



**BESHIELDING**  
BUSBAR | ENGINEERING | SHIELDING



## SPOT WELDING

### Problem description

Shielding of portable or fixed spot welding guns (Fig. 1), while maintaining their full functionality, is quite complex. The area embraced by the coil is deliberately chosen to facilitate the maneuverability of the gun around the piece to be welded, but this involves the highest magnetic fields. The areas close to the welding gun can lead to exceeding the limits set for workers and certainly for sensitive workers which are considered as population. The current behaviors requires that the evaluation as to be made with the weighted peak method (see Fig. 3).

### Solution

In the case of fixed spot welders it is possible, by slightly limiting the functionality, to provide a shield that allows the value of the weighted peak to be brought back below 100%. The shield is represented by U-shaped structure in multilayer material (conductive and ferromagnetic) embracing the spot welder. Thanks to a system of wheels, the protection can be moved in cases where it is necessary to carry out welding on particularly bulky elements.

### Results

The magnetic flux density in the various points detected with the presence of shielding is shown in the following graph. It should be noted that in all cases the weighted peak is abundantly below the limit of 100%.



Fig. 1 Spot welding gun

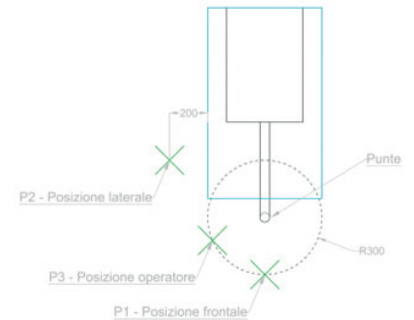


Fig. 2 Measurement points

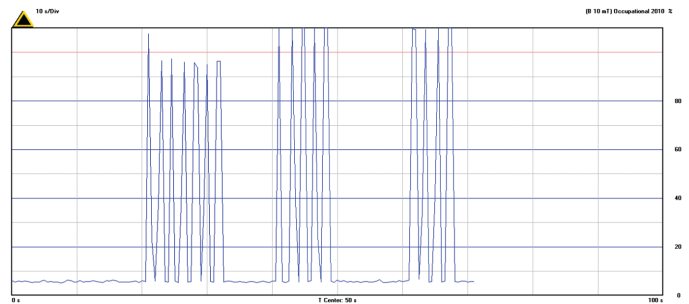


Fig. 3 weighted peak without shielding



Fig. 4 Spot welding gun with shield

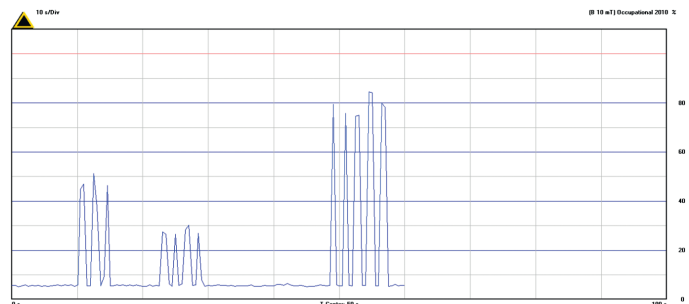


Fig. 5 Weighted peak generated by the welding machine in the various points in the presence of shielding system