

Pulse welding at its best.

What started with aluminium is today also essen
High end quality with the **Saprom technology**



For more than 50 years Lorch has been recognised as one of the most innovative companies and an engine of progress in welding technology. A clear example of how you directly benefit from this innovative force is with the Saprom technology, which we introduced at that time, and which made pulse technology into what it is today. In the meantime, 4th generation technology in the form of MIG-MAG pulse welding is now of even better quality, faster and more productive than ever before. If we look more closely at the development of pulsed welding technology, it was already the absolute state of the art for Aluminium welding 20 years ago, and so it still remains. Today Pulse is used almost everywhere that money is earned through welding and it could be said, has even become essential. Finally, the pulse speed for steel and stainless steel was increased by up to 48 % - by means of SpeedPulse. That with an additional

Saprom 2

- Puls

Saprom 5

- Puls

Saprom 900

- Puls
- TwinPuls



1988

1995

1998

“Spatter-free welding”

✓ Analogue pulse technology

“The invention of TwinPuls”

✓ Analogue/digital pulse technology

The Saprom[®] technology.

tial when working with steel.

from Lorch has made pulse welding productive.

lasting increase in the cost effectiveness and improvement in the weld-seam quality with regards to penetration, heat transfer, distortion, and alloy burn off. The high weld quality means that costly rework can often be avoided, in contrast with classical MIG-MAG processes. That makes the Saprom technology twice as productive nowadays. To say nothing of the improvements in ergonomics and the halving of the noise level.

“Vorsprung durch Speed” – means faster welding, and that’s not just pulse welding. With the Speed process family, Lorch

makes it simple and more productive to weld, whether by MIG-MAG, MIG-MAG pulsing, or root and vertical seam welding.

To learn everything about the Lorch Speed process, refer to the following pages, and visit www.masters-of-speed.de

S series (Saprom)

- Puls
- TwinPuls

S-SpeedPulse series

- SpeedPulse
- SpeedCold
- Speed-TwinPuls
- Puls
- TwinPuls
- SpeedArc
- SpeedRoot
- SpeedUp

Productivity index



2003



2008 09 10 11 12 13

“Fully digital revolution”

- ✓ Introduction of CAN-BUS technology with LorchNet
- ✓ Powermaster remote control technology for torch

“Vorsprung durch Speed”

- ✓ Up to 48 % faster thanks to patented SpeedPulse process technology
- ✓ Highly productive welding by means of new MIG-MAG special processes: SpeedArc, SpeedRoot, SpeedUp, SpeedCold, Speed-TwinPuls

The S Series

The entry into the professional world of pulsing.
Expandable with all Lorch Speed processes.

Enter into the professional world of pulsing without compromise. Whoever looks into the future of his work should not want to make any compromise with this MIG-MAG pulsing system. With the new upgradeable S Series, you are future-proof and absolutely flexible. You can adapt the system individually for new requirements at any time – with all of the MIG-MAG Speed processes from Lorch: SpeedPulse, SpeedArc, SpeedUp and also the new SpeedRoot. The S Series is also impressive with an outstanding duty cycle, the “3 steps to weld” operating concept and the robust industrial housing including many practical details. The strong handles provide not only easy manoeuvrability but they also protect the control panel and

connections. They can also be used in conjunction with the lifting points for easy lifting with a crane. The ingeniously robust cylinder trolley, with its **low gas cylinder support** makes changing the cylinder easier. It is also available as double cylinder version for two 50 litre cylinders.



The S Series at a glance

- ✓ Infinitely variable welding inverter for MIG-MAG pulsed arc welding
- ✓ Comes with SpeedArc® as standard
- ✓ Expandable with all MIG-MAG Speed processes (SpeedPulse®, SpeedUp®, SpeedRoot® and SpeedCold®)
- ✓ With electrode welding function (incl. gouging from the S5 upwards)
- ✓ In robust, completely transportable industrial housing
- ✓ Available as compact system or with separate wire feeder case
- ✓ Double feeder variants with one or two separate wire feeders
- ✓ Feeder available in different versions: as workshop, construction, dockyard or robot case
- ✓ “3 steps to weld” operating concept
- ✓ Available as gas or water cooled
- ✓ Industrial 4-roll precision feeder
- ✓ Plain text display with language selection
- ✓ Digital display of welding current and voltage
- ✓ Tiptronic job memory for up to 100 welding tasks
- ✓ Suitable for use with Lorch Powermaster remote control torch technology
- ✓ Can be optionally equipped for push-pull torch and intermediate drive (for up to 43 m welding range)
- ✓ Manufactured and tested according to DIN EN 60974-1, with CE mark, S-symbol and IP 23

The power variants S with standard Pulse

Optional accessories for your S 3 mobile: Water cooling unit WUK 5 and Mobil-Car



S 3 mobil
25–320 A



S 3
25–320 A



S 5
25–400 A



S 8
25–500 A



Welding range	S 3 mobile	S 3	S 5	S 8
MIG-MAG	25–320 A	25–320 A	25–400 A	25–500 A
Voltage adjustment	Infinitely variable	Infinitely variable	Infinitely variable	Infinitely variable
Welding gases	Gas mixture + CO ₂	Gas mixture + CO ₂	Gas mixture + CO ₂	Gas mixture + CO ₂
Welding wires				
Steel Ø in mm	0.6–1.2	0.6–1.2	0.6–1.6	0.6–1.6
Alu Ø in mm	1.0–1.2	1.0–1.2	1.0–1.6	1.0–2.4
CuSi Ø in mm	0.8–1.2	0.8–1.2	0.8–1.2	0.8–1.2
Practical duty cycle at 25 °C ambient temperature				
Current at 100% duty cycle	280 A	280 A	350 A	500 A
Current at 60% duty cycle	320 A	320 A	400 A	500 A
Duty cycle I max.	75%	75%	75%	100%
Standard duty cycle measured according to German quality standard DIN EN 60974-1 at 40 °C ambient temperature				
Current at 100% duty cycle	250 A	250 A	320 A	400 A
Current at 60% duty cycle	280 A	280 A	350 A	500 A
Duty cycle I max.	40%	40%	50%	60%
Machine				
Mains voltage	3–400 V	3–400 V	3–400 V	3–400 V
Permitted mains tolerance	+/-15%	+/-15%	+/-15%	+/-15%
Mains fuse, delayed action	16 A	16 A	32 A	32 A
Dimensions in mm (L x W x H)	812 x 340 x 518	1116 x 463 x 812	1116 x 463 x 812	1116 x 463 x 812
Weight	34 kg	92.8 kg	97.3 kg	107.3 kg
Extras				
EN1090/WPS booklet	○	○	○	○

○ optional

Series S



3 steps to achieve weld perfection

1. Select operating mode
2. Wire/gas/material combination
3. Adjust welding current
(always the perfect setting by the synergic function using the material thickness)



TwinPuls® – Ideal for aluminium

TwinPuls controls specifically and separates the heating and cooling phase. The low heat input minimises the delay. And welding in difficult positions is simpler and more secure. The weld appearance is impressive – almost as good as TIG. Also of great benefit of course for CrNi materials.



Quality
Made in Germany

S-SpeedPulse® Series

Up to **48 % faster** for steel and stainless steel
SpeedPulse – an invention by Lorch.

The S-SpeedPulse does not make any compromises. It only knows one objective: A perfect, productive weld seam. To achieve this it combines the **speed benefits** of the spray arc with the **application and quality benefits** of the pulsed arc. While pulsing technology for aluminium and stainless steel is already well established, you can now also enjoy the pulse benefits for steel welding: **outstanding control** of the arc, better control of the weld pool, practically no rework and high weld quality – and all of this with previously unachievable welding speeds. It is not only the **Speed** which clearly makes the S-SpeedPulse from Lorch better. Due to the “3 steps to weld” operating concept, you

now arrive more simply and more quickly at the **perfect MIG-MAG weld**. Because, in principle, it is as easy to use as a drilling machine. Faster and more cost-effective than all the pulsing systems we compared it to. Speed Up your Pulse – for maximum productivity.

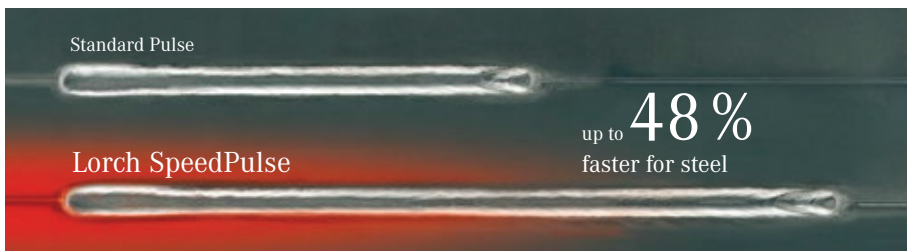


The S-SpeedPulse® Series at a glance

- ✓ Infinitely variable welding inverter for MIG-MAG pulsed arc welding
- ✓ Including SpeedPulse® = up to 48 % faster
- ✓ Comes standard with TwinPuls® and Speed-TwinPuls®
- ✓ Comes with SpeedArc® and SpeedRoot® as standard
- ✓ Optionally available with SpeedUp® and SpeedCold®
- ✓ With manual metal arc welding function (incl. gouging from the S5-SpeedPulse upwards)
- ✓ In robust, completely transportable industrial housing
- ✓ Available as compact system or with separate wire feeder case
- ✓ Double feeder variants with one or two separate wire feeders
- ✓ Feeder available in different versions: as workshop, construction, dockyard or robot case
- ✓ “3 steps to weld” operating concept
- ✓ Available as gas or water cooled
- ✓ Industrial 4-roll precision feeder
- ✓ Plain text display with language selection
- ✓ Digital display of welding current and voltage
- ✓ Tiptronic job memory for up to 100 welding tasks
- ✓ Quatromatic function
- ✓ Suitable for use with Lorch Powermaster remote control torch technology
- ✓ Can be optionally equipped for push-pull torch and intermediate drive (for up to 43 m welding range)
- ✓ Can be completely automated (LorchNet connection, robot interface or bus coupling)
- ✓ Manufactured and tested according to DIN EN 60974-1, with CE mark, S-symbol and IP 23

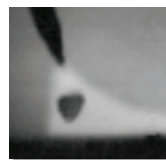
Steel is also now pulse-welded

The qualities of a good pulsed arc are well known. Virtually **spatter-free, optimum weld pool control, controlled metal transfer** and **practically no reworking required**. Every experienced MIG-MAG welder today now uses this process for stainless steel and aluminium. But why not for steel welding? Why is that not pulsed? The pulsed arc welding process is also better and easier to control on steel. However, it was the case: where less importance was placed on visual aspects such as surface quality and therefore post weld rework was not necessary, pulsing was much slower than with a conventional short arc or spray arc. But now that is a thing of the past. With the SpeedPulse from Lorch, you can **pulse in the high speed range** without any loss in the pulse quality. Throughout the complete power range. Transition/mixed arcs belong to the past. Immediately faster when used for manual welding and outstanding in automation.

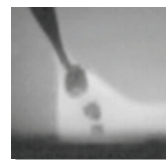


Everything starts with the wire melting

In the matter of welding speed, everything starts with the wire. Each pulse must melt the largest amount of material. While only one droplet per pulse is transferred for the standard pulse process, SpeedPulse achieves an **almost constantly flowing metal transfer** into the workpiece.



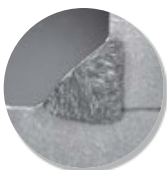
Standard Pulse



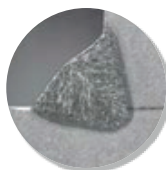
SpeedPulse

The benefits of the SpeedPulse

- Greater **cost-effectiveness** due to faster welding speeds, up to 48% quicker
- All known benefits of **pulsed welding** are still maintained
- **Lower heat input** for:
 - better weld quality and integrity
 - minimal (angular) distortion
 - minimal dilution of the filler wire alloying elements
- The SpeedPulse arc halves the noise exposure because it is approx. **10 dB(a) quieter**
- **Outstanding handling** and visibility of the arc (“needle effect”)
- Better and deeper **penetration depth**



Standard Pulse



SpeedPulse



SpeedPulse
INNOVATION

Quality
Made in Germany

With SpeedPulse® up to 48 % faster – an invention by Lorch

The SpeedPulse® of the S-SpeedPulse Series combines the benefits of the spray arc and pulsed arc. The metal transfer is almost flowing, but nevertheless without any short circuits delivering a fine to medium droplet transfer. That means practically no spatter and no rework with maximum welding performance throughout the complete welding current range.



3 steps to achieve weld perfection – the operating concept of the S

1. Select operating mode
2. Wire/ gas/ material combination
3. Adjust welding current
(always the perfect setting by synergic function using the material thickness)



Clearly arranged operating panel with plain text display

The power variants of the S-SpeedPulse®

Optional accessories
for your S 3 mobile:
Water cooling unit
WUK 5 and Mobil-Car



S 3 mobil
320 A



S 3
320 A



S 5
400 A



S 8
500 A

Welding range	S 3 mobile SpeedPulse®	S 3 SpeedPulse®	S 5 SpeedPulse®	S 8 SpeedPulse®
MIG-MAG	25 – 320 A	25 – 320 A	25 – 400 A	25 – 500 A
Voltage adjustment	Infinitely variable	Infinitely variable	Infinitely variable	Infinitely variable
Welding gases	Gas mixture + CO ₂	Gas mixture + CO ₂	Gas mixture + CO ₂	Gas mixture + CO ₂
Welding wires				
Steel Ø in mm	0.6 – 1.2	0.6 – 1.2	0.6 – 1.6	0.6 – 1.6
Alu Ø in mm	1.0 – 1.2	1.0 – 1.2	1.0 – 1.6	1.0 – 2.4
CuSi Ø in mm	0.8 – 1.2	0.8 – 1.2	0.8 – 1.2	0.8 – 1.2
Practical duty cycle at 25 °C ambient temperature				
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Standard duty cycle measured according to German quality standard DIN EN 60974-1 at 40 °C ambient temperature				
Current at 100% duty cycle (40 °C)	250 A	250 A	320 A	400 A
Current at 60% duty cycle (40 °C)	280 A	280 A	350 A	500 A
Duty cycle I max. (40 °C)	40%	40%	50%	60%
Machine				
Mains voltage	3 – 400 V	3 – 400 V	3 – 400 V	3 – 400 V
Permitted mains tolerance	+/-15%	+/-15%	+/-15%	+/-15%
Mains fuse, delayed action	16 A	16 A	32 A	35 A
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Extras				
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○ optional