

The S series

MASTER OF THE PULSE ARC.



PATENTED S-XT ARC

Extra sensitivity for manual welding

HIGHLY PRODUCTIVE

Maximum arc stability for every automated welding solution

THROUGH THICK AND THIN

Maximum dynamic response for unparalleled arc control

MIG-MAG

S SERIES

The S Series at a glance

- **Ready for Pulse.** Highly developed processor technology provides for the seamless interaction of all parameters and components involved in the welding process. The result of this smooth interaction are superior duty cycle levels and maximum productivity.
- **Digital-intelligent process technology.** Whether you opt for the standard Lorch processes SpeedArc, SpeedArc XT, Pulse and TwinPuls or the optional upgrades SpeedUp, SpeedCold, SpeedPulse, SpeedPulse XT, TwinPuls XT and SpeedRoot: you will weld faster and produce results of premium quality with little spatter.
- **Intuitive operation.** The easy-to-read operating panel and the clearly structured user interface ensure that you are ready to start welding without having to make any additional preparations.
- **Versatility.** The machines included in Lorch's S-series operate equally well with mixed gas and CO₂.
- **Adaptable.** Every welding machine included in Lorch's S-series is fully customisable, allowing you to find the machine that matches your welding requirements perfectly. This also holds true for the selection of the wire feeder systems. When ordering your machine, you can choose between a compact or wire feeder system and a dual wire feeder variant.



- **TipTronic job memory.** Use the TipTronic facility to save your ideal setting for each weld so that you can effortlessly retrieve your settings at the machine or the Powermaster torch when performing recurring welding tasks.
- **Job tool.** PC software for saving and editing welding tasks (jobs) stored in the welding machine along with their parameter settings and for transferring them to additional power sources.
- **Remote control.** Every Lorch S-series system can be operated by remote control. Remote control can be exercised either using the Lorch Powermaster torch or an external operating panel. A remote control can also be incorporated if you want to operate the machine in electrode mode.
- **PushPull.** As PushPull capability can easily be added, your working radius is significantly expanded when used in combination with a PushPull torch or a Lorch NanoFeeder.

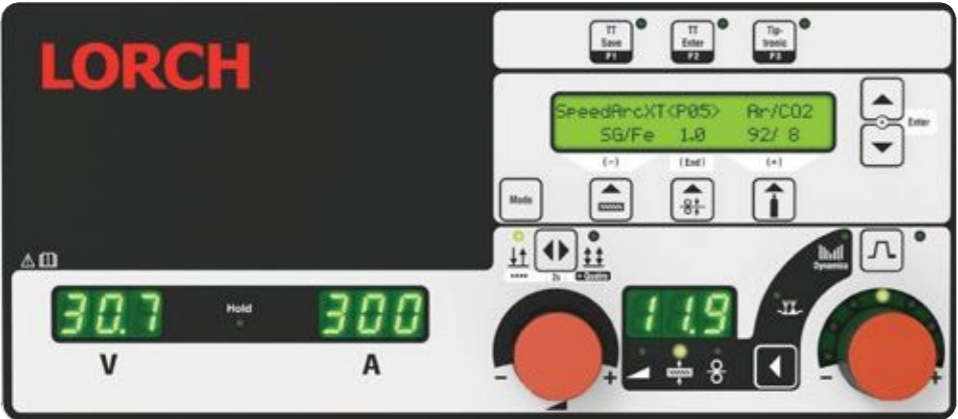
- **Energy-efficient.** Lorch's S-series marries power with efficient inverter technology and on-demand functionality. Slash your costs and produce exceptional welding results at the same time.
- **EN 1090-certified.** The EN 1090 WPS package accompanying the Lorch S series helps you save time and money as it eliminates the need for individual tests of your welding results. The package is comprised of welding instructions that apply to all relevant standard welding processes and have been certified by an approved and independent authority.
- **Mobility.** Our mobile version of the S series with trolley wheelset will meet all your mobility needs as it allows you to both carry the unit and move it on its wheels.

Versions



S 3 mobile	S 3	S 5	S 8
Operating concept <ul style="list-style-type: none">▪ XT	Operating concept <ul style="list-style-type: none">▪ XT	Operating concept <ul style="list-style-type: none">▪ XT	Operating concept <ul style="list-style-type: none">▪ XT
Variants <ul style="list-style-type: none">▪ S-Pulse XT▪ S-SpeedPulse XT▪ also available with Mobile-Car transport trolley and water cooling unit	Variants <ul style="list-style-type: none">▪ S-Pulse XT▪ S-SpeedPulse XT▪ available as gas or water cooled▪ available as a compact system or with separate wire feeder case	Variants <ul style="list-style-type: none">▪ S-Pulse XT▪ S-SpeedPulse XT▪ available as gas or water cooled▪ available as a compact system or with separate wire feeder case	Variants <ul style="list-style-type: none">▪ S-Pulse XT▪ S-SpeedPulse XT▪ available as gas or water cooled▪ available as a compact system or with separate wire feeder case
<ul style="list-style-type: none">▪ Mobile system with trolley wheelset▪ infinitely variable MIG-MAG welding inverter▪ Welding range up to 320 A▪ Mains connection 400 V	<ul style="list-style-type: none">▪ infinitely variable MIG-MAG welding inverter▪ Welding range up to 320 A▪ Mains connection 400 V	<ul style="list-style-type: none">▪ infinitely variable MIG-MAG welding inverter▪ Welding range up to 400 A▪ Mains connection 400 V	<ul style="list-style-type: none">▪ infinitely variable MIG-MAG welding inverter▪ Welding range up to 500 A▪ Mains connection 400 V

Operating concept



- XT**

 - “3 steps to weld” operating concept
 - Synergy control
 - Display-controlled user prompting
 - straightforward process and program selection
 - Infinitely adjustable welding current setting
 - Quatromatic mode (program sequence control at a push of the torch button)
- Arc dynamic control (for Synergic, SpeedArc XT)
 - arc length can be adjusted specifically for starting, welding and end phases
 - Tiptronic job memory for 100 welding tasks
 - digital volt-ampere display
 - Possibility for connection of the Lorch Powermaster remote control torch

Equipment

	S-Pulse XT	S-SpeedPulse XT
“Welding process” equipment		
Synergic MIG-MAG standard welding programs *	●	●
SpeedArc XT * (incl. SpeedArc)	●	●
Pulse (incl. TwinPuls)	●	●
SpeedPulse XT * (incl. SpeedPulse, Speed-TwinPuls, Twinpuls XT)	○	●
SpeedRoot	○	●
SpeedCold	○	○
SpeedUp	○	○
TIG (with ContacTIG)	○	○
“Cooling system variant” equipment		
Cooling system (1.1 kW)	●	●
Boosted cooling (1.5 kW)**	○	○
Cooling system with large pump (for long Interpass hoses 20m and for working at heights) **	○	○
All systems are also provided with the arc welding function as standard equipment. * With innovative dynamic control. ** Only available in combination with the single wire feeder systems (B version).		
	● Standard equipment	○ Optionally available

Technical data

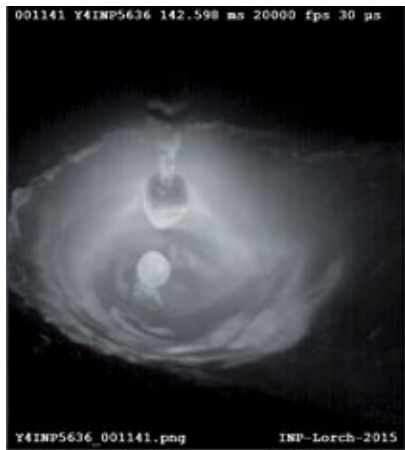
		S 3 mobile	S 3	S 5	S 8
Welding current MIG-MAG	A	25 – 320	25 – 320	25 – 400	25 – 500
Current at 100 % duty cycle	A	250	250	320	400
Current at 60 % duty cycle	A	280	280	350	500
Duty cycle I max.	%	40	40	50	60
Mains voltage	V	3~400	3~400	3~400	3~400
Permitted mains tolerance	%	± 15	± 15	± 15	± 15
Mains fuse, delayed action	A	16	16	32	32
Dimensions compact system (L × W × H)	mm	812 × 340 × 518	1116 × 463 × 812	1116 × 463 × 812	1116 × 463 × 812
Dimensions wire feeder system (L × W × H)	mm	–	1116 × 445 × 855	1116 × 445 × 855	1116 × 445 × 855
Weight – compact system, gas-cooled	kg	34	92.8	97.3	107.3
Weight – wire feeder	kg	–	20.2	20.2	20.2
Weight – water cooling (filled)	kg	–	14.7	14.7	14.7

All wire feeder systems come with a 1 m inter-connection hose package; additional lengths and options upon request.

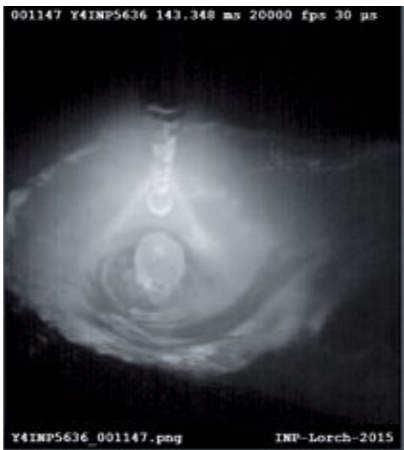
Highlights

SpeedPulse XT – Recordings with a high-speed camera

SpeedPulse XT turns you into the undisputed Master of the Arc. This is assured by the patented control technology of the Lorch S series. It combines the powerful process and all of the benefits of the SpeedPulse welding process. Instead of making him break out in a sweat during pulse welding, the SpeedPulse XT afford the welder such extra freedoms as the ability to influence the arc by changing the distance between torch and workpiece. Better still, the S series responds with unprecedented speed and accuracy. And, it delivers this type of speed and accuracy in every pulse phase. These properties allow the welder to guide the arc more safely and intuitively and to transfer even the slightest correction into the welding process without any delay. The S-series, thereby, produces results that you can see as well as feel. When combined with the exceptionally robust and stable properties of the arc, this means: improved handling, higher quality, and low to insignificant spatter, reducing the amount of necessary rework to a minimum.



The primary droplet forms at the end of the wire.

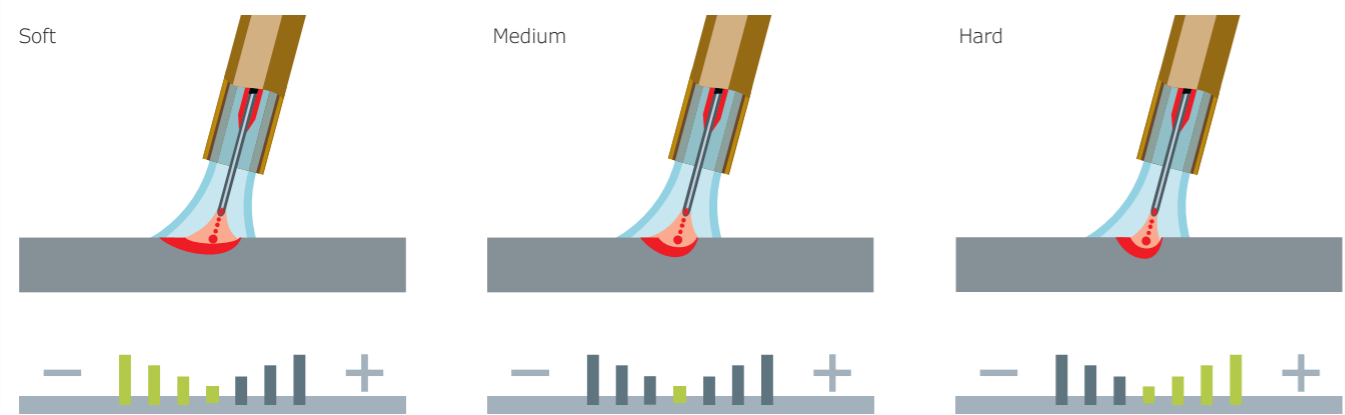


The primary droplet has detached, allowing the secondary droplets to form.



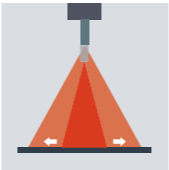
The primary droplet enters the weld pool, and the secondary droplets detach.

Innovative dynamic control



The dynamic control allows the welder to set the arc to any width he requires or prefers.

The S-series comes with innovative dynamic control, allowing you to fine-tune the arc characteristics for all welding programs (Synergic, SpeedArc XT, SpeedPulse XT and TwinPuls XT) until they perfectly match the workpiece and the welding task at hand. A turn of the control knob is all it takes to set the arc to soft or hard or anywhere in between. For an even better seam and an extremely good feel whilst welding.



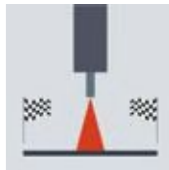
Effortless welding over tack welds

Where other pulse arcs experience the occasional stutter during tack welding, our S-series machines with SpeedPulse XT will never skip a beat and complete any task without a hitch. This is a difference you can actually hear. Aside from ensuring that spatter is kept at a minimum, the control technology can also completely eliminate the otherwise typical and sometimes abrupt and annoying changes to the frequency. The result is a pleasant sound with a constant frequency combined with a first-class seam and a flawless welding result.



“Smart Start – Smart End” technology

Allowing you to choose specific arc length settings that are separate for the starting, welding and end phases, the new S-series gives you the means necessary to systematically influence the energy input. It is a simple and smart solution that helps you reduce or even eliminate initial fusion defects in the weld seam. The welder can, furthermore, use this solution to end with a clean finish by filling the end crater in an aesthetically pleasing way.

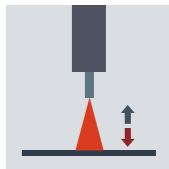


Variable arc length control



The welder can react much more easily to arising conditions by adjusting the distance of the torch.

The new S series affords the welder intuitive ease of use that is combined with a clearly improved control over the pulse arc and allows him to react much more easily to arising conditions by adjusting the distance of the torch while welding. Whether you are dealing with varying gap dimensions or unevenness in the workpiece – even cumbersome welding positions, e.g. in corners, will be much easier to master.



Extra low-spatter

Efficiency in an industrial welding context mainly translates to the ability of reducing to the minimum the need for expensive rework after the actual welding work is finished. This is why Lorch has been attaching great importance to reducing the tendency to produce spatter in all machines of the S-series. And, our engineers have come through for us yet again by implementing a host of improvements such as even faster, yet moderate, correction interventions of the control during pulse welding with SpeedPulse XT. These improvements have led to a reduction of spatter that “practically” equals zero.



Additional cooling options

Along with the standard cooling with 1.1 kW, there are two additional cooling options available within the new S-series for wire feeder systems. In plain language, this means: up to 35 % more cooling output – making it optimal for highly intensive industrial applications. More cooling also means less stress on the torch system, which can have a positive effect on the service life of torches and wear parts. There is an additional version available with a larger pump for welders who have to work with long interpass hoses of 20 metres or more. This model ensures that the full power is delivered exactly where the welder requires it.



Tailor-made to your application

Your “S”: optimally tuned for your field of work.

Case variants



Workshop wire feeder



Assembly pack



Dockyard wire feeder



NanoFeeder

Operating options



... at the power source



... at the feeder unit



... or at both



... at the remote control operation panel



... directly at the torch

Where do you want the wire feed unit?



In the compact unit.
Drivable compact unit with integrated wire feed.



In the Separate feeder unit.
In this way, you can work up to 25 m away from the unit. The hose package connects you.



Two feed units.
Above with a separate unit and below inside the main unit. Ideal, if you often weld using different wires. You save yourself the trouble of constant changeover.



Two feed units as a double separate feeder case unit.
Perfect for different wires, and when maximum mobility is required.

The NanoFeeder

The wire feeder unit of the MIG-MAG welding power source is combined with other, separate wire-feed systems for the push-pull principle. The NanoFeeder takes over the role of an intermediate drive. It is a full wire feeder – but in a revolutionary Nano format. The Lorch welding power source takes over the matching of the wire feed systems automatically, using the optional, digital Push-Pull controller. In this way the complex and also costly, additional external controller is completely unnecessary.

- Range up to a maximum of 50 m
- available as gas or water cooled
- various hose package lengths
- compact and sturdy construction
- designed for continuous use
- Also suitable for use with Powermaster torches



How far would you like to go – with your MIG-MAG torch?



Technical data

		NanoFeeder	NanoFeeder
Cooling		Water	Gas
Load CO ₂ mixed gas	A	500	400
Duty cycle	%	60	60
Wire Ø	mm	0.8 – 1.6 (AL 1.2)	0.8 – 1.6 (AL 1.2)
Hose package lengths	m	10 15 20 25	10 15 20 25

THE SPEED WELDING PROCESSES DESIGNED BY LORCH. SPEED TRANSLATES TO PRODUCTIVITY.

Speed processes for the P series and the S series.

SpeedPulse XT – Extra fast. Extra low-spatter. Extra proficient handling.

SpeedPulse XT turns you into the undisputed Master of the Arc. This is assured by the patented control technology of the Lorch S series. It combines the new process and all of the benefits of the earlier SpeedPulse welding process.

Instead of making him break out in a sweat during pulse welding, the SpeedPulse XT afford the welder such extra freedoms as the ability to influence the arc by changing the distance between torch and workpiece. Better still, the new S series responds with unprecedented speed and accuracy. And, it delivers this type of speed and accuracy in every pulse phase. These properties allow

the welder to guide the arc more safely and intuitively and to transfer even the slightest correction into the welding process without any delay. The S series, thereby, produces results that you can see as well as feel.

When combined with the exceptionally robust and stable properties of the arc, this means: improved handling, higher quality, and very low to insignificant levels of spatter, reducing the amount of necessary rework to an absolute minimum. This is what we call welding at the pulse of time.



SpeedArc XT – deeply impressive.

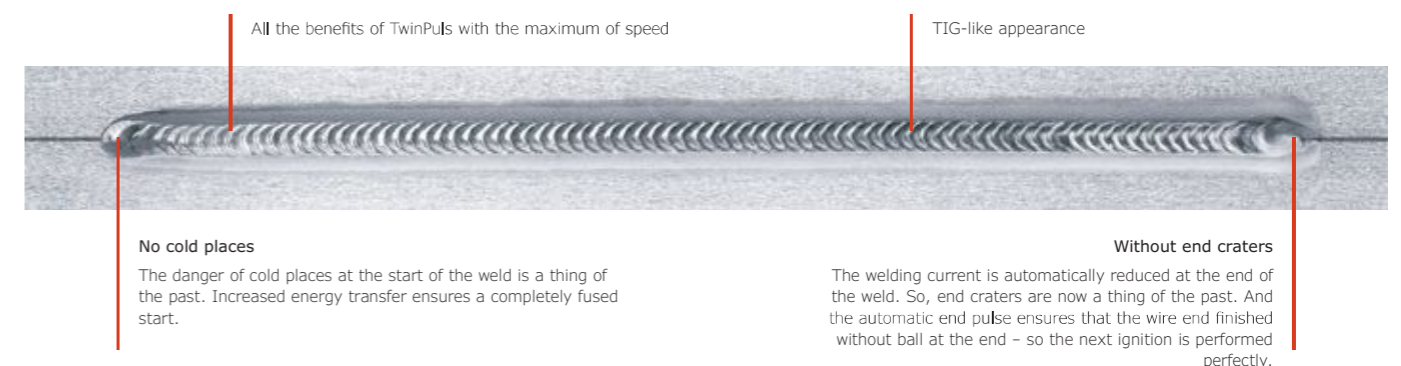
SpeedArc XT sets itself apart by its highly focused and incredibly stable arc combined with an high energy density that stands head and shoulders above any other comparable process. Delivering much deeper penetration into the base material across the entire power range, this process delivers a level of penetration for the P and S series to which ordinary MIG-MAG machines simply cannot measure up. The greater arc pressure that flows into the weld pool SpeedArc XT adds a significant speed boost to MIG-MAG welding across the entire power range, making it noticeably faster, much easier to control and, consequently, much more economical.

TwinPuls XT – really looks fantastic.

TwinPuls XT specifically controls and separates the heating and cooling phases. What does that mean to you? You benefit from a cosmetically pleasing weld seam, with significantly lower and more controlled heat input into the workpiece. The better heat control, can result in much lower distortion, resulting in notably less rework. What is more, the isolation of the different phases makes positional welding much easier. Real-world applications that commonly used to be completed by TIG welding can now be welded with MIG-MAG

processes thanks to the ground-breaking capabilities of the new and improved TwinPuls XT. Welding is now simply faster and more efficient. Producing no cold starts or end craters whatsoever, TwinPuls XT achieves perfect results that even stand up to TIG seams.

There is one end to everything, except when you talk about weld seams. They have not one but two ends and both look astounding thanks to TwinPuls XT.



SpeedUp – experience an entirely new high during vertical seam welding.

Up to now, vertical seam welding required a tremendous amount of experience, skill and a steady hand. Now, professionals in industry have a simple-to-use tool at their disposal – Lorch’s P and S series – which treat them to a perfectly coordinated welding process that is powerful enough to even substitute the supreme discipline of the trade – “Christmas tree welding”. SpeedUp combines the hot high-current phase with the cold phase to effect an overall reduced heat input – thereby, offering great penetration, exactly dimensioned and well-proportioned weld seams with a near perfect a-measurement dimensions. Unparalleled arc regulation delivers outstanding speed and produces results that is seamless and with virtually no spatter.

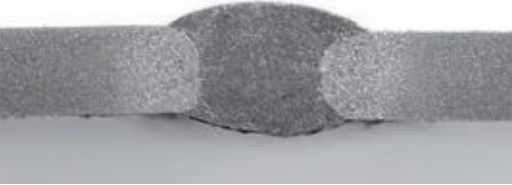
On the left, the challenging Christmas tree, and, on the right, the ingenious SpeedUp.



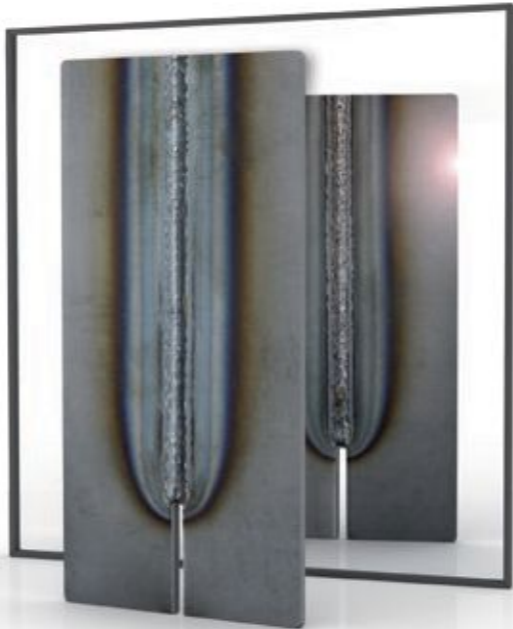
SpeedRoot – for MIG-MAG root weld quality that is noticeably better.

Previously, the main requirement for joining both edges of the material perfectly and with as little defects as possible was to apply this simple formula: Root welding = TIG. Whilst enabling clean results, the application of this process was also exceedingly slow. SpeedRoot delivers dramatic speed benefits as well weld seams whose quality is on par with TIG welds. This superior performance is made possible by the high-end control technology that is built into every machine of the P and S series! This technology controls the level of current and voltage with utmost precision, thereby guaranteeing high speed process reliability and flawless weld appearance. Anyone who has ever bridged a 4 mm gap on 3 mm sheets without weaving using the S series and SpeedRoot will never want to go back to the solution they used before. Especially when they discover that the perfect weld seam they are looking at took them much less time than it would have if they had resorted to TIG welding.

The weld front side and, as a mirror image, the weld rear side showing under bead.



Optimum, slightly rounded weld appearance without fusion defects – for maximum gap tolerance and gap bridging.



SpeedCold – for cold hard efficiency whilst thin sheet welding.

SpeedCold keeps the arc stable during thin sheet welding and puts an end to pesky sticky spatter. The Lorch P and S series with SpeedCold will even weld sheets as thin as 0.5 mm and eliminates the need for rework almost entirely. Any spatter that does occur is so “cold” that it will usually not stick to the material. SpeedCold truly shines when used for welding butt, lap and corner welds on thin sheet metal. Responding in milliseconds to any changes in the arc, the SpeedCold control is distinguished by its exceptional weld seam control as well as the outstanding seam shaping and gap bridging properties, especially on CrNi and Steel. Lower heat input means less rework thanks to less distortion, less spatter and reduced use of energy. And, we have not even talked about the speed advantages this process has to offer. You cannot ask for much more.

A welded corner seam as a comparison. Standard arc (left): Rapidly falling weld pool that is about to drop off. SpeedCold (right): Welded in full with utmost speed and reliability (35 cm/min).



The standard MIG-MAG welding programs.

Last, but not least, Lorch also gave the synergy welding programs included with the P and S series a complete overhaul, taking them to an entirely new level. This means for you: exceptional arc behaviour that is fully customisable to your preferences thanks to the new dynamic control.

	P series	S-Pulse XT	S-SpeedPulse XT
Welding process			
SpeedPulse XT	○	○	●
SpeedArc XT (incl. SpeedArc)	●	●	●
TwinPuls XT	—	○	●
TwinPuls	—	●	●
SpeedUp	○	○	○
SpeedRoot	○	○	●
SpeedCold	○	○	○
Standard MIG-MAG welding programs	●	●	●
● Standard equipment ○ Optionally available			