

WA Cored Wires

Joining, Cladding, Hardfacing, Repair
Product Selection



ACTING GLOBAL
WELDING LOCAL

The go-to provider of advanced welding consumables

Welding Alloys Group is an international manufacturer of top quality cored welding wires. This catalogue presents a selection of wires for joining, cladding, hardfacing and repair applications. You can find more detailed brochures for our complete range of wires on the Welding Alloys website. Don't hesitate to contact us for any specific enquiries.

Welding Processes:

O: Open arc
G: Gas shielded
S: Submerged arc
TIG: Tungsten Inert Gas

JOINING & CLADDING

Welding of constructional steels

Product name	Welding Process	ASME/AWS Standard	Main features
Mild Steels			
ROBOFIL T4	O	E70T-4	Ideal for tack welding, open arc
SPEEDARC T11	O	E71T-11	All position welding, open arc
ROBOFIL R 71+	G	E71T-1M H4	Rutile, all position, Ar + 15-25% CO ₂
ROBOFIL M 71	G	E70C-6M H4	Slag free, toughness down to -40°C
ROBOFIL B 71	G	E71T-5M-JH4	Basic slag, safety-critical assemblies
Weathering Steels			
ROBOFIL M 71Zn	G	E70C-GS	For galvanized non alloyed constructional steels
Cold Tough Steels			
ROBOFIL R Ni1 SR	G	E81T1-Ni1M-JH4	Rutile slag for all position welding
ROBOFIL M Ni1	G	E80C-Ni1 H4	Slag free
ROBOFIL B Ni1	G	E80T5-GM-JH4	Basic slag for high toughness requirements
High Strength Steels			
ROBOFIL R 690	G	E111T1-GM-JH4	Rutile slag for all position welding
ROBOFIL M 700	G	E110C-K4 H4	Slag free
ROBOFIL B 700	G	E110T5-K4M-JH4	Basic slag for high impact strength

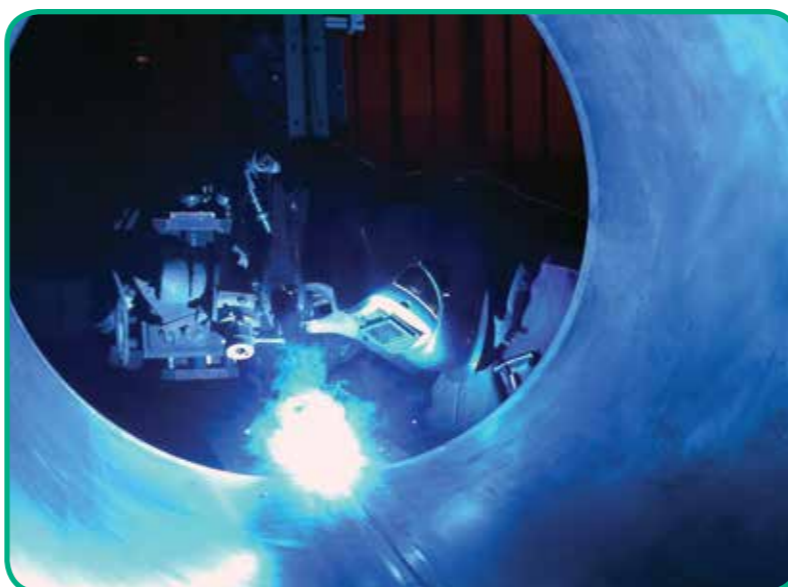
GO SEAMLESS

GENERAL INFORMATION

Family	Suffix	Slag	Welding positions	Process
ROBOFIL	R	Rutile	All positions	G (O**)
	M	Metal cored	All positions*	G
	B	Basic	↓ ↓ ↓	G
CHROMECORE	V	Rutile fast freezing	All positions	G
	M	Metal cored	All positions*	G
TETRA	S	Rutile slow freezing	↓ ↓ ↓	G
	V	Rutile fast freezing	All positions	G
TUBE S		Metal cored	All positions*	G/S
TRI S		Rutile-basic	↓ ↓ ↓	O
GAMMA		Basic	↓ ↓ ↓	G (O***)
	V	Rutile-basic	All positions	G

WARod	Flux cored rod for root pass welding	G (TIG)
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*Position welding possible using pulsed arc modes of transfer (similar to solid wire)
**O for ROBOFIL T4
*** O/G for GAMMA 182



Nickel alloys for joining, cladding and repair

Product name	Welding Process	ASME/AWS Standard	Main features
GAMMA 182	O/G	ENiCrFe3T0-3 ENiCrFe3T0-4	Conforms to ENiCrFe-3 classification for stick electrodes
GAMMA 4648 / V 4648	G	ENiCr3T0-4* ENiCr3T1-4*	Nickel based highly resistant to hot cracking
GAMMA 625 / V 625	G	ENiCrMo3T0-4 ENiCrMo3T1-4	625 type alloy
GAMMA 276 / V 276	G	ENiCrMo4T0-4 ENiCrMo4T1-4	276 type alloy
GAMMA V CRYO	G	ENiCrMo6T1-4	For welding 9% nickel steels, all positions
GAMMA 400	G	ENiCu7T0-4	Alloy 400 type

UNIQUE RANGE!

Welding of cast irons

Product name	Welding Process	EN ISO Standard	Main features
CAST NICI	O/G	T C NiFeT3-CI NO T C NiFeT3-CI M21	FeNi deposit – 45% Ni
CAST NIFE	G	T C Z NiFe-1 M	NiFe deposit – 60% Ni

Welding of high alloy steels

Product name	Grade	Welding Process	ASME/AWS Standard	Main features
Duplex and Super Duplex				
TETRA S / V	LD62	G	**	Lean duplex stainless steel
TETRA S / V	22 9 3L	G	E2209T0-4/-1 E2209T1-4/-1	Joining of duplex steels and dissimilar assemblies
TETRA S / V	D57L	G	E2594T0-4 E2594T1-4	Joining of super duplex steels
Austenitic Stainless Steels				
TETRA S / V	308L	G	E308LT0-4/-1 E308LT1-4/-1	Type 308L
TETRA V	308XL	G	E308LT1-4	XL : controlled ferrite – cryogenic and LNG at -196°C
TUBE S	308L	G/S	EC308L	
WARod	308L	TIG	R308LT1-5	WARod: root pass TIG rods
TETRA S / V	347L	G	E347T0-4/-1 E347T1-4/-1	Type 347
TETRA S / V	316L	G	E316LT0-4/-1 E316LT1-4/-1	Type 316L
TETRA V	316XL	G	E316LT1-4	XL: controlled ferrite - cryogenic and LNG at -196°C
WARod	316L	TIG	R316LT1-5	WARod: root pass TIG rods
TUBE S	316L	G/S	EC316L	
TETRA S / V	317L	G	E317LT0-4/-1 E317LT1-4/-1	Type 317L
TETRA S / V	318L	G	E318T0-4/-1* E318T1-4/-1*	Type 318
TETRA S / V	904L	G	E385T0-4/-1* E385T1-4/-1*	Type 385
Heat Resistant Steels				
TETRA V	16 8 2	G	E16-8-2 T1-4/-1*	Austenitic deposit Application up to 850°C
TETRA S / V	308H	G	E308HT0-4/-1 E308HT1-4/-1	Type 308H with controlled ferrite level
TETRA S / V	309H	G	E309T0-4/-1 E309T1-4/-1	Type 309
TETRA S / V	309HT	G	**	Modified type 309 – Matching 253MA™
TETRA S B	310	G	E310T0-4*	Type 310, basic slag
TETRA S / V	347H	G	E347HT0-4/-1 E347HT1-4/-1	Type 347 with controlled ferrite level, creep resistant
Dissimilar Joints & Repair				
TETRA S / V	307	G	E307T0-4/-1* E307T1-4/-1*	Modified type 307
TUBE S	307	G	EC307*	
TETRA S	20 9 3	G	E308MoT0-4/-1* E308MoT1-4/-1*	Modified type 308Mo, high mechanical strength
TETRA S / V	309L	G	E309LT0-4/-1 E309LT1-4/-1	Type 309L
TUBE S	309L	G/S	EC309L	
TETRA S / V	309LMo	G	E309LMoT0-4/-1 E309LMoT1-4/-1	Type 309LMo for joining dissimilar metals
TETRA S	312	G	E312T0-4/-1 E312T1-4/-1	Type 312, exceptional cracking resistance
Martensitic and Ferritic steels				
CHROMECORE M	410NiMo	G	EC410NiMo	Slag free, soft martensitic 13Cr-4Ni
CHROMECORE B	13 4	G	E410NiMoT0-4	Basic slag, soft martensitic 13Cr-4Ni
CHROMECORE V	410NiMo	G	E410NiMoT1-4	All position welding
CHROMECORE B	16 5 1	G	-	Basic slag, soft martensitic 16Cr-5Ni-1Mo

BISMUTH FREE!

* Nearest
**No AWS specification is available

HARDFACING, REPAIR & MAINTENANCE

Hardness: 3 layers as welded - ↗ = work-hardened

Work-hardening manganese alloys

Product name	Welding Process	Hardness	EN 14700 Standard	Main features
HARDFACE 19 9 6	O/G/S	180 HB ↗47 HRC	T Fe10	Highly resistant to cracking Buffer layer, assembly, dissimilar joints
HARDFACE AP	O/G/S	240 HB ↗48 HRC	T Fe9	High rate of work-hardening, high impact, railway
HARDFACE NM14	O/G	200 HB ↗46 HRC	T Fe9	Repairing casting defects, Hadfield type Mn steel

Low and medium alloys

Product name	Welding Process	Hardness	EN 14700 Standard	Main features
HARDFACE B	O/S	260 HB	T Fe1	Under layers, build up on mechanical components
HARDFACE T	O/S	360 HB	T Fe1	Rebuilding and surfacing of mechanical components
HARDFACE P	O/S	400 HB	T Fe1	Hardfacing or build up, metal/metal, moderate abrasion
HARDFACE L	O/S	650 HB	T Fe8	Abrasion and impact, self-tempering deposit
ROBODUR K 250	G	250 HB	T Fe1	Seamless copper coated wire Rebuilding or buffering of forged or rolled components
ROBODUR K 350	G	350 HB	T Fe1	
ROBODUR K 450	G	450 HB	T Fe2	
ROBODUR K 600	G	600 HB	T Fe2	Seamless copper coated wire Hardfacing applications
ROBODUR K 650	G	650 HB	T Fe8	
ROBODUR K CERAMIC	G	57 HRC	T Fe8	Ceramic moulds – high hardness first layer



Heat treated steels for Tooling

Product name	Welding Process	Hardness	EN 14700 Standard	Main features
HARDFACE WLC	O/G/S	44 HRC	T Fe3	Low crack sensitivity, rebuilding and buffering
HARDFACE W	O/G/S	55 HRC	T Fe3	Hard deposit, keeps properties up to 500°C
HARDFACE WM	G	45 HRC	T Fe3	Medium hardness deposit
HARDFACE WMOLC	G	52 HRC	T Fe3	Hard deposit, press tooling
ROBOTOOL 47	G	42 HRC	T ZFe8	Seamless copper coated wires Increasing hardness Hot and cold working tools
ROBOTOOL 46	G	44 HRC	T ZFe8	
ROBOTOOL 58	G	55 HRC	T Fe3	
HARDFACE AR	G	60 HRC	T Fe4	High speed steel, cold cutting applications
HARFACE DCO	O/G/S	47 HRC ↗52 HRC	T ZFe3	Similar performance to cobalt base alloys



Anti-abrasion

Product name	Welding Process	Hardness	EN 14700 Standard	Main features
Low Impact				
HARDFACE BN	O	65 HRC	T ZFe13	Ultra-hard single layer for pure abrasion
HARDFACE BNC	O	67 HRC	T ZFe16	Single layer for abrasion under high stresses
HARDFACE NCWB	O	67 HRC	T ZFe8	Ultra-hard single layer for superior abrasion resistance
Moderate Impact				
HARDFACE HC	O	61 HRC	T Fe15	Highly abrasion resistant Cr carbide deposit
HARDFACE CN	O	63 HRC	T Fe15	For fine abrasive particles of high hardness
HARDFACE CNV	O	65 HRC	T Fe16	High resistance to abrasion and impact at high temperatures
HARDFACE DIAMOND	O	63 HRC	T Fe16	Complex carbides deposit for extreme abrasion
HARDFACE STEELCARBW	O	63 HRC	T Fe20	WC in steel matrix - fine abrasive grains
HARDFACE STAINCARBW	O/G	61 HRC	T Fe20	WC in stainless steel matrix, higher abrasion
HARDFACE NICARBW	O/G	49 HRC	T Ni20	WC in Ni matrix, severe abrasion and corrosion
High Impact				
HARDFACE TIC	O/G	57 HRC	T Fe8	Crack free- combined abrasion- high pressure- impact





Stainless – Martensitic

Product name	Welding Process	Hardness	EN 14700 Standard	Main features
CHROMECORE 410	O/G/S	42 HRC	T Fe7	Friction, erosion, corrosion and thermal fatigue
CHROMECORE 414	O/G/S	38 HRC	T Fe7	Thermal fatigue, corrosion and frictional wear
CHROMECORE 420	O/G/S	50 HRC	T Fe8	Hard deposit, frictional wear
CHROMECORE 430	O/G/S	220 HB	T Fe7	Corrosion, frictional wear and temperature Anti-corrosion coating or buffer layer

Cupro-aluminium

Product name	Welding Process	Hardness	EN 14700 Standard	Main features
CORBRONZE 302	G	320 HB	T Cu1	High hardness with resistance to marine corrosion



Cobalt base

Product name	Welding Process	Hardness	ASME/AWS Standard	Main features
STELLOY 25	G	210 HB  40 HRC	-	High temperature and metal-to-metal abrasion
STELLOY 21*	O/G (TIG)	33 HRC  47 HRC	ERCCoCr-E	Ideal choice for multiple combinations of stresses
STELLOY 6BC	G	38 HRC	ERCCoCr-A	STELLOY 6 with lower carbon, buffering or thick deposits
STELLOY 6*	O/G (TIG)	42 HRC	ERCCoCr-A	Combines all properties of Co base alloys
STELLOY 6HC	G	44 HRC	ERCCoCr-A	STELLOY 6 with higher carbon, hardness from first layer
STELLOY 12*	G (TIG)	45 HRC	ERCCoCr-B	Abrasion by minerals, cutting tools
STELLOY 1*	G (TIG)	53 HRC	ERCCoCr-C	Highest hardness, abrasion and corrosion



*Flux cored wire also available for TIG process

Nickel base

Product name	Welding Process	Hardness	EN 14700 Standard	Main features
STELLOY Ni520	G	190 HB	T Ni4	Extreme resistance to high temperature and thermal shock
STELLOY CCO	O/G	220 HB  350 HB	T Ni2	Extreme resistance to prolonged high temperature stress
STELLOY C	O/G/S	200 HB  350 HB	T Ni2	Repair assembly, buffering (Ni520), cladding and friction wear

Cladding - stainless steel with open arc process

Product name	Welding Process	ASME/AWS standard	Main features
TRI S 307	O	E307T0-3	Rebuilding, buffer layer on 12-14% Mn steels
TRI S 312	O	E312T0-3	Rebuilding & repairs
TRI S 309L	O	E309LT0-3	Type 309L
TRI S 316L	O	E316LT0-3	Type 316L

Complete your range



Welding Alloys also offer a complete range of stick electrodes and tubular hardfacing electrodes. All types of solid wires including aluminium wires are available from our sister company ALUNOX Schweißtechnik GmbH.

Please contact us for more information.



www.alunox.de

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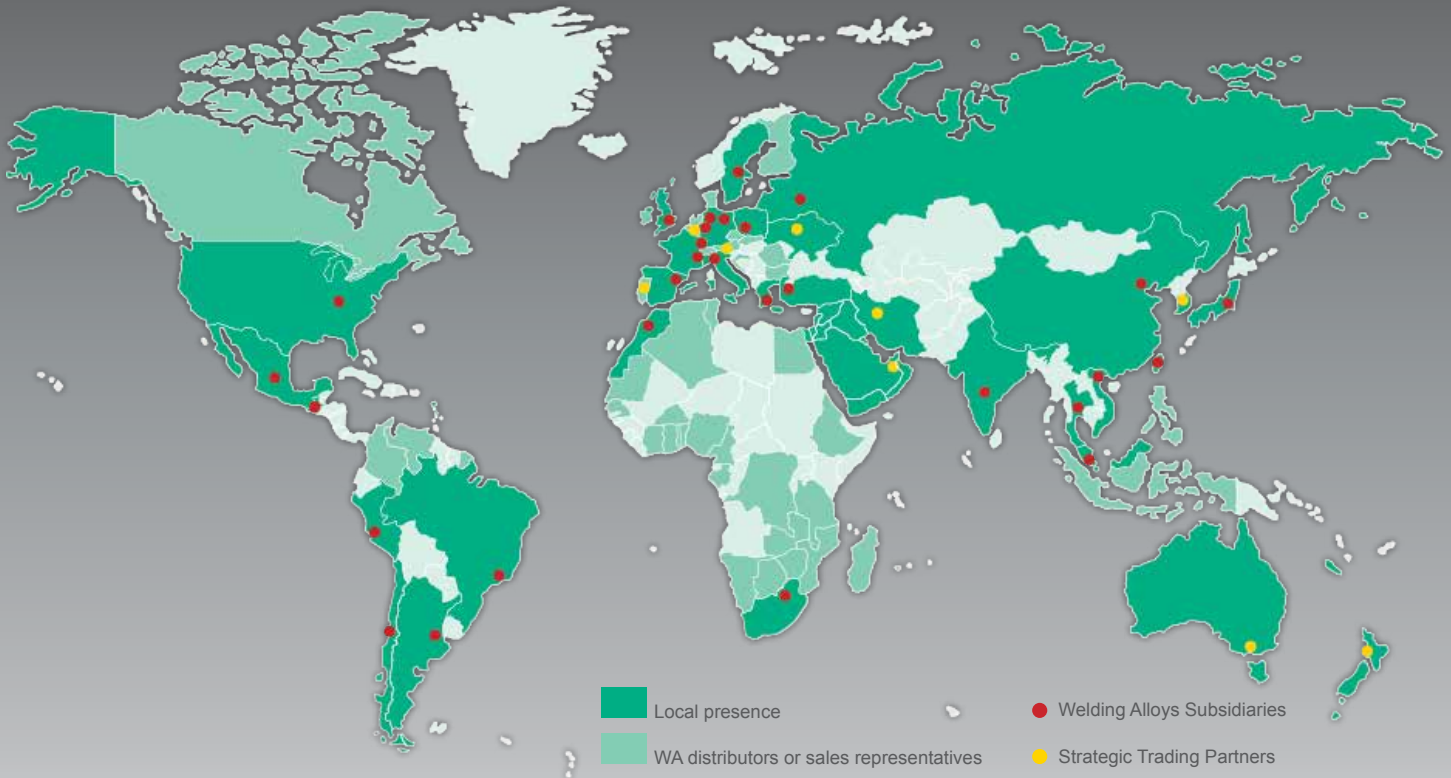
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