

/ Perfect Welding / Solar Energy / Perfect Charging



DELTA SPOT

Highest quality - spot by spot

7000 SPOTS. SAME QUALITY. NO TIP DRESSING.

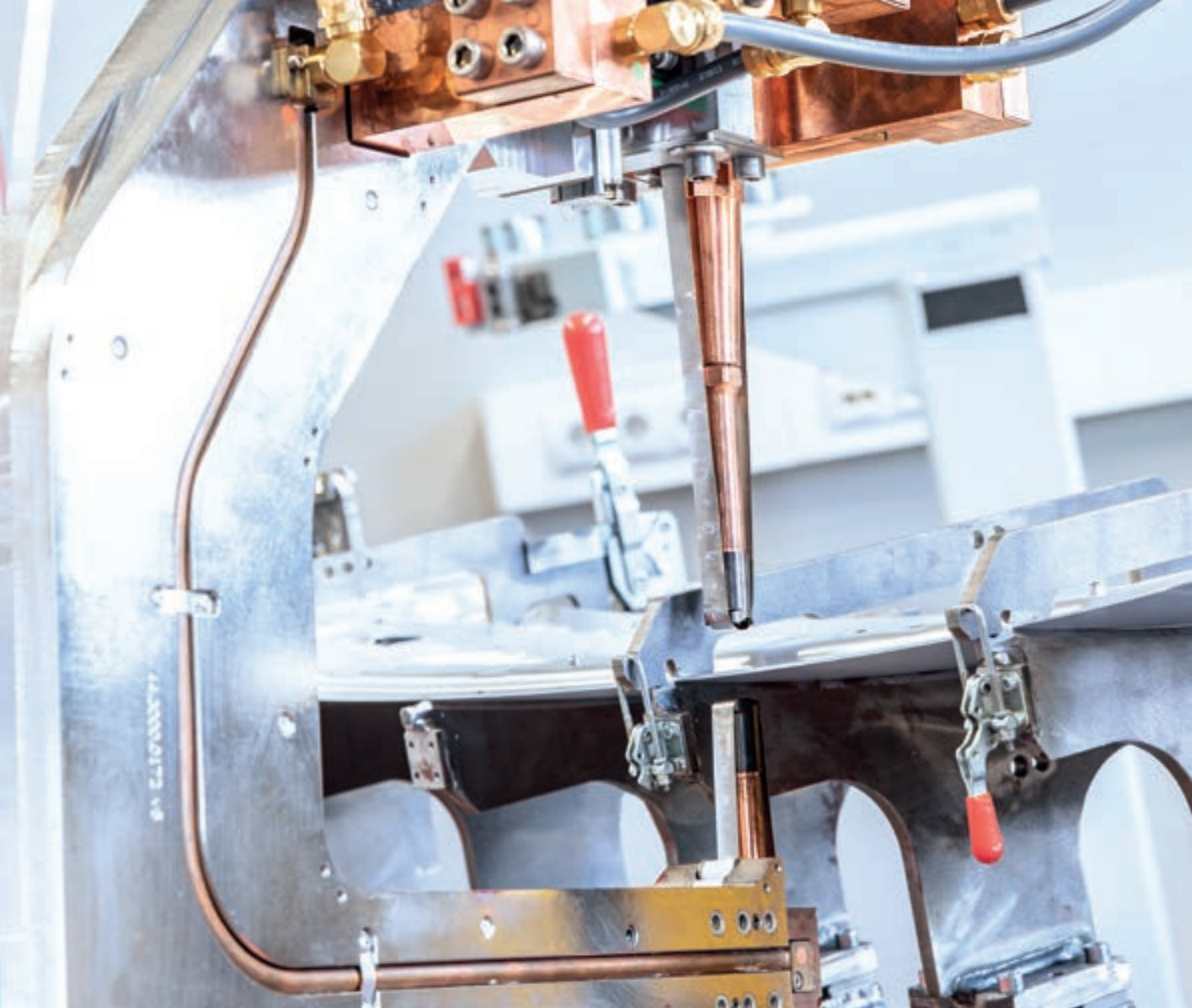
Whether in the automotive or aerospace industry, DeltaSpot delivers perfect welding results spot by spot.

The indexing process tape offers advantages in terms of energy efficiency and heat input, especially in aluminium applications. A tip dressing of the electrodes is eliminated.

What's your
Welding Challenge?

Let's get connected.





THE ADVANTAGES OF DELTASPOT

100% REPRODUCIBLE WELDING RESULTS

- / New contact surface for every welding spot
- / 4000 - 7000 spots without interruption
- / No alloying of surface coatings or base material to the electrode
- / No direct contact between the electrode and workpiece

LESS REWORKING THANKS TO PERFECT SURFACE QUALITY

- / No welding expulsions
- / Little surface deformation

ENERGY SAVING

- / The additional electrical resistance of the process tapes provides increased heat to the joint, allowing the welding current to be reduced
- / Energy-saving potential, especially for aluminium applications

FLEXIBILITY WHEN WELDING DIFFERENT SHEET THICKNESSES

- / Three-sheet joints with very different material thicknesses can be welded easily by using different process tapes on each side

APPLICATIONS BODY IN WHITE

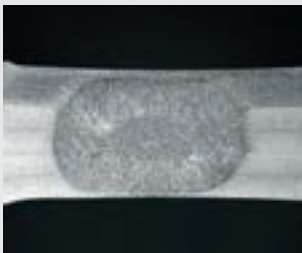
The indexing process tapes of the DeltaSpot system ensure extremely high process reliability and minimum surface expulsions. As well as being used for aluminium joints, DeltaSpot is also suitable for difficult steel combinations such as visually exposed spots, coated high-strength materials and adhesive applications.

1 HOOD, TRUNK



2-layer aluminium joint
Material: EN AW-6016

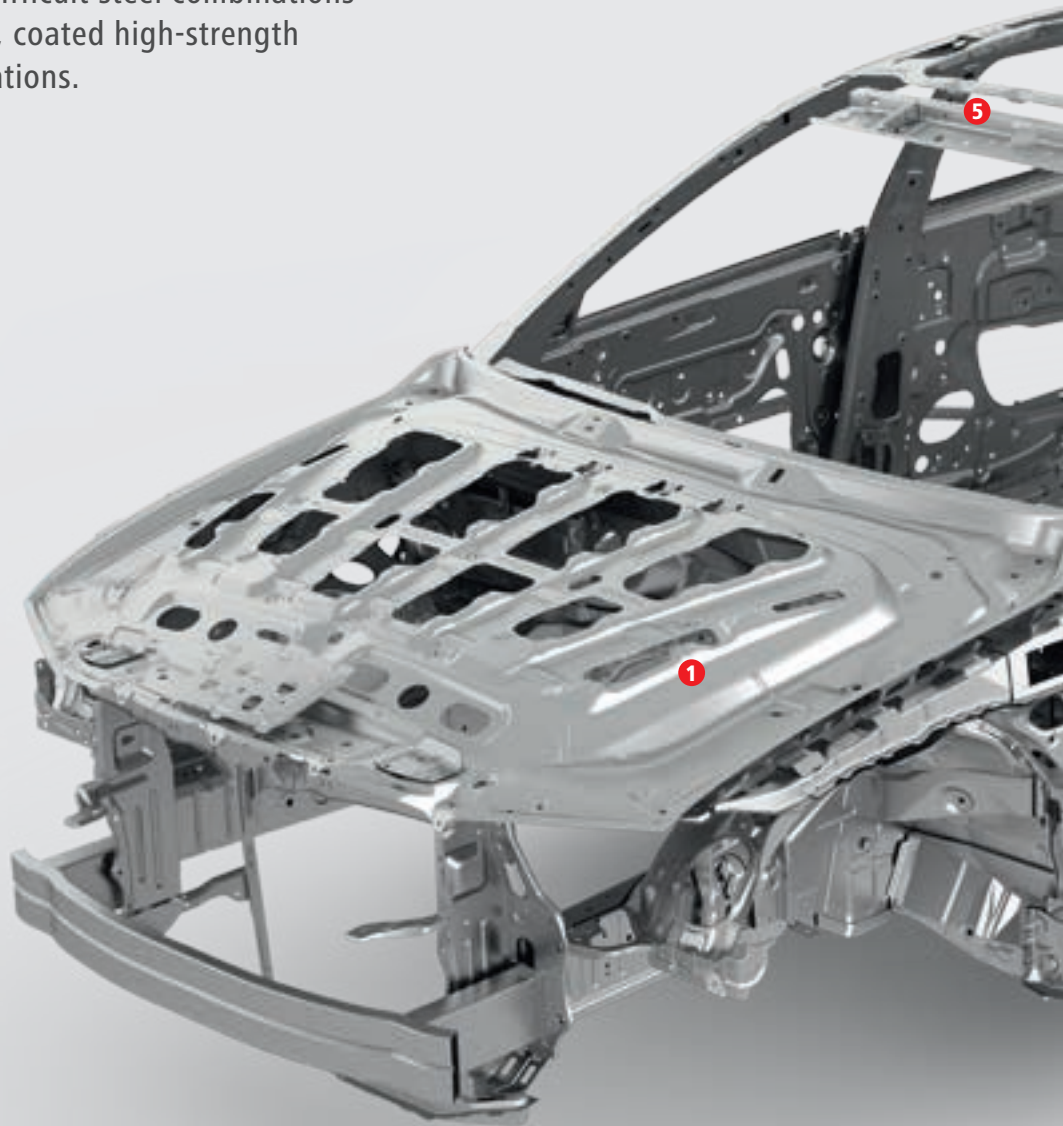
3 STRUCTURAL COMPONENTS



3-layer aluminium joint
Material: 1) EN AW-6014
2) EN AW-6016
3) EN AW-6016



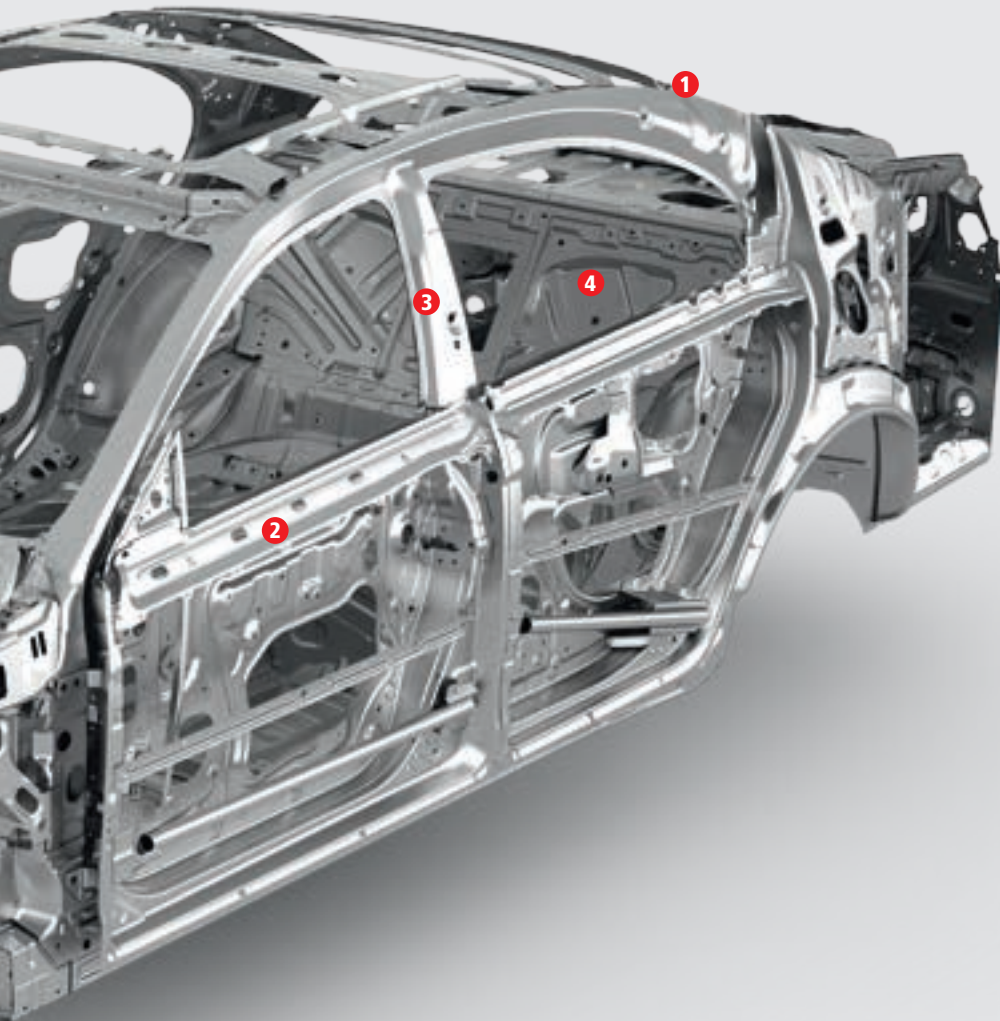
Steel - aluminium joint
Material: 1) HX380 LAD+Z100,
2) EN AW-6016



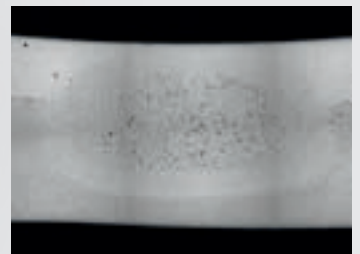
5 FRONT BOW



2-layer aluminium joint
Material: EN AW-6016 1.3 mm



2 DOORS



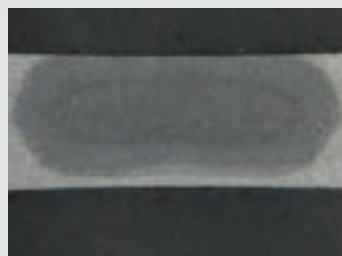
2-layer aluminium joint
Material: EN AW-5182 1mm
die cast EN AC-ALMg5Si2Mn 3 mm

4 BATTERY TRAY



2- or 3-layer aluminium joint
Material: EN AW-6016
continuous casting profile

SPOT-WELD BONDING



2-layer aluminium joint
Material: EN AW-5182
Adhesive: Betamate 1630

EASY OPERATION AND DEFINITION OF WELDING PARAMETERS

All guns used can be networked for monitoring and documentation thanks to an intelligent software. The graphical and self-explanatory user interface makes the device incredibly easy to operate



simple and self-explanatory user interface

ADVANTAGES

- / Graphical welding parameter definition
- / All guns can be operated from any device with a network connection
- / User and rights administration
- / Logbook for recording of any changes (welding parameters, system configurations, status)
- / Automatic current adjustment for consistent spot welding (stepper function)
- / Auto-backup for welding data security
- / Sheet thickness monitoring for error prevention
- / Actual value and limit monitoring with csv export

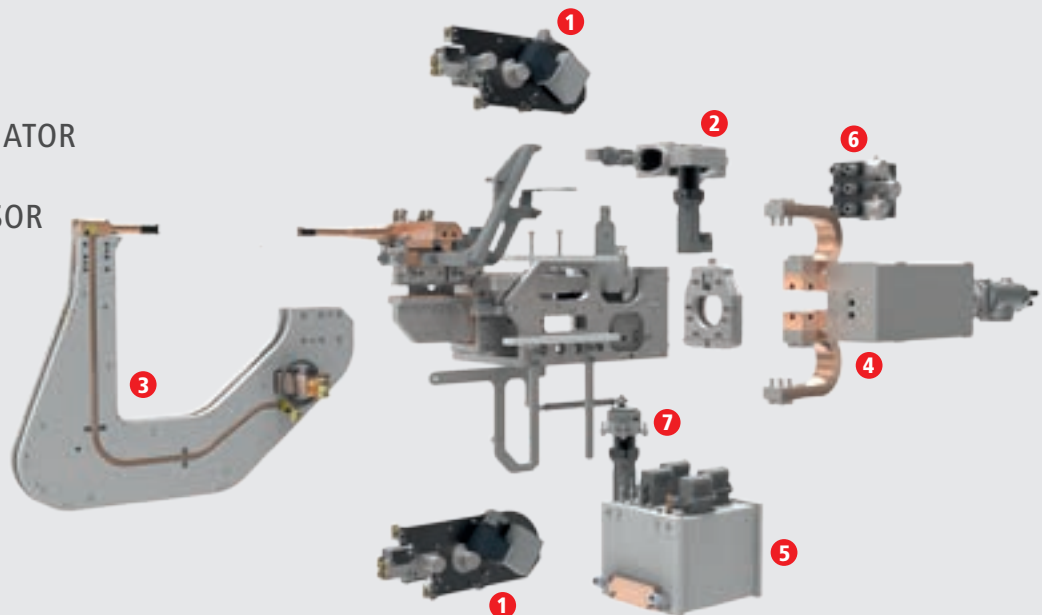


All relevant welding parameter data at a glance

SIMPLE GUN CONSTRUCTION

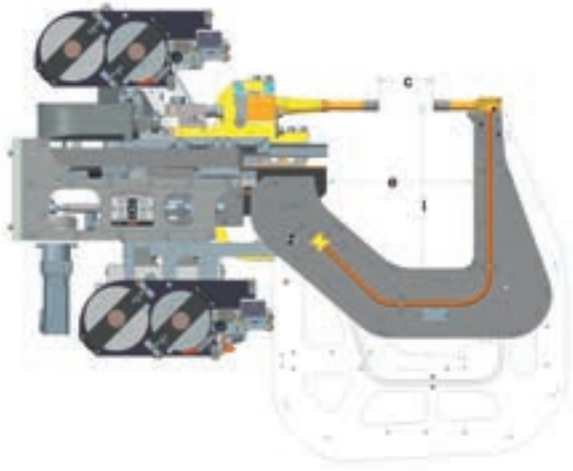
The gun design impresses with its simple construction and easy serviceability, which in turn significantly reduce storage and service costs.

- 1 TAPE DRIVE UNIT
- 2 MAIN DRIVE UNIT
- 3 GUN ARM
- 4 MFDC-TRANSFORMATOR
- 5 E-BOX
- 6 WATER FLOW SENSOR
- 7 GUN EQUALIZER

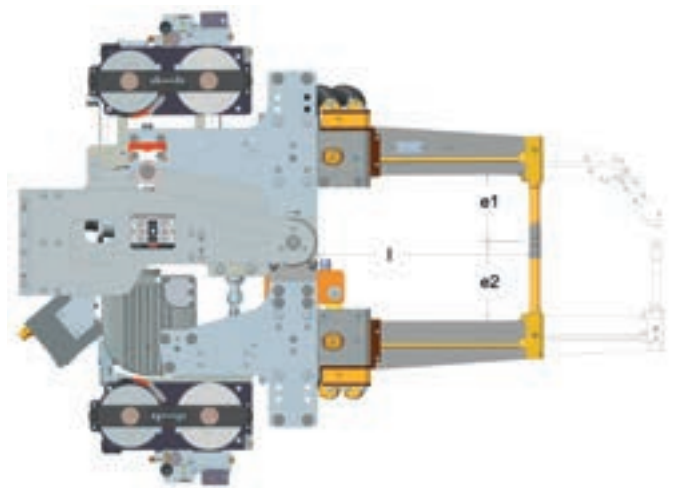


GUN VARIANTS

C-GUN



X-GUN



	C350	C600
e		320 mm
l	350 mm	600 mm
c		115 mm
Q _{arm}		4 l/min
m	163 kg	178 kg
F _{min}		1500 N
F _{max}		8000 N

	X450	X600
e ₁	135 mm	160 mm
e ₂	160 mm	185 mm
l	450 mm	600 mm
c		175 mm
Q _{arm}		4 l/min
m	166 kg	172 kg
F _{min}		1500 N
F _{max}	6000 N	5000 N



left gun design

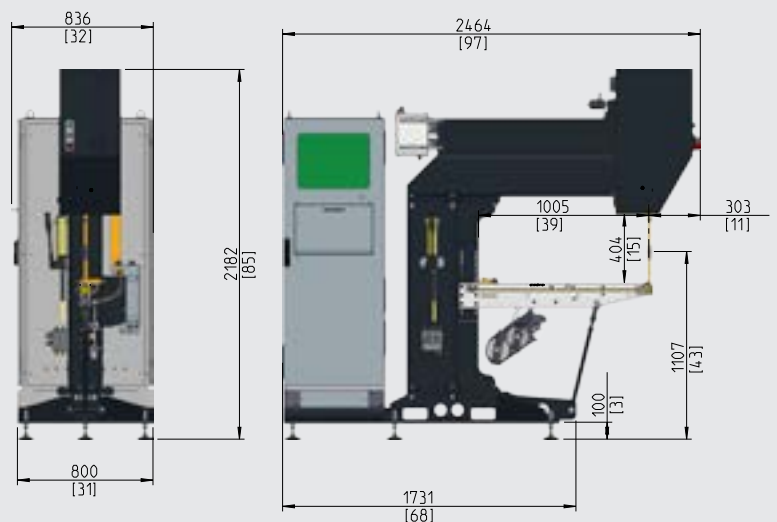


right gun design



special customized gun geometries

STATIONARY SYSTEM



/ Data in metric and standard

TECHNICAL DATA

	RECOMMENDED FOR STEEL APPLICATIONS	RECOMMENDED FOR ALUMINIUM APPLICATIONS
Power at 20% duty cycle	130 kVA	250 kVA
Primary voltage rating for... ...welding power supply (TT or TN system) ...control unit	3 x 400 V (-20%) to 480 V (+10%) 115 V (-10%) and 230 V (+4%)	
Network frequency	50/60 Hz	
Fuses for... ...welding power supply ...control unit	110 A 16 A	220 A 16 A
Primary cable cross-section for... ...welding power supply (three phase) ...control unit (single phase)	35 mm ² / 2 gauge 2.5 mm ² / 13 gauge	95 mm ² / 0000 gauge 2.5 mm ² / 13 gauge
Operating frequency (MFDC)	1000 Hz	1000 Hz
Secondary no-load voltage	9.5 V	14 V
Permanent current	6.5 kA	9.5 kA
Max. welding current*... ...for a duty cycle	20 kA 10 %	40 kA 10 %
Steel sheet welding capacity	4 mm + 4 mm / 0.157 inch + 0.157 inch	4 mm + 4 mm / 0.157 inch + 0.157 inch
Aluminium sheet welding capacity		4 mm + 4 mm / 0.157 inch + 0.157 inch
Max. possible nugget diameter (in DeltaSpot process mode)	8.5 mm / 0.335 inch	8.5 mm / 0.335 inch
Max. electrode force	8 kN 1800 lbs	
Max. electrode travel	115 mm / 4.5 inch	
Effective spacing		
Cooling		
Input/output connection	M22 x 1.5 with 60° sealing cone	
Min. water flow rate	16 l/min / 0.565 ft ³ /min (2 bar differential pressure)	

*Weld time of 100 ms

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THREE BUSINESS UNITS, ONE GOAL: TO SET THE STANDARD THROUGH TECHNOLOGICAL ADVANCEMENT.

What began in 1945 as a one-man operation now sets technological standards in the fields of welding technology, photovoltaics and battery charging. Today, the company has around 4,550 employees worldwide and 1,241 patents for product development show the innovative spirit within the company. Sustainable development means for us to implement environmentally relevant and social aspects equally with economic factors. Our goal has remained constant throughout: to be the innovation leader.

Further information about all Fronius products and our global sales partners and representatives can be found at www.fronius.com

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