

T-PUT consumables for voestalpine roll-bonded clad plates



voestalpine

ONE STEP AHEAD.

Structural steels and pressure vessel steels

Part 1

according to EN 10025-2, EN 10028-2 and 10028-3

Base material			Welding process - CONSUMABLE				
Standard	Steel grade	Comparable ASTM-steel grade	SMAW	GMAW	GTAW	SAW	
						wire	flux
EN 10025-2	S235JR	-	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	S335JR	-	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
EN 10028-2	P235GH	A285 GradeC	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	P265GH	A516 Grade60	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	P295GH	A516 Grade65	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	P355GH	A516 Grade70	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	16Mo3	-	Phoenix SH Schwarz 3 K	Union I Mo	Union I Mo	Union S 2 Mo	UV 420 TTR
	20MnMoNi4-5	A533 Type B Class2	Phoenix SH Schwarz 3 K Ni	Union MoNi	Union I Mo	Union S 3 NiMo 1	UV 420 TTR
	13CrMo4-5	A387 Grade12 Class2	Phoenix Chromo1	Union I CrMo	Union I CrMo	Union S 2 CrMo	UV 420 TTR (-W)
	10CrMo9-10	-	Phoenix SH Chromo 2 KS	Union I CrMo 910	Union I CrMo 910 (Spezial)	Union S 1 CrMo 2	UV 420 TTR (-W)
	12CrMo9-10	A387 Grade22 Class2	Phoenix SH Chromo 2 KS	Union I CrMo 910	Union I CrMo 910 (Spezial)	Union S 1 CrMo 2	UV 420 TTR (-W)

Structural steels and pressure vessel steels

Part 2

according to EN 10025-2, EN 10028-2 and 10028-3

Base material			Welding process - CONSUMABLE				
Standard	Steel grade	Comparable ASTM-steel grade	SMAW	GMAW	GTAW	SAW	
						wire	flux
EN 10028-3	P275 NH P275 NL1	A516 Grade60	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	P275 NL2		Phoenix SH V 1	Union K 5 Ni	Union I 1,2 Ni	Union S 2 Ni 2,5 (Ni 370)	UV 421 TT
	P355 NH P355 NL1	A516 Grade70	Phoenix 120 K	Union K 56	Union I 52	Union S 3 (Si)	UV 418 TT
	P355 NL2		Phoenix SH V 1	Union K 5 Ni	Union I 1,2 Ni	Union S 2 Ni 2,5 (Ni 370)	UV 421 TT
	P460 NH P460 NL1	A572 Grade65	Phoenix SH V 1	Union K 56	Union I 52	Union S 3 (Si)	UV 418 TT
	P460 NL2		Phoenix SH V 1	Union K 5 Ni	Union I 1,2 Ni	Union S 2 Ni 2,5	UV 421 TT

Structural steels and pressure vessel steels according ASTM

Base material			Welding process - CONSUMABLE				
Standard	Steel grade	Comparable ASTM-steel grade	SMAW	GMAW	GTAW	SAW	
						wire	flux
ASTM	A285 GradeC	P235GH	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	A516 Grade60	P275	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	A516 Grade65	-	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	A516 Grade70	P355	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	A572 Grade65 Type1	P460	Phoenix SH Schwarz 3 K	Union K 56	Union I 52	Union S 2 Mo	UV 420 TTR
	A583 Type B Class2	20MnMoNi4-5	Phoenix SH Schwarz 3 K Ni	Union MoNi	Union I Mo	Union S 3 NiMo 1	UV 420 TTR
	A387 Grade11 Class2	-	Phoenix Chromo1	Union I CrMo	Union I CrMo	Union S 2 CrMo	UV 420 TTR (-W)
	A387 Grade12 Class2	13CrMo4-5	Phoenix Chromo1	Union I CrMo	Union I CrMo	Union S 2 CrMo	UV 420 TTR (-W)
	A387 Grade22 Class2	12CrMo9-10	Phoenix SH Chromo 2 KS	Union I CrMo 910	Union I CrMo 910 (Spezial)	Union S 1 CrMo 2	UV 420 TTR (-W)

Fitting steels and linepipe steels

according to ASTM, API 5L and DNV OS-F101

Base material			Welding process - CONSUMABLE				
Standard	Steel grade	Comparable steel grade of EN 10028	SMAW	GMAW	GTAW	SAW	
						wire	flux
ASTM	A106 GradeB	ASTM A516 Grade65	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	A672 GradeC60	ASTM A516 Grade60	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
	A672 GradeC70	ASTM A516 Grade70	Phoenix 120 K	Union K 52	Union I 52	Union S 3 (Si)	UV 418 TT
ASTM A860	WPHY 42	-	Phoenix SV 1	Union K Nova Ni	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	WPHY 52		Phoenix SV 1	Union K Nova Ni	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	WPHY 60		Phoenix SV 1	Union K Nova Ni	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	WPHY 65		Phoenix SV 1	Union K Nova Ni	(Union I 1,2 Ni)	Union S 2 NiMo 1	UV 418 TT
API 5L	GradeB - PSL2	DNV SAWL 245	Phoenix Cel 70	Union K Nova (Ni)	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	X52 - PSL2	DNV SAWL 360	Phoenix Cel 70	Union K Nova (Ni)	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	X60 - PSL2	DNV SAWL 415	Phoenix Cel 75	Union K Nova (Ni)	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	X65 - PSL2	DNV SAWL 450	Phoenix Cel 80	Union K Nova (Ni)	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
DNV OS-F101	SAWL 245	API 5L GradeB	Phoenix Cel 70	Union K Nova (Ni)	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	SAWL 360	API 5L X52	Phoenix Cel 70	Union K Nova (Ni)	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	SAWL 415	API 5L X60	Phoenix Cel 75	Union K Nova (Ni)	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT
	SAWL 450	API 5L X65	Phoenix Cel 80	Union K Nova (Ni)	(Union I 1,2 Ni)	Union S 3 (Si)	UV 418 TT

Stainless steel and heat resistant steels

Cladding			Welding process - CONSUMABLE					
Standard	EN material number	Comparable ASTM A240 / ASME SA240 type	Buffer (All type of consumables)	Multipass welding				
				Subsequent passes				
				SMAW	GMAW	GTAW	SAW	
wire	flux							
EN 10088	1.4000	410S	Thermanit 25/14 E-309L	Thermanit 14 K			-	-
	1.4301	304		Thermanit JE Spezial (W)	Thermanit JE-308L Si	Thermanit JE-308L	Marathon 431	
	1.4306	304L		Thermanit JE Spezial (W)	Thermanit JE-308L Si	Thermanit JE-308L	Marathon 431	
	1.4541	321		Thermanit H Spezial (W)	Thermanit H Si	Thermanit H-347	Marathon 431	
	1.4550	347		Thermanit H Spezial (W)	Thermanit H Si	Thermanit H-347	Marathon 431	
	1.4401	316	Thermanit 23/11 MoZL	Thermanit GE Spezial (W)	Thermanit GE-316L Si	Thermanit GE-316L	Marathon 431	
	1.4404	316L		Thermanit GE Spezial (W)	Thermanit GE-316L Si	Thermanit GE-316L	Marathon 431	
	1.4571	316Ti		Thermanit A (W)	Thermanit A Si	Thermanit A	Marathon 431	
	1.4432	316L ≥ 2.5 Mo		Thermanit GE Spezial (W)	Thermanit GE-316L Si	Thermanit GE-316L	Marathon 431	
	1.4435	316L ≥ 2.5 Mo		Thermanit GE Spezial (W)	Thermanit GE-316L Si	Thermanit GE-316L	Marathon 431	
	1.4429	316LN ≥ 2.5 Mo		Thermanit 19/15	Thermanit 19/15	Thermanit 19/15	Marathon 104	
	1.4438	317L	Thermanit 18/17 E	Thermanit 18/17 E	Thermanit 18/17 E	Thermanit 18/17 E	Marathon 104	
	1.4439	317LMN		Thermanit 18/17 E	Thermanit 18/17 E	Thermanit 18/17 E	Marathon 104	
	1.4828	-	Thermanit 25/14 E-309L	Thermanit D (W)	Thermanit D	Thermanit D	Marathon 431	

Non-ferrous metals and alloys

Cladding		Welding process - CONSUMABLE		
Steel grade	EN material number	SMAW	GMAW	GTAW
Alloy 800	1.4876	Thermanit 625 / Thermanit 21/33 So		
Alloy 904L	1.4539	Thermanit 625 / Thermanit 20/25 Cu		
Alloy 926	1.4529	Thermanit 625		
Alloy 20	2.4660	Thermanit 625		
Alloy 825	2.4858	Thermanit 625		
Alloy 625	2.4856	Thermanit 625		
Alloy C22	2.4602	Thermanit Nimo C 24		
Alloy C4	2.4610	Thermanit Nimo C 24		
Alloy C-276	2.4819	Thermanit Nimo C 24		
Alloy 59	2.4605	Thermanit Nimo C 24		
Alloy 600	2.4816	Thermanit Nicro 82		

If you have any further question do not hesitate to contact us.

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