as "No shielding gas". And thanks to the machines' digital core, you can simply upload updates from your laptop, keeping you right up with the "state of the art" of welding technology.



Base metal: AlMg 3
Sheet thickness: 0.6 mm
Filler metal: AlMg 5, ϕ 1.2 mm
Shielding gas: Argon

SAFETY

Take it for granted

Safety – need one say more? Every Fronius machine has to pass a maximum of testing. And this is no different for the TPS 2700. Far from it. Indeed, it offers even more safety. To begin with, there's the earth fault-current watchdog. In the event of a malfunction, this prevents any welding current flowing through the earth (ground) lead and destroying the PE (protective earth) system. This watchdog comes as standard. Secondly, there is the thermostat-controlled fan, which reduces dirt accumulation inside the machine because it only runs when it's actually needed. And everything else can be taken for granted: S mark, CE mark to EN 60 974/1 and EN 50 199 (including tilt test), degree of protection IP 23 for suitability for use in the field.





JobMaster with integral remote-control functionality



"PT-Drive" push-pull manual welding torch



The right remote-control unit for every requirement: TR 2000 MIG programmable remote-control unit; TR 4000 universal remote-control unit; TR 4000 C deluxe remote control



HANDLING

Make your choice, and off you go

For all its technological versatility, the TPS 2700 is very easy to operate. The reason is its "synergic-mode" operation: One dial is all you need, to control everything. Select the material and the sheet thickness – that's all. Then off you go! The digital TPS 2700 now automatically accesses its integrated expert knowledge and controls the entire welding process.

Stay in control – right where you are

No matter where the power source happens to be standing, you can keep on working right where the action is. With the TPS 2700, you'll always have the right remote-control unit for all manner of different applications. Or you can even operate the machine directly from the torch, with the up/down control or the integral remote-control functionality offered by the JobMaster version.

Perfect interplay within the system

The TPS 2700 is more than just a power source – it is designed as an entire system. A system containing all the components that you need for successful welding: torch, wirefeed, hosepacks, communications, weld-data management – it's all been thought of. With every single item perfectly co-ordinated with all of the others.

Intelligent wirefeed

For any welding process, the wirefeed is hugely important. It has a direct impact on the welding result, and has to be reliable, precise and as smooth as possible. The TPS 2700 has a high-grade 4-roller drive integrated within it. A planetary drive "PT Drive" is available as an option for soft aluminium wires. The digitally controlled motor speed allows the wirefeed speed to be set continuously anywhere between 0 and 22 m/min, accurately and reproducibly.



4-roller drive integrated within the power source, for smooth, precision wirefeed



CHECKLIST

4-roller drive
 Automatic burn-back control
 Automatic cooling-unit cut-out
 Burn-back impulse (perfect wire-end, optimum re-ignition)
 Continuous adjustment of welding current directly from torch
 Digital weld-process control
 Feeder creep
 Feeder inching, without gas or current
 Earth leakage detection
 Gas-test function
 Job mode
 Microprocessor control
 Multiprocess – MIG/MAG, TIG and MMA
 Overtemperature protection
 Synergic operation
 Thermostat controlled fan

Operating modes

2-step mode
 4-step mode
 Aluminium welding start-up (special 4-step mode)
 Special 2-step mode
 Spot welding

Digital display of

“a”-dimension
 Arc-force dynamic, arc-length and droplet-detachment correction
 Globular (intermediate) arc
 “Hold” function
 Job number
 Manual operation

Motor current
 Operating mode and process
 Overtemperature
 Service codes
 Sheet thickness
 Welding speed
 Welding amperage and voltage (actual and guideline values)
 Wirefeed speed

Adjustable parameters

Arc-force dynamic
 Arc-length / droplet-detachment correction
 Burn-back time
 Continuously adjustable welding power
 Crater-fill current
 Gas pre/post-flow time
 Hot-Start

Optional

End-of-wire watchdog
 Gas economiser valve
 PullMig mode
 Robot interface, analogue / digital
 Spatterfree ignition
 SyncroPuls
 TIG Comfort Stop
 Welding programs from databank

TECHNICAL DATA

		TPS 2700	
Mains voltage		3 x 400 V	
Mains voltage tolerance		+/- 15 %	
Mains fuse protection (slow-blow)		16 A	
Primary continuous rating (100 % d.c.)		4.5 kVA	
Cos phi		0.99	
Efficiency		87 % (70 A)	
Welding-current range	MIG/MAG	3 – 270 A	
	Electrode (MMA)	10 – 270 A	
	TIG	3 – 270 A	
Welding current at	10 min / 25° C	60 % d.c.	270 A
		100 % d.c.	210 A
	10 min / 40° C	40 % d.c.	270 A
		60 % d.c.	210 A
		100 % d.c.	170 A
Open-circuit voltage		50 V	
Operating voltage	MIG/MAG	14.2 – 27.5 V	
	Electrode (MMA)	20.4 – 30.8 V	
	TIG	10.1 – 20.8 V	
Degree of protection		IP 23	
Type of cooling		AF	
Insulation class		B	
Dimensions L x W x H	mm	625 x 290 x 475	
	inches	24.63 x 11.43 x 18.72	
Weight		27 kg / 59.4 lb	
CE S		FK 4000	
Mains voltage		230 / 400 V, 50 Hz	
Power consumption		0.5 A	
Cooling capacity at	Q = 1 l / min, + 20° C	1600 W	
	Q = 1 l / min, + 40° C	900 W	
	Q = max, + 20° C	1600 W	
Max. delivery rate		1.6 l / min	
Max. pump pressure		4.5 bar	
Pump		Vibrating armature pump	
Coolant volume		5.5 l	
Degree of protection		IP 23	
Dimensions L x W x H	mm	725 x 290 x 230	
	inches	28.57 x 11.43 x 9.07	
Weight (without coolant)		14.1 kg / 9 lb	



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