

# Ceramic backings and their applications





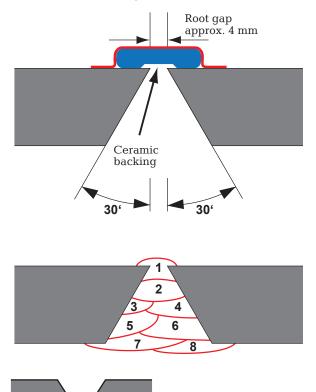
voestalpine Böhler Welding www.voestalpine.com/welding

#### Ceramic backings and their applications

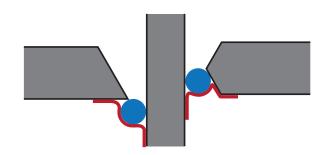
Ceramic backings are made of sealed, high temperature resistant ceramic, from different mineral mixes (e.g. Al2O3, SiO2, Fe2O3, TiO2). When they melt, they produce a glassy slag that forms the underside of the weld seam and seals it against air entering. They are chemically neutral in the weld pool. Ceramic backings are available as ceramic blocks (~2 cm long) on a flexible aluminum foil with an adhesive edge, that can be stuck to the underside of the weld seam. They are also available as single ceramic segments (~10 to 15 cm long) for placement in metallic rails that are then attached to the work piece with magnets or other fixtures.

The ceramic backings offer special economic advantages for submerged arc welding and MAG welding with solid wires or metal- cored wires in the downhand position as well for positional MAG welding using rutile cored wires with fast freezing slag.

#### Examples of ceramic backing applications







Ceramic backings are traditionally used in industry segments that are under pressure to keep costs low, such as shipbuilding. However, today they are increasingly used in pressure vessel fabrication, machine construction, general steel construction, tanks, bridges and plant engineering.

#### Application tips:

- Ideal for mechanized, one-sided welding with high currents and for manual welding of root runs with increased welding parameters (MAG solid wire and MAG cored wire).
- <sup>a</sup> Root runs can be produced in thicknesses that make it possible to weld filler layers (as from the second layer) with very high currents and deposition rate, without the risk of burn-through.
- Suitable for compensating deviations in fit-up, without the need to significantly adjust the welding parameters, thereby ensuring a high quality root. Irregular root gaps can be welded without time-consuming adjustments.
- In two-sided welding, expensive back grinding can usually be completely eliminated.
- Root runs welded with ceramic backing normally have a lower incidence of insufficient penetration, undercut, pores, slag inclusions and restart errors.
- <sup>er</sup> One-sided welding with ceramic backing increases process reliability when root runs have to be notch-free, e.g. in the case of dynamic loading or stress corrosion.
- <sup>a</sup> Due to their moisture resistance, ceramic backings are also suitable for outdoor welding. One-sided welding at the construction site can often be carried out on the inside of the component so that weather conditions do not play a role
- <sup>a</sup> Dense ceramics with low moisture content are ideal for welding high-strength, fine-grained steels that require weld metals with very low hydrogen content.

10.04 Ceramic backings

#### The most commonly used ceramic backings; other types on request

Туре	Dimensions	Description	Length	Part- No.	Packaging Unit
AG 600/5 R		Ceramic with trapezoidal groove for butt welds and V-welds; attached with self-adhesive aluminum strip	600 mm	71325	42 Stck / Box 25,2 m / Box
BG 600/1 R		Ceramic with round groove for butt welds and V-welds; attached with self-adhesive aluminum strip	600 mm	71111	42 Stck / Box 25,2 m / Box
BG 600/2 R		Ceramic with round groove for butt welds and V-welds; attached with self-adhesive aluminum strip	600 mm	70893 on request	42 Stck / Box 25,2 m / Box
BG 600/4 R		Ceramic with round groove for butt welds and V-welds; attached with self-adhesive aluminum strip	600 mm	70149 on request	42 Stck / Box 25,2 m / Box
BG 600/8 R		Ceramic with round groove for butt welds and V-welds; attached with self-adhesive aluminum strip	600 mm	71110 on request	42 Stck / Box 25,2 m / Box
DG 600/1 R DG 600/2 R	<u>وار</u>	Ceramic with cylindrical shape for X-welds and fillet welds; attached with self-adhesive aluminum strip	200	<b>DG</b> 600/1 R 70220	100 Stck / Box 60 m / Box
	25	DG 600/1 R = 20mm/6mm DG 600/2 R = 25mm/10mm	600 mm	<b>DG</b> 600/2 R 70221	72 Stck / Box 43.2 m / Box
DG 600/3 R DG 600/4 R	25 gg	Ceramic with cylindrical shape for X-welds and fillet welds; attached with self-adhesive aluminum strip	600 mm	<b>DG</b> 600/3 R 70222	60 Stck / Box 36 m / Box
507		DG 600/3 R = 25mm/12mm DG 600/4 R = 25mm/15mm	000 11111	DG 600/4 R 70223 on request	36 Stck / Box 21.6 m / Box
DG 600/5 R		Ceramic with cylindrical shape for X-welds and fillet welds; attached with self-adhesive aluminum strip	600 mm	71109 on request	27 Stck / Box 16.2 m / Box

 10.04 Ceramic backings
 Date: 2014-06-30

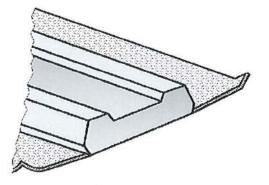
 This information is an aid for practitioners. It provides a simplified version of fundamental technical facts and does not claim to be complete. A guarantee of the suitability for a specific application requires an express written agreement in each case

# böhler welding

### Typ AG 600/5 R

Keramische Schweißbadsicherung / Ceramic Weld Backings

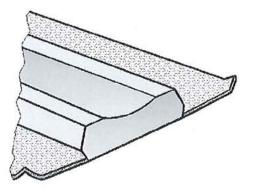
#### Art / Product Keramik auf selbstklebenden Aluminiumband mit trapezförmiger Nut. Farbgebung: grau Ceramic on self-adhesive aluminium tape with trapezial form groove. Coloration: grey Abmessung / Dimension Teilung / Nuttiefe / Nutbreite / Länge / Segment size Groove width Groove depth Length 30 x 25 mm 1,5 mm 600 mm 13 mm Artikelnummer / Article No. 71325 Verpackungseinheiten / Packing Palette / Pallet Karton / Carton Stück / Piece Karton / Carton Stück / Piece Meter / Meter 1890 45 25,2 42 Abmessung / Dimension ,5 30 25





### Typ BG 600/1 R

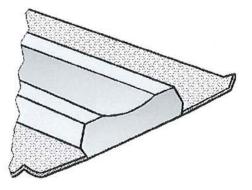
Art / Product			
Keramik auf selbstkle Farbgebung: grau	ebenden Aluminiumbanc	I mit halbrunder Nut.	
Ceramic on self-adhe Coloration: grey	esive aluminium tape wit	h half-circle groove.	
Abmessung / Dime	nsion		
Länge / <i>Length</i>	Nutbreite / Groove width	Nuttiefe / Groove depth	Teilung / Segment size
600 mm	10 mm	1,5 mm	25 x 25 mm
Artikelnummer / Art	ticle No.		
71111		and the second second	
Verpackungseinhei	ten / Packing		
Kart	on / Carton	Pal	ette / Pallet
Stück / Piece	Meter / Meter	Karton / Carton	Stück / Piece
42	25,2	45	1890
Abmessung / Dime	nsion		
25	25		$ \begin{array}{c} \rightarrow   ^{1,5} \\ \uparrow \\ \uparrow \\ \hline \\ \hline$





## Typ BG 600/2 R

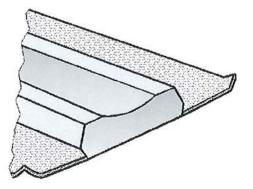
Art / Product			and the second second		
Keramik auf selbstkle Farbgebung: grau	benden Aluminiumband	l mit halbrunder Nut.			
Ceramic on self-adhe Coloration: grey	sive aluminium tape wit	h half-circle groove.			
Abmessung / Dimen	sion				
Länge / <i>Length</i>	Nutbreite / Groove width	Nuttiefe / Groove depth	Teilung / Segment size		
600 mm	12,5 mm	1,5 mm	25 x 25 mm		
Artikelnummer / Arti	cle No.	A STATE AND			
70893					
Verpackungseinheit	en / Packing				
Karto	on / Carton	Pal	Palette / Pallet		
Stück / Piece	Meter / Meter	Karton / Carton	Stück / Piece		
42	25,2	45	1890		
Abmessung / Dimen	sion				
25 1	25	L			





### Typ BG 600/4 R

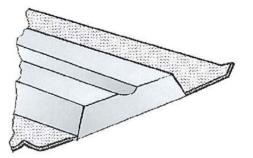
Art / Product			
Keramik auf selbstklebe Farbgebung: grau	nden Aluminiumband mit	halbrunder Nut.	
Ceramic on self-adhesiv Coloration: grey	e aluminium tape with ha	lf-circle groove.	
Abmessung / Dimensio	on		
Länge / Length	Nutbreite / Groove width	Nuttiefe / Groove depth	Teilung / Segment size
600 mm	16 mm	1,5 mm	30 x 25 mm
Artikelnummer / Article	e No.		
70149			
Verpackungseinheiten	l Packing		
Karton	l Carton	Palette	l Pallet
Stück / Piece	Meter / Meter	Karton / Carton	Stück / Piece
42	25,2	45	1890
Abmessung / Dimensi	on	Carles of a line	
30	25	6 	$\frac{  ^{1,5}}{7}$





### Typ BG 600/8 R

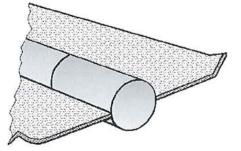
Art / Product	and the second second		
Keramik auf selbstklebe Farbgebung: grau	nden Aluminiumband mit	halbrunder Nut.	
Ceramic on self-adhesiv Coloration: grey	re aluminium tape with ha	alf-circle groove.	
Abmessung / Dimensi	on		Stand Street Street Street
Länge / <i>Length</i>	Nutbreite / Groove width	Nuttiefe / Groove depth	Teilung / Segment size
600 mm	6 mm	1,0 mm	25 x 20 mm
Artikelnummer / Article	e No.		
71110			Constant States
Verpackungseinheiten	/ Packing		
Karton	l Carton	Palette	l Pallet
Stück / Piece	Meter / Meter	Karton / Carton	Stück / Piece
42	25,2	45	1890
Abmessung / Dimensi	on		
30	25		+ <del>7</del>





### Typ DG 600/1 R

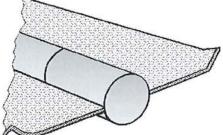
Farbgebung: grau	haaiyo olumin	ium tana avlindri	ical shana		
Ceramic on self-adi Coloration: grey	nesive alumin	ium tape cymun	cai snape.		
Abmessung / Dim	ension				
Länge / <i>Length</i>		Durchmesser / Diameter		Teilung Segme	
600 mm		6,0 mm		20 mm	
Artikelnummer / A	rticle No.				
70220				2013	
Verpackungseinhe	eiten / <i>Packii</i>	ng		Ser Ch	
Ka	rton / Carton			Palette	l Pallet
Stück / Piece	Meter /	Meter	Karton / Carton		Stück / Piece
100	60		45	1.1.1.1	4500
Abmessung / Dim	ension	All and the second		1982	
ωŢC	20				





### Typ DG 600/2 R

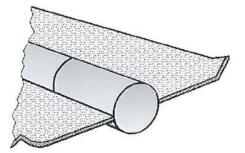
Art / Product Keramik auf selbstk Farbgebung: grau	klebenden Alu	ıminiumband zy	lindrische Form.		
Ceramic on self-ad Coloration: grey	hesive alumir	nium tape cylind	rical shape.		
Abmessung / Dim	ension				
Länge / <i>Length</i>		Durchmesser Diameter	1	Teilung Segme	g / ent size
600 mm		10,0 mm		25 mm	
Artikelnummer / A	Article No.				
70221					
Verpackungseinh	eiten / Packii	ng			
Ka	rton / Carton				l Pallet
Stück / Piece	Meter /	Meter	Karton / Carton		Stück / Piece
72	43,2		45		3240
Abmessung / Dim	ension		State States		
₽ŢĊ	)				
6					



#### böhlerwelding by voestalpine Keramische Schweißba

#### Typ DG 600/3 R

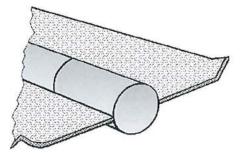
Art / Product					
Keramik auf selbstk Farbgebung: grau	lebenden Alu	ıminiumband zyli	ndrische Form.		
Ceramic on self-adl Coloration: grey	hesive alumin	ium tape cylindri	cal shape.		
Abmessung / Dime	ension				
Länge / <i>Length</i>		Durchmesser / Diameter		Teilung Segme	
600 mm		12,0 mm		25 mm	
Artikelnummer / A	rticle No.				
70222	i kaje				and the second
Verpackungseinhe	eiten / Packii	ng	and the second second		
Ka	rton / Carton		Palette / Pallet		
Stück / Piece	Meter /	Meter	Karton / Carton	1	Stück / Piece
60	36		45		2700
Abmessung / Dim	ension				
5 2					





### Typ DG 600/4 R

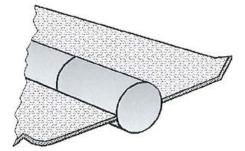
Art / Product	200172			S. Call	
Keramik auf selbstk Farbgebung: grau	lebenden Alu	miniumband zyli	indrische Form.		
Ceramic on self-adl Coloration: grey	hesive alumin	ium tape cylindri	ical shape.		
Abmessung / Dim	ension				a had a second
Länge / <i>Length</i>		Durchmesser / Diameter		Teilung Segme	g / ent size
600 mm		15,0 mm		25 mm	
Artikelnummer / A	rticle No.	and the second	and the state of the state		
70223					
Verpackungseinhe	eiten / Packii	ng			
Ka	rton / Carton		Palette / Pallet		
Stück / Piece	Meter /	Meter	Karton / Carton	1	Stück / Piece
36	21,6		45		1620
Abmessung / Dim	ension				
ŭ					



# böhlerwelding

# Typ DG 600/5 R

Art / Product					
Keramik auf selbstk Farbgebung: grau	lebenden Alu	ıminiumband zyli	ndrische Form.		
Ceramic on self-adı Coloration: grey	hesive alumin	ium tape cylindri	ical shape.		
Abmessung / Dim	ension				
Länge / <i>Length</i>		Durchmesser / Diameter		Teilung Segme	
600 mm		20 mm		25 mm	
Artikelnummer / A	rticle No.			123-2	
71109					
Verpackungseinhe	eiten / Packir	ng			
Ka	rton / Carton		Palette / Pallet		
Stück / Piece	Meter /	Meter	Karton / Carton	Karton / Carton Stü	
27	16,2		45		1215
Abmessung / Dime	ension				
50		5			



#### voestalpine Böhler Welding

#### Welding know-how joins steel

Customers in over 120 countries join the expertise of voestalpine Böhler Welding. Focused on filler metals, voestalpine Böhler Welding offers extensive technical consultation and individual solutions for industrial welding and soldering applications. Customer proximity is guaranteed by 40 subsidiaries in 28 countries, with the support of 2,200 employees, and through more than 1,000 distribution partners worldwide. voestalpine Böhler Welding offers three specialized and dedicated brands to cater our customers' and partners' requirements.

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