



WELDING ELECTRODES
GAS SHIELDED AND SUBMERGED ARC WELDING WIRE
FLUX CORED WELDING WIRES- SUBMERGED ARC WELDING FLUXES





Joining Since 1963...



GEDIK WELDING was established in Turkey in 1963 and is today a global industry leader in the field of welding consumables and equipment. Under its internationally-registered trademarks GeKa® and GeKaTec®, the company manufactures about 90.000 tons/year of superior quality coated welding electrodes, brazing rods, special repair and maintenance products, as well as gas-shielded arc, submerged arc and flux-cored welding wires. The company also produces its own GeKaMac® brand of rectifiers, gas shielded arc and submerged arc welding generators. GEDIK WELDING is one of the largest manufacturers in Europe and exports its products to more than 80 countries around the world. Keeping abreast of the largest technological developments in the domain, GEDIK WELDING also generates robotic solutions and welding automation equipment (GeKaRobot®) for various industries, both in Turkey and overseas.

Able and willing to serve all industrial sectors, GEDIK WELDING is fully prepared to explore alternative solutions in order to satisfy its customers. The company is therefore able to supply customized welding products and innovative engineering solutions, tailor-made to respond to the diverse needs of its clientele.

Continuous efforts are also undertaken to expand and improve its wide range of multi-sector products and services, relying on its own in-house know-how and technology. The company's R&D efforts are managed by expert teams at its modern laboratory facilities in Istanbul, where cutting-edge, durable, relevant and economical solutions and products are constantly being generated.

GEDIK WELDING also contributes to the advancement of welding science and technology via R&D projects carried out in collaboration with Istanbul Gedik University. Further, the non-profit organisation, Gedik Educational Foundation (GEV), conducts various internationally-recognised welding education, training and certification programmes.

This document contains welding consumables under brand name of GeKaTec® for repair and maintenance of various metallic components and structures.



INDEX

PAGE

■ Rutile Electrodes Cellulosic Electrodes	4
■ Low Hydrogen Electrodes	5
■ Nickel Based Electrodes Cast Iron Electrodes	6
■ Heat Resisting Electrodes	7
■ Stainless Steel Electrodes	8 - 10
■ Hardfacing Electrodes	11
■ Cutting & Gouging Electrodes	12
■ Gas Shielded Arc Welding Wires and Rods	13 - 14
■ Heat Resisting Arc Welding Wires and Rods	15
■ Stainless Steel Gas Shielded Welding Wires and Rods	16 - 19
■ Flux Cored Welding Wires	20
■ Submerged Arc Welding Wires	22 - 24
■ Stainless Steel Submerged Arc Welding Wires	25
■ Submerged Arc Welding Fluxes	26 - 27

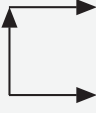
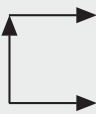
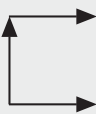


Welding Electrodes

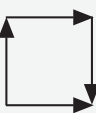


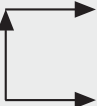
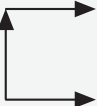
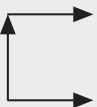
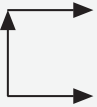
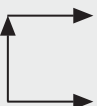
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Rutile Electrodes

ELiT TSE, TÜV, DB, TL, GL, BV, DNV, ABS, LR, NK, RINA, CWB, CE, GOST-R, SEPRO	E 42 0 RR 12 E 6013	C : 0.07 Si : 0.3 Mn : 0.5	min. 420	510 - 610	0 °C min. 47 J	min. 22	- The most commonly-used type of rutile electrode. - Electrode coating of great thickness. - Spatter and fume formation in low amounts. - Good weld beads.	D.C. (-) A.C.	
PANTERA TSE, TL, GL, BV, DNV, ABS, LR, CE, GOST-R, SEPRO	E 42 0 RR 12 E 6013	C : 0.08 Si : 0.4 Mn : 0.5	min. 420	510 - 610	0 °C min. 47 J	min. 22	- Resistance to high currents. - Soft and stable welding. - Spatter and fume formation in low amounts. - Formation of self-removable slag.	D.C. (-) A.C.	
LOTUS TSE, TÜV, DB, TL, LR, CE, GOST-R, SEPRO	E 42 0 RC 11 E 6013	C : 0.07 Si : 0.3 Mn : 0.4	min. 420	510 - 610	0 °C min. 47 J	min. 22	- Electrode coating of medium-thickness. - Flexible type of electrode coating, providing electrode bendability. - Usability in welding of materials in hard-to-reach places. - Suitable for welding at vertical-down welding position.	D.C. (-) A.C.	
EGE TSE, CE, GOST-R, SEPRO	E 38 0 RC 12 E 6013	C : 0.08 Si : 0.4 Mn : 0.5	min. 380	470 - 550	0 °C min. 47 J	min. 22	- Easy to ignite. - Suitable for spot welding. - Suitable for use with iron.	D.C. (-) A.C.	
CEM TSE, ABS, RS, BV, RINA, NK, DNV, CE, GOST-R, SEPRO	E 42 0 RR 53 E 7024	C : 0.07 Si : 0.4 Mn : 0.7	min. 420	510 - 610	0 °C min. 47 J	min. 22	- Resistance to high currents. - High welding efficiency of about 160%. - Cost-saving in groove welding and in flat fillet welding.	D.C. (-) A.C.	

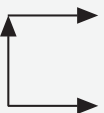
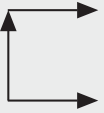
Cellulosic Electrodes

LINK 6010 TSE, TÜV, DB, CE, GL, NACE, GOST-R, SEPRO	E 38 3 C 21 E 6010	C : 0.12 Si : 0.2 Mn : 0.6	min. 380	470 - 540	-30 °C min. 47 J	min. 22	- Suitable for use in welding large-diameter pipelines for crude oil, natural gas and water, as well as in root-pass welding or surfacing of ships, tanks, boilers and steel constructions. - Usability in sour gas-involving applications (acc. HIC Test NACE TM-0284). - Deep penetration obtained during welding in all positions. - Most suitable for welding at vertical-down position.	D.C. (+) For root pass D.C. (-)	
LINK 7010-G TSE, CE, GOST-R, SEPRO	E 42 2 Mo C25 E 7010 - G	C : 0.10 Si : 0.15 Mn : 0.4 Mo : 0.4	min. 420	510 - 590	-20 °C min. 47 J	min. 22	- Suitable for use in welding large-diameter pipelines made of high-strength steels, as well as in all positions during root-pass welding or surfacing of boilers and steel constructions. - Deep penetration, especially (obtained) at vertical-down position.	D.C. (+)	
LINK 8010-G TSE, CE, GOST-R, SEPRO	EZ 46 3 Mo C 25 E 8010-G	C : 0.14 Si : 0.2 Mn : 0.9 Ni : 0.2 Mo : 0.15	min. 460	550 - 650	-30 °C min. 47 J	min. 20	- Suitable for use in all-positions, root-pass welding and in surfacing of high-strength low-alloyed steel pipelines (For root-pass welding, GeKa electrode LINK 6010 is recommended). - Suitable for use in particularly vertical-down position. - Usability in sour gas-involving applications (acc. HIC Test NACE TM-0284).	D.C. (+)	

APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation ($\epsilon_0=5d_0$) (%)			
LASER B 43 TSE, GOST-R, CE SEPRO, ABS	E 38 4 B 42 H5 E 7016-1 H4	C : 0.06 Si : 0.5 Mn : 0.7	min. 400	490 - 600	-50 °C min. 47 J	min. 24	- Suitable for use in welding at all positions, except for vertical-down position. - Weld wire recovery of about 110%. - Weld deposits with very low hydrogen content. - High-quality and ductile, crack-resistant welding wires, mostly forming rigid weldments with beads of large cross-sections. - Requirement of re-drying for a minimum of 2 hours at temperatures between 300-350 °C.	D.C. (+) For root pass D.C.(-)	
LASER B 47 TSE, TÜV, DB, TL, GL, BV, ABS, LR, RS, DNV, RINA, NK, CWB, CE, GOST-R, SEPRO, HAKC (3.20mm)	E 42 4 B 42 H5 E 7018 H4	C : 0.07 Si : 0.5 Mn : 1.0	min. 420	510 - 600	-40 °C min. 47 J	min. 24	- Suitable for use in out-of-position welding, except for welding at vertical-down position. - Excellent strength and toughness. - Suitable for use in the fields of steel constructions, boiler manufacture, container manufacture, machine manufacture and shipbuilding, as well as for use in welding low-purity and high-carbon steels. - Weld deposits with very low hydrogen content. - Weld metal recovery of about 125%. - Requirement of re-drying for a minimum of 2 hours at temperatures between 300-350 °C.	D.C. (+)	
LASER B 50 TSE, ABS, CE, GOST-R, SEPRO HAKC (3.20mm)	E 42 5 B 42 H5 E 7018-1 H4	C : 0.08 Si : 0.5 Mn : 1.1	min. 420	510 - 630	-50 °C min. 47 J	min. 24	- Suitable for use in out-of-position welding, except for welding at vertical-down position. - Excellent strength and toughness. - Suitable for use in the fields of steel constructions, boiler, container, machine manufacturing and vertical construction, as well as for use in welding low-purity and high-carbon steels. - Suitable for the formation of welding buffer layers when building up high-carbon steels. - Weld deposits with very low hydrogen content. - Weld metal recovery of about 110%. - Requirement of re-drying for a minimum of 2 hours at temperatures between 300-350 °C.	D.C. (+)	
LASER B 55 TSE, ABS, CE, GOST-R, SEPRO	E 46 5 B 42 H5 E 7018-1 H4	C : 0.08 Si : 0.4 Mn : 1.4	min. 460	530 - 650	-50 °C min. 47 J	min. 24	- Suitable for use in out-of-position welding, except for welding at vertical-down position. - High ductility at low temperatures down to -50 °C. - Suitable for use in welding low-purity and high-carbon steels. - Weld deposits with very low hydrogen content. - High quality welding wires with higher strength values. - Requirement of re-drying for a minimum of 2 hours at temperatures between 300-350 °C.	D.C. (+)	
TEMPO B 60 TSE, DNV, NACE, CE GOST-R, SEPRO	E 46 6 1 Ni B 42 H5 E 8018 G H4	C : 0.07 Si : 0.3 Mn : 1.3 Ni : 0.9	min. 460	580 - 680	-60 °C 100 J	min. 24	- Content with Mn-Ni alloy. - High toughness and high resistance to cracking. - Suitable for use in welding high-strength, fine-grained structural steels. - Suitable for use in welding of materials with service temperatures between -60 °C and +350 °C. - Very high values of impact resistance after aging. - Convenience of welding at all positions, except for vertical-down position. - Weld deposits with very low content of hydrogen. - Requirement of re-drying for a minimum of 2 hours at temperatures between 300-350 °C.	D.C. (+)	
TEMPO B 85 M ABS, CE, GOST-R, SEPRO	E 69 5 Mn 2Ni Cr Mo B 42 H5 E 11018-MH4	C : 0.05 Si : 0.4 Cr : 0.4 Mo : 0.5 Ni : 2.0 Mn : 1.5	min. 700	min. 760	-50 °C min. 47 J	min. 16	- Basic-type coated and Ni-Cr-Mo-alloyed electrode. - Applicability in welding casting steels and high-strength, fine-grained steels. - Welding wires with high resistance to cracking. - Inclusion of low amounts of hydrogen (4 ml per 100 g of welding wire). - Low amounts of moisture absorbed during long-term storage. - Re-drying: 300-350 °C / 2h.	D.C. (+)	

APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Nickel Based Electrodes

NIBAZ B 65 CE, GOST-R, SEPRO	E Ni 6625 E NiCrMo 3	C : 0.04 Si : 0.7 Mn : 0.4 Cr : 21 Mo : 9.0 Ni : rest Nb : 3.5 Fe : 5.0 Ti : +	min. 420	min. 760	-196 °C min. 35 J	min. 30	- High molybdenum nickel-based alloyed electrode for creep and heat-resistant steels, cryogenic materials, dissimilar joints and high-strength difficult-to-weld steels. - Especially designed for Inconel 625 and Incoloy 825. - Re-drying conditions: 250-300 °C / 2 h.	D.C. (+)	
NIBAZ B 70 CE, GOST-R, SEPRO, ABS	E Ni 6082 ~E NiCrFe 3	C : 0.05 Si : 0.4 Mn : 4.5 Cr : 20 Mo : 1.5 Ni : >65 Nb : 1.8 Fe : 3.0 Ti : 0.25	min. 390	630 - 710	+20 °C min. 60 J	min. 30	- With special basic coated alloyed core wire electrode for welding of nickel-base alloys, high temperature and creep-resistant steels, heat-resistant and cryogenic materials, dissimilar joints and low-alloyed difficult-to-weld steels. - Suitable for pressure vessel manufacturing from -190 °C to +550 °C, otherwise, up to scaling resistance temperature of 1200 °C (S-free atmosphere). - Not prone to embrittlement highly resistant to hot cracking, furthermore C-diffusion of high temperatures or during heat treatment of dissimilar joints is significantly reduced. - Resistant to thermal shock, stainless, fully austenitic. - Low coefficient of thermal expansion between C-steel and austenitic CrNi(Mo)-steel. - Easy slag removal, high resistance to purity. - Re-drying conditions: 250-300 °C / min. 2 h.	D.C. (+)	

Cast Iron Electrodes

ELNIKEL TSE, CE, GOST-R, SEPRO	E C Ni-CI 1 E Ni-CI	C : 0.50 Ni : rest	200	250	Hardness ~170 HB	3	Joint welding of grey cast iron, tempered cast iron, nodular cast iron, as well as joint welding of cast iron with steel, stainless steel and Monel metal.	D.C. (+) A.C.	
ELNIFER TSE, CE, GOST-R, SEPRO	E C NiFe CI 1 E NiFe CI	Fe : >40.0 Ni : >45.0	200	350	Hardness ~190 HB	6	- Welding of grey cast iron, tempered. - Joint welding of cast iron with hard-to-weld steels or cast parts. - Ni-Fe-cored stick electrode. - Welding in short passes and hammering the bead during each pass through gentle strikes are required.	D.C. (+)	
ELMONEL TSE, CE, GOST-R, SEPRO	E C NiCu-B1 ~E NiCu B	Cu : ~30.0 Ni : ~68.0	min. 190	300	Hardness ~140 HB	min. 15	- Soft joint welding of grey cast iron. - Filler welding, repair welding and joint welding of cast iron with steel. - Welding by short passes and gently hammering of the bead during each pass while the bead is hot are required. - Ni-Cu-cored stick electrode.	D.C. (-) A.C.	

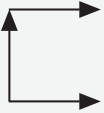
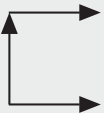
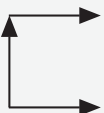
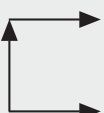
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation ($\alpha_0=5d_0$) (%)			

Heat Resisting Electrodes

OPUS MOB TÜV, DB, CE, GOST-R, SEPRO	E MoB 42 H5 E 7018-A1 H4	C : 0.07 Si : 0.4 Mn : 0.9 Mo : 0.5	min. 460	530 - 680	-50 °C min. 47 J	min. 20	• Basic coated stick electrode. • Welding of heat-resistant, Mo-alloyed, thin walled and unalloyed steels used for construction of boilers and pipes. • Electrode is resistant to working temperatures from -50 °C to + 550 °C. • Re-drying: 300-350 °C min. 2 h. • Heat-treatment: 620 °C/2h and 300 °C (air).	D.C. (+)	
OPUS CM CE, GOST-R, SEPRO	E CrMo 1 B 42 H5 E 8018 - B 2 H4	C : 0.07 Si : 0.5 Mn : 0.8 Cr : 1.1 Mo : 0.5	min. 480	580 - 740	+20 °C min. 47 J	min. 20	• Steam boilers and steam pipes made of Cr-Mo-alloyed, heat-resistant steels. • Cementation steels, nitrided steels. • Basic electrode coating. • Requirement of re-drying for 2 hours at temperatures between 300-350 °C. • Heat-treatment: 690 °C / 2h and 300 °C (air).	D.C. (+)	
OPUS 2 CM CE, GOST-R, SEPRO	E Cr Mo 2 B 42 H5 E 9018 - B 3 H4	C : 0.07 Si : 0.4 Mn : 0.8 Mo : 1.0 Cr : 2.2	min. 530	620 - 800	+20 °C min. 47 J	min. 22	• Welding of steam boilers and steam pipes made of Cr-Mo-alloyed steels. • Electrode is resistant to working temperatures up to 600 °C. • Requirement of re-drying at temperatures between 300-350 °C for at least 2 hours. • Heat-treatment: 720 °C / 2h and 300 °C (air).	D.C. (+)	
OPUS 9 CMV CE, GOST-R, SEPRO	E CrMo91 B 42 H5 E 9018 - B9 H4	C : 0.09 Si : 0.20 Mn : 0.5 Mo : 1.0 Cr : 9.0 Ni : 0.6 V : 0.2 Nb : 0.04 N : +	min. 530	min. 620	+20 °C min. 47 J	17	• High-alloyed low-hydrogen electrode with basic coating. • Resistance to heat and creep and high toughness values under long-term stress. • Weld metal is resistant to high temperatures up to 620 °C. • Pre-heating and inter-pass welding temperatures: 200-300 °C. • Re-drying conditions: 300-350 °C, 2 h. • Heat-treatment : 760 °C / 2h and 300 °C (air).	D.C. (+)	

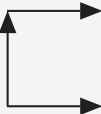
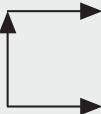
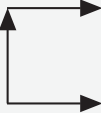
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Stainless Steel Electrodes

ELOX R 307 TSE, CE, GOST-R, SEPRO	E 18 8 Mn R 32 ~E 307 - 16	C : 0.11 Si : 1.0 Mn : 4.5 Cr : 19.0 Ni : 8.5	min. 390	600 - 700	+20 °C min. 47 J	min. 30	• High resistance, alloyed / unalloyed steels, heat-resistant steels, Cr-stainless steels, steels including 14%Mn, hard-to-weld steels. • Joint welding and filler welding of different metals with each other. • Electrode coating of rutile character. • Austenitic welding wire with resistance to thermal shocks. • Maintenance of toughness at temperatures down to -100 °C. • Re-drying: 300-350 °C / min. 2h.	D.C (+) A.C.	
ELOX B 307 L TSE, CE, GOST-R, SEPRO	E 18 8 MnMo B 22 E 307 - 15	C : 0.10 Si : 0.7 Mn : 6.0 Cr : 18.5 Ni : 8.6	min. 390	580 - 750	+20 °C min. 80 J	min. 35	• Highly-resistant steels, alloyed / unalloyed steels, armour steels, hard manganese steels, non-magnetic steels, steels with 14% Mn hard-to-weld steels. • Joint welding of different metals with each other. • Re-drying: 150-200 °C / min. 2h.	D.C (+)	
ELOX R 308L BV, CE, TSE, ABS, GOST-R, SEPRO, HAKC(3.20mm)	E 19 9 LR 32 E 308L - 16	C : 0.03 Si : 0.8 Mn : 0.9 Cr : 20.0 Ni : 10.5	min. 355	520 - 660	+20 °C min. 47 J	min. 35	• Rutile, low-carbon coated electrode for use in chemical, petrochemical and food industries where similar steel types, including higher carbon grades as well as ferritic 13% -Cr steels are welded. • Resistant to corrosion and cracks. • Working temperatures up to +350 °C. • Re-drying: 300-350 °C. /min. 2h.	D.C (+) A.C.	
ELOX R 309L TSE, ABS, BV, CE, GOST-R, SEPRO	E 23 12 LR 32 E 309L - 16	C : 0.03 Si : 0.8 Mn : 0.8 Cr : 23.0 Ni : 12.6	min. 440	540 - 720	+20 °C min. 47 J	min. 30	• Similar-type austenitic stainless steels, dissimilar metals, buffer layers on mild and low-alloyed steels prior to build-up or overlaying with any stainless electrodes, joining of corrosion resistant stainless steel with mild or low-alloyed steels, clad steels. • Good crack resistance with problematic steels. • Re-drying: 300 °C / min. 2 h.	D.C (+) A.C.	
ELOX R 310 TSE, CE, GOST-R, SEPRO	E 25 20 R 32 ~E 310 - 16	C : 0.12 Si : 0.9 Mn : 2.5 Cr : 26.0 Ni : 20.0	min. 355	560 - 690	+20 °C min. 47 J	min. 25	• Weld metal is resistant to working temperatures up to +1200 °C. • Used with alternative current also. • Re-drying: 300-350 °C / min. 2 h.	D.C (+) A.C.	

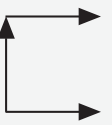
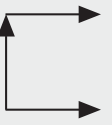
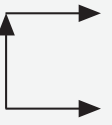
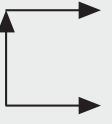
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation ($\epsilon_0=5d_0$) (%)			

Stainless Steel Electrodes

ELOX B 310 TSE, CE, GOST-R, SEPRO	E 25 20 B 22 ~E 310 - 15	C : 0.12 Si : 0.9 Mn : 3.0 Cr : 25.0 Ni : 20.5	min. 355	560 - 690	+20° C 100 J	min. 25	- Austenitic CrNi steels, ferritic Cr-Ni-Al alloyed steels, heat-resistant rolled, forged and cast steels used in ceramic and petrochemical industries and furnace, boiler, chimney applications. - Weld metal is resistant to working temperatures of up to +1200 °C. - Re-drying: 150-200 °C / min. 2h.	D.C (+)	
ELOX R 312 TSE, CE, ABS, BV, GOST-R, SEPRO	E 29 9 R 12 ~E 312 - 16	C : 0.12 Si : 1.0 Mn : 0.8 Cr : 30.0 Ni : 10.5	min. 490	700 - 830	+20° C min. 24 J	min. 20	- Alloyed, unalloyed, highly-resistant steels, Cr and Mn steels, joint welding of tool steels and different steels and repair welding of sprockets and wheelshafts. - Weld metal is resistant to corrosion cracks and rust. - Re-drying: 300 °C / min. 2 h.	D.C (+) A.C.	
ELOX R 316L BV, TSE, CE, ABS, GOST-R, SEPRO HAKC (3,20mm)	E 19 12 3 LR 32 E 316L - 16	C : 0.03 Si : 0.8 Mn : 0.9 Cr : 19.0 Ni : 11.5 Mo : 2.6	min. 355	540 - 670	+20° C min. 47 J	min. 30	- Tanks, pipes and equipment made of Cr-Ni-Mo low-carbon steels which are used in food, textile, chemical and paint industries. - Weld metal is resistant to acid, corrosion. - Serviceability at temperatures up to 400 °C. - Re-drying: 300 °C / min. 2 h.	D.C (+) A.C.	
ELOX R 318 TSE, CE, GOST-R, SEPRO	E 19 12 3 Nb R 32 ~E 318 - 16	C : 0.04 Si : 0.8 Mn : 0.8 Cr : 19.4 Ni : 11.0 Mo : 2.8 Nb : +	min. 390	580 - 750	+20° C min. 47 J	min. 30	- Used for the welding of tanks and pipes made of Cr-Ni-Mo-alloyed, stabilized steels which are used in food, chemical, textile and paint industries. - Weld metal stabilized by Nb is resistant to temperatures up to +400 °C. - Re-drying: 300 - 350 °C / min. 2h.	D.C (+) A.C.	

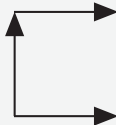
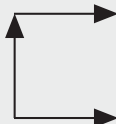
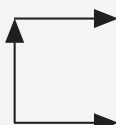
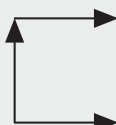
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Stainless Steel Electrodes

ELOX R 347 TSE, CE, GOST-R, SEPRO	E 19 9 Nb R 32 E 347 - 16	C : 0.04 Si : 0.8 Mn : 0.9 Cr : 19.8 Ni : 10.0 Nb : +	min. 390	570 - 740	+20° C min. 47 J	min. 35	- Used for the welding of tanks and pipes in which milk and beer are kept. - Also used for the welding of acid, gas, steam and water armatures. - Resistant to acid and corrosion, stabilized by Nb. Weld metal can resist temperatures up to +400 °C. - Re-drying: 300-350 °C / min. 2 h.	D.C (+) A.C.	
ELOX B 410 TSE, CE, GOST-R, SEPRO	E 13 B 22 E 410-15	C : 0.07 Si : 0.7 Mn : 0.8 Cr : 13.5	min. 450	650 - 800	Hardness (As welded) ~350 HB 750 °C/2h furnace 200 HB	min. 15	%13 Cr used in the joining and surfacing welding of martensitic and martensitic-ferritic steels with %13 Cr and steel casts. (This electrode is also strong at filling in the surfaces of gas, water and steam armatures). - Annealing at 750 °C for 2 hours, cooling down to room temperature in the furnace. - Re-drying: 150-200 °C / min. 2h.	D.C (+)	
ELOX B 430 TSE, CE, GOST-R, SEPRO	E 17 B 22 E 430 - 15	C : 0.08 Si : 0.5 Mn : 0.4 Cr : 17.0	min. 350	540 - 660	Hardness (As welded) ~270 HB 750 °C/2h furnace ~200 HB	min. 20	- Mainly used for corrosion-resistant, wear-resistant surfacing applications. - Preferably for surfacing on sealing faces of gas, water and steam valves. - Scaling resistance up to 900 °C. - Annealing at 750 °C for 2 hours, cooling in the furnace. - Re-drying: 150-200 °C / min. 2 h.	D.C (+)	
ELOX R 2209 TSE, ABS, BV, CE, GOST-R, SEPRO	E 22 9 3 N LR 32 E 2209 - 17	C : 0.03 Mn : 0.90 Mo : 2.70 Si : 0.50 Cr : 22.0 Ni : 10.0 N : 0.12	min. 520	690 - 850	+20° C min. 47 J	min. 20	- Applicability in welding duplex steels. - For suitability joint-and surfacing applications of similar-type austenitic steels and cast steels. - Electrode coating of rutile character. - Excellent weldability. - Very high resistance to stress corrosion cracking and to corrosion at particularly chlorous and sulphurous media. - Serviceability at temperatures in liquid medium up to 280 °C. - Re-drying: 300-350 °C / min. 2h.	D.C (+) A.C.	

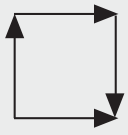
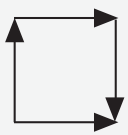
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	HARDNESS	FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
-----------	------------------------	---	----------	------------------------------	-----------------	---------------------

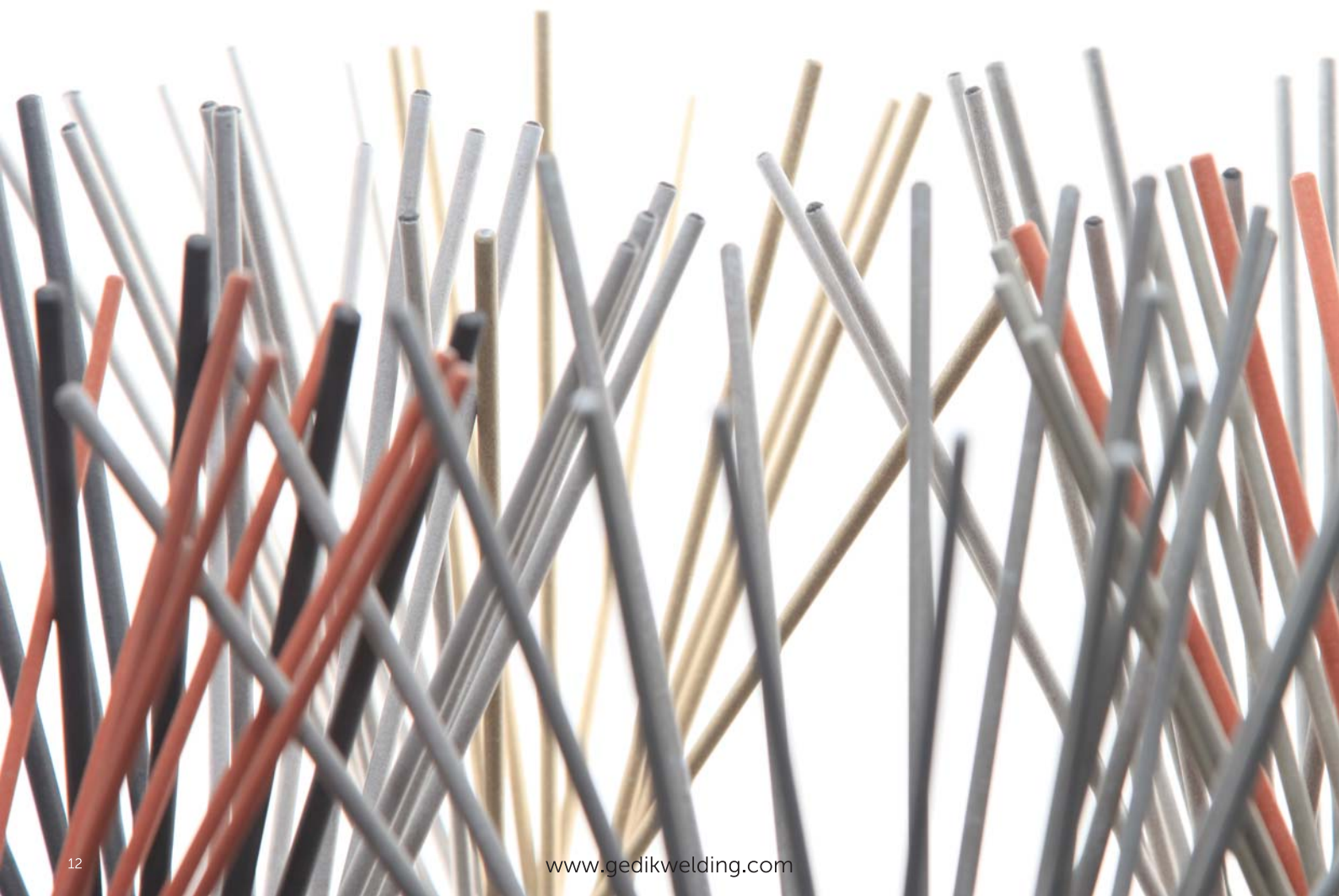
Hardfacing Electrodes

ELHARD 250 CE, GOST-R, SEPRO	E Fe 1 DIN 8555 E1-UM-250	C : 0.15 Si : 0.8 Mn : 1.0 Cr : 1.0	240 - 280 HB	- For tough build-up on rails, gearwheels, shafts, gear parts and couplings. - For buffer layers on carbon steels and low-alloyed steels with concurrent extreme compressive stress on anti-wear surfaces. - Re-drying: 300 °C / 2 h.	D.C (+)	
ELHARD 300 CE, GOST-R, SEPRO	E Fe 1 DIN 8555 E1-UM-300	C : 0.15 Si : 0.5 Mn : 1.3 Cr : 1.5	280 - 330 HB	- Basic coated electrode with medium hardness value. - For tough build-up, particularly on Mn-Mo-alloyed wing and junction rails with mechanical strength of minimum 880 N/mm². - Deposit offers ease of machining. - Pre-heating temperature 250-350 °C. - Re-drying: 300 °C / 2 h.	D.C (+)	
ELHARD 350 CE, GOST-R, SEPRO	E Fe 1 DIN 8555 E1-UM-350	C : 0.17 Si : 0.8 Mn : 1.5 Cr : 2.0	330 - 380 HB	- Basic coated electrode. - Wear resistant surfacing on Mn-Cr-V alloyed frogs, track rollers, idlers, tracks, slideways and drive sprockets. - The deposits are machinable. - Re-drying: 300 °C / 2 h.	D.C (+)	
ELHARD 600 CE, GOST-R, SEPRO	E Fe 8 DIN 8555 E1-UM-60 P	C : 0.5 Si : 1.1 Mn : 0.5 Cr : 7.5 Mo : 1.0 V : 1.0	55 - 59 HRC	- Final pass-welding of parts of earth-moving and mining equipment with high resistance to abrasion, as well as of parts of hard manganese steels and frags. - Welding wire is resistant to abrasion. - Re-drying: 300 °C / 2 h.	D.C (+)	
ELHARD 62 CE, GOST-R, SEPRO	E Fe 16 DIN 8555 ~E10-UM-60 GRZ	C : 6.5 Cr : 24.0 Nb : 7.5	~62 HRC	- On parts primarily exposed to abrasion combined with light impact, such as conveyor screws, mixer blades and sand pumps. - As final layer on tough-hard weld deposits. - Re-drying: 300 °C / min. 2h	D.C (+) A.C.	
ELHARD 63 CE, GOST-R, SEPRO	E Z Fe 14 DIN 8555 ~E10-UM-60 GRZ AWS ~E FeCr-A8	C : 4.5 Si : 1.0 Mn : 0.5 Cr : 34.0	60 - 64 HRC	- Special coating, high-chromium cable electrode for hardfacing operations to provide maximum resistance to extreme mineral abrasion. - A typical application is stringer beads on earth-moving, cement mill and brick-making equipment. - Preheating generally not required, metal recovery is approx. 220%. - Re-drying: 300 °C / min. 2 h.	D.C (+) D.C (-) A.C.	
ELHARD 65 CE, GOST-R, SEPRO	E Fe 16 DIN 8555 ~E10-UM-65 GRZ	C : 4.5 Si : 1.0 Mn : 0.3 Cr : 23.5 Mo : 5.0 V : 1.7 W : 2.5 Nb : 4.0	63 - 67 HRC	- Super hardfacing electrode with very high content of carbide formers (Mo, V, W, Nb) for deposits subject to extreme sliding mineral abrasion. 230% metal recovery, preheating is generally not necessary. - Re-drying: 300 °C / min. 2 h.	D.C (+) A.C.	

APPROVALS	TYPICAL BASE MATERIALS	FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
-----------	------------------------	---------------------------	--------------	------------------

Cutting & Gouging Electrodes

ELIT CUT GOST-R, SEPRO	• Non-alloyed and low alloyed steels, • Stainless steels, • Aluminium and aluminium alloys, • Copper and copper alloys, • Cast-iron and steel casts.	• Usability in cutting or in drilling all metals that cannot be oxygen-cut or -drilled. • Resistance against high values of current at welding. • Requirement of holding the levtrode in the direction perpendicular to work direction.	D.C. (-) A.C	
ELIT NUT GOST-R, SEPRO	• Non-alloyed and low alloyed steels, • Stainless steel, • Aluminium and aluminium alloys, • Copper and copper alloys, • Cast-iron and steel casts.	• Usability in making welding groove or in removing defective weld beads in all metals that cannot be worked through oxygen. • Very easy usage • Arc start by holding the electrode in a direction perpendicular to that of the work and by subsequently pushing it forward after approaching it at an angle of 15° to work direction. • Groove depth of half of the electrode's coating thickness. • Deeper grooves obtained only by repeating the operation after the work piece is cooled.	D.C. (-) A.C	



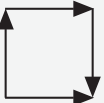
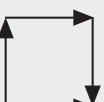
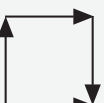
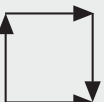


Welding Wires & Rods



APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Gas Shielded Arc Welding Wires and Rods

SG 1 TSE, CWB, CE GOST-R, SEPPO	G/W 2Si ER 70 S-3	C : 0.10 Si : 0.6 Mn : 1.2	400	530-680	-40 °C min. 47 J	min. 24	- Welding of thin-walled parts. - Root pass welding. - For making galvanized coating. - TIG welding of tubes and pipes. - Shielding gases: TIG: Ar MAG: Ar+CO₂ mix gases or pure CO₂	TIG D.C (-) MAG D.C (+)	
SG 70 S-2 TSE, CE, GOST-R, SEPPO	G/W 2Ti ER 70 S-2	C : 0.05 Si : 0.55 Mn : 1.1 Ti : 0.12 Zr : 0.07 Al : 0.11	min. 400	min. 480	-30 °C min. 47 J	min. 22	- Wire for welding of mild and low-alloyed steels as well as thin-walled materials. - Being triple deoxidized with Aluminium, Titanium and Zirconium as well as Manganese and Silicon, the wire is capable of producing efficient welds when the steel to be welded is rusty, dirty, undercoat painted. - It is recommended for pipe welding and for root passes in heavy vessel construction. - Also for welding of steels of which the surface will be coated (such as galvanized, etc.) - Shielding gases: TIG: Ar MAG: Ar+CO₂ mix gases or pure CO₂	TIG D.C (-) MAG D.C (+)	
SG 2 TSE, BV, DNV, TL, GL, DB, ABS, LR, RS, TÜV, CWB, CE, RINA, NK, GOST-R, SEPPO, HAKC (1.20 mm)	G/W 3Si1 ER 70 S-6	C : 0.08 Si : 0.85 Mn : 1.45	min. 420	500 - 640	-30 °C min. 47 J	min. 22	- Used in steel construction and machinery production. - Welding of ships, boiler tanks, pipe parts. - Welding of thin-walled steels. - Thin sheet welding in automotive industry. - Perfect smooth feedability, perfect welding characteristics. - Shielding gases: TIG: Ar MAG: Ar+CO₂ mix gases or pure CO₂	TIG D.C (-) MAG D.C (+)	
SG 3 TÜV, CE, TSE, DB, GL, GOST-R, SEPPO	G/W 4 Si1 ER 70 S-6	C : 0.10 Si : 1.0 Mn : 1.70	min. 460	540 - 680	-40 °C min. 47 J	min. 22	- Used for the same welding purposes as SG2. - Its strength is increased by Si-Mn. - Low spatter even when used under CO₂ atmosphere. - Excellent wire feeding capability. - Shielding gases: TIG: Ar MAG: Ar+CO₂ mix gases or pure CO₂	TIG D.C (-) MAG D.C (+)	

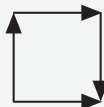
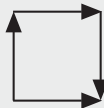
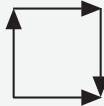
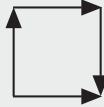
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Heat Resisting Arc Welding Wires and Rods

SG Mo CE, GOST-R, SEPRO	G/W Mo Si ER 80 S-G mod. (ER 70 S-A1)	C : 0.10 Si : 0.6 Mn : 1.1 Mo : 0.5	min. 460	550 - 670	-30 °C min. 47 J	min. 22	• Copper-coated wire for GMAW and rod TIG welding in boiler pressure vessel, pipework and crane construction, as well as in structural steel engineering. • High quality, very tough deposit of high crack resistance and non-aging. • Recommended for service in temperature range -45 °C (TIG) or -40 °C (GMAW) to +550 °C. • Good copper bonding with low total copper content. • Very good welding and flow characteristics. • Preheating interpass and postweld heat treatment as required by base metal. • Shielding gases: TIG: Ar MAG: Ar+CO₂ mix gases or pure CO₂.	TIG D.C (-) MAG D.C (+)	
SG CrMo 1 CE, GOST-R, SEPRO	G/W Z CrMo1Si ER 80 S-B2	C : 0.10 Si : 0.6 Mn : 0.5 Mo : 0.5 Cr : 1.2	min. 470	550 - 670	+20 °C min. 78 J	min. 19	• Used for the welding of high heat resistant Cr-Mo-alloyed steels which are used for the production of boilers tubes and pipes and nitrided steels. • Welding wire is resistant to temperatures up to +570 °C. • Shielding gases: TIG: Ar MAG: Ar+CO₂ mix gases or pure CO₂.	TIG D.C (-) MAG D.C (+)	
SG CrMo 2 CE, GOST-R, SEPRO	G/W Z CrMo2Si ER 90 S-B3	C : 0.08 Si : 0.45 Mn : 0.5 Mo : 1.0 Cr : 2.4	min. 540	620 - 760	+20 °C min. 47 J	min. 20	• Used for the welding of high heat resistant Cr-Mo-alloyed steels which are used for the production of boilers, tubes, pipes and nitrided steels. • Welding wire is resistant to temperatures up to +600 °C. • Shielding gases: TIG: Ar MAG: Ar+CO₂ mix gases or pure CO₂.	TIG D.C (-) MAG D.C (+)	
SG CrMo 5 CE, GOST-R, SEPRO	W CrMo5Si ER 80 S-B6	C : 0.07 Si : 0.45 Mn : 0.5 Mo : 0.6 Cr : 6.0	min. 420	590 - 690	+20 °C min. 70 J	min. 18	• Used for the welding of high heat resistant steels, hot hydrogen plants, working temperatures +600 °C and also used for the welding of steels with 5 Cr 1/2 Mo. • Shielding gases: TIG: Ar.	TIG D.C (-)	

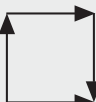
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Stainless Steel Gas Shielded Welding Wires and Rods

ELOX SG 307 GOST-R, SEPRO	G/W 18 8 Mn ~ER 307	C : 0,08 Si : 0,9 Mn : 7,0 Cr : 19,2 Ni : 9,0	min. 370	580 - 750	+20 °C min. 63 J	min. 30	• Filler welding of high-strength, low-alloyed and alloyed heat-treatable steels, armour steels, steels including 14 % Mn, ferritic-chromium steels, heat-resistant steels, non-magnetic steels, etc. • Joint welding of different types of steels with each other. • Filler welding of abrasion-resistant steels for valves and turbines. • As shielding gas, argon is used for TIG welding, whereas Ar+O₂ or mixed gas is used for MIG welding.	TIG D.C. (-) MIG D.C. (+)	
ELOX SG 308 H GOST-R, SEPRO	G/W 19 9 H ER 308 H	C : 0,06 Si : 0,5 Mn : 1,7 Cr : 20,1 Ni : 9,8	min. 350	min. 550	0 °C min. 63 J	min. 25	• Applicability in welding tempered high-strength steels, as well as stainless steels, carbon steels and 18/8, Cr-Ni-alloyed steels. • Requirement of use of Ar as "shielding gas for TIG welding" and of Ar+O₂ or mixed gas as "shielding for MIG welding".	TIG D.C. (-) MIG D.C. (+)	
ELOX SG 308 L GOST-R, SEPRO	W 19 9 L ER 308 L	C : <0,02 Si : 0,5 Mn : 1,7 Cr : 20,1 Ni : 9,8	min. 390	540 - 660	+20 °C min. 63 J	min. 35	• TIG welding of 13% Cr-ferritic stainless steels, high-carbon steels of type 304 or stabilized steels of type 347 or steels of similar qualities, all of which used in pharmaceutical, cellulose, paper and food (production) industries. • The shielding gas is argon (Ar). • Maintenance of ductile behaviour at temperatures down to -269 °C. • Maintenance of resistance against intergranular corrosion at temperatures up to 400 °C.	TIG D.C. (-)	
ELOX SG 308 L Si GOST-R, SEPRO	G 19 9 L Si ER 308 L Si	C : <0,02 Si : 0,8 Mn : 1,7 Cr : 20,4 Ni : 10,2	min. 350	520 - 660	+20 °C min. 63 J	min. 35	• MIG welding of 13% Cr-ferritic stainless steels, high-carbon steels of type 304 or stabilized steels of type 347 or steels of similar types used in industries of pharmaceutical, cellulose, paper and food (production). • Ar+O₂ or mixed gas is used as shielding gas. • Maintenance of ductile behaviour at temperature down to -269 °C. • Maintenance of resistance to intergranular corrosion at temperatures up to 350 °C.	MIG D.C. (+)	

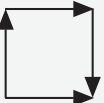
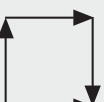
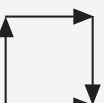
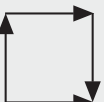
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation ($\epsilon_0=5d_0$) (%)			

Stainless Steel Gas Shielded Welding Wires and Rods

ELOX SG 309 L GOST-R, SEPRO	W 23 12 L ER 309 L	C : 0,03 Si : 0,45 Mn : 1,80 Cr : 23,5 Ni : 13,0	min. 320	min. 520	+20 °C min. 47 J	min. 30	• Applicability on ferritic-Cr or austenitic CrNi steels, austenitic manganese steels, unalloyed high-strength steels, heat-treated steels. • Usability in welding austenitic stainless steels, in joint-welding of different kinds of metals, in buffer layers, in joint-welding of corrosion-resistant stainless steels to each other or to low-alloyed steels, and in welding coated steels. • Requirement of use of Ar as shielding gas.	TIG D.C. (-)	
ELOX SG 309 L Si GOST-R, SEPRO	G 23 12 L Si ER 309 L Si	C : 0,03 Si : 0,80 Mn : 1,80 Cr : 23,5 Ni : 13,0	min. 320	min. 520	+20 °C min. 47 J	min. 30	• Applicability on ferritic-Cr or austenitic CrNi steels, austenitic manganese steels, unalloyed high-strength steels, heat-treated steels. • Usability in welding austenitic stainless steels, in joint-welding of different kinds of metals, in buffer layers, in joint-welding of corrosion-resistant stainless steels to each other or to low-alloyed steels and in welding coated steels. • Requirement of use of Ar + O₂ or mixed gas as shielding gas in MIG welding.	MIG D.C. (+)	
ELOX SG 310 GOST-R, SEPRO	G/W 25 20 ER 310	C : 0,12 Si : 0,50 Mn : 1,60 Cr : 25,0 Ni : 20,5	min. 350	550 - 720	+20 °C min. 63 J	min. 30	• Applicability in cement and ceramic industries, in manufacturing processes of industrial furnaces, oil refineries, in welding of steel and steel castings used in steam boiler manufacture. • Suitability of welding wire for use at temperatures between -196 °C and 1200 °C. • Suitability for both TIG and MIG welding. • Requirement of use of Ar as shielding gas in TIG welding and of Ar + O₂ or mixed gas as shielding in MIG welding.	TIG D.C. (-) MIG D.C. (+)	
ELOX SG 312 GOST-R, SEPRO	G/W 29 9 ER 312	C : 0,12 Si : 0,40 Mn : 1,80 Cr : 30,0 Ni : 9,0	min. 450	min. 660	+20 °C min. 47 J	min. 20	• Applicability in joint-welding of unalloyed and alloyed high-strength steels Cr and Mn steels, tool steels, and of different metals. • Resistance to wearing, cracking and corrosion. • Requirement of use of Ar as shielding gas in TIG welding and Ar + O₂ mix as shield gas in MIG welding.	TIG D.C. (-) MIG D.C. (+)	

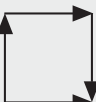
APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Stainless Steel Gas Shielded Welding Wires and Rods

ELOX SG 316 L GOST-R, SEPPO	W Z 19 12 3 L ER 316 L	C : 0,02 Si : 0,5 Mn : 1,6 Cr : 18,5 Ni : 11,5 Mo : 2,2	min. 420	570 - 700	+20 °C min. 63 J	min. 35	- TIG welding of 13% Cr-ferritic stainless steels, high-carbon or stabilized steels of type 316, low-carbon stainless steels of type 316 L, all of which are used in machinery and equipment parts at production plants for food, chemical, pharmaceutical, textile and similar kinds of industries. - As shielding gas argon (Ar) is used. - Maintenance of resistance to intergranular corrosion at temperatures up to 400 °C. - Resistance to low temperatures down to -196 °C.	TIG D.C (-)	
ELOX SG 316 L Si GOST-R, SEPPO	G Z 19 12 3 L Si ER 316 L Si	C : 0,02 Si : 0,80 Mn : 1,6 Cr : 18,5 Ni : 11,5 Mo : 2,2	min. 400	550 - 700	+20 °C min. 63 J	min. 30	- MIG welding of 13% ferritic stainless steels, high-carbon or stabilized stainless steels of type 316 and low-carbon stainless steels of type 316 L, used in machinery and equipment parts of production plants for food, chemical, pharmaceutical textile and similar kinds of industries. - As shielding gas, Ar + O₂ or mixed gas is used. - Maintenance of resistance to intergranular corrosion at temperatures up to 400 °C. - Resistance to low temperatures down to -196 °C.	MIG D.C (+)	
ELOX SG 318 GOST-R, SEPPO	W 19 12 3 Nb ER 318	C : 0,035 Si : 0,5 Mn : 1,7 Cr : 19,6 Ni : 11,4 Mo : 2,7 Nb : +	min. 440	640 - 780	+20 °C min. 63 J	min. 30	- TIG welding of 13% ferritic stainless steels, as well as of stainless steels of similar chemical compositions as those of welding wires used in chemical textile, paint, food and synthetic resin production. - As the shielding gas, argon (Ar) is used. - Maintenance of resistance to intergranular corrosion at temperature up to 400 °C.	TIG D.C (-)	
ELOX SG 318 Si GOST-R, SEPPO	G 19 12 3 Nb Si ~ER 318	C : 0,035 Si : 0,8 Mn : 1,4 Cr : 19,9 Ni : 11,5 Mo : 2,8 Nb : +	min. 390	600 - 780	+20 °C min. 63 J	min. 30	- Used for the welding of 13% ferritic stainless steels or stainless steels which have the similar chemical analysis as the welding wires that are used in the chemical, textile, paint and food industries. - Welding wire is resistant to corrosion up to +400 °C and chlorine. - Suitable for MIG welding. - Ar + O₂ or mixed gases are the shielding gases.	MIG D.C (+)	

APPROVALS	STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES				FEATURES AND APPLICATIONS	CURRENT TYPE	WELDING POSITION
			Yield Strength N/mm ²	Tensile Strength N/mm ²	Impact Strength (ISO-V)	Elongation (l ₀ =5d ₀) (%)			

Stainless Steel Gas Shielded Welding Wires and Rods

ELOX SG 347 GOST-R, SEPRO	W 19 9 Nb ER 347	C : 0,035 Si : 0,5 Mn : 1,4 Cr : 19,4 Ni : 9,5 Nb : +	min. 430	600 - 740	+20 °C min. 63 J	min. 30	- Used for the welding of 13% Cr steels which are used in the textile, paper, paint and food production industries. - Resistant to corrosion up to +400 °C, suitable for TIG welding. - Argon is the shielding gas and it is also used for the welding of materials which have a chemical composition similar to welding wire.	TIG D.C (-)	
ELOX SG 347 Si GOST-R, SEPRO	G 19 9 Nb Si ER 347 Si	C : 0,035 Si : 0,9 Mn : 1,2 Cr : 19,4 Ni : 9,7 Nb : +	min. 400	570 - 710	+20 °C min. 63 J	min. 30	- Used for the welding of 13% Cr steels which are used in the textile, paper, paint and food production industries. - Resistant to corrosion up to +400 °C, suitable for MIG welding. - Ar + O₂ or mixed gases are used for shielding also used for the welding of materials which have a chemical composition similar to welding wire.	MIG D.C (+)	
ELOX SG 410 GOST-R, SEPRO	G/W 13 ER 410	C : 0,10 Si : 0,35 Mn : 0,50 Cr : 13,0	min. 250	min. 450		min. 20	- Preferred use in the formation of surfaces resistant to corrosion, wear and heat. - Maintained hardness at temperatures of up to 500 °C. - Resistance to formation of oxide layers at temperatures up to 900 °C. - Required use of Ar + O₂ or mixed gas, as shielding gas.	TIG D.C.(-) MIG D.C (+)	
ELOX SG 430 GOST-R, SEPRO	G/W 17 ER 430	C : 0,05 Si : 0,40 Mn : 0,40 Cr : 17,0	min. 300	min. 450		min. 20	- Applicability in surfacing to provide resistance to corrosion, wear and heat. - Usability in MIG welding only. - Requirement of use of Ar + O₂ or mixed gas as shielding gas.	TIG D.C.(-) MIG D.C (+)	

APPROVALS	STANDARDS TS/EN/AWS	SHIELDING GAS	CURRENT TYPE	WELDING POSITION	FEATURES AND APPLICATIONS	MECHANICAL PROPERTIES
						CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)

Flux Cored Welding Wires

ELCOR R 71 BV, DNV, LR, TL, ABS, RS, NK, RINA, CWB, CE, GL, GOST-R, HAKC (1.20mm)	T42 4 P C1 H5 E71T-1C-J	100 % CO ₂	FCAW D.C.(+)	PA PB PC PD PE PF PG	- Rutile-type flux-cored wire which is used in machine production and in the shipbuilding, automotive and steel construction industries. - Provides high mechanical properties, proper, smooth, X-ray safety seams. - It is economical as it has high melting ability and can work under high currents in all positions.	Yield Strength (N/mm ²) min. 420 Tensile Strength (N/mm ²) 500 - 640 Elongation (Lo=5 do)(%) min. 22 Impact Strength (ISO-V) -20 °C 100 J -40 °C min. 50 J
						C 0,06 Si 0,50 Mn 1,30
ELCOR B 70 CE, GOST-R, SEPRO	T 42 4 B M 3 H5 E 70 T-5 MJ	Ar+ CO ₂ mix gases	FCAW D.C.(+)	PA PB	- Used for semi-automatic or fully automatic welding of alloyed or unalloyed construction steels, thin-walled steels. - It has soft arc, deep penetration, good bead features. - Impact strength values are higher than those of E71 T-1 at low temperatures.	Yield Strength (N/mm ²) min. 420 Tensile Strength (N/mm ²) 520 - 670 Elongation (Lo=5 do)(%) min. 22 Impact Strength (ISO-V) -30 °C 120 J / -40 °C min 47 J
						C 0,05 Si 0,55 Mn 1,35
ELCOR M 70 BV, ABS, GOST-R, SEPRO, CE	T 42 4 M M 3 H5 E 70 C-6 M H4	Ar+ CO ₂ mix gases	FCAW D.C.(+)	PA PC PB	- Suitable for butt and fillet welding. - Better arc stability and wider optimum current range for spray transfer, arc with less spattering than solid wire.	Yield Strength (N/mm ²) 450 Tensile Strength (N/mm ²) 550 Elongation (Lo=5 do)(%) min. 22 Impact Strength (ISO-V) -30 °C 55 J / -40 °C min 47 J
						C 0,05 Si 0,63 Mn 1,58
ELCOR R 71 SC CE, GOST-R, SEPRO	T 46 4 (2) P MC 1 H5 E 71 T-1C/-1M H4	100 % CO ₂ Ar+ CO ₂ mix gases	FCAW D.C.(+)	PA PB PC PD PE PF PG	- Rutile-type flux-cored wire which is used in machine production and in the shipbuilding, automotive and steel construction industries. - Provides high mechanical properties, proper, smooth, X-ray safety seams. - It is economical as it has high melting ability and can work under high currents in all positions.	Yield Strength (N/mm ²) min. 460 Tensile Strength (N/mm ²) 530 - 680 Elongation (Lo=5 do)(%) min. 22 Impact Strength (ISO-V/-20 °C) min. 60 J Impact Strength (ISO-V/-40 °C) min. 47 J
						C 0,05 Si 0,5 Mn 1,3
ELCOR R 81 Ni ABS, CE, GOST-R, SEPRO	T 46 4 1Ni P C 1 E 81 T1-Ni C	100 % CO ₂	FCAW D.C.(+)	PA PB PC PD PE PF PG	- Rutile-type flux-cored wire for mild steel and 490-550 MPa high tensile strength steel for low temperature service. - Suitable for butt and fillet welding in all positions. - It provides a smooth arc and low spatter, good weldability.	Yield Strength (N/mm ²) min. 460 Tensile Strength (N/mm ²) 560 - 690 Elongation (Lo=5 do)(%) min. 24 Impact Strength (ISO-V) -30 °C 80 J / -40 °C min 50 J
						C 0,05 Si 0,5 Mn 1,3 Ni 0,90
ELCOR R 91 ABS, CE, GOST-R, SEPRO	T 62 4 Mn1.5Ni P C 1 E 91 T1 - K2CJ	100 % CO ₂	FCAW D.C.(+)	PA PC PB	- Rutile-type flux-cored wire for 500-620 MPa high tensile strength steel for low temperature service. - Suitable for butt and fillet welding in all positions. - Excellent impact value at low temperatures down to -40° C.	Yield Strength (N/mm ²) min. 620 Tensile Strength (N/mm ²) min. 690 - 890 Elongation (Lo=5 do)(%) min. 18 Impact Strength (ISO-V/-20 °C) min. 62 J Impact Strength (ISO-V/-40 °C) min. 47 J
						C 0,08 Si 0,5 Mn 1,2 Ni 1,70
ELCOR R 110 ABS, (AWS), GOST-R SEPRO	T 69 4 Mn 2.5 Ni P C 1 E 111 T1-GC	100 % CO ₂	FCAW D.C.(+)	PA PB PC PD PE PF PG	- Rutile-type flux-cored wire which provides an exceptionally smooth and stable arc, low spatter. - Applications of single and multipass welding of high-strength low-alloyed steels such as HY-80 and HY-100.	Yield Strength(N/mm ²) >690 Tensile Strength (N/mm ²) 770 - 940 Elongation (Lo=5 do)(%) >17 Impact Strength (ISO-V/-40 °C) min. 47 J
						C <0,08 Si 0,5 Mn 1,7 Mo 0,2 Ni 2,10



Submerged Arc Welding Wires & Fluxes



STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES OF WELD METAL TYPICAL	Ø mm	PACKAGE TYPE	APPLICATIONS	FEATURES
APPROVALS						

Submerged Arc Welding Wires

S 1 TS EN ISO: S1 AWS: EL 12 APPROVALS: BV, DNV, TL, GL, ABS, LR, CE	C : 0.08 Si : 0.10 Mn : 0.50	With BAR : Re 360 N/mm ² Rm 460 N/mm ² Av 0 °C 47 J Elong. % 26 With BFB : Re 380 N/mm ² Rm 480 N/mm ² Av -20 °C 55 J -30 °C 47 J Elong. % 28 With BMS : Re 395 N/mm ² Rm 475 N/mm ² Av 0 °C 38 J Elong. % 24 With BBR-AG : Re 370 N/mm ² Rm 480 N/mm ² Av -0 °C 60 J -20 °C 50 J Elong. % 30	1.60 2.00 2.40 3.20 4.00 5.00	K 435 SPOOL BIG-PACK	Applicability in welding of steel constructions, pipes and tanks, as well as in submerged arc welding of unalloyed structural steels and plates.	Structural Steels : S185-S235JR Pipe Steels : S275N Boiler Steels : P235GH Ship-Construction Steels: A, B, D Fine-Grained Structural Steels: P275N, S355N
S 2 TS EN ISO: S2 AWS: EM 12 S2+ELIFLUX BAR: BV, ABS, CE S2+ELIFLUX BFB: TL, GL, DNV, BV, ABS, LR, C, RS, NK, RINA S2+ELIFLUX BMS: BV, ABS, CE S2+ELIFLUX BAB-S: ABS, CE S2: TS, CE, GOST-R, SEPRO	C : 0.12 Si : 0.10 Mn : 1.00	With BAR : Re 400 N/mm ² Rm 500 N/mm ² Av 0 °C 60 J Elong. % 30 With BFB : Re 460 N/mm ² Rm 525 N/mm ² Av -20 °C 70 J -30 °C 55 J -40 °C 50 J Elong. % 30 With BFF : Re 410 N/mm ² Rm 520 N/mm ² Av -30 °C 70 J -40 °C 60 J Elong. % 24 With BBR-AG : Re 410 N/mm ² Rm 490 N/mm ² Av -20 °C 50 J Elong. % 32 With BMS : Re 390 N/mm ² Rm 485 N/mm ² Av -20 °C 69 J Elong. % 30 With PIPE : Re 460 N/mm ² Rm 550 N/mm ² Av -20 °C 50 J -40 °C 50 J Elong. % 26 With BAB-S : Re 430 N/mm ² Rm 525 N/mm ² Av -40 °C 100 J Elong. % 29	1.60 2.00 2.40 3.20 4.00 5.00	K 435 SPOOL BIG-PACK	Applicability in welding of steel constructions, pipes, pressure vessels, steam boilers and plates and submerged arc welding of general-purpose structural steels of tensile strength values up to 500 N/mm² as well as of unalloyed steels, medium-strength steels.	Structural Steels : S355JR Pipe Steels: L360 Boiler Steels: P295GH, P355GH Ship-Construction Steels: A, B, D, E Fine-Grained Structural Steels: P355N, S355N

STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES OF WELD METAL TYPICAL	Ø mm	PACKAGE TYPE	APPLICATIONS	FEATURES
APPROVALS						

Submerged Arc Welding Wires

S2Si TS EN ISO: S2Si AWS: EM 12K APPROVALS S2Si+ELIFLUX BFB: ABS, LR, BV, CE S2Si+ELIFLUX BFF: BV, ABS, CE S2Si: TSE, CE, GOST-R, SEPRO	C : 0.10 Si : 0.25 Mn : 1.00	With BFB : Re 430 N/mm ² Rm 530 N/mm ² Av -20 °C 80 J -30 °C 70 J Uz. % 28 With BFB : Re 430 N/mm ² Rm 530 N/mm ² Av -24 °C 65 J -30 °C 70 J Elong. % 23 With BFF : Re 450 N/mm ² Rm 540 N/mm ² Av -40 °C 65 J Uz. % 23 With BBR-AG : Re 420 N/mm ² Rm 510 N/mm ² Av -20 °C 50 J Elong. % 29	1.60 2.00 2.40 3.20 4.00 5.00	K 435 SPOOL BIG-PACK	- Inclusion of high content of Mn-Si alloy. - Applicability in submerged arc welding processes of medium and high-strength structural steels and of steels in offshore structures.	Structural Steels : S355 JR Pipe Steels : L 360 Boiler Steels : P 295 GH Ship-Construction Steels: A, B, D, E Fine-Grained Structural Steels: P 355 N - S 355 N
S2Mo TS EN ISO: S2Mo AWS: EA 2 APPROVALS S2Mo+ELIFLUX BFB: BV, ABS, CE S2Mo+ELIFLUX BFF: DNV, BV, ABS, CE S2Mo + ELIFLUX BAB-S: ABS, CE TSE, TUV, CE S2Mo: TSE, TUV, CE GOST-R, SEPRO	C : 0.12 Si : 0.10 Mn : 1.00 Mo : 0.50	With BFB : Re 490 N/mm ² Rm 600 N/mm ² Av -20 °C 90 J -40 °C 60 J Elong. % 26 With BFF : Re 480 N/mm ² Rm 570 N/mm ² Av -40 °C 70 J Elong. % 27 With BAB-S : Re 500 N/mm ² Rm 600 N/mm ² Av -40 °C 60 J Elong. % 26 With PIPE : Re 510 N/mm ² Rm 640 N/mm ² Av -40 °C 60 J Elong. % 25	2.00 2.40 3.20 4.00 5.00	K 435 SPOOL BIG-PACK	- Specific applicability in welding high-strength low-alloyed steels and creep-resistant steels. - Welding wire of Mo-alloy with resistance to creep at high temperature applications. - Serviceability at temperatures up to 500° C.	Pipe Steels: L85MB(X70) Boiler Steels : 16Mo3, P355GH Fine-Grained Steels: S460N, P460N
S2MoTiB TS EN ISO: SZ APPROVALS S2MoTiB: CE, GOST-R, SEPRO	C : 0.08 Si : 0.15 Mn : 1.10 Mo : 0.55 B : 0.015 Ti : 0.15	With BFF : Re 550 N/mm ² Rm 650 N/mm ² Av -0 °C 60 J -20 °C 45 J Elong. % 21 With BFB : Re 580 N/mm ² Rm 660 N/mm ² Av -30 °C 60 J Elong. % 28	2.00 2.40 3.20 4.00 5.00	K 435 SPOOL BIG-PACK	Specific applicability in welding high-strength low-alloyed steels and creep-resistant steels.	Pipe Steels: L85MB(X70) Boiler Steels: 16Mo3
S3 TS EN ISO: S3 AWS: EH10K APPROVALS S3: TSE, CE, GOST-R, SEPRO	C : 0.12 Si : 0.20 Mn : 1.50	With BAR : Re 420 N/mm ² Rm 520 N/mm ² Av -0 °C 60 J -20 °C 47 J Elong. % 22 With BFB : Re 420 N/mm ² Rm 500 N/mm ² Av -0 °C 120 J -40 °C 47 J Elong. % 22	1.60 2.00 2.40 3.20 4.00 5.00	K 435 SPOOL BIG-PACK	Specific applicability in welding high-strength low-alloyed steels and creep-resistant steels.	Structural Steels: S355JR Pipe Steels: L 360 Boiler Steels: P 355 GH Ship Construction Steels: A,B,D,E Fine-grained Steels: P 355N, S355N

STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELDING WIRE % (TYPICAL)	MECHANICAL PROPERTIES OF WELD METAL TYPICAL	Ø mm	PACKAGE TYPE	APPLICATIONS	FEATURES
APPROVALS						

Submerged Arc Welding Wires

S3Si TS EN ISO: S3Si AWS: EH 12K S3Si + ELIFLUX BFF: BV, ABS, CE S3Si+ELIFLUX BFB: ABS, CE S3Si+ELIFLUX BAB-S: ABS, CE S3Si:TSE, CE, GOST-R, SEPRO	C : 0.09-0.12 Si : 0.25-0.40 Mn : 1.60-1.80	With BFF : Re 490 N/mm ² Rm 580 N/mm ² Av -0 °C 100 J -40 °C 70 J Elong. % 26 With BFB : Re 460 N/mm ² Rm 550 N/mm ² Av -40 °C 60 J Elong. % 27 With BAB-S: Re 545 N/mm ² Rm 645 N/mm ² Av -40 °C 60 J Elong. % 26	2.00 2.40 3.20 4.00 5.00	K 435 SPOOL BIG-PACK	Applicability in welding general-purpose structural steels ranging to S355JR, as well as in welding fine-grained steels with tensile strength values of up to 520 N/mm², steam boilers made of the material 19 Mn 6, in ship welding and pipe welding.	Fine-Grained Structural Steels: P 460 N - S 460 N
S3Mo TS EN ISO: S3Mo AWS: EA4 S3Mo: TSE, CE, GOST-R, SEPRO	C : 0.10 Si : 0.15 Mn : 1.50 Mo : 0.50	With BFF : Re 540 N/mm ² Rm 630 N/mm ² Av -0 °C 110 J -40 °C 65 J Elong. % 27 With PIPE : Re 530 N/mm ² Rm 620 N/mm ² Av -0 °C 100 J -40 °C 50 J Elong. % 25	3.20 4.00 5.00	K 435 SPOOL BIG-PACK	Suitable for high-quality welding of Mo-alloyed steels, boiler sheet steels and fine-grained steels.	Fine-Grained Structural Steels: P 460 N - S 460 N
S3NiMo1 TS EN ISO: S3NiMo1 AWS: EF3 S3NiMo1 GOST-R, SEPRO, CE	C : 0.12 Si : 0.20 Mn : 1.75 Mo : 0.55 Ni : 0.90	With BFF : Re 580 N/mm ² Rm 650 N/mm ² Av -20 °C 100 J -40 °C 60 J Elong. % 21	3.20 4.00 5.00	K 435 SPOOL BIG-PACK	S3NiMo 1 is a nickel-molybdenum-alloyed, copper-coated wire designed for submerged arc welding of structural steels and higher tensile strength steels.	Pipe Steels: L 360 MB (X52) L 385 MB (X56) L 415 MB (X60) L 450 MB (X65) L 485 MB (X70) L 555 MB (X80) Pressure Vessel Steels: 20MnMoNi5-5 Fine-Grained Steels: S 380 N, S 500 N, S 380 NL, S 500 NL, S 550QL1
S3NiCrMo2.5 TS EN ISO: S3Ni2.5 NiCrMo AWS: EM4 (mod) S3NiCrMo2.5: GOST-R, SEPRO, CE S3NiCrMo2.5+ALIFLUX BFF: ABS, CE	C : 0.11 Si : 0.17 Mn : 1.40 Mo : 0.55 Ni : 2.40 Cr : 0.70	With BFF : Re 740 N/mm ² Rm 850 N/mm ² Av -20 °C 90 J -40 °C 85 J -60° C min.27 J Elong. % 20 With BAB-S : Re 735 N/mm ² Rm 855 N/mm ² Av -20 °C 70 J -40 °C 60 J Elong. % 18	2.40 3.20 4.00 5.00	K 435 SPOOL BIG-PACK	S3NiCrMo 2.5 is a CrNiMo-alloyed copper-coated wire designed for submerged arc welding of high-strength quenched, tempered structural steels and extra-high tensile strength steels.	Fine-Grained Structural Steels: S 550QL1, S690QL1

STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES OF WELD METAL TYPICAL	Ø mm	PACKAGE TYPE	APPLICATIONS	FEATURES
APPROVALS						

Stainless Steel Submerged Arc Welding Wires

ELOX UP 308 L AWS: ER 308 L GOST-R, SEPRO	C : 0.01 Si : 0.45 Mn : 1.85 Cr : 19.50 Ni : 9.50	With ELIFLUX BSS : Rm 550 N/mm ² Av 0 °C: 70 J -110 °C: 50 -196 °C: 40 J A5 41	2.40 3.20 4.00	K 435 SPOOL BIG-PACK	SAW welding of 13% Cr ferritic stainless steels, high-carbon steels of type 304 or stabilized steels of type 347 or steels of similar qualities, all of which are used in the pharmaceutical, cellulose, paper and food production industries.	X2CrNi 19 11, X5CrNi 18 10, X6CrNiTi 18 10, X2CrNiN 18 10, X10CrNiNb 18 10, 304, 304L, 304LN, 347, 321, A320 B 8 C, A320 B 8 D
ELOX UP 309 L AWS: ER 309 L GOST-R, SEPRO	C : 0.02 Si : 0.45 Mn : 1.70 Cr : 23.40 Ni : 12.30	With ELIFLUX BSS : Rm 540 N/mm ² A5 35	2.40 3.20 4.00	K 435 SPOOL BIG-PACK	- Applicability on ferritic-Cr or austenitic CrNi steels, austenitic manganese steels, unalloyed high-strength steels, heat-treated steels. - Usability in welding austenitic stainless steels, in joint-welding of different kinds of metals and corrosion-resistant, stainless steel to each other or to low-alloyed steels.	
ELOX UP 316 L AWS: ER 316 L GOST-R, SEPRO	C : 0.02 Si : 0.55 Mn : 2.25 Cr : 18.0 Ni : 11.30	With ELIFLUX BSS : Rm 570 N/mm ² Av 0 °C: 60 J -110 °C: 50 -196 °C: 40 J A5 39	2.40 3.20 4.00	K 435 SPOOL BIG-PACK	SAW welding of 13% Cr ferritic stainless steels, high-carbon steels of type 316, low-carbon stainless steels of type 316 L, all of which are used in machinery and equipment parts at production plants for food, chemical, drug textile and similar kinds of industries.	X2 CrNiMo 18 14 3, X5 CrNiMo 17 13 3, X2 CrNiMo 17 13 2, X5 CrNiMoTi 17 12 2, X6 CrNiMoTi 17 12 2, X6 CrNiMoNb 17 12 2, X2 CrNiMoN 17 13 3, X2 CrNiMoN 17 12 2, 316, 316L, 316Cb, 316Ti
ELOX UP 410 AWS: ER 410 GOST-R, SEPRO	C : 0.10 Si : 0.30 Mn : 0.40 Cr : 13.20 Ni : 0.40	With ELIFLUX BSS : Rm 530 N/mm ² A5 25	2.40 3.20 4.00	K 435 SPOOL BIG-PACK	- Preferred use in the formation of surfaces resistant to corrosion, wear and heat. - Maintained hardness at temperatures of up to 500 °C. - Resistance to formation of oxide layers at temperatures up to 900 °C.	X 6 CrTi 17, X 20 CrNi 17 2, 431, 430 Ti.
ELOX UP 430 AWS: ER 430 GOST-R, SEPRO	C : 0.04 Si : 0.40 Mn : 0.50 Cr : 16.50 Ni : 0.20	With ELIFLUX BSS : Rm 460 N/mm ² A5 20	2.40 3.20 4.00	K 435 SPOOL BIG-PACK	Applicability in surfacing to provide resistance to corrosion, wear and heat.	X 6 CrTi 17, X 20 CrNi 17 2, 431, 430 Ti.

STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES OF WELD METAL TYPICAL	PACKAGE TYPE	FEATURES
APPROVALS				

Submerged Arc Welding Fluxes

ELIFLUX BAR SA AR 1 77 AC S1: F6 AZ - EL 12 S2: F7 AZ - EM 12 ELIFLUX BAR: GOST-R, CE, SEPRO S1: BV, DNV, TL, GL, ABS, LR, CE S2: BV, ABS, CE	S1 C : 0.07 Si : 0.50 Mn: 1.10 S2 C : 0.07 Si : 0.60 Mn: 1.35	S1 Re : 360 N / mm ² Rm : 460 N / mm ² Av : 0 °C 47 J Elong. : % 26 S2 Re : 400 N / mm ² Rm : 500 N / mm ² Av : 0 °C 60 J Elong. : % 30	25 kg Craft Bag Basicity : 0.7	- A type of SAW rutile flux structured from agglomerated aluminate. - Applicability in single-pass joint welding and fillet welding of particularly spiral welded pipes, LPG cylinders, general-purpose construction steels, boiler sheets and shipbuilding steels. - Low consumption of flux. Basicity: 0.7 - Straight and non-porous welding beads. - Formation of very easily-removable slag. - Requirement of re-drying at 250-350 °C for 2 hours.
ELIFLUX BFB SA AB 1 68 AC H5 S1: F7 A2 - EL 12 S2: F7 A4-EM 12 S2Si: F7 A2-EM 12 K S3Si: F7 A4-EH 12 K S2Mo: F8 A4-EA2-A2 ELIFLUX BFB: GOST-R, CE, SEPRO S2: BV, DNV, TL, GL, ABS, LR, CE, RINA, NK, RS, CE S2Si: LR, ABS, CE, BV S2Mo: BV, ABS, CE S3Si: ABS, CE	S1 C : 0.06 Si : 0.25 Mn: 1.20 S2 C : 0.07 Si : 0.35 Mn: 1.50 S2Si C : 0.05 Si : 0.40 Mn: 1.25 S3Si C : 0.07 Si : 0.40 Mn: 1.80 S2Mo C : 0.06 Si : 0.40 Mn: 1.40 Mo: 0.50	S1 Re : 380 N/mm ² Rm : 480 N/mm ² Av : -20 °C 55 J -30 °C 47 J Elong.: % 28 S2 Re : 460 N/mm ² Rm : 525 N/mm ² Av : -20 °C 70 J -30 °C 55 J -40 °C 50 J Elong.: % 30 S3Si Re : 460 N/mm ² Rm : 550 N/mm ² Av : -40 °C 60 J Elong.: % 27 S2Si Re : 430 N/mm ² Rm : 530 N/mm ² Av : -20 °C 80 J -30 °C 70 J Elong.: % 28 S2Mo Re : 490 N/mm ² Rm : 600 N/mm ² Av : 0 °C 90 J -40 °C 60 J Elong. : % 26	25 kg Craft Bag Basicity : 1.4	- A type of submerged arc welding (SAW) basic flux structured from agglomerated aluminate. - Applicability in single- and multi-pass (butt) joint welding and fillet welding of general-purpose construction steels, shipbuilding steels, boiler sheets, heat-resistant steels, and fine-grained steels. - Low consumption of flux. - Basicity: 1.4 - High toughness of welding wire at low temperatures. - Formation of easily-removable slag. - Requirement of re-drying at 300-350 °C for 2 hours.
ELIFLUX BMS SA CS/MS 1 68 AC S1: F6 AZ-EL 12 S2: F6 A0-EM 12 S2+ELIFLUX BMS: BV, ABS, CE ELIFLUX BMS: GOST-R, CE SEPRO	S1 C : 0.05 Si : 0.80 Mn: 1.10 S2 C : 0.04 Si : 0.45 Mn: 1.27	S1 Re : 395 N/mm ² Rm : 475 N/mm ² Av : 0 °C 38 J Elong. : % 24 S2 Re : 390 N/mm ² Rm : 485 N/mm ² Av : -20 °C 69 J Elong. : % 30	25 kg Craft Bag Basicity : 1.0	- A type of SAW flux structured from agglomerated manganese silicate and calcium silicate. - Basicity of the flux according to Boniszewski formula is 1.0. - Weld beads of excellent surface appearance and with easily removable slag. - High resistance to porosity caused by oil and rust. - High capacity of current flow. - Suitability for use in 2-pass welding operations on thick materials (best choice for base metals in thicknesses of 10-40 mm). - Requirement of re-drying at 250-350 °C for 2 hours.
ELIFLUX PIPE SA AB 1 78 AC H5 S2: F7 A4-EM 12 S2Mo: F7 A4-EA2-A2 S3Mo: F8 A4-EA4-A4 ELIFLUX PIPE: GOST-R, CE, SEPRO	S2 C : 0.05 Si : 0.40 Mn: 1.35 S2Mo C : 0.06 Si : 0.40 Mn: 1.40 Mo: 0.50 S3Mo C : 0.06 Si : 0.40 Mn: 1.60 Mo: 0.45	S2 Re : 460 N/mm ² Rm : 550 N/mm ² Av : -20 °C 75 J -40 °C 50 J Elong.: % 26 S2Mo Re : 510 N/mm ² Rm : 640 N/mm ² Av : -40 °C 60 J Elong. : % 25 S3Mo Re : 530 N/mm ² Rm : 620 N/mm ² Av : 0 °C 100 J -40 °C 50 J Elong.: % 25	25 kg Craft Bag Basicity : 1.7	- SAW flux type composed of agglomerated aluminate Basic. - Basicity of the flux according to Boniszewski formula is 1.7. - Excellent removal of slag of weld beads formed at high temperatures. - Suitability for use in both bilateral and tandem (AC/DC) welding operations. - Sufficiently high toughness of welding wires obtained particularly by 2-pass welding operations. - Suitability for use in welding of high-strength steels. - Requirement of re-drying at 300-350 °C for 2 hours.

STANDARDS TS/EN/AWS	CHEMICAL COMPOSITION OF WELD METAL % (TYPICAL)	MECHANICAL PROPERTIES OF WELD METAL TYPICAL	PACKAGE TYPE	FEATURES
APPROVALS				

Submerged Arc Welding Fluxes

ELIFLUX BFF SA FB 1 65 DC H5 S2: F7A4-EM 12 S2Si: F7A4-EM 12K S2Mo: F8A4-EA2-A2 S3NiMo1: F9A4-EF3 (mod.)-F3 S3NiCrMo2.5: F11A8-EM4(mod.)-M4 S2Si: BV, ABS, CE S2Mo: BV, ABS, DNV, CE S3Si: BV, ABS, CE S3NiCrMo2b5: ABS, CE S3Si: Ni Cr Mo2.5: ABS, CE ELIFLUX BFFX GOST-R, SEPRO, CE	S2 C : 0,05 Si : 0,20 Mn : 1,00 S2Si C : 0,06 Si : 0,30 Mn : 1,10 S2Mo C : 0,07 Si : 0,25 Mn : 1,15 Mo : 0,45 S3NiMo1 C : 0,09 Si : 0,25 Mn : 1,65 Mo : 0,55 Ni : 0,90 S3NiCrMo2.5 C : 0,06 Si : 0,30 Mn : 1,50 Mo : 0,50 Ni : 2,20 Cr : 0,50	S2 Re : 410 N/mm ² Rm : 520 N/mm ² Av : -30 °C 70 J -40 °C 60 J Elong. : % 24 S2Si Re : 450 N/mm ² Rm : 540 N/mm ² Av : -40 °C 65 J Elong. : % 23 S2Mo Re : 480 N/mm ² Rm : 570 N/mm ² Av : -40 °C 70 J Elong. : % 27 S3NiMo1 Re : 580 N/mm ² Rm : 650 N/mm ² Av : -20 °C 100 J -40 °C 60 J Elong. : % 21 S3NiCrMo2.5 Re : 740 N/mm ² Rm : 850 N/mm ² Av : -20 °C 90 J -40 °C 85 J -60 °C min.27J Elong. : % 20	25 kg Craft Bag Basicity : 3.0	- This is fluoride-basic agglomerated flux. - The basicity index of this flux is 3.0 according to Boniszewski's formula. - This flux is suitable for welding high-strength low-alloyed steels. - Prefable for use with wire electrodes which have a higher manganese level. - Recommended for multi-pass welding in particular when there are high toughness requirements. - Requirement of re-drying at 300-350 °C for 2 hours.
ELIFLUX BSS SA FB 2 65 DC ELIFLUX BSS: GOST-R, SEPRO, CE	- ELOX UP 308 L - ELOX UP 309 L - ELOX UP 316 L - ELOX UP 410 - ELOX UP 430	Mechanical properties are indicated on the page 25th	25 kg Craft Bag Basicity : 2.45	- A type of fluoride-basic flux for SAW. - General use in submerged arc welding of stainless steel materials. - Very high corrosion resistance. - Very good mechanical properties. - Formation of easily-removable slags. - Requirement of re-drying at 250-350 °C for 2 hours.
ELIFLUX BBR-AG SA AB 1 67 AC H5 S1: F6 AZ-EL12 S2: F7 A0-EM12 S2Si: F7 A0-EM12K ELIFLUX BAB-AG GOST-R, CE	S1 C : 0,06 Si : 0,30 Mn : 0,90 S2 C : 0,10 Si : 0,35 Mn : 1,20 S2Si C : 0,07 Si : 0,40 Mn : 1,30	S1 Re : 370 N/mm ² Rm : 480 N/mm ² Av : 0 °C 55 J Elong. : % 24 S2 Re : 410 N/mm ² Rm : 490 N/mm ² Av : -20 °C 50 J Elong. : % 32 S2Si Re : 420 N/mm ² Rm : 510 N/mm ² Av : -20 °C 50 J Elong. : % 29	25 kg Craft Bag Basicity : 1.1	- Agglomerated aluminate-basic type welding flux. - Especially suitable for single pass joining and fillet welding of LPG cylinders, welded spiral pipes (with S2 combination up to X S2 pipe) general construction, steels, boiler plates and ship plates. - The weld bead looks more like a rutile-type weld bead. - Easily-removable slag. - Before use: The welding flux should be dried for 2 hours between 300-350 °C.
ELIFLUX BAB-S SA AB 1 68 AC H5 S1: F6 AZ-EL12 S2Si: F7A4 - EM12K S2Mo: F8A4 - EA2-A3 S3Si F8 - EH12K-EG S3NiCrMo2.5: F11A8 - EM4 (mod.)-M4 ELIFLUX BAB-S: GOST-R, CE	S2 C : 0,08 Si : 0,40 Mn: 1,50 S2Si C : 0,07 Si : 0,45 Mn : 1,60 S3Si C : 0,07 Si : 0,60 M : 1,70 S2Mo C : 0,07 Si : 0,55 Mn : 1,70 Mo : 0,50 S3Ni Cr Mo 2.5 C : 0,05 Si : 0,65 M : 1,80 Mo: 0,48 Ni : 2,05 Cr : 0,35	S2 Re : 440 N/mm ² Rm : 550 N/mm ² Av : -30 °C 100 J Elong. : % 28 S2Mo Re : 490 N/mm ² Rm : 600 N/mm ² Av : -40 °C 60 J Elong. : % 26 S2Si Re : 430 N/mm ² Rm : 530 N/mm ² Av : -30 °C 70 J Elong. : % 28 S3Si Re : 545 N/mm ² Rm : 645 N/mm ² Av : -40 °C 60 J Elong. : % 26 S3NiCrMo 2.5 Re : 735 N/mm ² Rm : 855 N/mm ² Av : -30 °C 70 J -40 °C 60 J Elong. : % 27	25 kg Craft Bag Basicity : 2.1	- SAW type flux composed of agglomerated aluminate-Basic. - Weld beads of excellent surface appearance. - Slag can be removed easily. - This product has high current-carrying capacity. - GeKa ELIFLUX BAB-S is suitable for multi-pass and tandem welding especially for the manufacture or spiral pipes. - It has suitable of high working speed. - Suitable for the use of welding of high-strength steels. - Requirement of re-drying at 300-350 °C for 2 hours.



Istanbul Gedik University

Starting point
of your career...

FACULTY OF ARCHITECTURE AND FINE ARTS

- Architecture
- Fashion and Textile Design
- Interior Architecture and Environmental Design
- Visual Communication Design

FACULTY OF ECONOMICS ADMINISTRATIVE AND SOCIAL SCIENCES

- Political Sciences and Public Administration
- International Relations
- International Trade and Finance

FACULTY OF ENGINEERING

- Electrical-Electronics Engineering
- Mechanical Engineering
- Mechatronics Engineering
- Metallurgical and Material Engineering

FACULTY OF SPORT SCIENCES

- Coaching Education
- Physical Education and Sports Education
- Sports Management

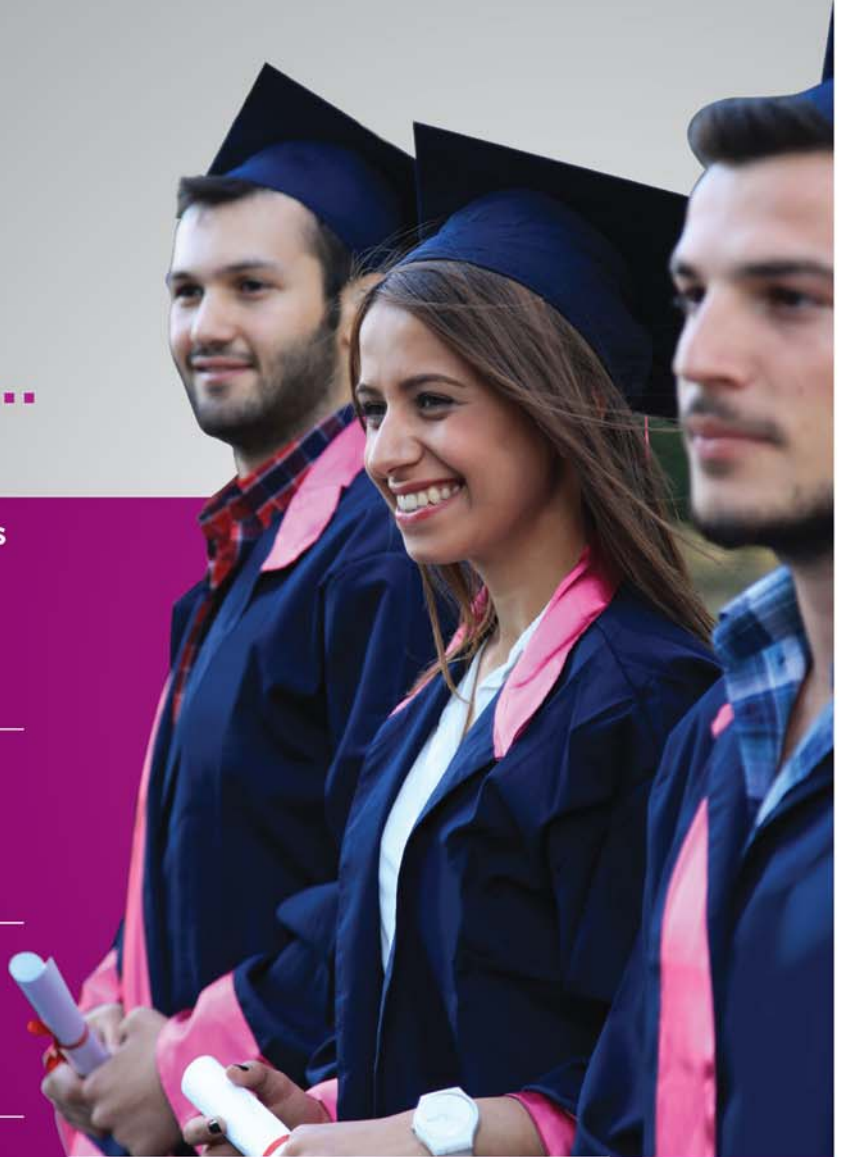
VOCATIONAL SCHOOL PROGRAMS

- | | | |
|-------------------------------------|------------------|----------------------------------|
| - Accounting and Tax Applications | - Electricity | - Medical Imaging Technologies |
| - Banking and Insurance | - Foreign Trade | - Non-Destructive Testing |
| - Biomedical Equipment Technologies | - Graphic Design | - Occupational Health and Safety |
| - Chemical Technologies | - Justice | - Public Relations and Publicity |
| - Civil Aviation Cabin Services | - Mechanics | - Welding Technology |
| - Computer Programming | - Mechatronics | |

FOREIGN LANGUAGES VOCATIONAL COLLEGE

JOIN US FOR BETTER EDUCATION AND RESEARCH...

www.gedik.edu.tr



Double Major Diploma from edik...

Gedik Educational Foundation (GEV) provides regular education and training programmes for;

- International Welding Engineers (IWE)
- International Welding Technicians (IWT)
- International Welding Inspectors (IWIP)

in İstanbul.

JOIN US TO ADD ONE NEW EXPERTISE AND DIPLOMA...



GEV - Associated Member of
IIW and EWF in Turkey



www.gedikegitimvakfi.org.tr

Your Certificate of Expertise from Gedik...

Gedik Test Center offers destructive and non destructive tests in the fields of pipeline production, shipbuilding, steel construction, energy and automotive industries.

Participants of training and certification programs receive TS-EN ISO 9712 international non-destructive expertise certificate approved by TURKAK with accreditation according to TS EN ISO / IEC 17024 standards.



Guide Your Career with edik...



Gedik Educational Foundation (GEV) organizes educational programmes to contribute to Turkey's qualified work power in welding technology. Engineers, technical teachers, welding personnel and quality system experts from welding manufacturing sector and academia can participate to the seminars.

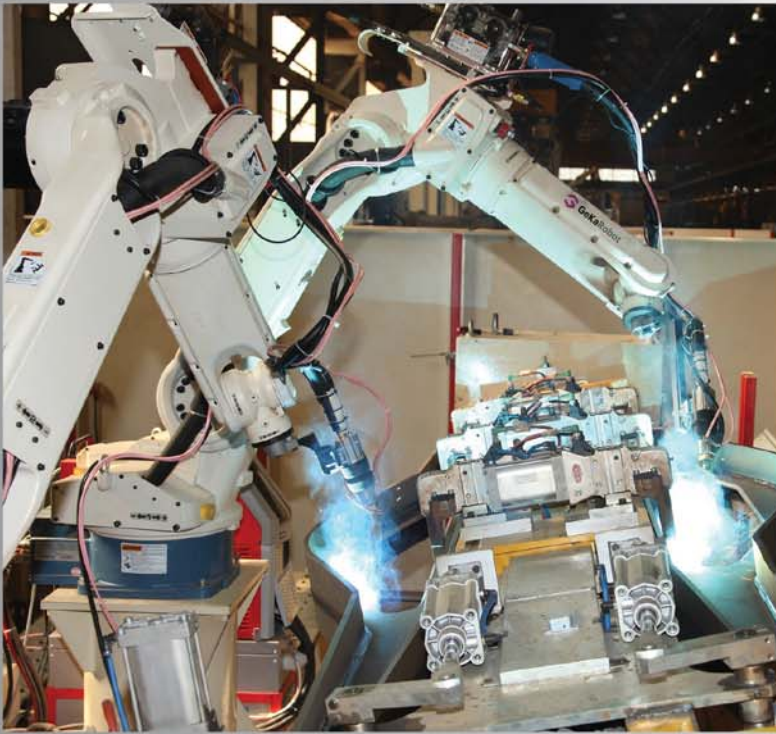
Seminar Subjects

EN 15085	Railway Applications - Welding of Railway Vehicles and Components
TS-EN 1090	Execution of Steel Structures and Aluminium Structures
TS-EN ISO 9606	Qualification Testing of Welders
TS-EN ISO 3834	Quality Requirements for Fusion Welding of Metallic Materials
TS-EN ISO 14731	Tasks of Welding Coordination Staff



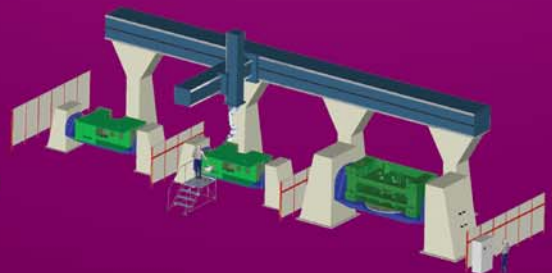
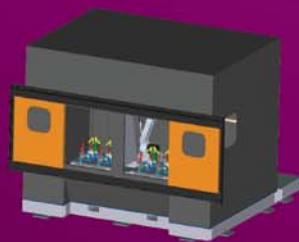
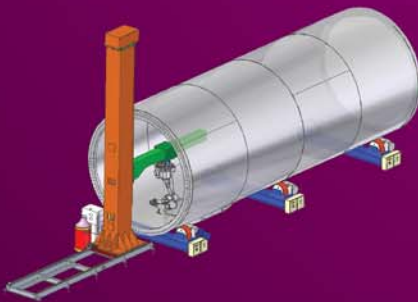
Gedik Robot

Designs,
Applies,
Educates...



Gedik Robot, designs and installs robotic automation systems for the industry.

Gedik Robot with the cooperation of İstanbul Gedik University Robotics Applications and Research Center provides periodic trainings for technical personel, robot operators, mechatronic engineers and students.



www.gedikwelding.com

Metal finds its form at edik Casting...

Gedik Casting and Valves

operates since 1967 in the fields of

- Sand Casting
- Investment Casting
- Production of Valves

The valve division has production capacity of approx. 250.000 pieces of various sizes and types of valves per year under the brand name of TERMO®.

The valves are used for heating, ventilation, steam, hot water, hot oil, natural gas and all kinds of chemical fluids in industrial plants, power plants, chemical, petrochemical and shipbuilding industries.



www.gedikdokum.com



Gedik Welding

Power for Joining the Continents...

Flux cored welding wire ELCOR B 70
has been selected for the construction
of MARMARAY TUNNEL built under the
Bosphorus of İstanbul

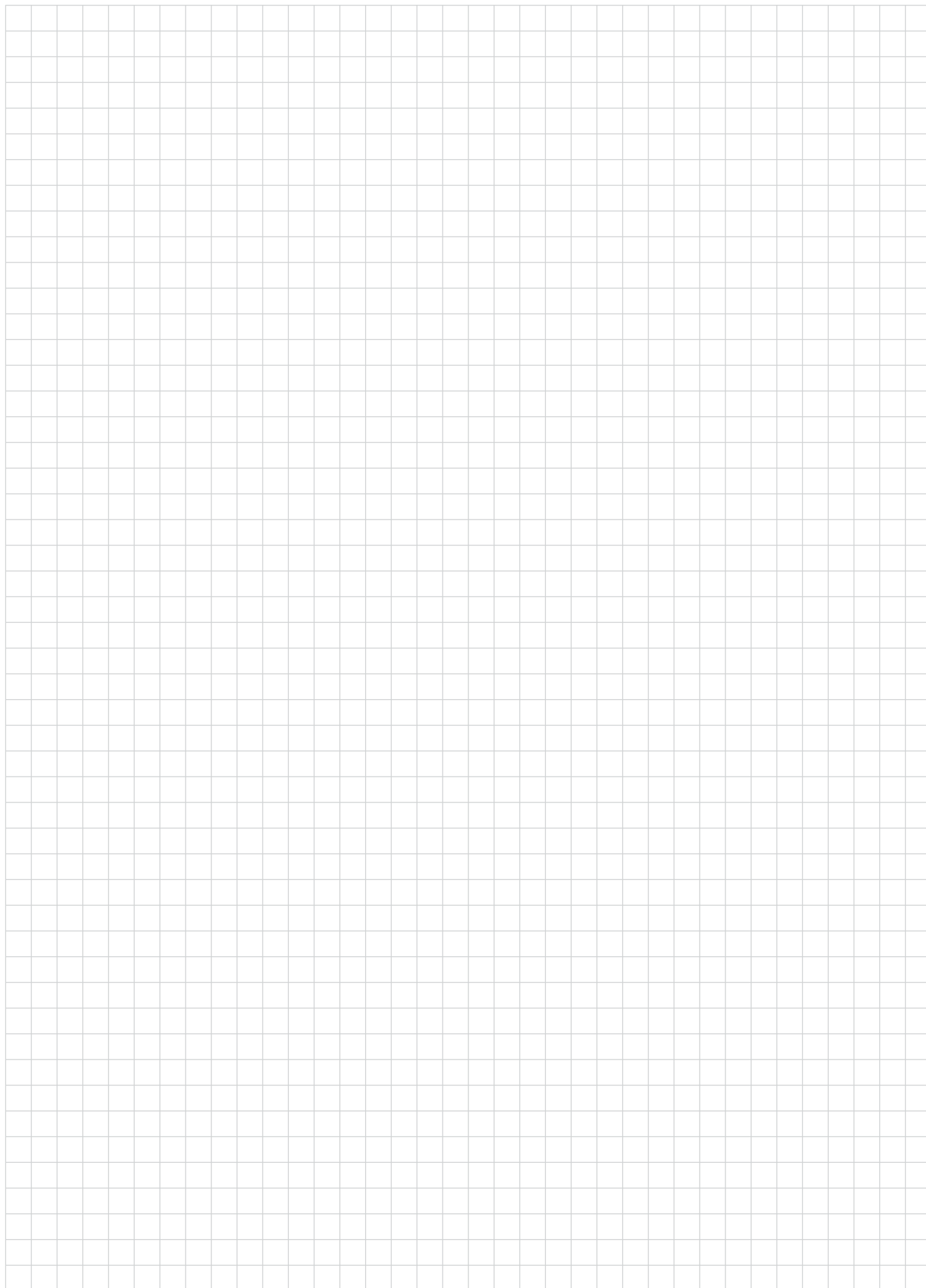
We joined the continents with
52 years of experience...

WE ARE PROUD...



**Gedik Welding
since 1963**

www.gedikwelding.com



Gedik Welding

Gedik Kaynak Sanayi ve Tic. A.Ş.
Ankara Caddesi No:306 Şeyhli 34906 İstanbul / Turkey
P +90 216 378 50 00 F +90 216 378 20 44 info@gedikwelding.com
www.gedikwelding.com

Gedik Casting and Valve

Gedik Döküm ve Vana San. ve Tic. A.Ş.
Ankara Caddesi No:306 Şeyhli 34906 İstanbul / Turkey
P +90 216 307 12 62 F +90 216 307 28 68-69 termo@gedikdokum.com.tr
Manufacturing Plant
Sakarya 2.OSB 11 No'lu Yol No: 6 54300 Hendek - Sakarya / Turkey
P +90 264 290 12 00 F +90 264 290 12 21 dokum@gedikdokum.com.tr
www.gedikdokum.com

Gedik Educational Foundation

Gedik Eğitim ve Sosyal Yardımlaşma Vakfı
Ankara Caddesi No:306 C Blok Şeyhli 34906 İstanbul / Turkey
P +90 216 378 50 00 F +90 216 378 20 44 gev@gedikegitimvakfi.org.tr
www.gedikegitimvakfi.org.tr



İSTANBUL Gedik University

İstanbul Gedik Üniversitesi
Cumhuriyet Mahallesi, İlkbahar Sokak No: 1-3-5 34876 Yakacık-Kartal-İstanbul / Turkey
P +90 216 452 45 85 - 444 5 438 F +90 216 452 87 17 info@gedik.edu.tr
www.gedik.edu.tr

Gedik Test Center

Gedik Test Merkezi
Ankara Caddesi No:306 Şeyhli 34906 İstanbul / Turkey
P +90 216 378 79 41 F +90 216 378 20 44 info@gediktest.com
www.gediktest.com



Gedik Welding

Joining Since 1963...



GeKa

Gedik Welding Inc.

Ankara Caddesi No: 306 Şeyhli 34906 İstanbul / Turkey

P +90 216 378 50 00 **F** +90 216 378 20 44 i

www.gedikwelding.com info@gedikwelding.com



Gedik Holding