



# Ceramic Backing

Reduce costs using one-sided welding

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PRODUCT RANGE 2021

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# One-sided but smart!

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Ceramic backing for single-sided welding is opening up ever more applications. Something which began in the shipbuilding industry is now also becoming increasingly important for pressure vessel, tank, bridge and plant construction. The advantages of this process have been recognised in many welding companies. But what exactly are the special advantages of one-sided welding using ceramics?



# Ceramic Backing

## HIGHER DEPOSITION RATE THROUGH HIGHER WELDING CURRENTS

The backing allows higher welding currents to be used in the root layer. With the MAG process, for example, this means spatter-free welding when spray arc welding and the possibility of working with larger electrode diameters with MMA welding.

## SIMPLER SEAM PREPARATION

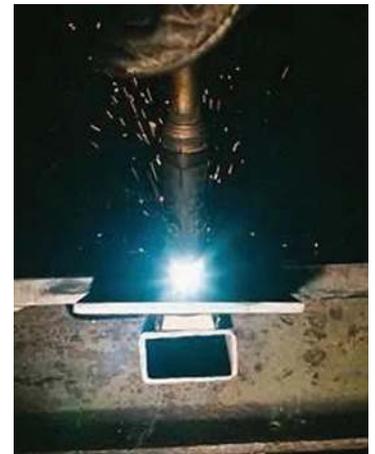
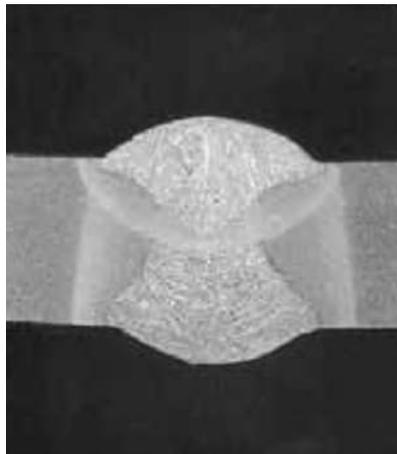
The backing allows higher welding currents to be used in the root layer. With the MAG process, for example, this means wide recesses in the ceramics allow adaptation to varying gap dimensions. Root gap widths of up to 10mm can be accomplished with some types of ceramics. This reduces the time required for aligning the metal plates.

## NO NEED TO GRIND THE ROOT LAYER

Welding on ceramic backing creates a very good root quality, so that in contrast to the conventional method, the root remains part of the seam with a capping layer and the joint does not have to be ground out. Further advantages are reduced welding consumables consumption and reduced welding time.

## RELIABLE PENETRATION AND HIGH OPTICAL SEAM QUALITY

Higher welding currents in the root layer result in deep penetration with a significantly reduced risk of defects. The good root formation functions as a capping layer. After removing the backing, a glossy underside of the seam can be seen with a notch-free transition into the base material.



**Highly productive:**

*2 layer weld with metal cored wire  
OK Backing Concave 13  
I-joint; wall thickness 8 mm*

# Ceramic Backing

## ECONOMIC VIABILITY

The combined effect of the mentioned process advantages contribute to reducing welding costs. The savings potential lies particularly in the reduction of unproductive processes such as grinding and straightening. Ceramic backing therefore enables a significant increase in the duty cycle for manual and MAG welding. In contrast, the material costs for the ceramics are comparatively modest. ESAB has a wide range of ceramic backing for almost every conceivable application. Whether for a K, X, V or HV seam, whether a circumferential seam, flat butt joint or T-joint, ESAB offers the most suitable ceramic.

## CROSS-SECTION MODELS

The product range includes flat ceramics with semicircular and trapezoidal recesses as well as cylindrical types of various diameters.

## FLAT CERAMICS

Flat ceramics are offered in different designs. They are to be distinguished according to the type of recess for receiving the weld metal and any quantities of slag. Semicircular concave recesses are suitable for the use of welding consumables that do not have any or only slight amount of slag, such as solid wire electrodes and basic flux-cored wires. Flat ceramics with trapezoidal shaped recesses should be used in combination with more slag-bearing welding consumables such as rutile flux cored wire electrodes.

## CYLINDRICAL CERAMICS

Cylindrical ceramics are particularly suitable for DV and DHV seams on butt joints and T-joints. The ceramic diameter is selected according to the size of the root gap to be bridged and the opening angle of the seam.



*Cylindrical ceramic OK Backing  
Pipe 12 in use in bridge  
construction. Process: MAG*

## Fastening Options

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### FASTENING OPTIONS

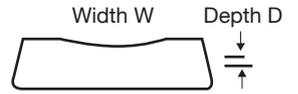
Self-adhesive aluminium foil has established its position for fastening ceramic backing. The corresponding types with semi-circular / concave and trapezoidal recesses can be found in the following product overview.



*Fastening the ceramic backing under the sheet metal using self-adhesive aluminium foil.*

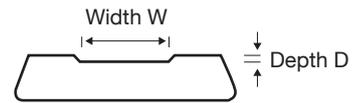
# Product Overview

## CERAMIC BACKING ON SELF-ADHESIVE ALUMINIUM FOIL WITH SEMI CIRCULAR/CONCAVE RECESS



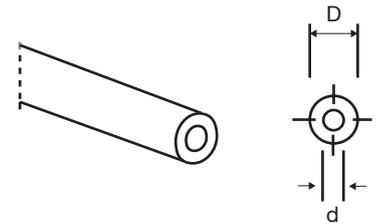
NAME	Ceramic Type	Width W	Depth D	Length	Division
OK Backing Concave 6	Grey	6	1.3	600	20 X 25mm
OK Backing Concave 9	Grey	10	0.9	600	20 X 25mm
OK Backing Concave 13	Grey	13	1.3	600	24 X 25mm
OK Backing Concave 16	Grey	16	1.5	600	24 X 25mm

## CERAMIC BACKING ON SELF-ADHESIVE ALUMINIUM FOIL WITH TRAPEZOIDAL RECESS



NAME	Ceramic Type	Width W	Depth D	Length	Division
OK Backing Rectangular 13	Grey	13	1.3	600	24 X 25mm
OK Backing Rectangular 16	Grey	16	0.9	600	24 X 25mm

## CYLINDRICAL BACKING ON SELF-ADHESIVE ALUMINIUM FOIL



NAME	Ceramic Type	Outer Diameter	Inner Diameter D	Length D	Division
OK Backing Pipe 9	Grey	9	0	600	24 X 25mm
OK Backing Pipe 12	Grey	12	0	600	24 X 25mm

## Concave / Rectangular

### OK BACKING CONCAVE / RECTANGULAR

Weld pool backing on self-adhesive aluminium foil Welded on one side - save costs!

The new ESAB weld pool backing OK Backing Concave / Rectangular are used on butt joints. They can be securely fastened in all welding positions with minimum effort using the self-adhesive aluminium foil. They are suitable for general structural steels, stainless CrNi steels and non-ferrous metals.

#### Reduced welding time

The backing allows higher welding current to be used in the root layer. With the MAG process, for example, this means spatter-free welding when spray arc welding and the possibility of working with larger electrode diameters when MMA welding.

#### Simpler seam preparation

OK Backing Rectangular and Concave allow adaptation to varying root gap sizes.

#### No need to grind out the root layer

In contrast to the conventional method the root remains part of the seam with a capping layer and the joint does not have to be ground out. This reduces the consumption of welding consumables and the welding time.

#### Reliable penetration and seam quality

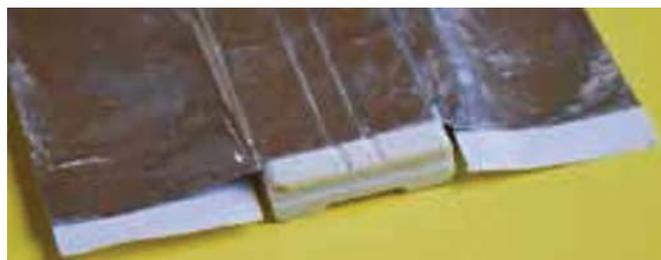
Higher welding currents at the root layer result in deep penetration with a significantly reduced risk of bonding defects. The good root formation functions as a capping layer.

#### Forming effect on underside of seam

The self-adhesive aluminium foil on the weld pool backing has a forming effect on the underside of the seam, which is particularly useful when processing stainless steels. The use of backing gases can often be omitted.

#### For faultless welding results

OK Backing Concave / Rectangular are provided with a centre line on both sides, which greatly simplifies the alignment of the backing material. Even longer seam sections can be completely covered with backing: The backing has a tongue and groove system on the front sides. The protective paper is overlapped on one side of the aluminium adhesive foil to facilitate easy removal. This simplifies handling, especially when working with safety gloves.



*Useful details: Centring aids on both sides and tongue and groove system on the face.*

# Concave / Rectangular

## OK BACKING CONCAVE

The semicircular shaped recess of the backing is particularly suitable for MIG/MAG welding with welding consumables that do not have any or have only a slight amount of slag, such as solid wire, metal cored wire or basic flux-cored wire. The backing is also suitable for circumferential seams with a minimum radius of curvature of 200 mm.

## OK BACKING RECTANGULAR

The trapezoidal shaped recess of the backing is particularly suitable for MMA welding with rod electrodes or MIG/MAG welding with slag-carrying rutile flux-cored wire. The backing is also suitable for circumferential seams with a minimum radius of curvature of 200mm.

### Instructions for use

Welding on ceramic backing requires a certain amount of practice. A trailing torch position and a minimum air gap of 4-5mm must be used as well as careful welding parameter selection. ESAB offers application-related product training in which the customer gains knowledge of the entire potential of welding on backing. Request a quote!

NAME	Item no.	Length	Width	Quantity per box/pallet
OK Backing Concave 6	2124000C06	600 mm (24 X 25 mm)	28 mm	60/3360 pieces
OK Backing Concave 9	2124000C09	600 mm (24 X 25 mm)	25 mm	60/3360 pieces
OK Backing Concave 13	2124000C13	600 mm (24 X 25 mm)	26.5mm	60/3360 pieces
OK Backing Concave 16	2150080600	600 mm (24 X 25 mm)	30mm	60/3360 pieces
OK Backing Rectangular 13	21224000T13	600 mm (24 X 25 mm)	26.5mm	60/3360 pieces
OK Backing Rectangular 16	2150054000	600 mm (24 X 25 mm)	35mm	30/1680 pieces

## OK Backing Pipe

### OK BACKING PIPE

Weld pool backing on self-adhesive aluminium foil Welded on one side - save costs!

The new ESAB weld pool backing OK Backing is used on butt joints with a wall thickness of 10mm or more. They can be securely fastened in all welding positions with minimum effort using the self-adhesive aluminium foil. They are suitable for general structural steels, stainless CrNi steels and non-ferrous metals.

#### Reduced welding time

The backing allows higher welding current to be used in the root layer. With the MAG process, for example, this means spatter-free welding when spray arc welding and the possibility of working with larger electrode diameters when MMA welding.

#### Simpler seam preparation

OK Backing Pipe allow adaptation to varying root gap sizes of 4-8mm.

#### No need to grind out the root layer

In contrast to the conventional method the root remains part of the seam with a capping layer and the joint does not have to be ground out. This reduces the consumption of welding consumables and welding time.

#### Reliable penetration and good visual seam quality

Higher welding currents at the root layer result in deep penetration with a significantly reduced risk of bonding defects. The good root formation functions as a capping layer.

#### Forming effect on underside of seam

The self-adhesive aluminium foil on the weld pool backing has a forming effect on the underside of the seam, which is particularly useful when processing stainless steels. The use of backing gases can often be omitted.



# OK Backing Pipe

## OK BACKING PIPE

The protective paper of the backing is overlapped on one side of the aluminium adhesive foil to facilitate easy removal. This simplifies handling, especially when working with safety gloves.

### Instructions for use

The weld pool backings are suitable for MMA and MIG processes (solid wire and flux-cored wire). Welding on ceramic backing requires a certain amount of practice. A trailing torch position and a minimum root gap of 4-5mm must be used as well as careful welding parameter selection. ESAB offers application related product training in which the customer gains knowledge of the entire potential of welding on backing. Request an offer!

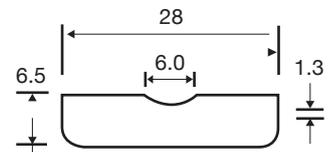
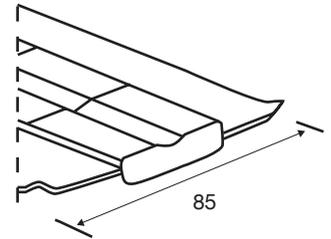


NAME	Item no.	Length	Ø mm	Quantity per box/pallet
OK Backing Pipe 9	2124000P09	600 mm (24 X 25 mm)	9	140/7840 pieces
OK Backing Pipe 12	2124000P12	600 mm (24 X 25 mm)	12	100/5600 pieces

# Product Details

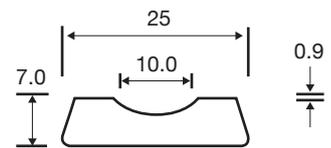
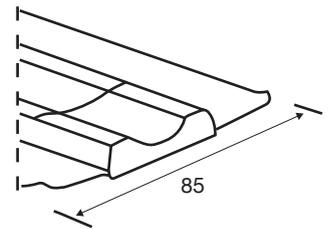
## OK BACKING CONCAVE 6

Type	Ceramic on self-adhesive aluminium strip
Part no.	2124000C06
Length	600 mm (division: 24 X 25 mm)
Fastening	On self-adhesive aluminium strip
Colour	Grey
Application	Straight and curved butt joints min. radius of curvature: 200 mm
Packaging	Quantity per box: 60 pieces Quantity per pallet: 3360 pieces Weight per box: 12.5 kg



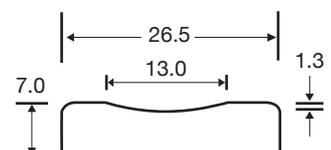
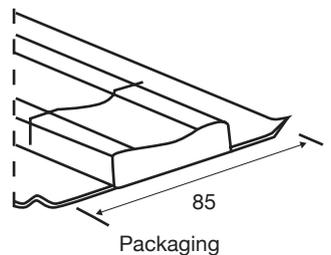
## OK BACKING CONCAVE 9

Type	Ceramic on self-adhesive aluminium strip
Part no.	2124000C09
Length	600 mm (division: 20 x 25 mm)
Fastening	On self-adhesive aluminium strip
Colour	Grey
Application	Straight and curved butt joints
Packaging	Quantity per box: 60 pieces Quantity per pallet: 3360 pieces Weight per box: 13 kg



## OK BACKING CONCAVE 13

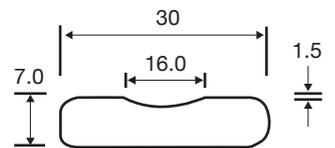
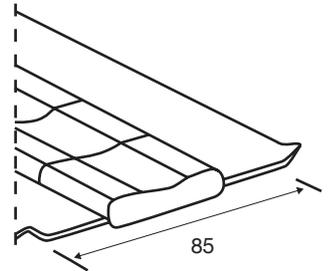
Type	Ceramic on self-adhesive aluminium strip
Part no.	2124000C13
Length	600 mm (division: 24 X 25 mm)
Fastening	On self-adhesive aluminium strip
Colour	Grey
Application	Straight and curved butt joints min. radius of curvature: 200 mm
Packaging	Quantity per box: 60 pieces Quantity per pallet: 3360 pieces Weight per box: 14 kg



# Product Details

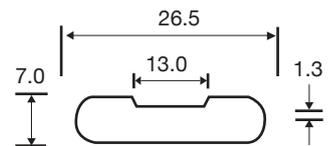
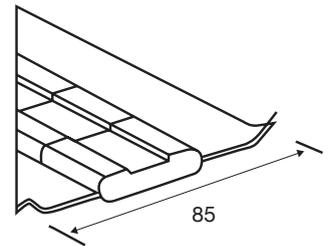
## OK BACKING CONCAVE 16

Type	Ceramic on self-adhesive aluminium strip
Part no.	2150080600
Length	600 mm (division: 24 X 25 mm)
Fastening	On self-adhesive aluminium strip
Colour	Grey
Application	Straight and curved butt joints min. radius of curvature: 200 mm
Packaging	Quantity per box: 60 pieces Quantity per pallet: 3360 pieces Weight per box: 15 kg



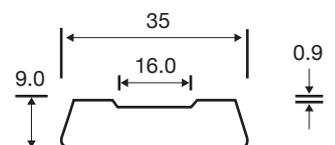
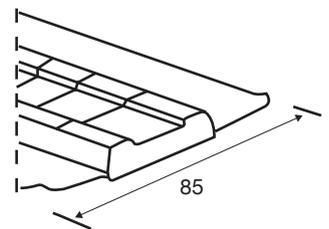
## OK BACKING RECTANGULAR 13

Type	Ceramic on self-adhesive aluminium strip
Part no.	2124000T13
Length	600 mm (division 24 X 25 mm)
Fastening	On self-adhesive aluminium strip
Colour	Grey
Application	Straight and curved butt joints min. radius of curvature: 200 mm
Packaging	Quantity per box: 60 pieces Quantity per pallet: 3360 pieces Weight per box: 14 kg



## OK BACKING RECTANGULAR 16

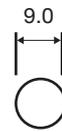
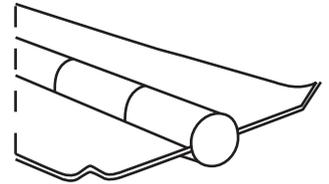
Type	Ceramic on self-adhesive aluminium strip
Part no.	2150054000
Length	600 mm (division: 24 X 25 mm)
Fastening	On self-adhesive aluminium strip
Colour	Grey
Application	Straight butt joint
Packaging	Quantity per box: 30 pieces Quantity per pallet: 1680 pieces Weight per box: 13.5 kg



# Product Details

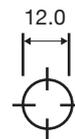
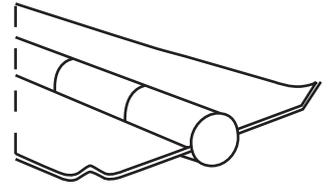
## OK BACKING PIPE 9

Type	Ceramic on self-adhesive aluminium strip
Part no.	2124000P09
Length	600 mm (division: 24 X 25 mm)
Fastening	On self-adhesive aluminium strip
Colour	Grey
Application	Straight and curved butt and T-joints min. radius of curvature: 250 mm
Packaging	Quantity per box: 140 pieces Quantity per pallet: 7840pieces Weight per box: 12 kg



## OK BACKING PIPE 12

Type	Ceramic on self-adhesive aluminium strip
Part no.	2124000P12
Length	600 mm (division: 24 X 25 mm)
Fastening	On self-adhesive aluminium strip
Colour	Grey
Application	Straight and curved butt and T-joints min. radius of curvature: 250 mm
Packaging	Quantity per box: 100 pieces Quantity per pallet: 5600 pieces Weight per box: 13 kg



# Storage and processing

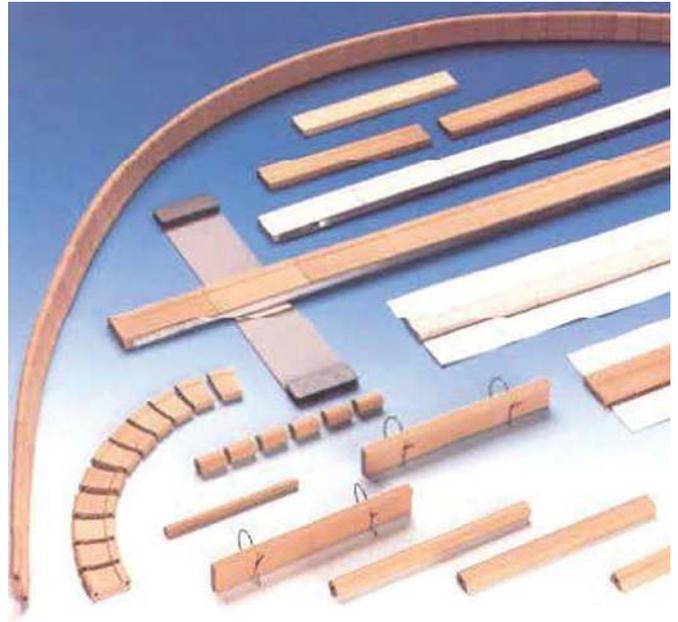
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## Grey Ceramic

Grey ceramic is not hygroscopic. Even in direct contact with water, it does not absorb any significant moisture (beading effect). It does not require any drying and is therefore also suitable for use on construction sites. Grey ceramic can be stored under conditions similar to solid wire electrodes.

## Tested Quality

ESAB's ceramic backings have been tested for their chemical neutrality with respect to the weld metal. Ether-free water-based adhesives are used for the ceramics on self-adhesive aluminium foil, which are not a danger to health. Any odour formation during welding on ESAB adhesive ceramics by the evaporating adhesive is harmless and not a danger to health (investigation by the Dutch TNO Institute). On request we would be happy to send you safety data sheets for the ceramic backing.



The ESAB logo is located in the top right corner, featuring the word "ESAB" in a bold, black, sans-serif font inside a yellow parallelogram shape.

Tel: 1300 654 674  
Email: [enquiries@cigweld.com.au](mailto:enquiries@cigweld.com.au)  
[CIGWELD.COM.AU](http://CIGWELD.COM.AU) | [ESAB.COM](http://ESAB.COM)

**CIGWELD** **ARCAIR** **STOODY** **TWECO** **THERMAL DYNAMICS**

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