



# TIG welding torches

TTG / TTW



PERFECT WELDING

# The whole wide world of TIG welding torches

## GENERAL REMARKS

### Individualised systems for every application

Fronius offers system solutions. Long-lived and highly cost-effective welding systems are just as much a part of this as are individually customised planning, advice, corrective maintenance and servicing. The aim is perfect welding results and a high level of customer satisfaction.

TIG welding torches from Fronius make a major contribution here. They are available in both gas-cooled and water-cooled versions, as either manual or robot welding torches. Many different lengths of hosepack are possible, as are special, customised torch-body geometries. For welding-tasks all the way up to 550 A. It goes without saying that the individual system components are all designed for optimum interoperability. Whatever your welding application, with Fronius you will always find a whole world of solutions.

Premium components – superlative ignition and welding properties

Long service life assured by constant water cooling

Client-specific torch variants for optimum weld accessibility



## HANDLING

### A sophisticated tool

As an “extension of the welder’s arm”, a welding torch must be absolutely reliable and should lie in the welder’s hand just like a pencil, as well as being fitted out with all manner of technical refinements. If that all sounds a bit like a description of a Fronius torch ... that’s because it is.

### On-the-spot adjustments

The integral up/down rockers let the welder regulate the amperage right from the welding workplace. This saves time and a lot of shuttling back-and-forward. On Jobmaster-equipped TIG welding torches, you can control four parameters at once: the amperage, stored jobs, the cap-shaping function and a freely selectable parameter.

### Pencil grip, and other easy-handling features

Easy, comfortable handling is essential if you want to achieve precision working. This is why the TIG torches are also available with a leather hose. It means there is less resistance and that less physical effort is needed to manipulate the torch. Also, the handle-shells are shaped so ergonomically that the torch can always be guided with great accuracy; it’s even possible to hold it like a pencil.

### Changed and fixed in an instant

Plug and twist – that’s the principle behind the torch connector system. No tools are needed for changing the torch. Not only is this much easier, it’s also a lot quicker – and the connection is just as firm. The electric supply and shielding gas are tool-lessly connected up at the same time, and the coolant line is also instantly plugged into the cooling circuit using the same sort of quick connectors.



*Setting parameters on the Jobmaster, directly at the welding workplace, saves a lot of time and “to-ing and fro-ing”.*



*Ergonomically shaped handle-shells for exact torch guidance and pencil-grip handling.*

# Worthwhile side-effects

## WELDING PROPERTIES

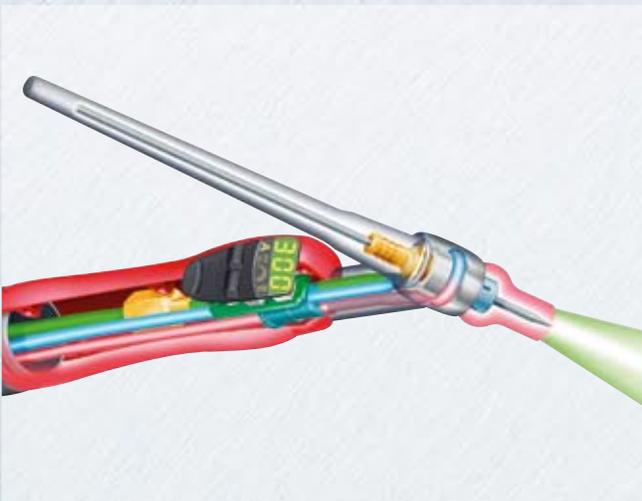
### Perfect in every position

The ignition must be accurate every time and must happen exactly where it's meant to, and nowhere else. After all, it is the beginning of every single weld. Fronius also obtains the required ignition properties with the following two features of the torches: by using only high-grade components, and by ensuring electrical insulation resistance all the way from the gas nozzle to the central connector.

### Quiet, stable process

The fine quality of the components has other benefits as well. For example, the Fronius tungsten electrode makes for dependable welding properties and longer endurance times.

And using a shielding-gas lens delivers a straight jet of gas, with no chance of turbulence. This has several advantages at once: Firstly, this streamlined laminar gas-flow increases the quality of the weld-seam because only minimal oxidation takes place; secondly, the lens saves gas.



*In water-cooled welding torches, the cooling ducts extend around the underside of the gas nozzle. This gives the weld process additional stabilisation.*



*Using the shielding-gas lens ensures high weld-seam quality at the same time as saving as much as 20 % of the shielding gas.*

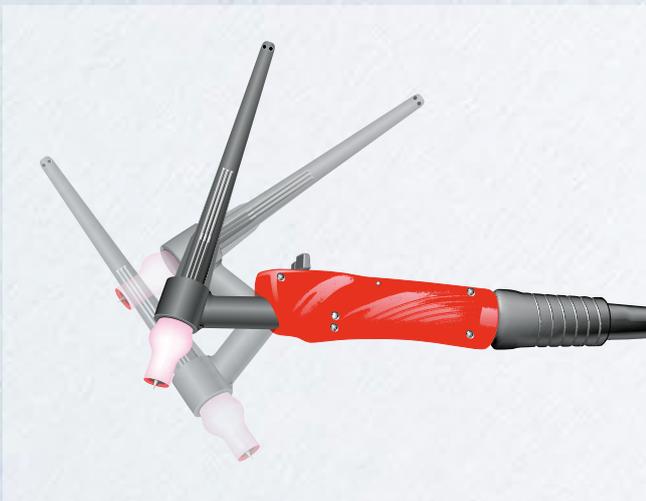
## UTILISATION

### Ideal for fine work

TIG is by far the most elegant, and the most demanding, of welding processes. It is used in sensitive applications in e.g. medical engineering, the food industry or for top-of-the-line bicycles and motorcycles, and wherever all-stainless-steel welding is involved. In short, then, wherever appearance and the very highest quality are what count.

### Special versions for optimum accessibility

There are many special product characteristics and variants that make for ideal weld accessibility. Like a torch with no handle-shell at all, but instead with a pedal control unit for controlling the welding parameters. This means that there is not even the slightest vibration, which results in accurate accessibility with the very maximum of precision. Another possibility is an adjustable torch body which can be corrected into certain positions.



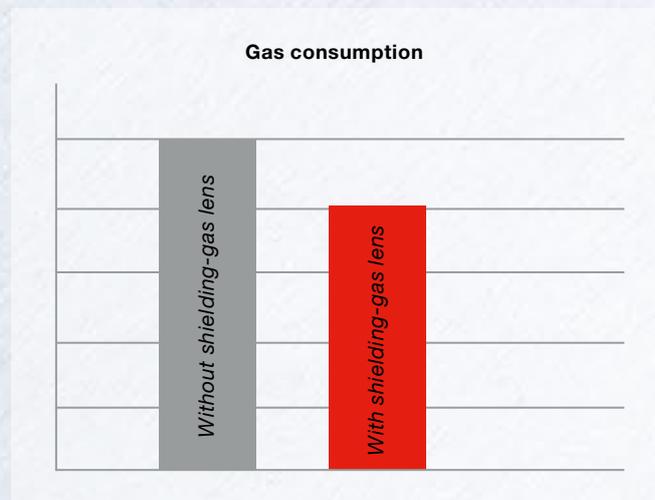
*Excellent weld accessibility, thanks to versatile torch body.*

## ECONOMY

### Tangible savings

Ingeniously thought-out systems and the use of only top-grade componentry are well worthwhile. In fact, they pay off several times over, in every respect.

Using a shielding-gas lens brings about a laminar gas-flow. This saves a huge 20 % in gas consumption. Because the water cooling ducts run all the way under the gas nozzle, wearing parts are given constant, optimal cooling, leading to 50 % longer service life. Yet more time-saving potential is provided by the automatic cold-wire infeed. This makes for quick and more convenient welding, whether manual or automated.



*Gas savings of up to 20 % from using a shielding-gas lens.*

## ACCESSORIES

### Plug-on or screw-on

All torch versions are available either as the “A-System” with a plug-on gas nozzle or as the “P-System” with a screw-on one. The advantage of the “A-System” is better cooling of the gas nozzle. This is plugged directly onto the water-cooled cone. Compared with the screw-on “P-type” solution, the plug-on “A-Systems” are easier to change.

### Fronius has it all

Fronius offers a wide range of wearing parts: 1.0 to 6.4 mm (0.04 to 0.25 in.) TIG electrodes, gas nozzles with inside diameters of 6.5 to 19 mm (0.26 to 0.75 in.), and torch caps of between 11 and 153 mm (0.43 and 6.02 in.) in length.

## SAFETY

### Absolute reliability

A welding system has to be safe. This is a paramount necessity. All Fronius systems meet all the requirements regarding safety. As a matter of course. They comply with all relevant Standards, and tests are carried out for special requirements. All the materials used in Fronius torches – be it for the torch handle, the torch body or the hosepack – are completely high-frequency resistant.



*The wide assortment of different accessories and wearing parts lets users optimally adapt the welding system to any conceivable task.*

## The complete spectrum of possibilities:

Fronius offers a wide range of TIG welding torches, for manual welding, automated jobs or robot welding, gas- or water-cooled, with cold-wire infeed and custom solutions:

MANUAL WELDING TORCHES		Cooling	Welding current range		d.c.	Electrodes mm / inches	A/P
			AC	DC			
	TTG 1600	Gas	120 A	160 A	35 %	1.0 - 3.2 / 0.04 - 0.12	A/P
	TTG 2200*	Gas	180 A	220 A	35 %	1.0 - 4.0 / 0.04 - 0.16	A/P
	TTG 2600	Gas	220 A	260 A	35 %	1.6 - 6.4 / 0.06 - 0.25	A
	TTW 2500	Water	180 A	250 A	40 %	1.0 - 3.2 / 0.04 - 0.12	A/P
	TTW 3000	Water	250 A	300 A	60 %	1.0 - 3.2 / 0.04 - 0.12	A/P
	TTW 4000*	Water	350 A	400 A	60 %	1.0 - 4.0 / 0.04 - 0.16	A/P
	TTW 5000	Water	400 A	500 A	60 %	1.6 - 6.4 / 0.06 - 0.25	A
	TTW 5500	Water	380 A	550 A	60 %	3.2 - 6.4 / 0.12 - 0.25	P

MACHINE WELDING TORCHES		Cooling	Welding current range		d.c.	Electrodes mm/ inches	A/P
			AC	DC			
	TTG 2200-M	Gas	180 A	220 A	35 %	1.0 - 4.0 / 0.04 - 0.16	A/P
	TTW 4000-M	Water	350 A	400 A	60 %	1.0 - 4.0 / 0.04 - 0.16	A/P

ROBOT WELDING TORCHES		Cooling	Welding current range		d.c.	Electrodes mm/ inches	A/P
			AC	DC			
	Robacta TTW 4000	Water	400 A	400 A	60 %	1.6 - 4.0 / 0.06 - 0.16	-
	Robacta TTW 4500	Water	450 A	450 A	60 %	1.6 - 4.0 / 0.06 - 0.16	-
	Robacta TTW 5500	Water	380 A	550 A	60 %	3.2 - 6.4 / 0.12 - 0.25	-

SPECIAL SOLUTIONS		Cooling	Welding current range		d.c.	Electrodes mm/ inches	A/P
			AC	DC			
	TTG 1600 WKZ	Gas	120 A	160 A	15 %	1.0 - 4.0 / 0.04 - 0.16	A/P
	TTG 2200 TCS	Gas	-	220 A	20 %	1.0 - 4.0 / 0.04 - 0.16	A/P
	TTW 2500 WKZ	Water	180 A	250 A	40 %	1.0 - 3.2 / 0.04 - 0.12	A/P

FUME EX		Cooling	Welding current range		d.c.	Electrodes mm/ inches	A/P
			AC	DC			
	TTW 4000	Water	350 A	400 A	60 %	1.0 - 4.0 / 0.04 - 0.16	A/P

COLD-WIRE APPLICATIONS		Cooling	Welding current range		d.c.	Electrodes mm/ inches	A/P
			AC	DC			
	TTW 3000 KD	Water	250 A	300 A	60 %	1.0 - 3.2 / 0.04 - 0.12	P
	TTW 4000 KD	Water	350 A	400 A	60 %	1.0 - 4.0 / 0.04 - 0.16	A/P

A = plug-on gas nozzle  
P = screw-on gas nozzle

\* cold-wire infeed available as optional extra



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