



CERAMIC BACKINGS FOR WELDING IN INERT GAS

Refractory Materials Division of Institute of Ceramics and Building Materials developed a production technology of ceramic backings for welding stainless and special steels in inert gas. The design enables direct supply of gas to the welded surface.

The use of new generation of backings allowed for:

- reduction in gas consumption;
- reduction of welding time (without the need for unilateral pre-welding);
- obtaining quality welds in high-alloy steels welding (austenitic, austenitic-ferritic, stainless steel)
- obtaining clean, shiny, level, unoxidized root of the weld

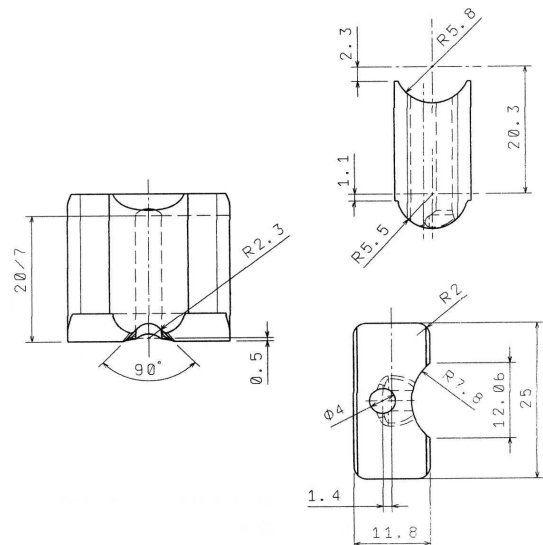
Two basic versions of the backings were developed, enabling welding of both: flat and arc-shaped surfaces (i.e. large diameter pipes, tanks).

Product's characteristics are presented in Table 1.

Table 1.

PROPERTIES*		VALUE
Coefficient of thermal conductivity [W/mK]	at 25°C	2,80
	at 1250°C	1,47
Bulk density, min. [g/cm ³]		2,56
* Given properties do not constitute acceptance conditions		

Figure 1. – Ceramic backings for welding in inert gas protection (for arc-shaped and flat surfaces).



Developed backings were tested in number of companies with positive results. Quality of welds was tested at the Institute of Welding in Gliwice. Metallographic tests have shown proper joint creation results – in accordance with B quality level of PN-EN ISO 5817.

Technological tests carried out in the selected plants gave the following results:

- ceramic backings can be used to weld stainless, duplex and heat-resistant steels up to the thickness of 5 mm
- dimensions of ceramics backings should be adjusted individually for specific applications (flat or arc-shaped surfaces)

In order to obtain clean, metallic, shiny surface of the root of the weld, following recommendations for high-alloy and special steels welding, should be taken into account:

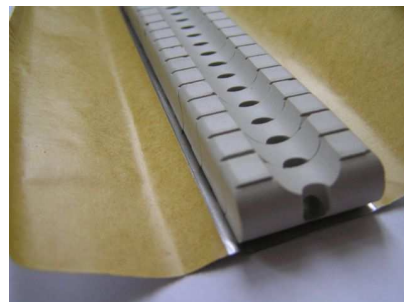
- welding current – 40 - 180 A
- argon flow – 5 – 13 l/min
- wire thickness – 1 -2,5 mm

These conditions vary for different types and sizes of elements and the welding method (TIG, MIG, MAG), and therefore should be applied individually for certain types of steels, shape of the elements and used equipment.

Backings are delivered in 600 mm segments on adhesive tape.



GW/W20



GW/W7

Backings for inert gas welding were awarded with medals:

- Gold – the 59th Exhibition of Innovation, Research and New Technologies "Brussels Innova 2010",
- Gold – the 5th International Warsaw Invention Show IWIS 2011,
- Silver – the XIV Moscow International Salon of Inventions and Innovation Technologies "Archimedes 2011",
- Bronze – the 9th International Exhibition on Research, Innovation and Invention "Pro Invent 2011" in Cluj-Napoca.



If you are interested in our product or have any questions, please contact us:

Marketing Dept.
Tel.: (+ 48 32) 270 19 77; Fax: (+48 32) 270 19 60
e-mail: marketing_gliwice@icimb.pl