



voestalpine Böhler Welding



Filler Metals for Oil & Gas Upstream

voestalpine Böhler Welding
www.voestalpine.com/welding

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ONE STEP AHEAD.

Joining and Cladding 1/2

	Typical Base Material Examples	Welding Process	Product Name	Classification AWS		
Unalloyed	DIN StE355 (StE36) DIN T StE420 (TT StE43) API 2Y Gr 50&60	SMAW	BÖHLER FOX EV 47	A5.1 E7016-1		
			BÖHLER FOX EV PIPE	A5.1 E7016-1		
			BÖHLER FOX EV 50	A5.1 E7018-1		
		GTAW	BÖHLER EML 5	A5.18 ER70S-3		
			BÖHLER EMK 6	A5.18 ER70S-6		
		GMAW	BÖHLER EMK 6 D	A5.18 ER70S-6		
			Union K 52	A5.18 ER70S-6		
		FCAW	BÖHLER Ti 52-FD	A5.20 E71T-1		
			Union RV 71	A5.20 E71T-1CH4		
		SAW Flux	UV 306	EN 760 SA AR1 77 AC H5		
			UV 400	EN 760 SA AB 1 67 AC H5		
			UV 418 TT	EN 760 SA FB 1 55 AC H5		
		SAW	Union S 2 Si	A5.17 F7A2-EM12K		
			Union S 2	A5.17 F7A6-EM12		
			Union S 3 Si	A5.17 F7A8-EH12K		
Medium-alloyed	DIN StE355 (StE36) DIN T StE420 (TT StE43) API 2Y Gr 50&60 DIN StE355 (StE36) DIN T StE420 (TT StE43) DIN StE355 (StE36) DIN T StE420 (TT StE43) ALDUR 700QL1 A514grade Q A517grF SUPERELSO 690SR API x65 DIN StE355 (StE36) DIN T StE420 (TT StE43) APIx65/70 pipe EN 10208-2 Grades L210 – L555MB 4130/F22 AISI 8620 Mod	SMAW	BÖHLER FOX 2,5 Ni	A5.5 E8018-C1		
			BÖHLER FOX EV 60	A5.5 E8018-C3		
			Phoenix SH V1	A5.5 E8018-C3		
			BÖHLER FOX EV 65	A5.5 E8018-G		
			BÖHLER FOX EV 70	A5.5 E9018-D1		
			Thermanit NiMo 100	A5.5 E10018-D2		
			Phoenix NiMo 100	A5.5 E10018-D2		
			Phoenix SH Ni 2 K 100	A5.5 E11018-M		
			Thermanit SH Ni 2 K 100	A5.5 E11018-M		
			Phoenix SH Ni 2 K 130	A5.5 E12018-G		
			GTAW	Union I CrMo 910	A5.28 ER80S-B2(mod.)	
				BÖHLER DMO-IG	A5.28 ER80S-G	
		BÖHLER Ni 1-IG		A5.28 ER80S-Ni1		
		BÖHLER 2,5 Ni-IG		A5.28 ER80S-Ni2		
		Union I Ni 1 MoCr		A5.28 ER100S-G		
		GMAW	Union K 52 Ni	A5.28 ER80S-G		
			Union MoNi	A5.28 ER90S-G		
			BÖHLER NiMo1-IG	A5.28 ER90S-G		
		FCAW	BÖHLER Ti 60-FD	A5.29 E81 T1-Ni1		
			Union RV Ni 1	A5.29 E81 T1-Ni1		
			Union MV NiMoCr	A5.28 E110C-K4MH4		
			Union RV NiMoCr	A5.29 E111T1-GJ H4		
			Union MV Ni 1	A5.28 E80C-Ni1 H4		
		SAW Flux	UV 420 TTR	EN 760 SA FB 1 65 DC		
			UV 420 TTR-W	EN 760 SA FB 1 65 AC		
			UV 420 TT	EN 760 SA FB 1 65 DC		
			UV 418 TT	EN 760 SA FB 1 55 AC H5		
			UV 420 TTR-C H4	EN 760 SA FB 1 65 DC H5		
			UV 420 TTR-C	EN 760 SA FB 1 65 DC		
			UV 421 TT	EN 760 SA FB 1 65 DC H5		
		SAW	Union S 2 Ni 370	A5.23 F7A8-EG-G		
			Union S 2 CrMo	A5.23 F8P2-EB2R-B2		
			Union S 2 Mo	A5.23 F8P4-EA2-A2		
			Union S 3 Mo	A5.23 F8A5-EA4-A4		
			Union S 3 NiMo 1	A5.23 F10P8-EF-F3		
			Union S 3 NiMoCr	A5.23 F11A8-EG-F6		
			Union X 85 T	A5.23 F12A6-EG-G		
		Stainless	UNS S31603 N08904 S41500 S31803/32205 S32760	SMAW	BÖHLER FOX EAS 2	A5.4 E308L-15
					BÖHLER FOX EAS 2-A	A5.4 E308L-17
					BÖHLER CN 23/12 Mo-FD	A5.4 E309L-17
BÖHLER FOX EAS 4 M-A	A5.4 E316L-17					
BÖHLER FOX SAS 2-A	A5.4 E347-17					

Joining and Cladding 2/2

	Typical Base Material Examples	Welding Process	Product Name	Classification AWS
Stainless	UNS S31603 N08904 S41500 S31803/32205 S32760	GTAW	BÖHLER EAS 2-IG	A5.9 ER308L
			BÖHLER EAS 4 M-IG	A5.9 ER316L
			BÖHLER SAS 2-IG	A5.9 ER347
		FCAW	BÖHLER EAS 2-FD	A5.22 ER308LT0-4
			BÖHLER EAS 2 PW-FD	A5.22 ER308LT1-4
			BÖHLER CN 23/12-FD	A5.22 ER309LT0-4
			BÖHLER CN 23/12 PW-FD	A5.22 ER309LT1-4
			BÖHLER EAS 4 M-FD	A5.22 ER316LT0-4
			BÖHLER EAS 4 PW-FD	A5.22 ER316LT1-4
			BÖHLER SAS 2 PW-FD	A5.22 ER347T-1
			BÖHLER CN 23/12 Mo-FD	A5.22 E309LMO-T0-4(1)
		SAW Flux	Marathon 431	EN 760 SA FB 64 DC
			Avesta Flux 805	EN 760 SA AF 2 Cr DC
			BÖHLER BB 202	EN 760 SA FB 2 DC
			Avesta Flux 801	EN 760 SA CS 2 Cr DC
SAW	Thermanit JE-308L	A5.9 ER308L		
	Thermanit 25/14 E-309L	A5.9 ER309L		
	Thermanit GE-316L	A5.9 ER316L		
Duplex	UNS S31603 N08904 S41500 S31803/32205 S32760 UNSS31803/32205	SMAW	Avesta 2205 basic	A5.4 E2209-15
			Avesta 2205	A5.4 E2209-17
			Avesta 2205-PW AC/DC	A5.4 E2209-17
		GTAW	Avesta 2205	A5.9 ER 2209
		FCAW	Avesta FCW-2D 2205	A5.22 E2209T0 - 4 /-1
			Avesta FCW 2205-PW	A5.22 E2209T1 - 4 -1
		SAW Flux	Avesta Flux 805	EN 760 SA AF 2 Cr DC
		SAW	Avesta 2205	A5.9 ER 2209
Super Duplex	UNS S31603 N08904 S41500 S31803/32205 S32760	SMAW	Thermanit 25/09 CuT	A5.4 E2595-15
			Avesta 2507/P100 rutile	A5.4 E2594-16 *M*
		GTAW	Thermanit 25/09 CuT	A5.9 ER 2594
		FCAW	Avesta FCW 2507/P100-PW	A5.22 E2594T1-4/-1
		SAW Flux	Marathon 431	EN 760 SA FB 64 DC
			Avesta Flux 805	EN 760 SA AF 2 Cr DC
SAW	Thermanit 25/09 CuT	A5.9 ER 2594		
Nickel - Base	ALLOYS UNS N0 6625 N08825 N06059 N10276 ALLOY 400 UNS N04400 W.Nr. 2.4360 & 2.4361 These consumables are also used for joining of CRA clad and/or dissimilar materials	SMAW	UTP 759 Kb	A5.11 ENiCrMo13
			UTP 6222 Mo	A5.11 ENiCrMo3
			UTP 776 Kb	A5.11 ENiCrMo4
			UTP 7015	A5.11 ENiCrFe-3
			UTP 068 HH	A5.11 ENiCrFe-3 (Mod)
			UTP 80 M	A5.11 ENiCu-7
		GTAW	UTP A 6222 Mo	A5.14 ERNiCrMo3
			UTP A 759	A5.14 ERNiCrMo13
			UTP A 786	A5.14 ERNiCrMo14
			UTP A 068 HH	A5.14 ERNiCr-3
		GMAW	UTP A 6222 Mo-3	A5.14 ERNiCrMo3
		FCAW	UTP AF 6222 Mo PW	A5.34 ENiCrMo3Ti-4
		SAW Flux	UTP FX 504	EN ISO 14174 SA AB 2 AC
SAW	UTP A 6222 Mo-3	A5.14 ERNiCrMo3		
Non Ferrous	90:10 CuNi UNS C70600 & 70:30 CuNi UNS C70500 Alloys ASTM B861 & B862 Grade 2 Pipe	SMAW	UTP 387	A5.6 ECuNi
		GTAW	UTP A 387	A5.7 ERCuNi
			UTP A 902	A5.6 ER Ti-2
Cladding	A wide variety of base materials including those above are routinely weld clad	GTAW/GMAW	UTP A 6222 Mo-3	A5.14 ERNiCrMo-3
		SAW	UTP A 6222 Mo + UTP FX 504	A5.14 ERNiCrMo-3
		FCAW	SK STELKAY 6 T-G	DIN8555 MF20GF40CTZ



Strip Cladding

	Alloy	Welding Process	Layer	Strip	Flux
Low Alloy	1Ni-0,5Mo	SAW	1	SOUDOTAPE A	RECORD NiMo 5T
	Stainless	316L	ESW	2	SOUDOTAPE 309 L+316 L
ESW Single Layer			1	SOUDOTAPE 21.13.3 L	RECORD EST 122
				SOUDOTAPE 316 L	RECORD EST 316-1
ESW High Speed		2	SOUDOTAPE 309 L+316 L	RECORD EST 136	
317L		ESW	2	SOUDOTAPE 316 L	RECORD EST 317-2
		ESW Single Layer	1	SOUDOTAPE 21.13.3 L	RECORD EST 317-1
		ESW High Speed	2	SOUDOTAPE 21.13.3 L	RECORD EST 136 Mo
Duplex		ESW Single Layer	1	SOUDOTAPE 22.6.3 L	RECORD EST 4462-1
Super Duplex		ESW	2	SOUDOTAPE 22.6.3 L	RECORD EST 2584
254 SMO		ESW	2	SOUDOTAPE 254 SMO	RECORD EST 122
904 L	ESW	2	SOUDOTAPE 20.25.5 LCu	RECORD EST 122	
	ESW Single Layer	1	SOUDOTAPE 20.25.5 LCu	RECORD EST 385-1	
Nickel	825	ESW	1	SOUDOTAPE 825	RECORD EST 138
	625	ESW	2	SOUDOTAPE 625	RECORD EST 201
		ESW Single Layer	1	SOUDOTAPE 625	RECORD EST 237
				SOUDOTAPE 625	RECORD EST 625-1
		ESW High Speed	2	SOUDOTAPE 625	RECORD EST 236
	400	SAW	2	SOUDOTAPE NiCu7	RECORD NiCuT
		ESW	2	SOUDOTAPE NiCu7	RECORD EST 400
	C22	ESW	2	SOUDOTAPE NiCrMo22	RECORD EST 259
	C276	ESW	2	SOUDOTAPE NiCrMo59 + SOUDOTAPE NiCrMo4	RECORD EST 259
	59	ESW	2	SOUDOTAPE NiCrMo59	RECORD EST 259
	C4	ESW	2	SOUDOTAPE NiCrMo7	RECORD EST 259
Copper Alloys	70Cu - 30Ni	SAW	2	SOUDOTAPE NiCu7 SOUDOTAPE CuNi30	RECORD NiCuT

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Böhler Welding know-how joins steel

Customers in over 120 countries join the expertise of voestalpine Böhler Welding (formerly the Böhler Welding Group). 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.



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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