PRO SPOT
QUALITY WELDING SYSTEMS

ULTRASONIC PLASTIC REPAIR SYSTEM
PR-28U



Fast, portable solution for repairing and welding bumpers, brackets, and automotive plastic components. Ultrasonic technology provides instant, strong bonds without filler materials or preheating time.

PR-28U converts electrical energy into high-frequency vibrations (28.5 kHz). Combined with clamping pressure, these vibrations generate heat that fuses compatible plastic materials together.

- **Ultrasonic Joining:** Restores small brackets, mounts, clips, tabs, and trim without adding visible filler mass or extensive heat distortion.
- **Power Reserve:** Operates at 28.5 kHz with >800 W electrical power, offering over 33% more energy than typical 600 W / 40 kHz competitor systems for demanding thermoplastics.
- **Process Qualification:** Complements nitrogen/hot-air welding; does not universally replace OEM repair procedures or guarantee blanket approval.

MATERIAL ENERGY REQUIREMENTS:

- Amorphous Plastics (ABS, PC): ~200 W at 1 mm up to ~1,000 W at 5 mm.
- Semi-Crystalline Plastics (PP, PA): ~400 W at 1 mm up to ~2,000 W at 5 mm (requires ~2x the power of amorphous materials).



APPLICATIONS:

- **Collision Repair Applications**: Parking-sensor (PDC) holders, blind-spot detection (BSD) / radar brackets, grille/air-intake attachments, headlamp tabs, bumper clips/rivets, interior door/trim mounts.
- **Assembly Applications**: Interior door panels, instrument subassemblies, center consoles, housing covers, prototype/low-volume fixtures.
- **OEM Example:** Replacement bumper covers often do not come with pre-welded sensor mounts. Localized ultrasonic welding installs new mounts precisely without excess filler that could distort sensor seating or the decoupling ring.

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OPTIONAL SONOTRODES (HORNS)

Quick and easy to change, optional sonotrodes screw directly onto the handpiece's transducer/booster assembly. Their threaded design allows for fast, tool-free installation and replacement by hand, making it easy to switch between different welding applications.



- **#1 to 5**: Primarily designed for standard plastic repair (e.g., crack mending, fusing two pieces of the same thermoplastic material together).
- **#6 to 8**: Used for attaching new plastic elements onto existing components. For example, #7 is frequently used in body shops to weld parking sensor brackets onto replacement bumpers.
- **#11 to 13**: Specialized for heat-staking / flattening plastic pins and rivets to secure components together. For instance, #13 is commonly utilized in OEM-style procedures (such as by Stellantis) for securing bumper grilles.
- **#14**: Used for structural welding of larger or specific multi-component plastic assemblies. For example, #14 (and similar variants in this range) is often applied when joining the plastic inner panels that support speaker housings inside vehicle doors.

TECHNICAL COMPARISON

Specification	Pro Spot System PR-28U	Typical 40 kHz Competitors
Operating Frequency	28.5 kHz	~40 kHz
Electrical Power	>800 W	~600 W
Application Focus	Thicker, harder automotive plastics (PP, PA, hard VW grades)	Light-to-medium localized thermoplastic repairs
Key Advantage	Greater mechanical amplitude & energy margin	Standard operational capacity

ULTRASONIC JOINING VS NITROGEN WELDING

Criterion	Ultrasonic Joining	Hot-Air / Nitrogen Welding
Primary Mechanism	Localized frictional heating & pressure at joint interface	External heating and fusion with compatible filler rod
Best Suited For	Small brackets, sensor mounts, clips, rivets, bosses, tabs	Cracks, tears, missing sections, large surface rebuilds
Filler Material	None required for compatible mating parts	Requires compatible plastic filler rod
Heat Exposure	Concentrated at contact sonotrode area	Broader thermal zone around weld bead
Surface Finish	Clean, localized weld with minimal build-up	Weld bead requires grinding, sanding, refinishing

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