

Title	Development of plasma MIG brazing process of advanced materials
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Citation	Transactions of JWRI. 2010, 39(2), p. 314-315
Version Type	VoR
URL	https://doi.org/10.18910/24796
rights	
Note	

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Development of plasma MIG brazing process of advanced materials[†]

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KEY WORDS: (Plasma MIG) (Brazing) (Advanced materials)

1. Proposal of plasma MIG brazing process

Figure 1 and 2 show schematic illustrations of experimental setup for the plasma MIG welding process [1] and conventional MIG welding process, respectively. In plasma MIG welding processes, because shielding gas is ionized in advance by a plasma electrode before supply, the shape of arc is easily controlled and stabilized through electromagnetic force as shown in Fig. 3. Therefore the controllability and stability of the arc are remarkably enhanced compared with those in a conventional MIG welding process as shown in Fig. 4. Because of this advantage, it can be employed for MIG welding in pure inert gas atmosphere. In this study, we will develop a brazing process of advanced materials employing the plasma MIG. It is expected that because of low energy density of the plasma produced by the plasma electrode, the base metal is heated uniformly over the wide range and melting of that is prevented and, consequently, high wettability of filler metal is achieved. Furthermore, the cleaning action of cathode spots for oxide layer on the base metal contributes to produce high quality weld joints.

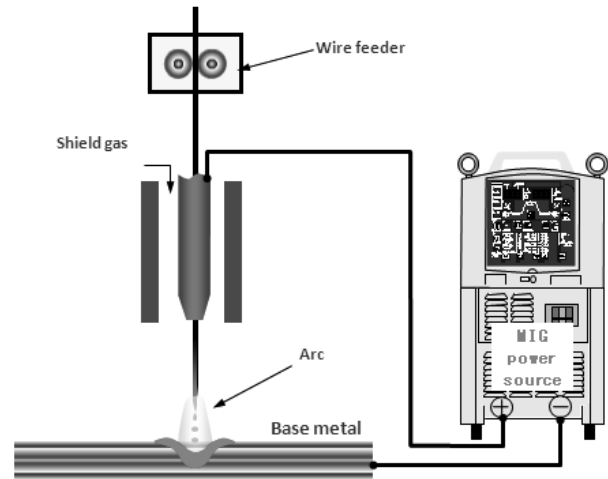


Fig. 2 Schematic illustration of experimental setup for conventional MIG process.

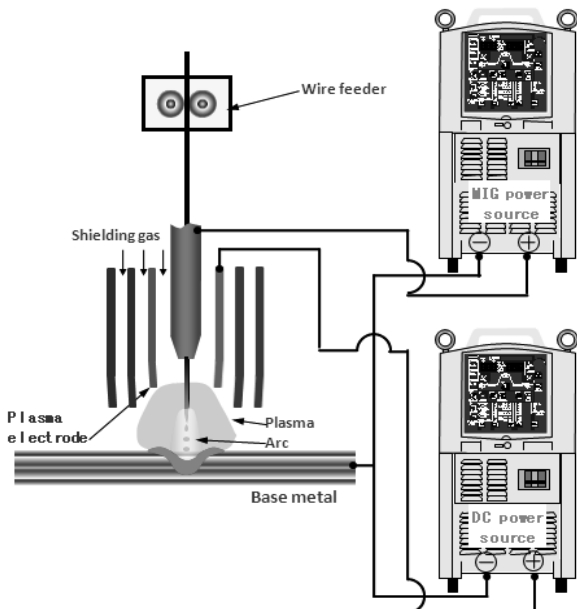


Fig. 1 Schematic illustration of experimental setup for plasma MIG process.

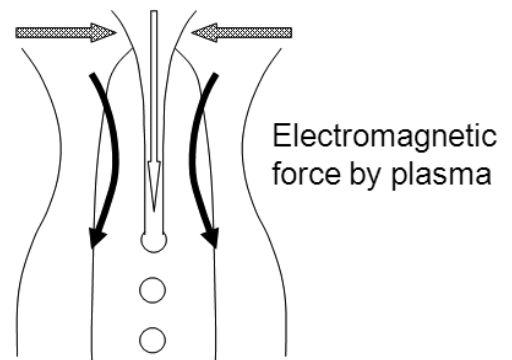
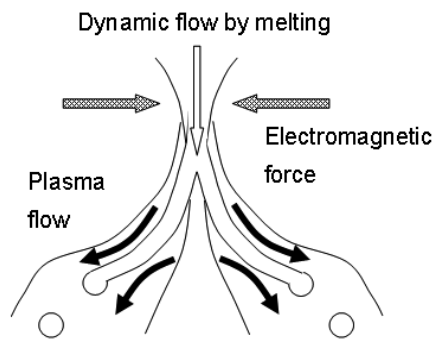


Fig. 3 Schematic illustration of metal transfer in case of plasma MIG process.

[†] Received on 30 September 2010
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Transactions of JWRI is published by Joining and Welding Research Institute, Osaka University, Ibaraki, Osaka 567-0047, Japan

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References

- [1] T. Kozuru et al: Preprints of the national meeting of J.W.S., 83 (2008) pp.330-331.

Fig. 4 Schematic illustration of metal transfer in case of conventional MIG process.