



## Inverter-Capacitor Charging Technology

Maximum welding rates  
Minimum energy consumption  
Minimum weight  
Maximum efficiency

### CDMi 2402

#### Stud Welding Unit

for CD stud welding (capacitor discharge welding)  
according to current standards

#### Technical Data

Automation	Series
Welding range	#4 to 5/16" (7/16" limited), dia. 14 ga to 5/16" (dia. 3/8" limited) M3 to M8 (M10 limited), dia. 2 to 8 mm (dia. 10 mm limited)
Welding material	Mild steel, stainless steel, aluminum and brass
Welding rate	M3 = 40 studs/min. (Charging voltage 60 V) M8 = 21 studs/min. (Charging voltage 170 V) (M10 = 17 studs/min. (Charging voltage 210 V))
Capacitance	99 000 µF/33 000 µF*
Welding time	1 to 3 msec
Energy	2 400 Ws/800 Ws*
Charging voltage	50 to 220 V (stepless voltage regulation)
Primary power	115 V, 50/60 Hz, 10 AT
Power source	Capacitor
Cooling type	F (temperature controlled cooling fan)
IP-Code	IP 21
Dimension L x W x H	22.44" x 11.22" x 11.42" (570 x 285 x 290 mm) without handle
Weight	57.32 lbs (26 kg) * with change over of capacitors
Order No.	<a href="#">92-12-22412 (Automation)</a>

#### General Information

##### Application

- Especially suitable for thin sheets (at least 0.5 mm)

##### Process variants

- Contact welding
- Gap welding

##### Equipment

- Automation (series)
- Menu navigation in various languages: German, English, French, Italian, Russian, Portuguese, Spanish and Chinese

## Advantages

### Features

- **Microcontroller** – for precise process times, optimal functional reliability and maximum operating convenience
- **Function monitoring** – automatic function test following power-up; monitoring of all internal system functions
- **Display of error codes** – on LCD display
- **Function control** – All functions are visible on the operator panel via LED or display

### Structure

- **Compact**
- **Robust** – metal housing withstands rough treatment in shop and on site
- **Industrial plugs** – standardised and sturdy plugs
- **Two ground connections** – direct coupling of several stud welding machines possible when installed in complex welding systems

### Safety

- With integrated **mains filter** (protection against voltage peaks)
- **Optimal for construction sites with large mains voltage fluctuations** – use even with critical voltage supply (- 25 % + 20 %)
- Fulfils the requirements according to DIN EN 60974-10: 2008-09 - **EMC test**
- Fulfils the requirements according to DIN EN 60974-1: 2013-06 - Logged **high voltage test**
- Logged **capacitor forming** for quality control of the stud welding capacitors
- **Controlled capacitor forming** – step-by-step charging of capacitors after long standstill times for longer service life of capacitors
- **Retriggering lock-out** – prevents welding on a welding element that has already been welded
- **Thermal control of inverter-capacitor charging unit and internal temperature of stud welding unit**– automatic switch-off in the event of overheating
- **Temperature controlled cooling fan** – reduces noise and dust in the stud welding unit (greater system reliability)
- **Control unit galvanically separated from welding lines** – high degree of functional safety
- **Optimal cooling air stream** – protection of the electronic components against contamination and ideal cooling of the inverter-capacitor charging circuit board for high cycle sequences
- **Shock-resistant operation panel** – operation panel protected by protruding casing
- **Shock-resistant capacitors** – capacitors protected by shock proofing elements
- **Accessory: Control guard made of acrylic glass (lockable)** – prevents damage and unauthorised access

### Welding

- **Graphic display** – clear operator guidance via large LCD display
- **Setting of charging voltage in V and charging energy in Ws** – when changing the charging voltage, the charging energy is automatically adjusted
- **Process sequence control** – detection and evaluation of influencing variables of the welding process via the process control (CP); after every welding, a comparison of the reference CP value and the actual values is performed; display of the actual and target value; welding stop when limit values are exceeded can be activated; limit values can be selected in steps; manual entry of CP value possible
- **15 programs can be stored** – in every program, the parameters (charging voltage, capacity, CP settings and automatic settings) can be selected digitally via a superior control system and specific to the application
- **Remote control of the stud welding machines via standardised RS232 interface possible** – the stud welding machines can be controlled directly via the PC or CNC welding systems
- **Library function** – library with stored welding parameters for different diameter and material combinations for a quick start of the welding process
- **User-specific settings**– weld counter (display of previously executed welds); menu navigation in various languages; units (metric, imperial); date; time; setting of the transmission rate of the interfaces



- **Gun / welding head test** – functionality check of the welding guns or the welding heads with a lifting test (check of the lifting function of the gap welding guns and bolt welding heads without contact with the workpiece); functionality check of the welding guns or the welding heads by recording the movement time of the solenoid from triggering to the contact with the workpiece
- **Reading out of CP values via standardised RS232 interface** – for the output of data such as the date, time and welding parameters of each weld with the superior control system; welding parameters of every weld are logged
- **Powerful** – built-in power reserves
- **Inverter-capacitor charging technology** – makes high cycle rates possible
- **Trouble-free changing of welding voltage polarity** possible by reconnecting welding current and ground cables
- **Use of special capacitors** (developed for stud welding)
- **Capacitance switching** – 33 000  $\mu\text{F}$  or 99 000  $\mu\text{F}$

#### Suitable stud welding guns/ heads

- **C 08**
- **CA 08**
- **PAH-1**
- **KAH 412**
- **KAH 412 LA**

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(Technical data may change)