Welding Alloys Group

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WA Electrodes
XE line

Welding Alloys Group

This catalogues presents a selection of standard covered electrodes for hardfacing and joining applications. We will gladly examine any special request. Please do not hesitate to consult with us.

Cored welding wires and covered electrodes - The Global Solution

Since its foundation in 1966, the Welding Alloys Group, an independent group, has specialised in the manufacture of cored welding wires for surfacing applications – **100% produced in our modern factories – 100% our own technology**.

This catalogue presents the Manual Welding Electrode program completing the Welding Alloys Flux Cored Wire range, offering a global product range of welding consumables to suit customers' changing needs. Our wide range of non-alloyed, low-alloyed and high-alloyed coated electrodes meets or exceeds the most stringent standards for hardfacing, cladding and joining applications.

Our policy of continuous R&D along with industrial development, enables us to offer the quality guarantees required by international codes of practice, which exist in the nuclear, petrochemical, offshore, LNG and transport industries.

As a global company, our engineers and technicians are available locally. Technical support and service are provided where needed, from international WA welding specialists.

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Hardfacing – Electrodes

Product name	Composition [%] - Fe balance										Hardness	
	C	Mn	Si	Cr	Ni	Mo	Co	W	Fe	Others	As welded	Work hardened
HARDFACE NM14-XE	0.70	14.00	0.10		3.50				Rest		175-200 HB	450 HB
HARDFACE 19 9 6-XE	0.06	7.00	0.80	19.00	9.00	1.50			Rest		160-200 HB	400-440 HB
HARDFACE 28 10 1-XE	0.15 max	0.70	0.85	29.00	10.00	0.15	0.45		Rest		220-260 HB	
HARDFACE 300-XE	0.07	0.60	0.20	3.40					Rest		290-330 HB	
HARDFACE 350-XE	0.10	0.70	0.50	3.50					Rest		325-350 HB	
HARDFACE 600-XE	0.40	0.50	0.40	6.00		0.60			Rest		57-62 HRC	
HARDFACE 600Si-XE	0.70	0.30	4.00	2.00					Rest		58-62 HRC	
HARDFACE L-XE	0.70	0.70	0.60	10.00					Rest		52-56 HRC	
HARDFACE 35-XE	0.40	0.90	0.35	2.00	1.00	1.10			Rest		300-360 HB	
HARDFACE 50W-XE	0.30	1.00	0.90	2.00			2.00	10.00	Rest	Nb:1.00	46-52 HRC	
HARDFACE 55-XE	0.30	0.70	0.50	4.50		3.00			Rest		54-60 HRC	
HARDFACE HSS-XE	0.90	1.30	1.20	4.50		7.50		1.80	Rest	V:1.50	57-60 HRC	

Product name	Standard diameters and length [mm]	Standards EN 14700/ DIN 8555/ AWS A5.13	Polarity	Metal/metal friction	Mineral abrasion	Abrasion under pressure	Hot abrasion	Erosion	Cavitation	Impact	Mechanical fatigue	Thermal fatigue	Hot oxidation	Corrosion	Rebuilding or cladding	Buffer layer or assembly	Cutting ability	Work hardening	Machinability	Description and applications
Work hardening & managanese alloys																				
HARDFACE NM14-XE	3.20 x 350	E Fe9/ E7-UM-200 KNP/ E FeMn-A	= + ~ 70V	••					•	••	•			•		••		•	•	• It is a zircon-basic coated electrode displaying an austenitic Hadfield manganese steel type weld metal • 3.5%Ni increases the ductility and toughness but it hardens rapidly during cold working • It is used for refurbishment of manganese steels such as cone and jaw crushers, hammers and blow bars
HARDFACE 19 9 6-XE	3.20 x 350 4.00 x 350	E Fe10/ E8-UM-200 CKPRZ/	= + ~ 70V	••					••	•						••		••	•	• High manganese containing stainless steel with good work hardening behaviour • It has a combination of toughness, work hardening and corrosion resistance • It is typically used for repairing manganese steels subjected to severe impact associated with corrosion
HARDFACE 28 10 1-XE	3.20 x 350 4.00 x 350	E Fe11/ E9-UM-250 CRZ/	= + ~ 70V	•									•	••		••		•	•	• High chromium nickel containing stainless steel with excellent strength and crack resistance • It is designed to weld steels with difficult weldability • It is also used as a buffer material of high carbon steels • It is used for repairing gears, shafts, extrusion cylinders and cutting tools
Low and medium alloyed																				
HARDFACE 300-XE	3.20 x 350	E Fe1/ E1-UM-300 P/ E Fe1	= + ~ 70V	•						•	••				••	••			••	• Heavily coated basic electrode • Due to its moderate Cr, low C content and low hardness it could be used in applications where low abrasion and high impact resistance are required • Typical applications are rebuilding rollers, idlers, crane wheels, gears, railway switch blades and brake shoes
HARDFACE 350-XE	3.20 x 350	E Fe1/ E1-UM-350 P/ E Fe1	= + ~ 70V	•						•	••				••	••			••	• Heavily coated basic electrode • Due to its moderate Cr, low C content and low hardness it could be used in applications where low abrasion and high impact resistance are required • Typical applications are rebuilding rollers, idlers, crane wheels, gears, railway switch blades and brake shoes
HARDFACE 600-XE	2.50 x 350 3.20 x 350	E Fe4/ E6-UM-60 GP/ E Fe3	= + ~ 65V	•	•	•				•	•						•			• All purpose rutile coated electrode • It has a medium Cr level combined with Mo additions and 0.4% C level. The fully martensitic structure produces a weld deposit with good abrasion and moderate impact resistance • It is used in applications where high hardness is required, such as excavator buckets, chutes, liners, crushing jaws, agricultural and forestry machines and sprocket wheels
HARDFACE 600Si-XE	3.20 x 350	E Fe4/ E2-UM-60 GZ/	= + ~ 70V	•	•								•				•			• Basic coated electrode • Due to its high Si content the weld metal is highly resistant to oxidation (up to 850°C). It is therefore recommended where oxidative wear resistance is required • Typical applications are feed screws in furnaces, hot coal and clinker transportation feeders and chutes
HARDFACE L-XE	3.20 x 350	E Fe8/ E6-UM-55 R/ E Fe3	= + ~ 65V	•	•	•				•	•						•			• Basic coated electrode • Due to its high hardness combined with high Cr content it offers a combination of abrasion, adhesion and impact resistance up to 500 °C. • Typical applications are bucket teeth and blades, slides, conveyor screws and mixer parts
Steels for tooling																				
HARDFACE 35-XE	3.20 x 350 4.00 x 350 5.00 x 350	E Fe2/ E2-UM-350 P/ E Fe3	= +	•						•	•	•	•			••	•	•	••	• Low alloyed Cr-Ni-Mo steel easily machinable and heat treatable • It is commonly used in the forging industry and as a suitable high strength buffer material prior to hardfacing
HARDFACE 50W-XE	3.20 x 350	E Fe4/ E3-UM-50 SPT/ E Fe5	= + ~ 70V	••						••	•	••	•		•		••		•	• High Tungsten and Cobalt containing tool steel suitable for applications where components are subject to impact and pressure at high temperatures • Typical applications are hardfacing of injection molds, cutting tools and edges and forging dies
HARDFACE 55-XE	2.50 x 350 3.20 x 350 4.00 x 350	E Fe4/ E3-UM-55 STP/ E Fe3	= + ~ 70V	••						•	•	•	•		•		••		•	• Cr-Mo alloyed medium carbon steel with good wear resistance under high pressure • It is suitable for cold cutting tools • Typical applications are plough shaves, stamping dies, forestry tools and components used in the forging industry
HARDFACE HSS-XE	2.50 x 350 3.20 x 350 4.00 x 350	E Fe4/ E4-UM-60 SPTZ/ E Fe6	= + ~ 70V	••						••	•	••	•				••		•	• Cr-Mo-W-V containing high speed tool steel maintaining its hardness and wear resistance at elevated temperatures • It is particularly suitable for hardfacing cutting and punching tools

•	Suitable	••	Highly suitable

Hardfacing – Electrodes

Product name	Composition [%] - Fe balance											Hardness
	C	Mn	Si	Cr	Ni	Mo	Co	Nb	W	Fe	V	As welded
HARDFACE HC333-XE	3.20	0.30	1.00	29.00						Rest		58-62 HRC
HARDFACE HCLC-XE	4.50			33.00						Rest		58-62 HRC
HARDFACE HCCR-XE	5.40			40.00						Rest		60-63 HRC
HARDFACE CNNb-XE	3.40			22.00				10.00		Rest		55-57 HRC
HARDFACE CNWMo-XE	4.50	0.30	1.00	23.50		5.00		4.00	4.00	Rest	1.70	63-67 HRC
CHROMECORE 410-XE	0.10	0.30	0.50	13.00						Rest		42-45 HRC
CHROMECORE 414M-XE	0.07	0.90	0.70	11.50	4.00	0.45				Rest		38-40 HRC
CHROMECORE 420Mo-XE	0.45	0.60	0.75	12.00	0.20	1.20				Rest	0.25	50-55 HRC
STELLOY 1-XE	2.30	1.00	1.00	28.50			Rest		12.00	4.00		52-55 HRC
STELLOY 6-XE	1.00	1.00 max	1.50 max	28.00	1.50 max		Rest		5.00	2.50 max		40-44 HRC
STELLOY 12-XE	1.40			29.00			Rest		8.00			48-52 HRC
STELLOY 21-XE	0.25	1.00	1.00	28.00	3.00	5.50	Rest			4.00		33 HRC

Product name	Standard diameters and length [mm]	Standards EN 14700/ DIN 8555/ AWS A5.13	Polarity	Metal/metal friction	Mineral abrasion	Abrasion under pressure	Hot abrasion	Erosion	Cavitation	Impact	Mechanical fatigue	Thermal fatigue	Hot oxidation	Corrosion	Rebuilding or cladding	Buffer layer or assembly	Cutting ability	Work hardening	Machinability	Description and applications
Anti-abrasion																				
HARDFACE HC333-XE	3.20 x 350 4.00 x 350 5.00 x 350	EFe14/ E 10-UM-60 GRZ/ E FeCr-A6	= + ~ 70V		••	••		•												• High chromium medium carbon containing abrasion/impact resistant alloy. The microstructure consists of mostly austenitic matrix with fine chromium carbides • It is used in applications where abrasion and impact resistance are required such as conveyor screws, bucket lips, impact bars and mixer blades • Complements Welding Alloys cored wire HARDFACE HC333-O
HARDFACE HCLC-XE	3.20 x 350 4.00 x 350	E Fe15/ E10-UM-60 GRZ/ E FeCr-A8	= + ~ 65V		••	••		•												• Highly abrasion resistant chromium carbide weld deposit • It contains a high amount of primary and secondary chromium carbides in an austenitic/martensitic matrix • Typical applications are for hardfacing crushing and mineral conveying equipment, dredger pumps, mixers, excavator buckets and teeth • Complements Welding Alloys cored wire HARDFACE HC-O
HARDFACE HCCR-XE	3.20 x 350 4.00 x 350	E Fe15/ E10-UM-60 GRZ/ E FeCr-A8	= - ~ 60V		••	••		•												• Extremely high chromium content combined with carbon produces high amount of chromium carbides showing excellent abrasion resistance in single layer deposits • It should be limited to single layer applications to reduce the risk of spalling • Typical applications are components which require extreme abrasion resistance in a single layer deposit
HARDFACE CNNb-XE	3.20 x 350 4.00 x 350	E Fe15/ E10-UM-60 GRZ/ E FeCr-A	= + ~ 65V		••	••	•	•												• The deposit contains a mixture of primary niobium carbides and eutectic chromium carbides • It displays a very good wear resistance to fine particle abrasion • Typical applications are fan blades, crushers, conveyors for coal, clinker and glass • Complements Welding Alloys cored wire HARDFACE CN-O
HARDFACE CNWMo-XE	3.20 x 350 4.00 x 350 5.00 x 350	EFe16/ E 10-UM-65 GRZ/ E FeCr-E4	= + ~ 70V		••	••	••	•												• Highly alloyed abrasion resistant alloy stable at high temperatures • The microstructure consists of niobium, molybdenum, tungsten and chromium carbides • Typical applications are sinter bars and stars, extraction fans, high temperature screw conveyors • Complements Welding Alloys cored wire HARDFACE CNV-O
Stainless ferritic and martensitic																				
CHROMECORE 410-XE	3.20 x 350 4.00 x 350 5.00 x 350	E Fe7/ E5-UM-45 CR	= + ~ 70V	••					•		••	••	•	•					•	• Rutile coated 13% Cr containing martensitic stainless steel displaying good metal-to-metal wear resistance at high temperatures • It is suitable for hardfacing components subject to thermal fatigue and corrosion such as valve seats, shafts and rolls
CHROMECORE 414M-XE	3.20 x 350 4.00 x 350	E Fe7/ E5-UM-40 CR	= +	••					•		••	••	•	•					•	• Basic coated high Cr martensitic stainless steel with Ni and Mo additions • It is suitable for welding 410NiMo type steels in water turbines and valves in oil & gas industry
CHROMECORE 420Mo-XE	3.20 x 350 4.00 x 350	E Fe8/ E5-UM-50 CR	= - ~ 70V	••					•		••	••	•	•					•	• 12% Cr containing high carbon martensitic stainless steel with Mo+V addition displaying resistance to metal-to-metal wear • It could be used for hardfacing screw conveyors, breaker bars, shear blades and guide rails
Cobalt base																				
STELLOY 1-XE	3.20 x 350 4.00 x 350	E Co3/ E 20-UM-55CTZ/ E CoCr-C	= + ~ 70V	•			••	••				••	••	••	••		••		•	• Highest hardness of the cobalt base alloy range, offering excellent resistance to abrasion and corrosion • Self polishing, promotes scratch free sliding of abrasive materials • Typical applications are rubber kneaders etc. • Complements Welding Alloys cored wire STELLOY 1
STELLOY 6-XE	3.20 x 350 4.00 x 350	E Co2/ E20-UM-45CTZ/ E CoCr-A	= + ~ 70V	•			••	••				••	••	••	••		••		•	• Excellent combination of abrasion, erosion and corrosion resistance • It is used in cladding hot shearing tools, petrochemical and industrial valves, forging dies and handling equipment for hot steel and hot pressing dies • Complements Welding Alloys cored wire STELLOY 6
STELLOY 12-XE	3.20 x 350 4.00 x 350	E Co3/ E20-UM-50CTZ/ E CoCr-B	= + ~ 70V	•			••	••				••	••	••	••		••		•	• Co-Cr-W hardfacing alloy designed for high temperature applications where abrasion, erosion and corrosion resistance are required • Typical applications are wood and screw conveyors, forging dies and shearing tools • Complements Welding Alloys cored wire STELLOY 12
STELLOY 21-XE	3.20 x 350	E Co1/ E20-UM-35CTZ/ E CoCr-E	= + ~ 70V	•					••	••	•	••	••	••	••		••	•	••	• Ideal choice for resisting multiple combinations of stresses, corrosion and cavitation • Maintains a good level of hardness at high temperatures • Work-hardenable, can be polished and has low coefficient of friction • Typical applications are industrial valve work, forging dies and hot shearing blades • Complements Welding Alloys cored wire STELLOY 21

• Suitable •• Highly suitable

Joining – Electrodes

Product name	Composition [%] - Fe balance				
	C	Mn	Si	Ni	Mo
SPEEDARC 6013-RR-XE	0.08	0.65	0.35		
SPEEDARC 6013-RC-XE	0.08	0.55	0.45		
SPEEDARC 7016-1-B-XE	0.07	1.10	0.50		
SPEEDARC 7018-B-XE	0.07	0.90	0.50		
SPEEDARC 7018-1H4-B-XE	0.07	1.20	0.50		
SPEEDARC 6010-C-XE	0.12	0.60	0.20		
SPEEDARC 7010-A1-C-XE	0.10	0.40	0.15		0.50
SPEEDARC 8010-G-C-XE	0.14	0.90	0.20	0.60	

Product name	Standard diameters and length [mm]	Standards AWS/ ***EN ISO***	Polarity	Mechanical properties				Description and applications	Base material
				Rm [MPa]	Rp 0.2% [MPa]	A5 [%]	KCV [J]		
Constructional steels									
SPEEDARC 6013-RR-XE	2.00 x 300 2.50 x 350 3.20 x 350 4.00 x 350 4.00 x 450 5.00 x 350 5.00 x 450	E6013/ ***E 42 0 RR 12***	= - ~ 50V	550	480	25	0°C: > 60 -20°C: 40	• General purpose heavily coated rutile electrode • Suitable for welding low and medium carbon structural steels • Relatively high basic slag produces excellent mechanical properties • Easy slag removal, smooth and excellent weld surface • Suitable for bridge constructions, boiler vessels and metal work plates	St33, St37, St37-4, St44, St44-4, St52, St52-4, St E255, St E 420, St 35.8, St 45.8, HI, HII, HIII, 17 Mn 4, 19 Mn 6, A-, D-, GS-38, GS45, GS-52
SPEEDARC 6013-RC-XE	2.50 x 350 3.20 x 350 4.00 x 350 5.00 x 350	E6013/ ***E 42 0 RC 11***	= - ~50V	550	440	25	0°C: 50	• Rutile-cellulosic electrode • Suitable for all positions including vertical down • Good penetration characteristics • Ideal electrode to access difficult areas as it could easily bend • Steel constructions, boiler vessels, ship plates • It requires a basic root pass electrode	St33, St37, St37-4, St44, St44-4, St52, St52-4, St E255, St E 420, St 35.8, St 45.8, HI, HII, HIII, 17 Mn 4, 19 Mn 6, A-, D-, GS-38, GS45, GS-52
SPEEDARC 7016-1-B-XE	2.50 x 350 3.20 x 350 4.00 x 450	E 7016-1/ ***E 46 6 B 22***	= +	550	460	30	0°C: 240 -20°C: 240 -40°C: 180 -60°C: 120	• Basic coated electrode with very low P and S • Excellent quality with homogenous weld beads • Recommended for welding high carbon high strength low alloy steels • It is an ideal choice for root passes	St33, St34, St37, St42, St44, St52, St E255, St E 420, WSt E 255, WSt E 420, TSt E 255, TSt E 420, St E 240-7, St E 290-7, St E 360-7, 5LX42 - 5LX60, HI, HII, HIII, 17 Mn 4, 19 Mn 6, St 35.8, St 45.8, A-, D-, E, AH, DH, EH, GS-38, GS45, GS-52
SPEEDARC 7018-B-XE	2.00 x 300 2.50 x 350 3.20 x 350 4.00 x 450 5.00 x 450	E 7018/ ***E 42 3 B 42 H10***	= +	530	460	28	-30°C: 110 -40°C: 80	• Basic coated electrode • Suitable for welding structures under constraint • 125% metal recovery • Excellent quality weld finish • Suitable for welding high P and high S steels • Steel constructions, boiler and pressure vessels manufacturing	St34, St37, St42, St44, St44-4, St52, C 55, Ck55, St E255, St E 420, WSt E 255, WSt E 420, TSt E 255, TSt E 420, St E 240-7, St E 290-7, St E 360-7, 5LX42 - 5LX60, HI, HII, HIII, 17 Mn 4, 19 Mn 6, A-, D-, E, AH, DH, EH, GS-38, GS45, GS-52
SPEEDARC 7018-1H4-B-XE	2.50 x 350 3.20 x 350 4.00 x 450 5.00 x 450	E 7018-1 H4/ ***E 46 5 B 32 H5***	= + ~ 65V	580	480	30	-20°C: 180 -40°C: 120	• Basic coated electrode • Suitable for welding structures under constraint • 125% metal recovery • High impact energy at low temperatures • Suitable for fine grained structural steels	St34, St37, St42, St44, St44-4, St52, St70, C 60, Ck60, St E255, St E 420, WSt E 255, WSt E 420, TSt E 255, TSt E 420, St E 240-7, St E 290-7, St E 360-7, 5LX42 - 5LX60, HI, HII, HIII, 17 Mn 4, 19 Mn 6, A-, D-, E, AH, DH, EH, GS-38, GS45, GS-52
Pipeline welding									
SPEEDARC 6010-C-XE	2.50 x 350 3.20 x 350 4.00 x 350 5.00 x 350	E 6010/ ***E 38 3 C 21***	= + = - Root Pass	530	420	25	-29°C: 45	• Cellulosic coated easy striking electrode • It could be welded in all positions and produce high penetration • It is recommended for site welding of pipe carrying natural gas, crude petroleum or alike • It is also used for root and subsequent passes for pipe connections of 5LX46 grade pipe steels	St33, St34, St37, St42, St44, St52, St35, St35-4, St35-8, St45, St45-4, St45-8, St E 210-7, St E 240-7, St E 290-7, St E 360-7, 5LX42 - 5LX46, 5LX52, HI, HII, HIII, 17 Mn 4, A-, B-, C-, D-, E-, GS-38, GS45
SPEEDARC 7010-A1-C-XE	2.50 x 350 3.20 x 350 4.00 x 350 5.00 x 350	E 7010-A1/ ***E422M°C21***	= +	540	420	25	-29°C: 45	• Cellulosic coated easy striking electrode suitable for DC welding • It could be welded in all positions and produce deep penetration • It is recommended for site welding of pipe carrying natural gas, crude petroleum or alike • It is recommended for welding large diameter high strength steel pipelines	St33, St34, St37, St42, St44, St52, St35, St35-4, St35-8, St45, St45-4, St45-8, St E 240-7, St E 290-7, St E 310-7, St E 360-7, 5LX42 - 5LX46, 5LX52, HI, HII, HIII, 17 Mn 4, A-, B-, C-, D-, E-, GS-38, GS45
SPEEDARC 8010-G-C-XE	3.20 x 350 4.00 x 350 5.00 x 350	E 8010-G/ ***E 46 3 1Ni C21***	= +	600	480	24	-30°C: 50	• Cellulosic coated easy striking electrode • Due to its alloying additions it produced high strength high toughness weld deposit • It is recommended for the root and subsequent passes for large diameter pipes with high yield strength • It is suitable for site welding of pipe and pipelines and suitable for welding 5LX60 - 5LX70 range pipe steels	St35, St35-4, St35-8, St45, St45-4, St45-8, St52-4, St E 360-7, St E 385-7, St E 415-7, St E 445-7, St E 480-7, 5LX46, 5LX52, 5LX56, 5LX60, 5LX65, 5LX70

Product name	Composition [%] - Fe balance						
	C	Mn	Si	Cr	Ni	Mo	Cu
SPEEDARC 8018-G-B-XE	0.05	1.00	0.30		0.60		0.45
SPEEDARC 8018-C1-B-XE	0.06	0.90	0.30		2.40		
SPEEDARC 8018-C3H4-B-XE	0.05	1.30	0.35		1.00		
SPEEDARC 9018-D1-B-XE	0.06	1.30	0.40			0.40	
SPEEDARC 11018-G-B-XE	0.05	1.50	0.40	0.35	1.80	0.45	

Product name	Standard diameters and length [mm]	Standards AWS/ ***EN ISO***	Polarity	Mechanical properties				Description and applications	Base material
				Rm [MPa]	Rp 0.2% [MPa]	A5 [%]	KCV [J]		
High strength low alloy steels									
SPEEDARC 8018-G-B-XE	2.50 x 350 3.20 x 350 4.00 x 450	E 8018-G/ ***E 42 2 Z B 42***	= +	570	470	28	-20°C: 120	• Heavily coated basic electrode containing Ni and Cu • Excellent corrosion resistance to sea water and flue gases • Ideal choice for ship steels and for CORTEN-A and CORTEN-B	St44, St44-2, St 44-3, St45-4, St52-3, St E255 - St E 420, WSt E 255 - WSt E 420, TSt E 255 - TSt E 420, St E 240-7 - St E 360-7, HI, HII, HIII, 17 Mn 4, 19 Mn 6, St 35.8, St 45.8, A-, D-, E, St 35.8, St 45.8
SPEEDARC 8018-C1-B-XE	2.50 x 350 3.20 x 350 4.00 x 450	E 8018-C1/ ***E 46 6 2 Ni B 42***	= + ~ 70V	600	500	28	-20°C: 150 -60°C: 110	• Heavily coated basic Ni alloyed • Ideal choice for weldments requiring high toughness at low temperatures • Suitable for the root pass and welding of pipelines and storage tanks	St E255 - St E 420, WSt E 255 - WSt E 420, TSt E 255 - TSt E 420, 14Ni6, 10 Ni14, 16Ni14, 12Ni19, TT St35 N, TT St 45 N, TT St 35 V, TT St 45 V, 11 MnNi 5 3, 13 MnNi 6 3, 14 NiMn 6, 5LX52, 5LX 56, 5LX 60
SPEEDARC 8018-C3H4-B-XE	2.50 x 350 3.20 x 350 4.00 x 450 5.00 x 450	E 8018-C3 H4/ ***E 50 6 1Ni B 42 H5***	= +	620	540	27	-50°C: 80 -60°C: 60	• A thick coated basic electrode with 1% Ni addition • Suitable for welding fine grained steels requiring low temperature toughness • Low H level (<5ml) make it suitable for welding steels in chemical and oil & gas industries	S 275 - S 355, A-, B-, C-, D-, E-, A(H) 32 to A(H) 36, St E255 - St E 420, WSt E 255 - WSt E 420, TSt E 255 - TSt E 420, S 275 NL - S 420 NL, P275 NL2 - P355 NL2, 11MnNi 53, 13MnNi 63, 15MnNi63, 5LX42 - 5LX65
SPEEDARC 9018-D1-B-XE	3.20 x 350 4.00 x 450 5.00 x 450	E 9018-D1/ ***E Mo B 22***	= + ~ 70V	660	580	24	+20°C: 170 -50°C: 50 -60°C: 40	• Basic coated AC/DC electrode • Produces weld metal with high strength and good fracture toughness down to -60°C • Suitable for structures operating at low temperatures	Suitable for steels used in LPG tanks
SPEEDARC 11018-G-B-XE	2.50 x 350 3.20 x 350 4.00 x 450 5.00 x 450	E 11018-G/ ***E 69 5 Mn 2 NiCrMo B T 42***	= + ~ 70V	800	700	20	+20°C: 115 -20°C: 85 -40°C: 70 -50°C: 55 -60°C: 40	• Basic coated electrode with additions of Cr, Ni and Mo • Suitable for heat treatable high strength steels up to 760 N/mm2 • It is recommended for the root pass of high strength steels	St E 500 - St E 69, TSt E500 - TSt E 690, WSt E 500 - WSt E 690, 15 NiCrMo 10 6, 16 NiCrMo 12 6, 11 NiMoV 5 3, 11 NiMnCrMo 5 5, 17 MnCrMo 3 3, 12 MnNiMo 5 5, 5LX70, 5LX75, N-A-XTRA 65, N-A-XTRA 70, N-A-XTRA 75, HSB 77V, T1, T1A, T1B

Product name	Composition [%] - Fe balance							
	C	Mn	Si	Cr	Ni	Mo	Nb	V
SPEEDARC 8013-G-R-XE	0.08	0.70	0.30			0.50		
SPEEDARC 7018-A1-B-XE	0.08	0.80	0.30			0.50		
SPEEDARC 8013-B2-R-XE	0.06	0.80	0.30	1.20		0.40		
SPEEDARC 8018-B2-B-XE	0.06	0.80	0.50	1.20		0.50		
SPEEDARC 9018-B3-B-XE	0.05	0.80	0.40	2.40		1.10		
SPEEDARC 502-15-B-XE	0.05	0.70	0.50	5.00		0.50		
SPEEDARC 8018-B8-B-XE	0.07	0.80	0.40	9.00				
SPEEDARC 9018-B9-B-XE	0.09	0.50	0.30	9.00	1.00	1.00	0.04	0.20
TETRA R 16 8 2-XE	0.55	0.65	0.70	15.50	8.40			
TETRA B 410NiMo-XE	0.04	0.45	0.20	12.30	4.20	0.50		

Product name	Standard diameters and length [mm]	Standards AWS/ ***EN ISO***	Polarity	Mechanical properties				Description and applications	Base material
				Rm [MPa]	Rp 0.2% [MPa]	A5 [%]	KCV [J]		
High temperature creep resistant alloys									
SPEEDARC 8013-G-R-XE	2.50 x 350 3.20 x 350	E 8013-G/ ***E Mo R 22***	=+/- ~ 70V	600	500	24	+20°C: 50	• Rutile coated electrode • Electrode suitable for welding of boiler and pressure vessels due to its Mo addition • Suitable for weld operating up to 525°C	St E255 - St E 420, WSt E 255 - WSt E 420, St E 320-7 - St E 420-7, 5LX52, 5LX56, 5LX60, HI, HII, HIII, 15Mo 3, 17 Mn 4, 19 Mn 5, St 35.8, St 45.8 GS-45, GS-22 Mo 4, GS-C 25
SPEEDARC 7018-A1-B-XE	2.50 x 350 3.20 x 350 4.00 x 450	E 7018-A1/ ***E Mo B 22***	= + ~ 70V	620	510	24	+20°C: 150	• Mo containing basic coated electrode • Suitable for welding of boiler and pressure vessels operating at high temperatures • Creep resistant alloy suitable for multipass applications of thick and constrained materials • Suitable for welding 15 Mo 3 steels up to 550°C	St E255 - St E 500, WSt E 255 - WSt E 500, St E 320-7 - St E 420-7, 5LX52, 5LX56, 5LX60, 5LX65, HI, HII, HIII, 15Mo 3, 17 Mn 4, 19 Mn 5 St 35.8, St 45.8, 17 MnMoV 64, 15 NiCuMoNb 5, 20 MnMoNi 45
SPEEDARC 8013-B2-R-XE	2.50 x 350 3.20 x 350	E 8013-B2/ ***E CrMo 1 R 12***	= - ~ 50V	600	520	22	+20°C: 60	• Rutile coated Cr-Mo creep resistant alloy • Suitable for welding creep resistant pressure vessels and pipe steels operating at high temperatures • A preferred electrode for welding 13 CrMo 44 type steels up to 570°C	13 CrMo 4 4, 22CrMo 4 4, 15 CrMo 5, 25 CrMo 4, 42 CrMo 4, GS-17 CrMo 5 5, GS-22 CrMo 5 4, GS-25 CrMo 4
SPEEDARC 8018-B2-B-XE	2.50 x 350 3.20 x 350 4.00 x 450 5.00 x 450	E 8018-B2/ ***E CrMo 1 B 22***	= + ~ 70V	620	540	22	+20°C: 90	• Basic coated Cr-Mo creep resistant alloy • Suitable for welding creep resistant pressure vessels and pipe steels operating at high temperatures • A preferred electrode for welding 13 CrMo 44 type steels up to 570°C for multipass joints • Basic constituents provide better mechanical properties than the rutile version	13 CrMo 4 4, 13CrMoV 4 2, 22CrMo 4 4, 15 CrMo 3, 15 CrMo 5, 25 CrMo 4, 42 CrMo 4,GS-17 CrMo 5 5, GS-22 CrMo 5 4, GS-22 CrMo 5 4, GS-25 CrMo 4, 15 Cr 3, 16 MnCr 5, 20 MnCr 5, 25 MnCr 4
SPEEDARC 9018-B3-B-XE	2.50 x 350 3.20 x 350 4.00 x 450 5.00 x 450	E 9018-B3/ ***E CrMo 2 B 22***	= + ~ 70V	650	560	22	+20°C: 80	• Basic coated Cr-Mo creep resistant alloy • Suitable for welding heat and creep resistant steels containing 2.2%Cr + 1%Mo operating up to 600°C • Commonly used in power and petrochemical plants suitable for boilers, pressure vessels and pipe connections	10 CrMo 9 10, 10 CrSiMoV 7, 26 CrMo 7, 24 CrMo 10, 10 CrMo 11, 16CrMo 9 3, GS-12 CrMo 9 10, GS-18 CrMo 9 10
SPEEDARC 502-15-B-XE	2.50 x 350 3.20 x 350	E502-15/ ***E CrMo 5 B 42***	= + ~ 70V	580	400	22	+20°C: 80	• Basic coated low Hydrogen electrode for high temperature applications up to 550°C • Suitable for welding steels containing 5%Cr • It is used in power plants and in petrochemical industry for welding vapour production plants, preheaters and heaters	12 CrMo 19 5, 22 CrMo 4 4 , 15 CrMo 3, 15CrMo 5, 25 CrMo 4, GS-17CrMo 5 5, GS-22 CrMo 5, GS-22 CrMo 5 4, GS-25 CrMo 4, 15 Cr 3, 16 MnCr 5, 20MnCr5, 25 MnCr4
SPEEDARC 8018-B8-B-XE	2.50 x 350 3.20 x 350 4.00 x 350	E 8018-B8/ ***E CrMo9 B 4 2 H5***	= +	720	600	21	+20°C: 80	• Basic coated low Hydrogen electrode for high temperature applications up to 650°C • Suitable for welding 9%Cr containing steels • It is used for welding pressure vessel steels, pipe steels and boilers	X12CrMo9-1, X7CrMo9-1, GX12CrMo10
SPEEDARC 9018-B9-B-XE	2.50 x 350 3.20 x 350 4.00 x 350	E 9018-B9/ ***E CrMo 91 B 4 2 H5***	= +	>620	>530	>17	+20°C: >47	• Basic coated low Hydrogen electrode for high temperature applications up to 620°C • Suitable for welding 9 - 12%Cr containing steels • It is used for welding pressure vessel steels, pipe steels, boilers and steam pipes	X1°CrMoVNb 9-1, A213 Gr. T91, A 335 Gr. P91 (T31), A 139Gr.T91
Martensitic/Ferritic stainless steels									
TETRA R 16 8 2-XE	3.20 x 350	E1682-16/ ***E 1682 R 32***	= + ~ 50V	>510	>320	>25		• Rutile coated corrosion resistant alloy suitable for welding pipes of 316, 247 and 16-8-2 • It has excellent thermal expansion property making it suitable for joining austenitic stainless steels susceptible to hot cracking	304, 308, 316L, A376, 308H
TETRA B 410NiMo-XE	2.50 x 350 3.20 x 350 4.00 x 350	E 410NiMo-15/ ***E 134 B 42***	= +	>760	>500	>15	+20°C: >47	• Martensitic/ferritic stainless steel with rutile coating on alloyed core-wire • It is suitable for joining and cladding heat-resistant type similar stainless steels • It displays excellent rsistance to corrosion and erosion up to 700°C	X5CrNi 13 4, G-X5CrNi 13 4, G-X5CrNi 13 6, X6Cr13

Product name	Composition [%] - Fe balance						
	C	Mn	Si	Cr	Ni	Mo	Nb
TETRA R 308L-XE	0.03	0.70	0.80	19.00	10.00		
TETRA B 308Mn-XE	0.10	6.00	0.50	18.00	9.00		
TETRA B 308Mo-XE	0.05	2.50	0.35	19.00	10.00	2.50	
TETRA R 310-XE	0.10	1.70	0.60	26.00	21.00		
TETRA R 316L-XE	0.03	0.80	0.70	17.00	11.00	2.90	
TETRA R 318Nb-XE	0.04	0.80	0.90	18.00	12.00	2.50	0.50
TETRA R 347L-XE	0.03	0.70	0.90	19.00	9.50		0.50

Product name	Standard diameters and length [mm]	Standards AWS/ ***EN ISO***	Polarity	Mechanical properties				Description and applications	Base material
				Rm [MPa]	Rp 0.2% [MPa]	A5 [%]	KCV [J]		
Austenitic stainless steels									
TETRA R 308L-XE	2.00 x 250 2.50 x 250 3.20 x 300 4.00 x 350	E 308L-16/ ***E 19 9 LR 12***	= + ~ 50V	570	420	45	+20°C: 80	• Rutile coated electrode with an extra low carbon level • Cr-Ni stainless steel weld deposit resistant to corrosion up to 350°C and oxidation up to 800°C • It is extensively used in welding storage tanks, pressure fittings in food industries, and plates in chemical environments • It could be used for welding stabilised steels	X2 CrNi 19 11, X2 CrNiN 18 10, X4 CrNi 18 10, X6 CrNiTi 18 10, X6 CrNiNb 18 10
TETRA B 308Mn-XE	2.50 x 250 3.20 x 300 4.00 x 350 5.00 x 350	E 307-15/ ***E 18 8 Mn B 22***	= +	640	420	35	+20°C: 100 -60°C: 75	• Basic coated austenitic stainless steel with 6% Mn • Resistant to oxidation up to 850°C • It is used for welding Mn steels, armour plates, rail steels, tool steels and steels with low weldability • Due to its work hardening characteristics it is used in applications where impact resistance is important	
TETRA B 308Mo-XE	3.20 x 300 4.00 x 350	E 308 Mo-15/ ***E 20 10 3 B 22***	= +	620	420	38	+20°C: 100	• Basic coated Cr-Ni-Mo stainless steel with 2.5% Mn • It is used as a buffer materials for hardfacing and joining armour plates and heat treatable steels	
TETRA R 310-XE	2.50 x 250 3.20 x 300 4.00 x 350 5.00 x 350	E 310-16/ ***E 25 20 R 12***	= + ~ 70V	600	480	35	+20°C: 60	• Rutile coated fully austenitic electrode • It is designed for oxidative environments up to 1200 °C • Ideal electrode for welding heat resistant steels AISI 309 and 310 type	X10 CrAl 24, X15 Cr NiSi 20 12, X15 CrNiSi 25 20, X12 CrNi 25 21
TETRA R 316L-XE	2.00 x 250 2.50 x 250 3.20 x 300 4.00 x 350	E 316L-16/ ***E 19 12 3 LR 12***	= + ~ 50V	600	490	35	+20°C: 60	• Rutile coated extra low carbon Cr-Ni-Mo type stainless steel • Excellent resistance to acidic and intergranular corrosion up to 350°C • Excellent choice for welding 316 type steels used in piping, storage tanks and vessels used in chemical, paper and oil & gas industries	X2 CrNiMo 17 12 2, X2 CrNiMo 18 14 3, X2 CrNiMoN 17 11 2, X4 CrNiMo 17 12 2, X4 CrNiMo 17 13 3, X6 CrNiMoTi 17 12 2, X6 CrNiNb 18 10
TETRA R 318Nb-XE	2.50 x 250 3.20 x 300 4.00 x 350	E 318-16/ ***E 19 12 3 Nb R 12***	= + ~ 70V	620	500	35	+20°C: 65	• Rutile coated Cr-Ni-Mo stainless steel with Nb stabilisation • It could be used for welding Nb and Ti stabilised stainless steels • It could be used in welding stainless steels used in corrosive environments operating up to 350°C	X2 CrNiMo 17 12 2, X2 CrNiMo 18 14 3, X2 CrNiMoN 17 11 2, X2 CrNiMoN 17 13 3, X4 CrNiMo 17 12 2, X4 CrNiMo 17 13 3, X6 CrNiMoTi 17 12 2, X6 CrNiMoNb 17 12 2, X6 CrNiNb 18 10
TETRA R 347L-XE	2.50 x 250 3.20 x 300 4.00 x 350	E 347-16/ ***E 19 9 Nb R 12***	= + ~ 50V	600	520	35	+20°C: 55	• Rutile coated electrode with low carbon content with Nb stabilisation • It is designed to resist in oxidising environments like Nitric acid • It is used for welding AISI 321 and 347 stainless steels exposed to acid, gas and vapour up to 350°C	X4 CrNi 18 10, X2 CrNi 19 11, X6 CrNiTi 18 10, X6 CrNiNb 18 10

Product name	Composition [%] - Fe balance						
	C	Mn	Si	Cr	Ni	Mo	N
TETRA B 307-XE	0.10	4.50	0.40	20.00	10.00	1.00	
TETRA R 309L-XE	0.03	0.70	0.80	23.00	13.00		
TETRA 309LMo-16-XE	0.03	0.80	0.80	23.00	12.50	2.70	
TETRA R 312-XE	0.10	0.80	0.90	29.00	9.00		
TETRA R 22 09L-XE	0.03	0.90	0.50	22.00	10.00	2.70	0.12
TETRA B 22 09L-XE	0.03	1.30	0.40	22.00	9.00	2.60	0.14

Product name	Composition [%] - Fe balance								
	C	Mn	Si	Cr	Nb	Mo	Fe	Cu	Ni
GAMMA 182-XE	0.03	7.00	0.25	18.00	1.50	0.90	7.50		Rest
GAMMA 625-XE	0.04	0.40	0.70	21.00	5.00	9.00	5.00		Rest
CAST PURNi-XE	0.30								Rest
CAST NiFeCu-XE	1.30	0.70	0.80				33.00	6.5	Rest
CAST Ni55-XE	1.00						43.00		Rest
CAST NiCu-XE	0.50	1.00	0.40				3.00	30.00	Rest

Product name	Standard diameters and length [mm]	Standards AWS/ ***EN ISO***	Polarity	Mechanical properties				Description and applications	Base material
				Rm [MPa]	Rp 0.2% [MPa]	A5 [%]	KCV [J]		
Dissimilar assemblies and repairs									
TETRA B 307-XE	3.20 x 300	E 307-15/ ***E 18 9 MnMo B 22***	= +	690	420	35	+20°C: 80	• Basic coated stainless steel electrode with 4.5%Mn • It produces a fully austenitic structure resistant to impact and oxidation • Ideal as a buffer material for hardfacing and for joining armour steels • It could be used for dissimilar weld joints	
TETRA R 309L-XE	2.50 x 250 3.20 x 300 4.00 x 350	E 309L-16/ ***E 23 12 LR 12***	= + ~ 50V	590	460	40	+20°C: 70 -80°C: 35	• Rutile coated low Carbon Cr-Ni Stainless Steel • It is extremely resisistant to oxidation up to 1000°C • Suitable for welding pipes, plates and tanks used in the oil & gas industry	X2 CrNiN 18 10, X2 CrNi 19 11, X4 CrNi 18 10
TETRA 309LMo-16-XE	2.50 x 250 3.20 x 300 4.00 x 350 5.00 x 350	E 309MoL-16/ ***E 23 12 2 LR 32***	= + ~ 50V	720	525	30	+20°C: 60	• Rutile-basic coated all positional electrode • It produces Cr-Ni-Mo containing low Carbon corrosion resistant welds • It is designed for welding stainless steel to mild steel and root runs in cladding	X2 CrNiMo 17 12 2, X2 CrNiMo 18 14 3, X2 CrNiMoN 17 11 2, X2 CrNiMoN 17 13 3, X4 CrNiMo 17 12 2, X4 CrNiMo 17 13 3, X6 CrNiMoTi 17 12 2, X10 CrNiMoTi 17 13 3, X6 CrNiMoNb 17 12 2
TETRA R 312-XE	2.50 x 250 3.20 x 300 4.00 x 350 5.00 x 350	E 312-16/ ***E 29 9 R 12***	= + ~ 50V	800	600	25	+20°C: 50	• Rutile coated high Cr containing stainless steel • It is designed for joining and building up of steels with high tendency to cracking • High alloy steels, tool steels and cast steels with poor weldability could be welded	
Duplex stainless steels									
TETRA R 22 09L-XE	2.50 x 250 3.20 x 350 4.00 x 350	E2209-17/ ***E 2293 N LR 32***	= + ~ 50V	700-850	>520	>20	+20°C: >47	• Rutile coated duplex stainless steel filler material • It displays excellent resistance to Cl and H2S containing corrosive environment • It is suitable for joining and cladding duplex and similar austenitic stainless steels	X2CrNiMoN22-5-3, X2CrNiMoN23-4, X2CrNiMoNb 18-12, P235GH/P265GH,S355N
TETRA B 22 09L-XE	2.50 x 250 3.20 x 350 4.00 x 350	E 2209-15/ ***E 2293 N LB 22***	= +	700-850	>520	>30	+20°C: >80 -60°C: >40	• Basic coated duplex stainless steel filler material with excellent low temperature toughness • It displays excellent resistance to Cl and H2S containing corrosive environment • It is suitable for joining and cladding duplex and similar austenitic stainless steels	X2CrNiMoN22-5-3, X2CrNiMoN23-4, X2CrNiMoNb 18-12, P235GH/P265GH,S355N
Nickel base									
GAMMA 182-XE	2.50 x 250 3.20 x 300 4.00 x 350 5.00 x 350	AWS A5.11: E NiCr Fe-3 ***EN ISO 14172: E Ni 6182***	= +	690		44		• It is suitable for joining and cladding of corrosion and heat resistant type 600 nickel alloys and joining and repair of steels with limited weldability • The weld metal has a good impact resistance down to -196°C and a good tensile strength up to 1000 °C • Complements Welding Alloys cored wire GAMMA 182	
GAMMA 625-XE	2.50 x 300 3.20 x 350 4.00 x 350	AWS A5.11: E NiCr Mo-3 ***EN ISO 14172: E Ni 6625***	= +	750	> 450	> 30	20°C: > 60J -196°C > 35J	• Joining and cladding of Ni base alloys of corresponding types. It is suitable for joining dissimilar joints between Ni base alloys or to low alloy or stainless steels • Service temperatures from -196 °C to +1100 °C • Complements Welding Alloys cored wire GAMMA 625 and GAMMA V625	(2.4856) NiCr22Mo9Nb, (2.4858) NiCr21Mo, (1.4876) X10 NiCrAlTi 32-20H, (1.4876) X10 NiCrAlTi 32-21, X8 Ni9; ASTM A 533 Gr1, 625 alloys, 800H
Cast iron									
CAST PURNi-XE	2.50 x 250 3.20 x 350 4.00 x 350	E Ni-Cl/ E C Ni-Cl/ E23-UM-150	= - ~ 70V	270		9		• A pure Nickel with low Graphite content containing non-conductive flux suitable for welding and surfacing of cast iron parts • Typical applications are pump housings, compressors, engine blocks, gear boxes and cylinders heads & blocks	
CAST NiFeCu-XE	2.50 x 250 3.20 x 350 4.00 x 350	E-NiFeCu-Cl/ E C NiFe-1/ E23-UM-150	= - ~ 70V	400		20		• Ni-Cu-Fe alloy Nickel electrode designed for welding malleable cast iron and nodular ductile spheroidal iron • Typical applications are pipes and flanges, pump impellors, turbine blades, foundry defects and machine housings	
CAST Ni55-XE	2.50 x 300 3.20 x 300 4.00 x 350	E NiFe-Cl/ E C NiFe-13/ E23-UM-200	= + ~ 50V	450	340	10		• Ni-Fe electrode suitable for joining and repair of all cast irons and particularly suitable for joining austenitic alloyed Ni-resist cast irons • Typical applications are repair of defects or filling-up cavities, and joining cast iron to stainless steel or steel parts • Complements Welding Alloys cored wire CAST BI-NIFE	
CAST NiCu-XE	2.50 x 300 3.20 x 300 4.00 x 400	E NiCu-B/ E C NiCu-B/ E23-UM-150	= + ~ 50V	410	270	15		• Ni-Cu alloyed Monel cored electrode suitable for welding all different types of cast iron • It is especially designed for joining cast iron pieces to Monel alloys and to produce Ni-Cu corrosion resistant layer by cladding ordinary cast iron parts	

Product name	Composition [%]					Hardness
	Mn	Si	Sn	Al	Cu	
BRONZE-XE	0.60 max		7.00		Rest	100-140 HB
Speed*Al* AlSi5-XE	0.05 max	5.00		Rest		50-60 HB
Speed*Al* AlSi12-XE	0.10 max	12.00		Rest		50-70 HB

Product name	Standard diameters and length [mm]	Standards DIN 1732/ AWS A5.3	Polarity	Mechanical properties		Description and applications
				Rm [MPa]	A5 [%]	
Gouging/Cutting						
GROOVE ALLOY-XE	3.20 x 350 4.00 x 350 5.00 x 350		= - ~ 70V			• It is designed for gouging and joint preparation of steels, cast iron and non-ferrous metals • It is used to remove previously hardfaced material, bevelling or for crack removal
CUT ALLOY-XE	3.20 x 450 4.00 x 450 5.00 x 450		= - ~ 70V			• It is designed for cutting and piercing all types of steel, cast iron and non-ferrous metals
Copper, Bronze and Al Electrodes						
BRONZE-XE	3.20 x 350 4.00 x 350	DIN 1733 EL-CuSn7/ AWS A5.6 ECuSn-C/	= +	320	20	• A tin-bronze electrode for cladding and repairing parts made of copper, bronze and red brass. • It is also used for joining of these alloys to steels, cast iron and nickel alloys • Typical applications are welding of screws, valve seats, gears, pistons and bearings
Speed*Al* AlSi5-XE	2.50 x 350 3.20 x 350 4.00 x 350	E4043/ EL-AlSi5/	= +		18	• AlSi5 type aluminium electrode designed for joining and repair of wrought and cast aluminium alloys • Suitable for welding Al alloys up to 6% Si • Typical applications are rails, floor plates, engine blocks and casting defects
Speed*Al* AlSi12-XE	2.50 x 350 3.20 x 350 4.00 x 350	El-AlSi12/	= +		8	• Al electrode containing high Si suitable for welding Al alloys up to 12% Si • It is a basic electrode designed for repairing cracks and casting defects • It is typically used in welding engine blocks, housings, pumps, gear boxes and engine pistons

Electrodes Packaging

Standard packaging options:

Technical information

- All chemical compositions given are for all weld metal deposits. All mechanical properties are typical values
- Technical data sheets and safety data sheets are available for all products

Welding products and techniques evolve constantly. All descriptions, illustrations and properties given in this catalogue are subject to change and can only be considered as general guidance.

Cored welding wires and covered electrodes

The Global Solution

Welding Alloys Group

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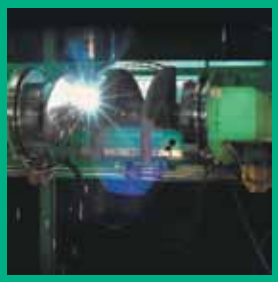
WA Cored Wires™
Design and manufacture of all types of cored welding wires



WA Multi*Surfacer*™
Design and manufacture of automated welding equipment for hardfacing and rebuilding applications

WA Integra™ Services
Innovative hardfacing and rebuilding solutions by welding

A worldwide presence

United Kingdom
(Head office)
Welding Alloys Ltd

Argentina
Welding Alloys Argentina S.A.

Australia (Trading Partner)
Specialised Welding Products Pty Ltd

Brazil
Welding Alloys Brasil Ltda

China
Welding Alloys China Ltd

Egypt
Welding Alloys Egypt

Finland
Welding Alloys Finland Oy

France
Welding Alloys France SAS

Germany
Welding Alloys
Deutschland GmbH

Greece
Welding Alloys Hellas EPE

India
Welding Alloys
South Asia Pvt Ltd

Iran
Aliaj Joosh Iran

Italy
Welding Alloys Italiana s.r.l.

Japan
Welding Alloys Japan

Malaysia
Welding Alloys (Far East) Sdn. Bhd.

Mexico
Welding Alloys
Panamericana S.A. de C.V.

Morocco
Welding Alloys Maroc Sàrl

Poland
Welding Alloys Polska Sp. z o.o.

Russia
ZAO Welding Alloys

South Africa
WASA (PTY) Ltd

South Korea
Welding Alloys Korea Ltd

Spain
Welding Alloys España

Sweden
Welding Alloys Sweden

Taiwan
Welding Alloys Taiwan Co.

Thailand
Welding Alloys (Thailand) Co. Ltd

Turkey
Welding Alloys Limited Şirketi

Ukraine
Welding Alloys Ukraine

United Arab Emirates
Welding Alloys Middle East FZC

USA
Welding Alloys (USA) Inc.

Vietnam
Welding Alloys Vietnam Co. Ltd.

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