



Filler Metals for the Nuclear Industry

voestalpine Böhler Welding
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ONE STEP AHEAD.

Joining 1/4

	Alloy Group	Welding Process	Product Name	Classification AWS/EN		
Unalloyed Steels	C-Mn Rm > 510 Mpa Rp0,2 > 420 Mpa	SMAW	BÖHLER FOX EV 47	AWS A5.1-04 E7016-1H4R EN ISO 2560-A E 38 4 B 42 H5		
			Phoenix 120 K	AWS A5.1-04 E7018-1 EN ISO 2560-A: E 42 5 B 32 H5 RCC-M S2810		
			BÖHLER FOX EV 50 R	AWS A5.1-04 E7018-1 H4R EN ISO 2560-A E 42 5 B 42 H5 RCC-M: S2810		
		SAW Wire	Union S 2 Si / BÖHLER EMS 2	AWS A5.17 EM12K EN 756 S2Si		
		SAW Flux	UV 418 TT / BÖHLER BB 24	- EN ISO 14174 SA FB 1 55 AC H5		
		SAW Wire+Flux	Union S 2 Si + UV 418 TT / BÖHLER EMS 2 + BÖHLER BB 24	AWS A5.17-SFA 5.17 F7A8-EM12K RCC-M: S2860		
		SAW Wire	Union S 3 Si	AWS A5.17 EH12K EN 756 S3Si		
		SAW Flux	UV 418 TT	- EN ISO 14174 SA FB 1 55 AC H5		
		SAW Wire+Flux	Union S 3 Si + UV 418 TT	AWS A5.17-SFA 5.17 F7A8-EH12K		
		GTAW	BÖHLER EMK 6 / Union I 52	AWS A5.18 ER70S-6 EN ISO 636-A W 42 5 W3Si1 RCC-M S 2840		
			BÖHLER EML 5	AWS A5.18 ER70S-3 EN ISO 636-A W 46 5 W2Si RCC-M S2870		
		GMAW	BÖHLER EMK 6	AWS A5.18 ER70S-6 EN ISO 14341-A G3Si1 RCC-M S 2840		
		FCAW	BÖHLER Ti 52-FD	AWS A5.20 E71T-1MJH8 EN ISO 17632-A T 46 4 P M 1 H10		
Low-alloyed Pressure Vessel Steels	C-1/4 Mo Rm > 560 Mpa Rp0,2 > 480 MPa	SMAW	BÖHLER FOX EV 50 Mo R	AWS A5.1-04 E7018-1 EN ISO 2560-A:2010 E 42 5 B 42 H5 RCC-M S2810		
			Phoenix SH Schwarz 3 MK	AWS A5.5-E 7018-G EN ISO 2560-A: E 50 4 Mo B 42		
	C- 1/2 Mo Rm > 550 Mpa Rp0,2 > 470 Mpa	SMAW	SAW Wire	BÖHLER FOX DMO Kb	AWS A5.5 E7018-A1H4R EN ISO 2560-A E Mo B 42 H5	
				SAW Flux	Union S 2 Mo / BÖHLER EMS 2 Mo	AWS A5.23: EA2 EN 756: S2Mo
					UV 420 TTR / BÖHLER BB 24 SC	- EN ISO 14174: SA FB 1 65 AC H5
					Union S 2 Mo + UV 420 TTR BÖHLER EMS 2 Mo + BÖHLER BB 24 SC	AWS A5.17-SFA 5.17: F8A4-EA2-A2 -
		GTAW	Union I MoMn	AWS A5.28: ER90S-D2 EN ISO 636-B: W 4 M31		
			BÖHLER DMO-IG	AWS A5.28: ER70S-A1 (ER80S-G) EN ISO 21952-A: W Mo Si		
	1 ¼ Cr ½ Mo 1 Cr ½ Mo	SMAW	GTAW	Phoenix Chromo 1 / BÖHLER DCMS Kb	AWS A5.5 E8018-B2 EN ISO 3580-A ECrMo1 B 4 2 H5	
				Union ER 80S-B2	AWS A5.28 ER80S-B2	
	2 ¼ Cr 1 Mo	SMAW		Phoenix SH Chromo 2 KS	AWS A5.5 E9015-B3 EN ISO 3580-A ECrMo2 B 4 2 H5 EN ISO 3580-B E 6215-2C1M	
BÖHLER FOX CM 2 Kb				AWS A 5.5 E9018-B3H4R EN 1599 E CrMo2 B 4 2 H5		

Joining 2/4

	Alloy Group	Welding Process	Product Name	Classification AWS/EN
Low-alloyed Pressure Vessel Steels		GTAW	BÖHLER CM 2-IG	AWS A5.28 ER90S-G EN ISO 21952-A W CrMo2Si EN ISO 21952-B W 62 2C1M3
			Union ER 90S-B3	AWS A5.28 ER90S-B3
	0,8 Ni 1/2 Mo Rm > 550 Mpa Rp0,2 > 345 Mpa	SMAW	Phoenix SH Schwarz 3 K Ni 2	AWS A5.5: E9018-G EN ISO 2560-A - E 50 4 1 NiMo B 42 H5
			BÖHLER FOX EV 65 R	AWS A5.5 E8018-G EN ISO 2560-A - E 55 6 1 NiMo B 42 H5 RCC-M S2820B
		SAW Wire	Union S 3 Ni Mo 0,8	AWS A5.23 EG (EF2 Mod) EN 756: S 50 4 FB S3Ni1Mo
		SAW Flux	UV 420 TTR	- EN ISO 14174 SA FB 1 65 DC
		SAW Wire+Flux	Union S 3 Ni Mo 0,8 + UV 420 TTR	- AWS A5.23 F9P4-EG-F2 N
		GTAW	Union I Ni Mo 0,8	AWS A 5.28 ER90S-G EN 12534 W Z
			Phoenix SH Schwarz 3 K Ni	AWS A5.5: E9018-G EN ISO 2560-A E50 4 1 NiMo B 42 H5
	1 Ni 1/2 Mo Rm > 620 Mpa Rp0,2 > 540 Mpa	SMAW	BÖHLER FOX EV 65 R+	AWS A5.5 E9018-G EN 757 E 55 6 1 NiMo B 42 H5 RCC-M S 2820B
			Comet J66 ELH Q5	AWS A5.5: E9018-G EN 757:E 55 2Mn1 NiMo B 12 H5
			Phoenix SH Schwarz 3 K Ni Mn	AWS A5.5: E9018-G
			SAW Wire	Union S 3 NiMo 1 / BÖHLER S 3 NiMo 1-UP
		SAW Flux	UV 420 TTR / BÖHLER BB 24 SC	- EN ISO 14174 SA FB 1 65 DC
		SAW Wire+Flux	Union S 3 NiMo 1 + UV 420 TTR / BÖHLER S 3 NiMo 1-UP + BÖHLER BB 24 SC	AWS A5.23 F9P8-EG-F3 N EN 756: S 50 4 FB S3Ni1Mo RCC-M S 2830A
		GTAW	Union I NiMo 1	AWS A5.28 ER90S-G EN 12534: W Z
	1½ Ni 0,5 Mo Rm > 620 Mpa Rp0,2 > 540 Mpa	SMAW	Phoenix SH Schwarz 3 K Ni M	AWS A5.5: E9018-M EN ISO 2560-A E 50 4 1,5NiMo B 42 H5
		SAW Wire	Union S 3 NiMoCr-M2	AWS A5.23 EM2 EN ISO 26304-A SZ 3Ni2,5CrMo
		SAW Flux	UV 418 TT-M2	- EN ISO 14174 SA FB 1 65 AC H4
		SAW Wire+Flux	Union S 3 NiMoCr-M2 + UV 418 TT-M2	AWS: F9P4 EM2-M2 EN ISO 26304-A S 55 2 FB SZNi2,5CrMo
GTAW		Union I NiMoCr-M2	AWS A 5.28 ER 100 S-1	
Low alloyed Ni Steel	2.5% Ni	SMAW	BÖHLER FOX 2.5 Ni	AWS A5.5 E8018-C1H4R
		Phoenix SH Ni 2 K 70	EN ISO 2560-A E 46 8 2Ni B 42 H5	
	SAW Wire	Union S 2 Ni 2,5	AWS A5.23 ENi2 EN 756 S2Ni2	
	SAW Flux	UV 418 TT	- EN ISO 14174 SA FB 1 55 AC H5	
	SAW Wire+Flux	Union S 2 Ni 2,5 + UV 418 TT	AWS A5.17-SFA 5.17 F8A10-ENi2-Ni2 -	
	GTAW	BÖHLER 2.5 Ni-IG	AWS A5.28 ER80S-Ni2 EN ISO 636-A W2Ni2	
	GMAW	BÖHLER 2.5 Ni-IG	AWS A5.28 ER80S-Ni2 EN ISO 14341-A G2Ni2	

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	Alloy Group	Welding Process	Product Name	Classification AWS/EN					
Low alloyed Ni Steel	3.5% Ni	SMAW	Phoenix SH Ni 2 K 80	AWS A5.5 E7018-C2L EN ISO 2560-A E 46 8 2Ni B 42 H5					
		SAW Wire	Union S 2 Ni 3,5	AWS A5.23 ENi3 EN 756 S2Ni3					
		SAW Flux	UV 418 TT	- EN ISO 14174 SA FB 1 55 AC H5					
		SAW Wire+Flux	Union S 2 Ni 3,5 + UV 418 TT	AWS A5.17-SFA 5.17 F8A15-ENi3-Ni3 -					
		GTAW	Union I 3,5 Ni	AWS A 5.28 ER80S-Ni 3 EN ISO 636-A W2Ni3					
Stainless Steel	Austenitic S.S 309L Weld overlay Buffer Dissimilar	SMAW	BÖHLER FOX CN 24/13 R	AWS A 5.4 E309L-15 EN 1600 E 23 12 B 2 2					
			BÖHLER FOX CN 24/13 AR	AWS A 5.4 E309L-16 EN 1600 E 23 12 L R 3 2					
			Soudocrom L 309 L Q5	AWS A 5.4 E309L-16 EN 1600 E 23 12 L R 1 2 RCC-M S 2930					
			BÖHLER FOX CN 23/12 AR	AWS A 5.4 E309L-17 EN 1600 E 23 12 L R 3 2					
			Thermanit 25/14 EW 309L-17	AWS A 5.4 E309L-17 EN 1600 E 23 12 L R 1 2					
		SAW Wire		Thermanit 25/14 E309L / BÖHLER CN 23/12-UP	AWS A 5.9 ER309L EN 12072 S 23 12 L				
				SAW Flux	Marathon 431 / BÖHLER BB 202	EN 760 SA FB 2 DC -			
				SAW Wire+Flux	Thermanit 25/14 E309L+ Marathon 431 BÖHLER CN 23/12-UP + BÖHLER	RCC-M S 2950 -			
				GTAW	BÖHLER CN 23/12-IG / Thermanit 25/14 E 309L	AWS A 5.9 ER 309L EN 12072 W 23.12 L			
				GMAW	Thermanit 25/14 E309L Si	AWS A 5.9 ER 309L Si EN ISO 14343-A G 23 12 L Si			
		FCAW		BÖHLER CN 23/12-FD	AWS A 5.22: E309LT0-4 EN ISO 17633 A T 23 12 L R M (C) 3				
				S.S. 308 L	SMAW	BÖHLER FOX EAS 2 R / Thermanit JE Spezial	AWS A 5.4 E308L-15 EN 1600 E 19 9 L B 2 2		
						BÖHLER FOX EAS 2-AR / Thermanit JEW 308L-16	AWS A 5.4 E308L-16 EN 1600 E 19 9L R 3 2 RCC-M S 2920		
						BÖHLER FOX EAS 2-A / Thermanit JEW 308L-17	AWS A 5.4 E308L-17 EN 1600 E 19 9 L R 3 2		
					SAW Wire		Thermanit JE 308L / BÖHLER EAS 2-UP	AWS A 5.9 ER308L EN 12072 S 19 9 L	
							SAW Flux	Marathon 431 / BÖHLER BB 202 / BÖHLER BB 203 / RECORD IND 24	- - -
									RECORD IND 27
				SAW Wire+Flux	Thermanit JE 308L + Marathon 431 / BÖHLER EAS 2 -UP + BÖHLER	RCC-M S2940 -			
					GTAW		BÖHLER EAS 2-IG / Thermanit JE 308L	AWS A 5.9 ER308L EN 12072 W 19 9 L RCC-M S2910	
							FCAW	BÖHLER EAS 2-FD	AWS A 5.22: E308LT0-4 EN ISO 17633 A T 19 9 L R M (C) 3
				S.S. 316 L	SMAW	BÖHLER FOX EAS 4 M R / Thermanit GE Spezial	AWS A 5.4 E316L-15 EN 1600 E 19 12 3 L B 2 2		
						BÖHLER FOX EAS 4 M-AR / Thermanit GEW 316L-16	AWS A 5.4 E316L-16 EN 1600 E 19 12 3L R 3 2 RCC-M S 2925		

Joining 4/4

	Alloy Group	Welding Process	Product Name	Classification AWS/EN
Stainless Steel			BÖHLER FOX EAS 4 M-A / Thermanit GEW 316L-17	AWS A 5.4 E316L-17 EN 1600 E 19 12 3 L R 3 2
		SAW Wire	Thermanit GE 316L / BÖHLER EAS 4 M-UP	AWS A 5.9 ER316L EN 12072 S 19 12 3 L
		SAW Flux	Marathon 431 / BÖHLER BB 202 / BÖHLER BB 203 / RECORD IND 24	EN 760 SA FB 2 DC - - -
		SAW Wire+Flux	Thermanit GE 316L + Marathon 431 / BÖHLER EAS 4 M-UP + BÖHLER	RCC-M S 2945 -
		GTAW	BÖHLER EAS 4 M-IG / Thermanit GE 316L	AWS A 5.9 ER316L EN 12072 W 19 12 3 L RCC-M S 2915
		FCAW	BÖHLER EAS 4 M-FD	AWS A 5.22: E316LT0-4 EN ISO 17633 A T 19 12 3 L R M (C) 3
		Austenitic Nb Stabilized S.S 321/347	BÖHLER FOX SAS 2 R	AWS A 5.4 E347-15 EN 1600 E19 9 Nb B 2 2
			BÖHLER FOX SAS 2-A R	AWS A5.4 E347-16 EN 1600 E 19 9 Nb R 3 2
		SAW Wire	Thermanit H-347 / BÖHLER SAS 2-UP R	AWS A 5.9 ER347 EN 12072 S 19 9 Nb
		SAW Flux	Marathon 431 / BÖHLER BB 202 / BÖHLER BB 203 /	EN 760 SA FB 2 DC - -
		GTAW	BÖHLER SAS 2-IG R / Thermanit H-347	AWS A 5.9 ER347 EN 12072 W 19 9 Nb
	Nickel-Base	Alloy 600 UNSN06600	SMAW	UTP 068 HH / BÖHLER FOX NIBAS 70/20 / Thermanit Nicro 82
UTP 7015 / BÖHLER FOX NIBAS 70/15 / Thermanit Nicro 182				AWS 5.11 ENiCrFe-3 EN ISO 14173 ENi6182 -
GTAW			UTP A 068 HH / BÖHLER NIBAS 70/20-IG / Thermanit Nicro 82	AWS A 5.14 ERNiCr-3 EN ISO 148274 S Ni 6082 RCC-M S 2985
		GMAW	UTP A 068 HH / BÖHLER NIBAS 70/20-IG / Thermanit Nicro 82	AWS A 5.14 ERNiCr-3 EN ISO 148274 S Ni 6082 -
Alloy 625 UNSN06625		SMAW	UTP 6222Mo / Thermanit 625	AWS A5.11 ENiCrMo-3 EN ISO 14172 ENi6625
		GTAW	UTP A 6222 Mo / Thermanit 625	AWS A5.14 ERNiCrMo-3 EN ISO 18274 S Ni 6625
		GMAW	UTP A 6222 Mo / Thermanit 625	AWS A5.14 ERNiCrMo-3 EN ISO 18274 S Ni 6625
Alloy 690 UNSN06690		SMAW	UTP 6229Mn / Thermanit 690	AWS A5.11 ENiCrFe-7 EN ISO 14172 ENi6152 RCC-M S 2986
		GTAW	Thermanit 690	AWS A5,14 ERNiCrFe-7 EN ISO 18274 S Ni 6052 RCC-M S 2981
		GMAW	Thermanit 690	AWS A5,14 ERNiCrFe-7 EN ISO 18274 S Ni6052

Strip Cladding

	Deposited Alloy	Welding Process	Layer	Strip	Flux
Stainless Steel	S.S 308L	SAW	1st Layer	SOUDOTAPE 309 L Q5	RECORD INT 101 Q5
			2nd Layer	SOUDOTAPE 308 L Q5	RECORD INT 101 Q5
			3rd Layer	SOUDOTAPE 308 L Q5	RECORD INT 101 Q5
		SAW	1st Layer	SOUDOTAPE 309 L Q5	RECORD 9V308T1 Q5
			2nd Layer	SOUDOTAPE 308 L Q5	RECORD 8B308T2 Q5
			3rd Layer	SOUDOTAPE 308 L Q5	RECORD 8B308T2 Q5
	SAW tensile strength >520 Mpa	1st Layer	SOUDOTAPE 309 L Q5	RECORD INT 101 Q5	
		2nd Layer	SOUDOTAPE 308 L Q5	RECORD INT 120 Q5	
	ESW	1st Layer	SOUDOTAPE 309 L Q5	RECORD EST 122 Q5	
		2nd Layer	SOUDOTAPE 308 L Q5	RECORD EST 122 Q5	
ESW High Speed	1st Layer	SOUDOTAPE 309 L Q5	RECORD EST 136 Q5		
	2nd Layer	SOUDOTAPE 308 L Q5	RECORD EST 136 CR Q5		
S.S 347	SAW	1st Layer	SOUDOTAPE 309 L Q5	RECORD INT 109 Q5	
		2nd Layer	SOUDOTAPE 347 Q5	RECORD INT 109 Q5	
Nickel-Base	Alloy 600	SAW	1st Layer	SOUDOTAPE NiCr3 Q5	RECORD NiCr 3T Q5
			2nd Layer	SOUDOTAPE NiCr3 Q5	RECORD NiCr 3T Q5
			3rd Layer	SOUDOTAPE NiCr3 Q5	RECORD NiCr 3T Q5
		ESW	1st Layer	SOUDOTAPE NiCr3 Q5	RECORD EST 201 Q5
			2nd Layer	SOUDOTAPE NiCr3 Q5	RECORD EST 201 Q5
			3rd Layer	SOUDOTAPE NiCr3 Q5	RECORD EST 201 Q5
	Alloy 690 with strip EQNiCrFe-14	SAW	1st Layer	SOUDOTAPE 690 Q5	RECORD NFT 690 Q5
			2nd Layer	SOUDOTAPE 690 Q5	RECORD NFT 690 Q5
			3rd Layer	SOUDOTAPE 690 Q5	RECORD NFT 690 Q5
		ESW	1st Layer	SOUDOTAPE 690 Q5	RECORD EST 690 Q5
	Alloy 690 with strip EQNiCrFe-7	SAW	1st Layer	SOUDOTAPE NiCrFe-7 Q5	RECORD NFT NiCrFe-7 Q5
			2nd Layer	SOUDOTAPE NiCrFe-7 Q5	RECORD NFT NiCrFe-7 Q5
3rd Layer			SOUDOTAPE NiCrFe-7 Q5	RECORD NFT NiCrFe-7 Q5	
ESW		1st Layer	SOUDOTAPE NiCrFe-7 Q5	RECORD EST NiCrFe-7 Q5	
		2nd Layer	SOUDOTAPE NiCrFe-7 Q5	RECORD EST NiCrFe-7 Q5	



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.



Böhler Welding – More than 2,000 products for joint welding in all conventional arc welding processes are united in a product portfolio that is unique throughout the world. Creating lasting connections is the brand's philosophy in welding and between people.



UTP Maintenance – Decades of industry experience and application know-how in the areas of repair as well as wear and surface protection, combined with innovative and custom-tailored products, guarantee customers an increase in the productivity and protection of their components.



Fontargen Brazing – Through deep insight into processing methods and ways of application, Fontargen Brazing provides the best brazing and soldering solutions based on proven products with German technology. The expertise of this brand's application engineers has been formulated over many years of experience from countless application cases.

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