

Lasting Connections

QUALIFICATION OF WELDING PROCEDURES FOR STEEL CONSTRUCTIONS ACCORDING TO EN 1090-2





LASTING CONNECTIONS

As a pioneer in innovative welding consumables, Böhler Welding offers a unique product portfolio for joint welding worldwide. More than 2000 products are adapted continuously to the current industry specifications and customer requirements, certified by well-respected institutes and thus approved for the most demanding welding applications.

Böhler Welding shares its experience and knowledge and co-operates closely with industrial customers and distributors. In doing so, Böhler Welding offers joining solutions that have been developed together with customers and partners and successfully proven in practice.

Böhler Welding has made excellent consulting and support its standard. Employees with high expertise in joint welding provide customers with professional support.

Our clients benefit from a partner with

- » the highest expertise in joining, rendering the best application support globally available
- » specialized and best in class product solutions for their local and global challenges
- » an absolute focus on customer needs and their success
- » a worldwide presence through factories, offices and distributors

The challenge of always offering technically and commercially optimum solutions to our customers has been reflected in the recently expanded range of services offered by Böhler Welding within the context of the EN 1090 standard.

APPROVED SOLUTIONS FOR YOUR EN 1090 CERTIFICATION

We now offer you the opportunity of qualifying, with our assistance, the welding processes undertaken at your company. With this in mind and under the supervision of the testing and certification institute TÜV SÜD SZA Österreich, Technische Prüf-GmbH, we have performed independent welding trials in our welding laboratory using a total of 53 different configurations (see tables), and tested these samples in accordance with EN ISO 15614-1. Steel construction – EN 1090

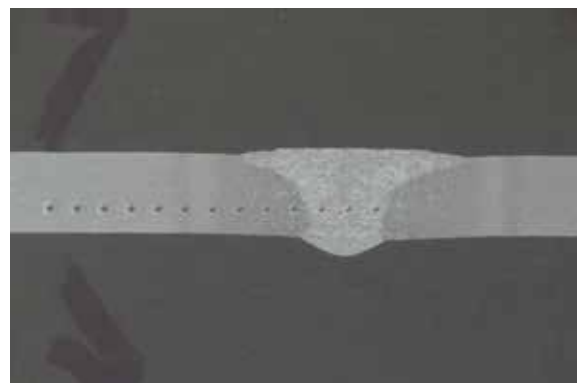
The welding parameters were examined and found to conform to the accredited testing, inspection and certification institute TÜV SÜD SZA Österreich, Technische Prüf-GmbH. The welding instructions (WPS - Welding Procedure Specification) prepared by voestalpine Böhler Welding Austria GmbH to this conformity have also been examined and confirmed by TÜV SÜD SZA Österreich.

These welding procedures are therefore in agreement with EN 1090-2, clause 7.4.1.2, Qualification of the Welding Procedure Specification, Table 12, as welding procedures in accordance with EN ISO 15610. This means we can offer your company the opportunity to purchase these welding instructions (WPS - Welding Procedure Specification) and implementing them in your company certification process according to EN 1090. Contact us today to take advantage of these proven solutions thus streamlining your business and working smarter.

For further questions please contact:
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Fillet weld and V-weld test pieces



Close-up of a V-weld (3 mm) with hardness profile

MANUAL FILLET AND BUTT WELDS FOR EN 1090

Welding consumables	Ø [mm]	Position	Type of weld	Wall thickness [mm]	SINGLE-LAYER	MULTI-LAYER	Applicable range [mm]	Shielding gases acc. to EN ISO 14175	Torch angle	Arc mode	(p)WPS number
BÖHLER FOX EV 50	2.5	PB	FW	3	Yes		1.5-6				BSGA/FW/100
BÖHLER FOX EV 50	3.2	PB	FW	3	Yes		1.5-6				BSGA/FW/101
BÖHLER FOX EV 50	2.5	PF	FW	3	Yes		1.5-6				BSGA/FW/102
BÖHLER FOX EV 50	3.2	PF	FW	12	Yes		6-24				BSGA/FW/103
BÖHLER FOX EV 50	3.2-5	PB	FW	12		Yes	6-24				BSGA/FW/110
BÖHLER FOX EV 50	3.2-4	PF	FW	12		Yes	6-24				BSGA/FW/111
BÖHLER FOX EV 50	2.5	PA	BW	3	Yes		1.5-3.9				BSGA/BW/200
BÖHLER FOX EV 50	2.0	PA	BW	3	Yes		1.5-3.9				BSGA/BW/201
BÖHLER FOX EV 50	3.2-5	PA	BW	12		Yes	3-24				BSGA/BW/210
BÖHLER FOX EV 50	2.5-4	PF	BW	12		Yes	3-24				BSGA/BW/211
BÖHLER Ti 52-FD	1.2	PB	FW	3	Yes		1.5-6	M 21	backhand		BSGA/FW/300
BÖHLER Ti 52-FD	1.2	PF	FW	12	Yes		6-24	M 21	~ neutral 90°		BSGA/FW/310
BÖHLER Ti 52-FD	1.2	PB	FW	12		Yes	6-24	M 21	backhand		BSGA/FW/311
BÖHLER Ti 52-FD	1.2	PF	FW	12		Yes	6-24	M 21	~ neutral 90°		BSGA/FW/312
BÖHLER Ti 52-FD	1.2	PA	BW	3	Yes		1.5-3.9	M 21	backhand		BSGA/BW/400
BÖHLER Ti 52-FD	1.2	PA	BW	12		Yes	3-24	M 21	backhand		BSGA/BW/410
BÖHLER Ti 52-FD	1.2	PF	BW	12		Yes	3-24	M 21	~ neutral 90°		BSGA/BW/411
BÖHLER EMK 6	1.0	PB	FW	3	Yes		1.5-6	M 21	backhand		BSGA/FW/500
BÖHLER EMK 6	1.0	PB	FW	3	Yes		1.5-6	M 21	forehand		BSGA/FW/501
BÖHLER EMK 6	1.0	PB	FW	3	Yes		1.5-6	M 21		Pulsed	BSGA/FW/502
BÖHLER EMK 6	1.2	PB	FW	12		Yes	6-24	M 21	backhand		BSGA/FW/510
BÖHLER EMK 6	1.2	PB	FW	12		Yes	6-24	M 21	forehand		BSGA/FW/511
BÖHLER EMK 6	1.2	PB	FW	12		Yes	6-24	M 21		Pulsed	BSGA/FW/512
BÖHLER EMK 6	1.2	PF	FW	12		Yes	6-24	M 21		Short arc	BSGA/FW/513
BÖHLER EMK 6	1.2	PF	FW	12		Yes	6-24	M 21		Pulsed	BSGA/FW/514
BÖHLER EMK 6	1.2	PF	FW	12	Yes		6-24	M 21		Short arc	BSGA/FW/515
BÖHLER EMK 6	1.2	PF	FW	12	Yes		6-24	M 21		Pulsed	BSGA/FW/516
BÖHLER EMK 6	1.0	PB	FW	30		Yes	≥ 5	M 21			BSGA/FW/523
BÖHLER EMK 6	1.2	PA	BW	3	Yes		1.5-3.9	M 21	backhand		BSGA/BW/600

Welding consumables	Ø [mm]	Position	Type of weld	Wall thickness [mm]	SINGLE-LAYER	MULTI-LAYER	Applicable range [mm]	Shielding gases acc. to EN ISO 14175	Torch angle	Arc mode	(p)WPS number
BÖHLER EMK 6	1.2	PA	BW	3	Yes		1.5-3.9	M 21	forehand		BSGA/BW/601
BÖHLER EMK 6	1.2	PA	BW	3	Yes		1.5-3.9	M 21		Pulsed	BSGA/BW/602
BÖHLER EMK 6	1.2	PA	BW	12		Yes	3-24	M 21	backhand		BSGA/BW/610
BÖHLER EMK 6	1.2	PA	BW	12		Yes	3-24	M 21	forehand		BSGA/BW/611
BÖHLER EMK 6	1.2	PA	BW	12		Yes	3-24	M 21		Pulsed	BSGA/BW/612
BÖHLER EMK 6	1.2	PF	BW	12		Yes	3-24	M 21		Pulsed	BSGA/BW/613
BÖHLER EMK 6	1.2	PF	BW	12		Yes	3-24	M 21		Short arc	BSGA/BW/614



PRICE LIST *

Fillet weld (FW):

Single-layer and multi-layer for one position and one procedure	200.- €
Single-layer and multi-layer for two positions (PB and PF) and one procedure	300.- €

Butt weld (BW):

3 mm and 12 mm wall thicknesses, one position and one procedure	350.- €
3 mm and 12 mm wall thicknesses, two positions (PA and PF) and one procedure	500.- €

Fillet weld plus butt weld package:

Per wall thickness, position and one procedure	450.- €
Per wall thickness, two positions (PA/PB and PF) and one procedure	600.- €
3 mm and 12 mm wall thicknesses, two positions (PA/PB and PF) and one procedure	900.- €

Fillet weld plus butt weld package:

3 mm and 12 mm for 2 procedures (111 and 135) and two positions (PA/PB and PF)	1,500.- €
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Fillet weld plus butt weld package (total package):

3 mm and 12 mm, three procedures (111, 135 and 136) and two positions (PA/PB and PF)	2,000.- €
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* All prices are exclusive of VAT. Subject to technical and price changes.
The conditions of sale of voestalpine Böhler Welding Austria GmbH apply.

JOIN! voestalpine Böhler Welding

With over 100 years of experience, voestalpine Böhler Welding is the global top address for the daily challenges in the areas of joint welding, repair, hardfacing and cladding as well as brazing. Customer proximity is guaranteed by more than 40 subsidiaries in 25 countries, with the support of 2,200 employees, and through more than 1,000 distribution partners worldwide. With individual consultation by our application technicians and welding engineers, we make sure that our customers master the most demanding welding challenges. voestalpine Böhler Welding offers three specialized and dedicated brands to cater our customers' and partners' requirements.



Lasting Connections – As a pioneer in innovative welding consumables, Böhler Welding offers a unique product portfolio for joint welding worldwide. More than 2000 products are adapted continuously to the current industry specifications and customer requirements, certified by well-respected institutes and thus approved for the most demanding welding applications. As a reliable partner for customers, “lasting connections” are the brand’s philosophy in terms of both welding and people.



Tailor-Made Protectivity™ – UTP Maintenance ensures an optimum combination of protection and productivity with innovative and tailor-made solutions. Everything revolves around the customer and their individual requirements. That is expressed in the central performance promise: Tailor-Made Protectivity™.



In-Depth Know-How – As a leading brand of soldering and brazing consumables, Fontargen Brazing offers proven solutions based on 50 years of industrial experience, tried and tested processes and methods. This In-Depth Know-How has made Fontargen Brazing an internationally preferred partner for every soldering and brazing task.

The Management System of voestalpine Böhler Welding Group GmbH, Peter-Mueller-Strasse 14-14a, 40469 Duesseldorf, Germany has been approved by Lloyd’s Register Quality Assurance to: ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007, applicable to: Development, Manufacturing and Supply of Welding and Brazing Consumables. More information: www.voestalpine.com/welding



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ONE STEP AHEAD.