



HIGH QUALITY
PRODUCTS
FOR WELDING
AND CLADDING

**DAIKO**[®]
welding consumables



DAIKO WELDING CONSUMABLES SPECIALIZED IN HIGH QUALITY PRODUCTS

The development of Daiko brand wide range of welding and cladding consumables (covered electrodes, solid and flux cored wires, strips and fluxes), reached through specific design together with strict and rigorous testing, is the result of our constant selection of special alloys and the synergy with the largest and most qualified world manufacturers.

In this large range of products, particular attention is paid to Corrosion Resistant Alloys (CRA) and, especially, Nickel Alloys where of our Top Product Daiko SF 625 is the absolute protagonist.

Another strength of the company is the large stock that ensures customers fast delivery of supplies. We are today a reliable and punctual partner, qualified by major and prestigious customers worldwide in: oil & gas, chemical and petrochemical, pressure vessels, valves, and generally wherever reliable and high quality consumable products are required.

INDEX

A COMPLETE RANGE OF CONSUMABLES FOR WELDING AND CLADDING:

Nickel Alloys	6-11
Duplex - Superduplex steels	12-13
Superaustenitic steels	14-15
Ferritic & Martensitic steels	16-17
Austenitic stainless steels	18-23
Creep resisting steels	24-26
High Temperature alloys	26-28
Cryogenic steels	28-29
High Strength steels	30-31
Aluminium alloys	32-33
Cast Iron	32-33
Carbon steels	34-37
Copper alloys	38-39
Cobalt alloys	40-41
Titanium alloys	40-41
Flux	42-43





NICKEL ALLOY DAIKO SF 625 OUR MOST FAMOUS WIRE

The highest performance of our DAIKO SF 625, reached in many years of experience all around the world, are the best guarantees of a top quality product.

We ensure:

- / analysis conforming to AwsA5.14, ERNiCrMo-3
- / every batch made with strictly controlled chemical composition
- / Fe content 0,3% max
- / high quality weldability for all batches

Daiko 625 is approved by the biggest worldwide users of 625 alloys, particularly where robot welding system applications are needed.

DATA SHEET



Product:

DAIKO SF 625

Approvals:

TÜV (Mig-Tig), CE

Available in:

Mig
Tig
Saw

Specifications:

AWS A5.14 ER NiCrMo-3
DIN 1736 SG-NiCr21 Mo9Nb (2.4831)
EN ISO 18274 Ni6625

Applications:

Daiko SF 625 is designed to match the composition and properties of 625. This alloy is used for the high temperature strength and structural stability and is also used for its resistance to general corrosion, pitting, crevice and stress corrosion cracking in severe chloride media. Useful properties from -269°C to above 1000°C are achieved.

It is used for welding of alloy 625, alloy 825, alloy 25-6MO, and a range of high alloy austenitic and super austenitic stainless steels. It is also used for surfacing of steel, for welding 9% Ni steels, and for welding various corrosion-resistant alloys such as alloy 20.

Applications include furnace equipment, petrochemical and power generation plants and also overlays on pumps, valves and shafts in offshore and marine environments where high pitting resistance (PRE = 50) is essential. Widely used in oil & gas production and process.

Typical composition %:

C	Mn	Si	S	P	Cr	Ni	Mo	Nb+Ta	Cu	Al	Ti	Fe
0.02	0.02	0.10	0.005	0.005	22.0	65.0	9.0	3.50	0.05	0.20	0.20	<0.3

Typical properties "as welded":

tensile strength = 760 N/mm²
0,2% proof stress = 520 N/mm²
elongation on 4D = 50%
impact energy at -40°C > 200J
-196°C > 80J
PRE > 50
hardness "as welded" = 250 HV
hard drawn hardness = 450 HV

Shielding gas:

TIG: pure argon with back protection
MIG: pure argon or mixture Ar + He

Complementary products:

Smaw Electrode: Daiko 112
Flux Cored Wire: Daiko FCW 625P
Strip: Daiko Strip 625
SAW Flux: Daikoflux 960-W
ESW Flux: Daikoflux 940

Specifications:

AWS A5.11, ENICRMO-3
AWS A5.34, ENICRMO3T1-4
AWS A5.14, EQNICRMO-3

Packaging:

MIG	BS300	RANGE Ø 0,80 ÷ 1,60 mm	Kg 15
SAW	K415	RANGE Ø 1,60 ÷ 4,00 mm	Kg 25
ROD	CARTON BOX	RANGE Ø 1,00 ÷ 4,00 mm	Kg 5
TOURET	DIN760	RANGE Ø 1,00 ÷ 2,40 mm	Kg 150-250
DRUM		RANGE Ø 1,20 ÷ 1,60 mm	Kg 150-250

Other packaging available upon request.

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
625	Consumables matching the Ni base 625 alloy (Ni-21%Cr-9Mo-3,5%Nb), used for the high temperature strength and structural stability and is also used for its resistance to general corrosion, pitting, crevice and stress corrosion cracking in severe chloride media. Useful proprieties from -269°C to above 1000°C are achieved. They are used for welding of alloy 625, alloy 825, alloy 25-6MO, and a range of high alloy austenitic and super austenitic stainless steels. It is also used for surfacing of steel, for welding 9% Ni steels, and for welding various corrosion-resistant alloys such as alloy 20.	DAIKO SF 625	MIG – TIG - SAW	A5.14 ERNiCrMo-3	EN ISO 18274 S Ni6625
		DAIKO 112	SMAW	A5.11 ENiCrMo-3	EN ISO 14172 ENi6625
		DAIKO FCW 625P	FCAW	A5.34 ENiCr-Mo3T1-4	EN ISO 12153 T Ni 6625 P M 2
		DAIKO STRIP 625	STRIP	A5.14 EQNiCrMo-3	-
625-W	This consumable is close to Daiko SF 625 (ERNiCrMo-3) but Nb free. It ensures good resistance to hot cracking and a micro-structure free of intermetallic phases (Niobium Nitride) and a very good toughness. Daiko 625-W is used for welding of Nickel-Chromium-Molybdenum alloys of similar composition as well as for cladding on low alloyed steels. Also suitable to weld superduplex, superaustenitic and cryogenic 9%Ni steels.	DAIKO 625-W	MIG – TIG - SAW	A5.14 ERNiCrMo-20	EN ISO 18274 Ni6660
82	There is no equivalent base metal, but the composition is related to Inconel 600. Mn and Nb are added in order to give high resistance to hot cracking and tolerance to dilution by combination with ferrous alloys. This product has stable properties for service from -269°C to approx 900°C. Applications include welding heat-resistance alloy, dissimilar welds between nickel base alloys (including Monel) and stainless steels, low alloy and carbon steels. Also suitable to weld Cr-Mo steels with austenitic steels (e.g. 308H) for service at elevated temperature and for low temperature applications such as 3% and 5% Ni steels.	DAIKO SF 82	MIG – TIG - SAW	A5.14 ERNiCr-3	EN ISO 18274 S Ni6082
		DAIKO 182	SMAW	A5.11 ENiCrFe-3	EN ISO 14172 ENi6182
		DAIKO FCW 82	FCAW	A5.34 ENiCr3TO-4	EN ISO 12153 T Ni 6082 R M21 3
		DAIKO STRIP 82	STRIP	A5.14 EQNiCr-3	-
C276	Consumables designed to match the composition and properties of alloy C276. It is also used for surfacing of steel. The weld metal has high resistance in a wide range of media and exceptional resistant to pitting and crevice corrosion. Applications include pumps, valves, pipework and vessels in chemical process plant, equipment for flue gas desulphurisation and for offshore in oil & gas field. Useful properties from -269°C to above 1000°C are achieved.	DAIKO SF 276	MIG – TIG - SAW	A5.14 ERNiCrMo-4	EN ISO 18274 S Ni6276
		DAIKO C276	SMAW	A5.11 ENiCrMo-4	EN ISO 14172 ENi6276
		DAIKO FCW C276	FCAW	A5.34 ENiCr-Mo4T1-4	-
		DAIKO STRIP C276	STRIP	A5.14 EQNiCrMo-4	-
C22	Consumables designed to match the nickel base alloy commonly known as C22. The high level of Mo is similar to alloys C276 and C4 but performance in a wide range of more oxidising media is significantly enhanced in alloy C22 by increasing Cr to 22%. This alloy also provides a tough Nb-free weld metal for dissimilar welds in superaustenitic and superduplex stainless steel or combinations of these with Ni base alloys.	DAIKO SF 622	MIG – TIG - SAW	A5.14 ERNiCrMo-10	EN ISO 18274 S Ni6022
		DAIKO 122	SMAW	A5.11 ENiCrMo-10	EN ISO 14172 ENi6022
		DAIKO FCW 622	FCAW	A5.34 ENiCr-Mo10T1-1/4	-
		DAIKO STRIP C22	STRIP	A5.14 EQNiCrMo-10	-
59	Consumables designed to match the composition and properties of alloy 59. It is also used for surfacing of steel. The weld metal has high resistance in a wide range of media and exceptional resistant to pitting and crevice corrosion. It is also suitable to overmatching 625, C276, C4, C22 alloys. The free Nb weld deposit is a right choice for dissimilar welds in superaustenitic and superduplex stainless steels.	DAIKO SF 59	MIG – TIG - SAW	A5.14 ERNiCrMo-13	EN ISO 18274 S Ni6059
		DAIKO 59K	SMAW	A5.11 ENiCrMo-13	EN ISO 14172 ENi6059
		DAIKO STRIP 59	STRIP	A5.11 EQNiCrMo-13	-
686	Consumables designed to match the composition and properties of alloy 686. It is also used for surfacing of steel. The weld metal has exceptional resistant to pitting, crevice and general corrosion. It is also suitable to overmatching 625, C276, C4, C22, 59 alloys. Also suitable to weld superduplex and superaustenitic steels.	DAIKO 686 ⁽¹⁾	MIG – TIG - SAW	A5.14 ERNiCrMo-14	EN ISO 18274 S Ni6686
		DAIKO 686K	SMAW	A5.11 ENiCrMo-14	EN ISO 14172 ENi6686
825	Consumables designed to match the nickel base alloy commonly known as 825 with corrosion resistance to organic acids and hot sulphuric acid. Applications include pressure vessel, piping, heat exchanger, valves and other components for chemical processing, offshore and oil and gas industries.	DAIKO SF 825	MIG – TIG	A5.14 ERNiFeCr-1	EN ISO 18274 S Ni8065
		DAIKO 135	SMAW	A5.4 (E383-16)	EN ISO 3581-A E 27 31 4 Cu L R 1 2
		DAIKO STRIP 825	STRIP	A5.14 EQNiFeCr-1	-

⁽¹⁾ = Metal cored wire available upon request

COMPOSITION																	MECHANICAL PROPERTIES			
C	Mn	Fe	P	S	Mo	Si	Cu	Ni	Co	Al	Ti	Cr	Nb	V	W	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.01	0.01	<0,4	0.003	0.001	9.0	0.07	0.02	65	-	0,10	0,2	22.0	3.60	-	-	<0.50	760	500	>40	>80 (-196°C)
0.02	0.01	<0.5	0.01	0.006	9.3	0.40	<0.005	65	-	-	-	21.5	3.50	-	-	<0,50	770	520	40	>60 (-50°C)
0.03	0.30	2.00	0.002	0.002	9.0	0.3	0.030	62	-	-	0,15	22.5	3.70	-	-	<0.50	760	470	30	70 (-196°C)
0.01	0.03	<0.5	0.003	0.001	9.0	<0,10	<0.030	65	-	0.10	0.20	22.0	3.70	-	-	<0.50	-	-	-	-
0.01	0.04	0.50	0.003	0.001	10.0	0.05	0.050	64	-	0.10	0.10	22.0	0.01	-	3.2	<0.50	>740	>500	40	>110 (-50°C)
0.03	3.10	1.30	0.004	0.001	-	0.10	0.02	72	-	-	0.40	20.5	2.40	-	-	<0.50	670	390	44	>100 (-196°C)
0.02	8.60	5.75	0.014	0.007	-	0.50	0.01	68	-	-	0.30	14.6	1.90	-	-	<0.50	660	400	42	>50 (-196°C)
0.05	3.20	2.20	0.003	0.004	-	0.30	<0.005	70	-	-	0.30	21.0	2.70	-	-	<0.50	650	380	45	120 (0°C)
0.04	3.20	0.50	0.002	0.002	-	0.05	0.03	73	-	-	0.25	20.4	2.60	-	-	<0.50	-	-	-	-
<0.01	0.20	5.20	0.008	0.002	16.0	0.20	<0.01	59	-	-	-	16.1	-	0.05	3.4	<0.50	740	500	43	-
0.005	0.20	5.20	0.008	0.002	16.0	0.18	<0.01	59	-	-	-	16.0	-	0.02	3.4	<0.50	780	520	30	55 (-196°C)
0.015	0.60	5.30	0.007	0.004	16.0	0.20	0.03	58	-	-	-	15.0	-	-	3.6	<0.50	720	460	45	50 (-196°C)
0.002	0.50	5.50	<0.02	<0.01	15.6	0.02	0.10	58	1.20	-	-	15.4	-	0.15	3.8	<0.50	-	-	-	-
0.005	0.20	4.60	0.005	0.001	14.0	0.05	-	56	-	-	-	22.0	-	0.01	3.0	<0.50	730	490	38	>100 (-196°C)
0.005	0.15	2.60	0.006	0.002	13.5	0.10	0.05	58	-	-	-	22.2	-	0.05	3.3	<0.50	760	510	35	50 (-196°C)
0.02	0.40	5.20	0.007	0.004	13.8	0.20	<0.01	56	-	-	-	21.4	-	-	3.3	<0.50	730	460	30	-
0.005	0.20	4.00	<0.025	<0.015	14.0	0.05	-	57	-	-	-	22.0	-	0.01	3.0	<0.50	-	-	-	-
0.01	0.50	1.50	0.015	0.010	16.0	0.10	0.50	56	-	0.40	0.50	23.0	-	0.30	-	<0.50	-	-	-	-
0.02	0.55	1.20	<0.01	<0.01	16.2	0.20	0.15	58	-	0.04	0.02	22.5	-	0.15	-	<0.50	700	450	30	-
0.01	0.20	0.30	0.006	0.002	15.5	0.03	-	60	-	-	-	22.8	-	-	-	<0.50	-	-	-	-
0.01	0.23	1.00	0.002	0.001	16.2	0.01	0.01	58	-	0.20	0.05	20.6	-	-	3.9	<0.50	>760	-	>35	-
0.01	0.10	<0.1	0.004	0.010	16.3	0.20	0.004	55	-	-	0.02	21.7	-	-	3.9	<0.50	>690	-	>30	-
0.01	0.70	25	0.005	0.001	3.3	0.1	2.6	45	-	0.07	0.80	22.7	-	-	-	<0.50	>450	350	25	-
0.02	0.80	Bal.	-	-	3.5	0.90	0.90	31	-	-	-	27.0	-	-	-	<0.50	640	440	38	70 (20°C)
0.01	0.70	31	0.01	0.001	3.2	0.40	1.7	39	-	0.10	0.90	22.6	-	-	-	<0.50	-	-	-	-

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
Weld-A	This consumable is similar to 182 but with lower Mn and Mo addition. It is used for welding of INCOLOY 800/800H, INCONEL 600 e 601 and nickel steels. Mo and Nb are added to give high resistance to hot cracking and tolerance to dilution. For this reason this electrode is exceptional for dissimilar welding such as combinations of carbon steel, stainless steel, Inconel, Incoloy, Monel and copper-nickel alloys. Service range from -269°C to above 900°C. Applications include also furnace equipment and petrochemical	DAIKO WELD-A	SMAW	A5.11 ENiCrFe-2	EN ISO 14172 ENi6092
617	These consumables are primarily used for high temperature applications up to about 1100°C. In addition to welding the parent metal alloy 617, it also gives excellent results in welding many dissimilar materials for high temperature applications such as alloy 800H and 800HT for service above 760°C, alloys 600 and 601, and cast alloys HK40, HP, HP45 mod.. Typical applications include furnace, combustion, pyrolysis, heat treatment components, flare tips, dusting and gas turbine parts.	DAIKO SF 617	MIG – TIG – SAW	A5.14 ERNiCrCo-Mo-1	EN ISO 18274 S Ni6617
		DAIKO 117	SMAW	A5.11 ENiCrCoMo-1	EN ISO 14172 ENi6617
718	Daiko SF 718 match the parent metal Alloy 718. The weld metal is age hardenable with excellent strength; its mechanical properties depend on the post weld heat treatment (PWHT). Daiko SF 718 has excellent corrosion resistance to many media. Daiko SF 718 filler metal can be also used for cladding and overlay of parts in the oil and gas industry.	DAIKO SF 718	MIG – TIG	A5.14 ERNiFeCr-2	EN ISO 18274 S Ni7718
Pure Nickel	Consumables designed for joining pure nickel and for surfacing of steel. They are suitable for dissimilar welding of pure nickel to stainless steels, carbon steels, nickel alloys, monel 400 and cupronickel. Also suitable for welding cast iron. Applications include tanks and vessels, heat exchangers, piping in chemical plant for salt production, chlorination and evaporation of caustic soda and, in particular, wherever corrosion resistance in alkalis is required.	DAIKO 208 ⁽¹⁾	MIG – TIG – SAW	A5.14 ERNi-1	EN ISO 18274 S Ni2061
		DAIKO 141	SMAW	A5.11 ENi-1	-
MONEL® 400	Designed to match the Monel alloy 400. These filler metals have a raised level of Mn and Ti to suppress hot cracking and porosity. Suitable for welding monel 400 to itself and to others Ni-Cu alloys (for example pure nickel and cupronickel). Normally buttering in dissimilar joints and buffer layer in cladding are made with pure nickel (Daiko 208) or with 625 (Daiko SF 625). Applications include offshore and marine construction, heat exchangers, piping, desalination plant, chemical, petrochemical and power engineering industries.	DAIKO SF 418	MIG – TIG – SAW	A5.14 ERNiCu-7	EN ISO 18274 S Ni4060
		DAIKO 190	SMAW	A5.11 ENiCu-7	EN ISO 14172 ENi4060
		DAIKO STRIP 418	STRIP	A5.14 EQNiCu7	-
CuNi 70-30	Designed to match the CuNi 70/30 alloys. The consumables are suitable for surfacing and cladding provided buttering layer is made (normally buttering is made with alloy 400 or pure nickel). Applications include offshore construction, desalination plant, evaporators, condenser, etc, in salt and sea water processing system.	DAIKO 413 ⁽¹⁾	MIG – TIG – SAW	A5.7 ERCuNi	EN ISO 24373 S Cu 7158
		DAIKO 187	SMAW	A5.6 ECuNi	-
CuNi 90-10	Consumable with nominal composition 86%Cu and 10.5%Ni for welding 90/10 base materials. Applications include offshore construction, desalination plant, evaporators, condenser, etc, in salt and sea water processing system.	DAIKO 412	MIG – TIG – SAW	-	DIN 1733 SG CuNi10Fe
690	Designed to match alloy 690, often used in place of alloy 600 for high temperature corrosion applications, especially in the nuclear industry where the higher Chromium content providing greater resistance to stress-corrosion cracking in the nuclear water environment. This product can also be used to overlay carbon and low alloy steels. Typical applications include nuclear industry and several acid processing equipment.	DAIKO SF 652	MIG – TIG – SAW	A5.14 ERNiCrFe-7	EN ISO 18274 S Ni6052
		DAIKO 152	SMAW	A5.11 ENiCrFe-7	EN ISO 14172 ENi6152
		DAIKO SF 652M ⁽¹⁾	MIG – TIG – SAW	A5.14 ERNiCrFe-7A	UNS N06054
92	Daiko 92 is used for joining nickel base alloys (600, 601, 800) to themselves and to stainless steels, carbon steels and Monel alloys. Daiko 92 is also used for surfacing carbon steels. The high Ti content provides excellent porosity resistance in field welding applications. Typical applications include desalination plants, piping, furnace equipment and petrochemical and power generation plants. Working temperature from cryogenic to -950°C.	DAIKO 92	MIG – TIG	A5.14 ERNiCrFe-6	EN ISO 18274 S Ni7092
602	This product is a hightemperature material with excellent resistance to creep and oxydation up to 1200°C.	DAIKO 602	MIG – TIG	A5.14 ERNiCrFe-12	-

⁽¹⁾ = Metal cored wire available upon request

COMPOSITION																	MECHANICAL PROPERTIES			
C	Mn	Fe	P	S	Mo	Si	Cu	Ni	Co	Al	Ti	Cr	Nb	V	W	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.02	2.00	7.40	0.001	0.002	0.90	0.40	0.060	72.6	-	-	-	15.0	1.30	-	-	<0.50	650	410	42	-
0.08	0.10	0.5	0.001	0.002	9,0	0.1	0.2	55	12	1.00	0.30	22.0	-	-	-	<0.50	>740	500	>40	>200 (20°C)
0.10	1.70	0.30	0.01	0.005	8.90	0.50	0.02	52.3	11	-	-	24.3	0.65	-	-	<0.50	750	500	40	70 (20°C)
0.07	0.10	20.5	0.008	0.001	3.0	0.15	0.05	52	-	0.40	0.90	17.5	5.00	-	-	<0.50	860-1360	580-1120	28	-
0.02	0.40	0.1	0.005	0.005	-	0.3	0.02	96	-	0.10	3.00	-	-	-	-	<0.50	580	330	30	-
0.02	0.30	0.4	0.01	0.01	-	0.48	0.01	96.7	-	0.03	1.20	-	-	-	-	<0.50	430	280	21	-
0.03	3.20	<1	0.005	0.005	-	0.2	29	64	-	0.10	2.20	-	-	-	-	<0.50	520	280	38	120 (-30°C)
0.07	3.50	1	0.005	0.005	-	0.8	30	64	-	0.05	0.90	-	-	-	-	<0.50	520	320	35	110 (-30°C)
0.03	3.50	0.1	0.002	0.001	-	0.2	29	64.8	-	0.02	2.30	-	-	-	-	<0.50	-	-	-	-
0.03	0.80	0.5	0.003	0.005	-	0.01	67	31	-	-	0.30	-	-	-	-	<0.50	400	200	38	200 (20°C)
0.07	1.70	0.40	<0.005	<0.005	-	0.25	66.3	31.3	-	-	0.02	-	-	-	-	<0.50	-	-	-	-
0.01	0.80	1.6	0.004	0.002	-	0.04	86	11	-	0.06	0.40	-	-	-	-	-	360	200	40	-
0.01	0.40	8.6	0.005	0.001	0.01	0.2	0.01	59.5	-	0.25	0.45	29.7	0.75	-	-	<0.50	700	420	40	200 (-50°C)
0.04	3.00	8.20	<0.003	<0.001	0.20	0.55	<0.01	57.2	-	0.30	0.20	28.7	1.60	-	-	<0.50	>550	-	>30	-
0.01	0.40	8.6	0.005	0.001	0.01	0.2	0.01	59.5	-	0.25	0.45	29.7	0.75	-	-	B, Zr	700	420	40	200 (-50°C)
0.05	2.40	7.3	0.001	0.002	-	0.02	0.01	70	-	-	3.00	16.7	-	-	-	<0.50	600	400	40	-
0.17	0.07	9.8	0.005	0.002	-	0.05	0.01	62	-	2.3	0.15	25.0	-	-	-	Zr, Y	>650	>300	>25	-

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
INVAR®	Consumable designed to have very low thermal expansion to provide freedom to solidification and reheat cracking.	DAIKO 36 INV	MIG – TIG – SAW	-	-
50/50Nb	Alloy 657 has exceptional resistance to hot corrosion (800-950°C). It is used in a wide range of components in oil-fired furnaces and boilers such as tube sheets, tube hangers, supports and spacers in ships, power stations, refineries, and petrochemical plants.	DAIKO 657	MIG – TIG	A5.14 ERNiCr-4	-
		G-TECH 657	SMAW	A5.11 ENiCr-4	-
657M	Used for welding Ni-Cr-Fe alloys and for overlay cladding in high temperature applications.	DAIKO 657M	MIG – TIG	A5.14 ERNiCr-7	-
ALLOY X	Consumables for welding Hastelloy® X base metal and dissimilar welding of this alloy to nickel base alloys, stainless, carbon and low alloy steels. Outstanding strength and oxidation resistance up to 1200°C. Also suitable for overlay cladding.	DAIKO X	MIG – TIG	A5.14 ERNiCrMo-2	

COMPOSITION																	MECHANICAL PROPERTIES			
C	Mn	Fe	P	S	Mo	Si	Cu	Ni	Co	Al	Ti	Cr	Nb	V	W	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.23	0.53	61.1	0.003	0.001	-	0.35	0.05	36	-	0.10	0.30	-	1.30	-	-	-	550	-	25	-
0.02	0.01	0.1	0.002	0.002	-	0.07	-	56	-	-	0.50	43.0	-	-	-	<0.50	>690	-	>30	-
0.07	1.00	0.5	0.01	0.01	-	0.5	0.05	47	-	-	-	49.0	1.80	-	-	N=0.05	900	690	3	-
0.03	0.50	1.0	0.002	0.002	0.5	0.3	0.3	55	1.0	1.00	0.70	38.5	0.80	-	-	B, Zr	>690	-	>30	-
0.05	0.50	18.50	0.01	0.001	8.50	1.00	0.5	48	1.0	-	-	21.3	-	-	0.5	<0.50	>660	-	-	-



ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
2209	These alloys are finding widening application in the offshore oil/gas, chemical and petro-chemical process industries for their good resistance to stress corrosion cracking and pitting corrosion with typical pitting resistance equivalent number (PREN) of 35-36. The weld metal poses a high tensile and yield strength.	DAIKO SF 2209	MIG – TIG – SAW	A5.9 ER2209	EN ISO 14343-A 22 9 3 N L
		G-TECH 2209B	SMAW	A5.4 E2209-15	EN ISO 3581-A E 22 9 3 N L B 42
		G-TECH 2209	SMAW	A5.4 E2209-16	EN ISO 3581-A E 22 9 3 N L R 12
		G-TECH 2209R	SMAW	A5.4 E2209-17	EN ISO 3581-A E 22 9 3 N L R 12
		DAIKO FCW 2209P	FCAW	A5.22 E2209T0-4	EN ISO 17633-A T 22 9 3 N L P M21 1
		DAIKO FCW 2209 ⁽¹⁾	FCAW	A5.22 E2209T1-4	EN ISO 17633-A T 22 9 3 N L R M21 3
		DAIKO STRIP 2209	STRIP	A5.9 EQ2209	EN ISO 14343 22 9 3 N L
2553	Consumable designed to match similar alloys base metal. Applications include pumps and valves, corrosion/wear resisting parts, and process equipment for use in offshore oil and gas industries, pulp, paper and textile industries, and chemical and petrochemical plant.	G-TECH 2553	SMAW	A5.4 E2553-16	-
		DAIKO FCW 2594Cu	FCAW	A5.22 E2594T0-4	EN ISO 17633-A T 25 9 4 Cu NL R M213
2507	Consumables for 25% Superduplex stainless steels. Offshore applications exploit the high resistance to pitting (typical pitting resistance equivalent number "PREn" of 43) and stress corrosion cracking in seawater. It is also highly resistant to caustic alkalis and phosphoric acid. Widely used in oil and gas production and process.	DAIKO SF 2594	MIG – TIG – SAW	A5.9 ER2594	EN ISO 14343-A 25 9 4 N L
		G-TECH 2594B ⁽²⁾	SMAW	A5.4 E2594-15	-
		DAIKO FCW 2594P ⁽¹⁾	FCAW	A5.22 E2594T1-4	EN ISO 17633-A T 25 9 4 N L P C1- M21 1
		DAIKO STRIP 2594	STRIP	A5.9 EQ2594	EN ISO 14343 25 9 4 N L
ZERON 100®	Superduplex filler metal matching the proprietary Zeron® 100 alloy. The presence of Cu+W in this alloy provides superior resistance to sulphuric and hydrochloric acids when compared to similar alloys without these additions. Offshore applications exploit the high resistance to pitting and stress-corrosion cracking in seawater. It is also highly resistant to caustic alkalis and phosphoric acid. Service temperature range is usually limited to -50°C to 280°C. It is widely used in oil and gas production and process pipework, risers, manifolds, pressure vessels, valves, pumps, desalination plant, systems for flue-gas desulphurisation (FGD) and also in the mining, chemical and pharmaceutical industries.	DAIKO SF 2594Cu	MIG – TIG – SAW	A5.9 ER2594	EN ISO 14343-A 25 9 4 N L
		G-TECH 2595B ⁽²⁾	SMAW	A5.4 E2595-15	EN ISO 3581-A E 25 9 4 N L B 42
		DAIKO FCW 2594CuW ⁽³⁾	FCAW	A5.22 E2594T0-4	EN ISO 17633-A T 25 9 4 Cu NL R M213

⁽¹⁾ = Metal cored wire available upon request

⁽²⁾ = Rutile-basic (-16) version available upon request

⁽³⁾ = Basic flux cored wire for improved toughness available upon request

COMPOSITION												MECHANICAL PROPERTIES			
C	Cr	Ni	Mo	Nb+Ta	Mn	Si	P	S	N	Cu	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.010	23.2	8.6	3.30	-	1.45	0.45	0.015	0.015	0.17	0.05	<0.50	800	>560	30	>60 (-50°C)
0.035	23.0	9.2	3.20	-	1.50	0.70	0.020	0.010	0.17	0.10	<0.50	750	650	26	60 (-50°C)
0.030	23.0	9.5	3.10	-	1.05	0.90	0.015	0.010	0.17	0.05	<0.50	750	>600	>25	>80 (20°C)
0.030	22.4	9.4	3.20	-	0.65	0.90	0.020	0.010	0.16	0.05	<0.50	>690	>550	>20	-
0.030	22.9	9.4	3.50	-	0.80	0.60	0.020	0.008	0.15	-	<0.50	850	670	30	45 (-20°C)
0.030	23.3	9.3	3.40	-	0.95	0.75	0.020	0.008	0.15	-	<0.50	850	660	30	>45 (-20°C)
0.020	23.0	9.0	3.10	-	1.60	0.50	<0.020	<0.015	0.15	-	<0.50	-	-	-	-
0.035	24.5	7.8	3.5	-	1.23	0.90	0.020	0.010	0.22	1.90	<0.50	>760	>600	>15	>50 (20°C)
0.030	26.35	8.75	4.25	-	1.15	0.50	0.015	0.002	0.2	1.22	<0.50	950	320	22	30 (-29°C)
0.010	25.0	9.3	4.00	-	0.55	0.40	<0.020	<0.015	0.25	0.10	<0.50	880	665	23	75 (-60°C)
0.035	25.5	9.5	4.00	-	0.90	0.70	0.020	0.010	0.24	0.30	<0.50	>850	>650	>22	60 (-50°C)
0.030	25.9	9.7	4.00	-	1.20	0.50	0.020	0.005	0.25	-	<0.50	900	700	27	40 (-40°C)
0.020	25.0	9.5	4.00	-	0.40	0.30	<0.020	<0.015	0.25	0.10	<0.50	-	-	-	-
0.020	25.0	9.1	3.6	-	0.60	0.30	<0.020	<0.015	0.23	0.60	W=0.65	870	670	24	60 (-50°C)
0.035	25.5	9.5	4.00	-	0.90	0.70	0.020	0.010	0.24	0.70	W=0.50	>850	>630	>22	>40 (-50°C)
0.030	25.0	9.0	3.80	-	1.40	0.60	0.015	0.008	0.26	1.00	W=0.60	850	670	25	45 (20°C)



ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
ALLOY 20	These consumables give a fully austenitic weld metal with high resistance to corrosion in sulphuric acid, mineral acids and organic acids. Typical applications include tanks and vessels, piping, cast pumps, valves, heat exchanger and other components used in chemical processing, metal cleaning and pickling industries.	DAIKO 320LR	MIG – TIG	A5.9 ER320LR	-
		G-TECH 320LR⁽¹⁾	SMAW	A5.4 E320LR-15	-
904L	Consumables designed for welding of 904L alloy and gives fully austenitic weld metal with good resistance to corrosion in inorganic and organic acids. Typical applications include tanks and vessels, piping, cast pumps, valves and other components used in fertiliser, phosphoric, sulphuric and acetic plants, and in salt and seawater environments. It also used in some offshore applications.	DAIKO 385	MIG – TIG – SAW	A5.9 ER385	EN ISO 14343-A 20 25 5 Cu L
		G-TECH 385B	SMAW	A5.4 E385-15	EN ISO 3581-A E 20 25 5 Cu N LB 62
		G-TECH 385	SMAW	(A5.4 E385-16)	EN ISO 3581-A E 20 25 5 Cu N LR 12
		DAIKO FCW 904L	FCAW	A5.22 (E385T0-4)	EN ISO 17633-A T Z 20 25 5 Cu L R M 3
		DAIKO FCW 904LP	FCAW	A5.22 NO AWS	EN ISO 17633-A T 20 25 5 Cu N L P M21 2
		DAIKO MCW 385	FCAW	A5.22 EC385	EN ISO 17633-A T Z 20 25 5 Cu L M I1 1
		DAIKO STRIP 385	STRIP	A5.9 EQ385	EN ISO 14343 B 20 25 5 Cu L
310	These consumables are used to weld 310 fully austenitic stainless steels. Applications include heat shields, furnace and boiler parts, heat exchanger and ducting for the good resistance to high temperature oxidation of these alloys. Also suitable for dissimilar joints, buffer layers, weld overlay and cryogenic applications.	DAIKO SF 310	MIG – TIG – SAW	A5.9 ER310	EN ISO 1343-A 25 20
		G-TECH 310	SMAW	A5.4 E310-16	EN ISO 3581-A E 25 20 R 12
		G-TECH 310B	SMAW	A5.4 E310-15	EN ISO 3581-A E 25 20 B 42
		DAIKO 310Mn	MIG – TIG	A5.9 (E310)	EN ISO 14343-A G 25 20
		G-TECH 310Mn	SMAW	A5.4 (E310-16)	-
		G-TECH 310Mo	SMAW	A5.4 E310Mo-16	EN ISO 3581-A E Z 25 20 3 R 12
		DAIKO FCW 310	FCAW	A5.22 E310T0-1/4	EN ISO 17633 A T 25 20 R C1-M21 3
310H	Consumable designed to weld HK40 base material for centrifugally cast tubes operating at approx. 1000° C. Applications include components for petrochemical and chemical plants and components for cement, ceramic and steel industries.	G-TECH 310H	SMAW	A5.4 E310H-15	EN ISO 3581-A E 25 20 H B

⁽¹⁾ = Rutile-basic (-16) version available upon request

COMPOSITION											MECHANICAL PROPERTIES			
C	Cr	Ni	Mo	Mn	Si	P	S	N	Cu	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.02	19.6	34.0	2.5	1.60	0.05	0.007	0.001	-	3.40	Nb=0.25	590	400	35	>100 (20°C)
0.02	19.9	33.8	2.3	1.70	0.16	0.016	0.006	-	3.20	Nb=0.10	535	340	30	>60 (-196°C)
0.01	20.0	25.0	4.3	1.65	0.35	0.015	0.010	-	1.45	<0.50	650	490	35	200 (20°C)
0.03	21.0	25.0	4.8	2.00	0.40	0.020	0.005	0.08	1.80	Nb=0.05	620	440	40	50 (-196°C)
0.03	20.0	25.0	4.5	1.30	1.10	0.020	0.015	-	1.30	<0.50	>570	>370	>35	>70 (20°C)
0.03	21.0	25.5	4.9	3.00	0.50	0.020	0.008	-	1.60	<0.50	640	430	32	40 (-110°C)
0.03	20.9	25.3	4.7	1.60	0.65	0.024	0.005	0.15	1.50	<0.50	660	420	35	60 (-196°C)
0.02	21.0	25.0	5.0	2.50	0.40	0.020	0.008	-	1.50	<0.50	640	410	35	40 (-196°C)
0.01	20.0	25.0	4.5	1.80	0.40	<0.015	<0.015	-	1.50	<0.50	-	-	-	-
0.10	26.0	21.0	0.1	1.80	0.40	0.020	0.005	-	0.10	<0.50	560	360	40	>50 (-196°C)
0.10	26.0	21.0	0.2	2.00	0.60	0.020	0.010	-	0.10	<0.50	580	400	30	>60 (20°C)
0.10	26.0	21.0	0.2	2.00	0.60	0.020	0.010	-	0.10	<0.50	>600	>400	>30	>80 (20°C)
0.13	25.0	20.6	0.1	3.05	0.90	0.015	0.010	-	0.04	<0.50	550	320	25	-
0.13	26.0	20.0	0.2	4.10	1.00	0.020	0.010	-	0.10	<0.50	>600	>420	>30	>80 (20°C)
0.10	25.0	20.0	2.7	2.80	0.60	0.020	0.010	-	0.10	<0.50	570	380	35	70 (20°C)
0.18	25.5	20.4	-	2.10	0.60	0.015	0.005	-	-	<0.50	620	420	>30	70 (20°C)
0.40	26.0	21.0	0.1	1.70	0.50	0.020	0.010	-	0.05	<0.50	760	550	18	-



ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
409Nb	Consumables used for welding similar 12% Cr ferritic steels in application such as catalytic converters and mufflers.	DAIKOSF 409Nb	MIG – TIG – SAW	A5.9 ER409Nb	-
410	Consumables designed for welding similar parental metal, martensitic 12%Cr stainless steels, and for weld overlay on carbon steels to resist corrosion, erosion or abrasion. Applications include reaction vessels, pipework in refineries, furnace parts, turbine parts, cast valves, etc. ...	DAIKO 410 ⁽¹⁾	MIG – TIG – SAW	A5.9 ER410	EN ISO 14343-A 13
		G-TECH 410B	SMAW	A5.4 E410-15	EN ISO 3581-A E 13 B 42
		G-TECH 410HR	SMAW	A5.4 E410-26	EN ISO 3581-A E 13 R 52
		G-TECH 410	SMAW	A5.4 E410-16	EN ISO 3581-A E 13 R 12
410NiMo	Consumables designed for welding similar 410NiMo martensitic stainless steels base metal. 410NiMo is a high strength martensitic stainless steel with good resistance to corrosion, hydro-cavitation, sulphide-induced SCC, and good sub-zero toughness (compared with standard 410 steels). The 410NiMo consumables are also used for overlaying mild and CMn steels. Applications include turbines, valve bodies, high pressure piping, offshore, power generation	DAIKO SF 410NiMo	MIG – TIG – SAW	A5.9 ER410NiMo	EN ISO 14343-A 13 4
		G-TECH 410 NiMoB	SMAW	A5.4 E410NiMo-15	EN ISO 3581-A E 13 4 B 42
		G-TECH 410NiMo	SMAW	A5.4 E410NiMo-16	EN ISO 3581-A E 13 4 R 52
		DAIKO FCW 410NiMo	FCAW	A5.22 E410NiMoT1-1/4	-
		DAIKO MCW 410NiMo	FCAW	A5.22 EC410NiMo	-
420	Consumables similar to 410 with higher chromium and carbon contents; used for surfacing operations requiring corrosion resistance and wear resistance.	DAIKO 420B	MIG – TIG – SAW	A5.9 ER420	-
		DAIKO 420C	MIG – TIG – SAW	A5.9 ER420	-
430	Ferritic stainless steel with good ductility in heat treated condition. Application include welding of similar parental metal, weldoverlay and thermal spraying. These consumables include stabilized version with Niobium and/or Titanium designed for the automotive industry and used in the production of exhaust systems.	DAIKO SF 430	MIG – TIG – SAW	A5.9 ER430	EN ISO 14343-A 17
		DAIKO SF 430LNb	MIG – TIG – SAW	A5.9 (ER430)	EN ISO 14343-A 18LNb
		DAIKO SF 430LNbTi	MIG – TIG	A5.9 (ER430)	EN ISO 14343-A (18LNb)
		DAIKO SF 430Ti	MIG – TIG	A5.9 (ER430)	-
		G-TECH 430	SMAW	A5.4 E430-16	EN ISO 3581-A E 17 R 52
		G-TECH 430B	SMAW	A5.4 E430-15	EN ISO 3581-A E 17 B 42
		DAIKO MCW 430	FCAW	A5.22 – NO AWS	-
		DAIKO STRIP 430	STRIP	A5.9 EQ430	-
630 (17-4-PH)	Consumables used for welding materials of similar chemical composition such as 17-4 and 17-7. Can be used in the as welded condition or may be heat treated to obtain higher strength.	DAIKO 630	MIG – TIG – SAW	A5.9 ER630	-
		G-TECH 630	SMAW	A5.4 E630-16	EN ISO 3581-B E 630-16
4122	Hard martensitic stainless steel deposit for wear resistance surfacing. Typical applications include continuous caster rolls and moulds for ceramic industries.	DAIKO 4122	MIG – TIG – SAW	A5.9 – NO AWS	-
		G-TECH 4122	SMAW	A5.4 – NO AWS	EN ISO 3581-A E 17 1 B 42
248SV	Designed for welding corrosion resistant martensitic-ferritic stainless steels of similar composition (type Outokumpu 248SV). It combines good toughness with excellent resistance to cavitation and to stress corrosion cracking. Typical applications include repairing of casting defects, fabrication and rebuilding on components used in the water turbines and pump."	DAIKO FCW 16-5-1	FCAW	NO AWS	EN ISO 17633-A T Z 16 5 1 B M12 2

⁽¹⁾ = Flux cored wire available upon request

COMPOSITION											MECHANICAL PROPERTIES			
C	Cr	Ni	Mo	Mn	Si	P	S	N	Cu	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.040	11.5	0.40	-	0.65	0.50	0.020	0.020	-	-	<0.50	460	350	26	-
0.050	13.0	0.20	0.1	0.45	0.30	0.02	0.005	-	-	<0.50	690	530	22	-
0.070	12.50	0.30	0.2	0.8	0.5	0.015	0.01	-	-	<0.50	>520	>440	>18	>47 (+20°C)
0.090	13.10	0.40	0.1	0.6	0.7	0.015	0.01	-	-	<0.50	>480	>320	>20	>47 (+20°C)
0.080	12.90	0.40	0.1	0.7	0.6	0.015	0.01	-	-	<0.50	>480	>320	>20	>47 (+20°C)
0.020	12.15	4.55	0.5	0.35	0.35	0.020	0.020	-	-	<0.50	880	840	20	>50 (0°C)
0.050	12.1	4.50	0.5	0.70	0.80	0.015	0.010	-	-	<0.50	>800	>600	15	>50 (+20°C)
0.040	12.2	4.70	0.4	0.50	0.80	0.015	0.010	-	-	<0.50	>780	>600	17	>50 (+20°C)
0.020	11.60	4.30	0.6	1.50	0.35	0.020	0.005	-	-	<0.50	920	840	17	>40 (-20°C)
0.020	11.80	4.40	0.6	0.45	0.25	0.020	0.005	-	-	<0.50	890	810	19	>60 (0°C)
0.300	13.00	0.50	-	0.60	0.50	<0.030	<0.030	-	0.30	<0.50	hardness 390/400 Hb			
0.400	13.00	0.50	-	0.60	0.50	<0.030	<0.030	-	0.30	<0.50	hardness 420/460 Hb			
0.025	16.20	0.20	-	0.45	0.40	<0.020	<0.020	-	-	<0.50	530	410	25	-
0.015	18.1	0.30	-	0.30	0.40	<0.020	<0.020	-	-	Nb=0.45	420	275	26	-
0.030	18.00	0.20	-	0.55	0.65	<0.020	<0.020	-	-	<0.50	420	275	26	-
0.030	17.50	0.20	-	0.60	0.65	<0.020	<0.020	-	-	<0.50	420	270	25	-
0.100	17.0	-	-	0.70	0.20	<0.020	<0.020	-	-	<0.50	>500	>420	>15	-
0.060	17.1	-	-	0.80	0.40	<0.020	<0.020	-	-	<0.50	>500	>420	>15	-
0.050	17.00	0.10	-	0.15	0.40	0.010	0.020	-	-	Nb=0.75	540	390	26	-
0.015	16.60	-	-	0.30	0.35	0.025	0.005	-	-	-	-	-	-	-
0.030	16.30	4.80	0.2	0.60	0.40	0.020	0.005	-	3.50	Nb=0.20	930	740	10	-
0.020	16.5	4.0	0.2	0.60	0.30	0.010	0.010	-	2.30	<0.50	>950	>600	>7	-
0.400	17.0	1.0	1.2	1.00	0.60	<0.020	<0.020	-	-	<0.50	750	550	12	-
0.200	17.0	0.5	1.2	0.7	0.2	0.01	0.01	-	-	<0.50	>680	>600	15	-
0.03	15.6	4.5	1.0	1.0	0.50	<0.015	<0.010	-	-	<0.50	900*	750*	17*	>60 (-20°C)*

*values with PWHT

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
308L	These consumables are used to weld 304L stainless steels (18/8) base materials. Mainly applications include food industries, pharmaceutical equipment and general fabrication. Typical service temperatures are -100°C to 400°C.	DAIKO SF 308L	MIG – TIG – SAW	A5.9 ER308L	EN ISO 14343-A 19 9 L
		DAIKO SF 308LSi	MIG – TIG	A5.9 ER308LSi	EN ISO 14343-A 19 9 L Si
		G-TECH 308LB	SMAW	A5.4 E308L-15	EN ISO 3581-A E 19 9 L B 22
		G-TECH 308L	SMAW	A5.4 E308L-16	EN ISO 3581-A E 19 9 L R 12
		G-TECH 308LR	SMAW	A5.4 E308L-17	EN ISO 3581-A E 19 9 L R 12
		DAIKO FCW 308LP	FCAW	A5.22 E308LT1-1/4	EN ISO 17633-A 19 9 L P C1/M21 1
		DAIKO FCW 308L	FCAW	A5.22E308LT0-1/4	EN ISO 17633-A 19 9 L R C1/M21 3
		DAIKO STRIP 308L	STRIP	A5.9 EQ308L	EN ISO 14343-A 19 9 L
308LCF	These consumables are used to weld 304L stainless steels (18/8) used in cryogenic applications (down to -196°C). These product have a controlled ferrite (3*8). Mainly applications include pipework and vessel for cryogenic service.	DAIKO 308LCF	MIG – TIG – SAW	A5.9 ER308L	EN ISO 14343-A 19 9 L
		G-TECH 308LCF-B	SMAW	A5.4 E308L-15	EN ISO 3581-A E 19 9 L B 4 2
		G-TECH 308LCF	SMAW	A5.4 E308L-16	EN ISO 3581-A E 19 9 L R 3 2
		DAIKO FCW 308LCF-P ⁽¹⁾	FCAW	A5.22 E308LT1-1/4	EN ISO 17633-A 19 9 L P C1/M21 1
308H	These products are designed to match 304/304H austenitic stainless steels for elevated temperature strength. The carbon content of these consumables is over 0.04%. These consumables are suitable to weld heavy thick (>12mm) of 321H and 347H to avoid typical service HAZ cracking of these grades. Mainly applications include petrochemical and chemical process plant. Typical service temperatures are 400°C to 800°C.	DAIKO 308H	MIG – TIG – SAW	A5.9 ER308H	EN ISO 14343-A 19 9 H
		G-TECH 308HB	SMAW	A5.4 E308H-15	EN ISO 3581-A E 19 9 H B 4 2
		G-TECH 308H	SMAW	A5.4 E308H-16	EN ISO 3581-A E 19 9 H R 3 2
		DAIKO FCW 308HP	FCAW	A5.22 E308HT1-1/4	EN ISO 17633-A TZ 19 9 H R C1/M21 3
316L	These consumables are used for Mo bearing austenitic stainless steels with 1.5 * 3 Mo. 316 steels are used for their good resistance to pitting, many acids and general corrosion.	DAIKO SF 316L	MIG – TIG – SAW	A5.9 ER316L	EN ISO 14343-A 19 12 3 L
		DAIKO SF 316LSi	MIG – TIG	A5.9 ER316LSi	EN ISO 14343-A 19 12 3 L Si
		G-TECH 316LB	SMAW	A5.4 E316L-15	EN ISO 3581-A E 19 12 3 LB 22
		G-TECH 316L	SMAW	A5.4 E316L-16	EN ISO 3581-A E 19 12 3 LR 12
		G-TECH 316LR	SMAW	A5.4 E316L-17	EN ISO 3581-A E 19 12 3 LR 12
		DAIKO FCW 316LP	FCAW	A5.22 E316LT1-1/4	EN ISO 17633-A T 19 12 3 L P C1/M21 1
		DAIKO FCW 316L	FCAW	A5.22 E316LT0-1/4	EN ISO 17633-A T 19 12 3 L R C1/M21 3
		DAIKO STRIP 316L	STRIP	A5.9 EQ316L	EN ISO 14343-A 19 12 3 L
316LCF	These consumables are used for Mo bearing austenitic stainless type 316L used in cryogenic applications (down to -196°C). These product have a controlled ferrite (3*8). Mainly applications include pipework and vessel for cryogenic service.	DAIKO 316LCF	TIG – SAW	A5.9 ER316L	EN ISO 14343-A 19 12 3 L
		G-TECH 316LCF-B	SMAW	A5.4 E316-L15	EN ISO 3581-A E 19 12 3 L B 42
		G-TECH 316LCF	SMAW	A5.4 E316-L16	EN ISO 3581-A E 19 12 3 L R 32
		DAIKO FCW 316LCF	FCAW	A5.22 E316LT1-1/4	-
316NF	Consumables with high nickel and nitrogen providing a fully austenitic and non-magnetic weld metal.	DAIKO 316MnNF	MIG – TIG – SAW	A5.9 ER316LMn	EN ISO 14343-A G 20 16 3 Mn L
		G-TECH 316LMn-B	SMAW	A5.4 (E316LMn-15)	EN ISO 3581-A E 18 15 3 L B 12
		G-TECH 316LMn	SMAW	A5.4 (E316LMn-16)	EN ISO 3581-A E 18 15 3 L R 32
		DAIKO FCW 316NF	FCAW	-	EN ISO 17633-A T 18 16 5 N L B M21 3

⁽¹⁾ = Also available flat position version

COMPOSITION											MECHANICAL PROPERTIES			
C	Cr	Ni	Mo	Mn	Si	P	S	N	Cu	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.010	20.0	10.0	-	1.65	0.40	0.020	0.007	-	-	<0.50	570	435	40	>70 (-130°C)
0.010	20.0	10.0	-	1.60	0.90	0.020	0.010	-	-	<0.50	570	435	40	70 (-130°C)
0.030	19.0	9.0	-	1.90	0.70	0.020	0.010	-	-	<0.50	>580	>420	>35	>100 (20°C)
0.030	19.0	9.0	-	0.75	0.80	0.020	0.010	.	-	<0.50	>520	>350	>35	>47 (20°C)
0.025	19.7	9.8	-	0.90	0.90	0.015	0.020	-	-	<0.50	>520	>350	>35	>47 (20°C)
0.030	19.5	9.9	-	1.70	0.70	0.020	0.004	-	-	<0.50	580	410	41	50 (-20°C)
0.020	19.7	10	-	1.60	0.60	0.020	0.005	-	-	<0.50	570	410	40	45 (-20°C)
0.010	20.0	10	-	1.80	0.40	0.015	0.010	-	-	<0.50	-	-	-	-
0.010	20.0	10	-	1.70	0.40	0.015	0.010	-	0.15	FN=3*8	600	460	32	>60 (-196°C)
0.030	18.5	10	-	1.20	0.30	0.015	0.020	-	-	FN=2*5	600	440	50	43 (-196°C)
0.020	18.5	10	-	1.00	0.60	0.020	0.010	-	-	FN=2*5	570	440	44	35 (-196°C)
0.030	19.0	10	-	1.40	0.70	0.016	0.005	-	-	FN=5*6	640	420	40	50 (-100°C)
0.055	20.0	9.5	-	1.80	0.40	0.015	0.005	-	0.10	<0.50	590	420	42	100 (+20°C)
0.065	20.2	9.7	-	1.50	0.85	0.015	0.010	0.1	0.03	<0.50	>570	>400	>35	>80 (+20°C)
0.050	18.5	9.5	-	1.00	0.40	0.020	0.010	-	-	<0.50	650	450	41	100 (+20°C)
0.060	19.3	9.5	-	1.30	0.50	0.020	0.004	-	-	<0.50	600	420	44	70 (0°C)
0.020	18.4	12.5	2.60	1.55	0.35	0.015	0.010	-	0.15	<0.50	570	435	42	>30 (-196°C)
0.020	18.4	12.2	2.55	1.50	0.85	0.018	0.015	-	0.08	<0.50	570	435	42	>30 (-196°C)
0.040	19.3	11.5	2.80	1.90	0.80	0.010	0.010	0.05	0.05	<0.50	>567	>483	>45	>100
0.025	19.6	11.4	2.34	0.86	0.86	0.020	0.020	-	0.05	<0.50	>560	>430	>28	>70
0.025	19.1	11.5	2.35	0.85	0.85	0.015	0.020	-	0.05	<0.50	>520	>350	>30	>80
0.030	18.4	12.3	2.90	1.40	0.70	0.019	0.006	-	-	<0.50	570	430	40	46 (-20°C)
0.030	18.7	12.2	2.80	1.60	0.60	0.020	0.006	-	-	<0.50	570	430	39	44 (-20°C)
0.020	18.5	13.0	2.90	1.80	0.40	0.015	0.015	-	<0.3	<0.50	-	-	-	-
0.010	18.5	12.8	2.60	1.40	0.50	0.015	0.010	-	0.15	FN=6	600	460	45	60 (-196°C)
0.030	19.0	12.0	2.20	1.20	0.30	0.020	0.010	-	-	FN=3	600	470	35	35 (-50°C)
0.030	18.0	12.0	2.20	1.10	0.50	0.020	0.010	-	-	FN=6	590	440	40	50 (-100°C)
0.030	17.6	12.4	2.20	1.20	0.50	0.020	0.010	-	-	FN=5	540	410	44	50 (-100°C)
0.015	20.0	16.0	3.00	7.00	0.40	0.020	0.010	0.15	-	FN=0	600	400	30	50 (-196°C)
0.030	18.0	16.0	2.80	3.50	0.40	0.020	0.010	0.15	-	FN=0	610	440	35	50 (-196°C)
0.030	18.0	16.0	2.80	3.00	0.40	0.020	0.010	0.15	-	FN=0	610	430	35	60 (-196°C)
0.030	19.5	16.5	4.00	3.00	0.25	0.015	0.015	0.10	-	FN=0	600	420	40	70 (+20°C)

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
316H	These products are designed to match 316/316H austenitic stainless steels for elevated temperature (500-800°C). The carbon content of these consumables is over 0.04%. These consumables are suitable to weld 321/321H and 347/347H in high temperature service. Typical applications include steam pipes, furnace parts, components for the petrochemical industries and for power stations.	DAIKO 316H	MIG – TIG – SAW	A5.9 ER316H	EN ISO 14343-A 19 12 3 H
		G-TECH 316HB	SMAW	A5.4 E316H-15	EN ISO 3581-A E 19 12 2 B 42
		G-TECH 316H	SMAW	A5.4 E316H-16	EN ISO 3581-A E 19 12 2 R 32
16.8.2	Consumables designed to weld 16-8-2, 316 and 347 grades of stainless steel in high temperature service. These products are recommended to weld thicker section of 347H/321Hbase metal to avoid in-service failure.	DAIKO 16.8.2	MIG – TIG – SAW	A5.9 ER16.8.2	EN ISO 14343-A 16 8 2
		G-TECH 16.8.2B	SMAW	A5.4 E16.8.2-15	EN ISO 3581-A E 16 8 2 B
		G-TECH 16.8.2	SMAW	A5.4 E16.8.2-16	EN ISO 3581-A E 16 8 2 R 12
		DAIKO FCW 16.8.2P	FCAW	-	-
317L	These consumables are used to weld 317/317L austenitic stainless steels. Applications include marine, papermaking, chemical process and food processing applications. Also suitable to overmatch 316/316L steels; the benefit of higher Mo content in the weld metal maximizes the pitting resistance.	DAIKO SF 317L	MIG – TIG – SAW	A5.9 ER317L	EN ISO 14343-A 18 15 3 L
		G-TECH 317L	SMAW	A5.4 E317L-16	EN ISO 3581-A E 19 13 4 N LR 32
		DAIKO FCW 317 ⁽²⁾	FCAW	A5.22 E317LTO-1/4	EN ISO 17633-A TZ 19 13 4 L R C1/M21 3
		DAIKO STRIP 317	STRIP	A5.9 EQ317L	EN ISO 14343-A 19 13 4 L
318	These consumables are used to weld Ti or Nb stabilized grades of Mo bearing austenitic stainless steels. It is also used for depositing corrosion resistance overlays and valve seat inlays on medium carbon alloy steel.	DAIKO 318	MIG – TIG – SAW	A5.9 ER318	EN ISO 14343-A 19 12 3 Nb
		DAIKO 318Si	MIG – TIG – SAW	A5.9 (ER318)	EN ISO 14343-A 19 12 3 Nb Si
		G-TECH 318	SMAW	A5.4 E318-16	EN ISO 3581-A E 19 12 3 Nb 32
		G-TECH 318R	SMAW	A5.4 E318-17	EN ISO 3581-A E 19 12 3 Nb LR 12
		DAIKO FCW 318P	FCAW	A5.22 NO AWS	EN ISO 17633-A 19 12 3 Nb P C1/M21 1
347	These Cr-Ni consumables are Nb-stabilized for welding steels that are stabilized with Ti or Nb. Nb it reduces intergranular corrosion under severe operation conditions. Also suitable for cladding as on mild steel after a 309 buffer layer. Service temperatures are typically -100°C to about 400°C.	DAIKO SF 347	MIG – TIG – SAW	A5.9 ER347	EN ISO 14343-A 19 9 Nb
		DAIKO SF 347Si	MIG – TIG	A5.9 ER347Si	EN ISO 14343-A 19 9 Nb Si
		G-TECH 347R	SMAW	A5.4 E347-17	EN ISO 3581-A E 19 9 Nb R 12
		DAIKO FCW 347	FCAW	A5.22 E347T0-1/4	EN ISO 17633-A T 19 9 Nb P C1/M21 3
		DAIKO FCW 347P ⁽³⁾	FCAW	A5.22 E347T1-1/4	EN ISO 17633-A T 19 9 Nb P C1/M21 2
		DAIKO STRIP 347	STRIP	A5.9 EQ347	EN ISO 14343-A 19 9 Nb
347H	High carbon Niobium stabilized stainless steel consumables for high temperature service. Typical applications include components used in chemical and petrochemical process plant and in power generation stations.	DAIKO SF 347H ⁽⁴⁾	TIG – SAW	A5.9 ER347	EN ISO 14343-A 19 9 Nb
		G-TECH 347HB	SMAW	A5.4 E347-15	EN ISO 3581-A E 19 9 Nb B 42
		G-TECH 347H	SMAW	A5.4 E347-16	EN ISO 3581-A E 19 9 Nb R 32

⁽²⁾ = Also available all positional version
⁽³⁾ = High Carbon version available upon request
⁽⁴⁾ = High Ferrite version available upon request

COMPOSITION											MECHANICAL PROPERTIES			
C	Cr	Ni	Mo	Mn	Si	P	S	N	Cu	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.050	19.0	13.0	2.20	1.80	0.50	0.020	0.010	-	0.15	<0.50	650	460	35	100 (+20°C)
0.050	18.4	12.5	2.25	1.70	0.560	0.020	0.010	-	0.15	<0.50	660	470	34	50 (+20°C)
0.050	18.0	12.0	2.20	1.80	0.50	0.020	0.010	-	0.15	<0.50	650	460	35	50 (+20°C)
0.060	15.5	8.5	1.30	1.40	0.40	0.020	0.010	-	0.10	<0.50	620	450	35	-
0.050	15.5	8.5	1.20	1.80	0.30	0.020	0.010	-	0.10	<0.50	630	420	40	50 (-100°C)
0.050	15.5	8.5	1.20	1.00	0.45	0.020	0.010	-	0.10	<0.50	630	420	42	70 (+20°C)
0.030	15.5	8.5	1.50	1.50	0.70	0.020	0.015	-	-	<0.50	590	390	38	-
0.010	18.8	13.6	3.50	1.30	0.42	0.020	0.015	0.04	0.12	<0.50	>550	>430	>35	55 (+20°C)
0.025	18.5	12.5	3.30	1.25	0.90	0.020	0.015	0.12	0.10	<0.50	>560	>440	>35	>80 (+20°C)
0.030	19.1	12.6	3.50	1.10	0.60	0.020	0.010	-	-	<0.50	620	490	35	50 (0°C)
0.020	19.0	14.0	3.60	1.50	0.40	0.020	0.020	-	0.20	<0.50	-	-	-	-
0.040	19.5	11.5	2.60	1.30	0.40	0.020	0.010	-	0.10	Nb=0.7	620	400	30	40 (-196°C)
0.030	19.0	11.5	2.60	1.30	0.75	0.020	0.010	-	0.10	Nb=0.7	620	400	30	40 (-196°C)
0.050	19.0	11.5	2.60	1.00	0.90	0.020	0.020	-	-	Nb=0.7	>580	>420	>30	>70 (+20°C)
0.030	19.0	12.0	2.20	0.90	0.75	0.020	0.020	-	-	Nb=0.4	>580	>420	>30	>70 (+20°C)
0.020	18.5	11.6	2.80	1.30	0.50	0.020	0.010	-	-	Nb=0.40	680	510	30	57 (0°C)
0.030	19.2	9.6	0.05	1.30	0.45	0.020	0.010	-	0.06	Nb=0.50	660	450	42	>100 (-50°C)
0.030	19.5	9.7	0.30	1.40	0.80	0.020	0.010	-	0.20	Nb=0.60	650	475	>35	>40 (-196°C)
0.030	18.5	10.5	0.02	0.55	0.75	0.010	0.020	-	0.03	Nb=0.35	>550	>350	>30	-
0.030	18.8	10.3	-	1.20	0.45	0.025	0.005	-	-	Nb=0.70	610	415	>30	85 (0°C)
0.030	18.70	10.4	-	1.30	0.60	0.020	0.005	-	-	Nb=0.60	620	430	>35	>80 (0°C)
0.020	20.00	10.5	0.20	1.80	0.40	<0.020	<0.020	-	<0.30	Nb=0.50	-	-	-	-
0.055	19.30	9.6	0.06	1.45	0.35	0.020	0.010	-	0.09	Nb=0.65	660	450	42	120 (20°C)
0.060	19.50	9.5	-	1.90	0.80	0.020	0.010	-	0.07	Nb=0.75	>580	>420	>30	>70 (+20°C)
0.050	19.50	10.5	-	1.10	0.90	0.020	0.010	-	0.07	Nb=0.50	>580	>420	>30	>60 (+20°C)



ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
309L	These consumables are mainly used under high dilution conditions, particularly dissimilar welds between stainless and CMn steels. Also overlays on CMn steel or low alloy steel and for joining clad plate. Other application is welding of similar metal joints (23Cr-12Ni type).	DAIKO SF 309L	MIG – TIG – SAW	A5.9 ER309L	EN ISO 14343-A 23 12 L
		DAIKO SF 309LSi	MIG – TIG	A5.9 ER309LSi	EN ISO 14343-A 23 12 L Si
		G-TECH 309LB	SMAW	A5.4 E309L-15	EN ISO 3581-A 23 12 L B 42
		G-TECH 309L	SMAW	A5.4 E309L-16	EN ISO 3581-A 23 12 LR 32
		G-TECH 309LR	SMAW	A5.4 E309L-17	EN ISO 3581-A 23 12 LR 32
		DAIKO FCW 309LP	FCAW	A5.22 E309LT1-1/4	EN ISO 17633-A T 23 12 L P C1/M21 1
		DAIKO FCW 309L	FCAW	A5.22 E309LT0-1/4	EN ISO 17633-A T 23 12 L R C1/M21 3
		DAIKO STRIP 309L	STRIP	A5.9 EQ309L	EN ISO 14343-A 23 12 L
309H	Product for high temperature applications. Suitable for dissimilar joints and for overlaying.	DAIKO 309H	MIG – TIG – SAW	A5.9 ER309	-
309LMo	These consumables are mainly used under high dilution conditions, particularly dissimilar welds between stainless and CMn steels. Also overlays on CMn steel or low alloy steel and for joining 316L clad plate. There are no comparable base materials.	DAIKO SF 309LMo	MIG – TIG – SAW	A5.9 (ER309LMo)	EN ISO 14343-A 23 12 2 L
		G-TECH 309LMoB	SMAW	A5.4 E309LMo-15	EN ISO 3581-A E 23 12 2 LB 42
		G-TECH 309LMo	SMAW	A5.4 E309LMo-16	EN ISO 3581-A 23 12 2 LR 32
		G-TECH 309LMoR	SMAW	A5.4 E309LMo-17	EN ISO 3581-A 23 12 2 LR 32
		DAIKO FCW 309LMoP	FCAW	A5.22 E309L-MoT1-1/4	EN ISO 17633-A T 23 12 2 L P C1/M21 1
		DAIKO FCW 309LMo	FCAW	A5.22 E309L-MoT0-1/4	EN ISO 17633-A T 23 12 2 L R C1/M21 3
		DAIKO STRIP 309LMo	STRIP	A5.9 (EQ309LMo)	EN ISO 14343-A 23 12 2 L
309LNb	These Cr-Ni consumables are Nb-stabilized and they are mainly used for overlays on CMn steel or low alloy steel, where a type 347 is required.	G-TECH 309Nb	SMAW	A5.4 E309Cb-16	EN ISO 3581-A 23 12 Nb R 32
		DAIKO STRIP 309LNb	STRIP	A5.9 EQ309LNb	EN ISO 14343-A 23 12 L Nb
307	Mixed welding applications including the welding of CMn, stainless, hardenable and armour steels to themselves or each other. Resistant to hot cracking is provided by the high manganese content.	DAIKO 307	TIG – SAW	A5.9 (ER307)	EN ISO 14343-A 18 8 Mn
		DAIKO 307Si	MIG – TIG	A5.9 (ER307Si)	EN ISO 14343-A 18 8 Mn
		G-TECH 307B	SMAW	A5.4 E307-15	EN ISO 3581-A E 18 9 Mn Mo B 42
		G-TECH 307	SMAW	A5.4 E307-16	EN ISO 3581-A E 18 9 Mn Mo R 12
		G-TECH 307HR	SMAW	A5.4 E307-26	EN ISO 3581-A E 18 9 Mn R 73
		DAIKO FCW 307	FCAW	A5.22 (E307T0-1/4)	EN ISO 17633-A T 18 8 Mn R M21 3
312	This consumable is used to weld similar steels, medium and high carbon hardenable steels. This product has extreme tolerance to dilution and it is useful to weld unknown specification steels. Weld deposit is work hardenable and gives good wear resistance. Applications include tool steels, shafts, gear teeth, free-cutting steels, dissimilar alloy combinations, buffer layers,	DAIKO SF 312	MIG – TIG – SAW	A5.9 ER312	EN ISO 14343-A 29 9
		G-TECH 312R	SMAW	A5.4 E312-17	EN ISO 3581-A E 29 9 R 12
		G-TECH 312	SMAW	A5.4 E312-16	EN ISO 3581-A E 29 9 R 32
		DAIKO FCW 312	FCAW	A5.22 E312T0-4	EN ISO 17633-A T 29 9 R M21 3

COMPOSITION											MECHANICAL PROPERTIES			
C	Cr	Ni	Mo	Mn	Si	P	S	N	Cu	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.015	23.5	13.0	-	1.70	0.50	0.015	0.005	-	0.15	<0.50	590	450	43	150 (+20°C)
0.015	23.5	13.0	-	1.70	0.80	0.015	0.005	-	0.15	<0.50	590	450	43	150 (+20°C)
0.030	23.5	13.1	-	1.20	0.30	0.020	0.010	-	0.10	<0.50	>560	>400	>34	70 (+20°C)
0.03	23.40	13.2	-	0.80	0.60	0.020	0.010	-	0.10	<0.50	>560	>400	>32	47 (+20°C)
0.03	23.50	13.1	-	0.70	0.85	0.020	0.010	-	0.10	<0.50	>560	>400	>32	47 (+20°C)
0.02	23.20	12.6	-	0.80	0.40	0.020	0.010	-	0.15	<0.50	580	450	35	43 (-20°C)
0.02	23.90	12.6	-	1.40	0.70	0.020	0.010	-	0.15	<0.50	700	540	30	42 (-20°C)
0.010	23.50	13.0	-	1.80	0.35	0.020	0.010	-	0.10	<0.50	-	-	-	-
0.10	22.0	11.0	-	0.80	1.60	0.015	0.010	-	-	-	700	500	30	>47 (+20°C)
0.010	21.40	15.0	2.60	1.50	0.40	0.015	0.005	-	0.15	<0.50	630	465	37	>80 (+20°C)
0.030	24.0	13.0	2.50	1.80	0.80	0.015	0.020	-	0.15	<0.50	620	520	30	70 (+20°C)
0.03	23.50	12.5	2.50	0.80	0.60	0.015	0.020	-	0.15	<0.50	>550	>390	>32	50 (+20°C)
0.03	23.50	12.5	2.50	0.80	0.60	0.015	0.020	-	0.15	<0.50	>550	>390	>32	50 (+20°C)
0.03	22.50	12.5	2.30	0.90	0.60	0.020	0.010	-	0.15	<0.50	690	530	31	48 (-20°C)
0.02	23.20	12.7	2.30	1.40	0.70	0.020	0.010	-	0.15	<0.50	700	540	30	42 (-20°C)
0.020	20.50	13.5	2.90	1.80	0.20	0.020	0.015	-	0.20	<0.50	-	-	-	-
0.030	23.0	12.5	-	1.50	0.50	0.020	0.010	-	0.10	Nb=0.80	650	460	34	-
0.020	23.0	12.0	-	2.00	0.20	0.020	0.015	-	0.20	Nb=0.75	-	-	-	-
0.085	17.7	8.0	0.25	7.0	0.50	0.020	0.010	-	0.25	<0.50	590	410	40	80 (-60°C)
0.085	17.7	8.0	0.25	7.0	0.85	0.020	0.010	-	0.25	<0.50	590	410	40	80 (-60°C)
0.050	19.5	9.5	0.80	5.3	0.70	0.020	0.010	-	0.20	<0.50	>600	>400	>35	>80 (+20°C)
0.090	19.0	9.8	0.60	5.5	0.80	0.020	0.010	-	0.20	<0.50	>590	>380	>35	>70 (+20°C)
0.070	19.5	9.1	-	6.0	0.80	0.020	0.010	-	0.20	<0.50	>580	>400	>35	>80 (+20°C)
0.070	19.2	8.1	-	6.4	0.60	0.020	0.008	-	-	<0.50	580	390	40	>45 (0°C)
0.100	30.0	9.5	-	1.80	0.40	0.020	0.010	-	0.25	<0.50	780	630	10	27 (+20°C)
0.110	28.5	10.0	-	0.70	1.10	0.020	0.010	-	0.20	<0.50	>700	>600	>22	>30 (+20°C)
0.090	29.0	10.0	-	1.00	1.15	0.020	0.010	-	0.20	<0.50	>700	>600	>22	>30 (+20°C)
0.120	28.4	10.2	-	1.20	0.60	0.020	0.008	-	-	<0.50	740	580	>22	-

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
0.5Mo	Designed for prolonged elevated temperature service up to about 450°C, especially in fabrication of vessel, pipework and valve bodies.	DAIKO Mo.B	MIG – TIG	A5.28 ER70S-A1	EN ISO 21952-A G MoSi
		DAIKO SAW Mo.B	SAW	A5.23 EA2 ⁽¹⁾	EN ISO 14171-A S 46 4 FB S2Mo
		G-TECH Mo.B	SMAW	A5.5 E7018-A1	EN ISO 3580-A E Mo B 42
		DAIKO FCW Mo.B	FCAW	A5.36 E80T5-M21P8-A1	EN ISO 17632-A T 46 6 Mo B M 3
1½Cr ¼Mo	1½Cr-¼Mo consumables designed for prolonged elevated temperature service up to about 550°C, especially in steam generation power plants (piping, valve bodies, turbine casting, boiler superheaters...). Suitable for corrosion resistance to sulphur bearing crude oil at 250-450°C. Used in chemical and petro-chemical industries for resistance to hydrogen attack in fabrication of hydro-crackers, coal liquefaction plant and NH3 pressure vessel operating at up to 450°C. These consumables have low levels of tramp elements (Sn, As, Sb and P) providing a low Brucato Factor (X< 12 ppm) for temper embrittlement resistant applications.	DAIKO 1CrMo	MIG – TIG	A5.28 ER80S-B2	EN ISO 21952-A CrMo 1 Si
		DAIKO 1CrMoS	MIG – TIG	A5.28 ER80S-G	EN ISO 21952-A CrMo 1 Si
		DAIKO SAW 1CrMo	SAW	A5.23 EB2	EN ISO 14171-A S CrMo1 FB
		G-TECH 1CrMo ⁽²⁾	SMAW	A5.5 E8018-B2	EN ISO 3580-A E Cr Mo 1 B 32
		DAIKO FCW 1CrMoB ⁽³⁾	FCAW	A5.36 E80T5-M21PY-B2	EN ISO 17632-A CrMo1 B M 3
		DAIKO MCW 1CrMo	FCAW	A5.36 E80T15-M21PY-B2-H4	EN ISO 17632-A CrMo1 M M 2
CrMoV	1½Cr-1Mo-¼V consumables used for welding high temperature steels of similar composition. These alloys provide good creep rupture properties up to about 580°C. Widely used in valve casings and steam turbines, boilers, pressure vessels and in the power generation and petrochemical industries.	G-TEH 1CrMoV	SMAW	A5.5 E9018-G	EN ISO 3580-A ECrMoV1 B 32
		DAIKO FCW 1CrMoV	FCAW	A5.36 E91T1-C1(M21)PZ-G	-
2½Cr 1Mo	2½Cr-1Mo consumables designed for prolonged elevated temperature service up to about 600°C, especially in steam generation power plants (piping, valve bodies, turbine casting, boiler superheaters...). Suitable for corrosion resistance to sulphur bearing crude oil at 250-450°C. Used in chemical and petro-chemical industries for resistance to hydrogen attack in fabrication of hydro-crackers, coal liquefaction plant and NH3 pressure vessel operating at up to 450°C.	DAIKO 2CrMo	MIG – TIG	A5.28 ER90S-B3	EN ISO 21952-A CrMo 2 Si
		DAIKO 2CrMoS	MIG – TIG	A5.28 ER90S-G	EN ISO 21952-A CrMo 2 Si
		DAIKO SAW 2CrMo	SAW	A5.23 EB3	EN ISO 14171-A S CrMo2 FB
		G-TECH 2CrMo ⁽²⁾	SMAW	A5.5 E9018-B3	EN ISO 3580-A E Cr Mo 2 B 32
		DAIKO FCW 2CrMoB	FCAW	A5.36 E90T5-M21PY-B3	EN ISO 17632-A CrMo2 B M 4
5CrMo	5Cr-0.5Mo consumables designed for prolonged elevated temperature service up to about 600°C, especially in oil refineries (piping, heat exchangers, pressure vessels, boiler superheaters...).	DAIKO 5CrMo	MIG – TIG	A5.28 ER80S-B6	EN ISO 21952-A CrMo 5 Si
		DAIKO SAW 5CrMo	SAW	A5.23 EB6	EN ISO 24598-A S CrMo5
		G-TECH 5CrMo	SMAW	A5.5 E8015-B6/E8016-B6	EN ISO 3580-A E Cr Mo 5 B 42
		DAIKO FCW 5CrMo	FCAW	A5.29 E81T1-B6C/M	EN ISO 17634-B T55T1-1C/M – 5CM
9CrMo	9Cr-1Mo consumables designed for prolonged elevated temperature service up to about 600°C, especially in superheated steam, hot hydrogen gas and high sulphur crude oil. Used for pressure vessel, heat exchanger and piping in oil & gas industries and power plant.	DAIKO 9CrMo	MIG – TIG	A5.28 ER80S-B8	EN ISO 21952-A CrMo 9 Si
		DAIKO SAW 9CrMo	SAW	A5.23 EB8	EN ISO 24598-A S CrMo9
		G-TECH 9CrMo	SMAW	A5.5 E8015-B8	EN ISO 3580-A E Cr Mo 9 B 42
		DAIKO FCW 9CrMo	FCAW	A5.29 E81T1-B8	EN ISO 17634-B T55T1-1C/M-9C1M

⁽¹⁾ = Also available EA3 and EA4 ⁽²⁾ = Also available "SX" version with very low X-factor ⁽³⁾ = Also available rutil type FCW 1CrMo

COMPOSITION													MECHANICAL PROPERTIES			
C	Mn	Si	P	S	Ni	Cr	Mo	V	Cu	W	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]	
1.20	0.60	0.010	0.010	0.015	0.15	0.15	0.50	-	0.25	-	<0.50	640	530	>26	90 (-20°C)	
1.20	0.30	0.010	0.010	-	-	0.50	-	0.10	-	<0.50	>620	>450	>24	70 (-20°C)		
0.80	0.60	0.015	0.010	0.05	-	0.50	--	0.05	-	<0.50	>680	>580	>22	90 (+20°C)		
1.40	0.50	0.020	0.020	-	-	0.50	-	0.15	-	<0.50	>620	>470	>20	47 (-30°C)		
0.60	0.55	0.008	0.010	0.04	1.30	0.50	-	0.15	-	<0.50	>610	>500	>22	100 (+20°C)		
1.00	0.66	0.008	0.010	0.04	1.20	0.47	-	0.15	-	<0.50	>620	>510	>22	100 (+20°C)		
0.80	0.20	0.010	0.010	-	1.20	0.50	-	0.15	-	<0.50	>560	>450	>24	50 (-20°C)		
0.80	0.60	0.015	0.010	0.05	1.25	0.60	-	0.05	-	<0.50	>680	>580	>22	100 (+20°C)		
1.10	0.45	0.020	0.020	-	1.20	0.50	-	0.15	-	<0.50	>610	>460	>18	47 (+20°C)		
1.10	0.40	0.020	0.020	-	1.20	0.50	-	0.15	-	<0.50	>620	>460	>18	47 (+20°C)		
0.85	0.30	0.010	0.010	-	1.20	1.10	0.20	-	-	<0.50	>780	>730	>18	60 (+20°C)		
0.80	0.30	0.100	0.10	0.10	1.30	1.10	0.25	0.10	-	<0.50	>640	>540	>18	60 (+20°C)		
0.60	0.50	0.010	0.010	0.08	2.40	0.80	-	0.15	-	<0.50	>630	>530	>21	150 (+20°C)		
1.00	0.70	0.010	0.010	0.08	2.50	0.90	-	0.15	-	<0.50	>640	>540	>21	150 (+20°C)		
0.70	0.20	0.010	0.010	-	2.20	1.00	-	0.15	-	<0.50	>550	>380	>24	50 (-20°C)		
0.80	0.60	0.015	0.010	0.05	2.25	1.00	-	0.05	-	<0.50	>700	>520	>18	>80 (+20°C)		
0.07	1.10	0.40	0.020	0.020	-	2.20	1.00	-	0.10	-	<0.50	>640	>550	>17	47 (-20°C)	
0.60	0.40	0.010	0.010	0.05	5.50	0.60	-	0.20	-	<0.50	>650	>550	>21	50 (-20°C)		
0.50	0.40	0.010	0.010	-	5.50	0.55	-	0.15	-	<0.50	>630	>520	>20	80 (+20°C)		
0.80	0.50	0.015	0.010	0.05	5.00	0.50	-	0.05	-	<0.50	>620	>460	>19	>130 (+20°C)		
0.80	0.30	0.010	0.010	0.01	5.00	0.50	-	0.05	-	<0.50	>680	>590	>20	55 (+20°C)		
0.60	0.50	0.015	0.010	0.10	9.00	1.00	-	0.10	-	<0.50	>710	>590	>23	40 (-20°C)		
0.50	0.20	0.010	0.010	-	9.00	1.00	-	0.15	-	<0.50	>680	>550	>21	>50 (+20°C)		
0.70	0.45	0.015	0.010	0.05	9.10	1.10	-	0.05	-	<0.50	>600	>500	>19	>50 (+20°C)		
0.80	0.30	0.010	0.010	0.30	9.00	1.00	-	0.05	-	<0.50	>630	>490	>22	35 (+20°C)		

CREEP RESISTING STEELS

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
9CrMoV	9%Cr-1%Mo consumables with small additions of Nb, V and N, designed to weld equivalent type 91 for high integrity structural service at elevated temperature, especially in power generation plants and oil refineries (main steam piping, headers, turbine casings...)	DAIKO 9CrMoV	MIG – TIG	A5.28 ER90S-B9	EN ISO 21952-A W CrMo 9 1 Si
		DAIKO SAW 9CrMoV	SAW	A5.23 EB9	EN ISO 24598-A S CrMo91
		G-TECH 9CrMoV ⁽¹⁾	SMAW	A5.5 E9018-B9	EN ISO 3580-A E Cr Mo 91 B 42
		DAIKO FCW 9CrMoV ⁽²⁾	FCAW	A5.29 E91T1-B9	EN ISO 17634-B T69T1-1C/M-9C1MV
12CrMoV	12%Cr creep resisting steel also with nominally 1%Mo-0.5%W-0.3%V. The matching base material is generically called X20.	DAIKO 12CRMov	TIG	-	EN ISO 21952-A: WCRMovW12SI
		G-TECH 12CrMoV	SMAW	-	EN ISO 3580-A E Cr Mo W V12 B 3 2 HS

⁽¹⁾ = Also available "SX" version with very low X-factor

⁽²⁾ = Metal Cored version available upon request

COMPOSITION													MECHANICAL PROPERTIES			
C	Mn	Si	P	S	Ni	Cr	Mo	V	Cu	W	Nb	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.090	0.50	0.30	0.015	0.010	0.10	9.00	1.00	0.20	0.10	-	0.07	N=0.05	>760	>680	>20	30 (-20°C)
0.100	0.60	0.20	0.005	0.003	0.60	8.80	0.95	0.20	0.04	-	0.06	N=0.04	>750	>670	>20	40 (-20°C)
0.090	0.60	0.30	0.015	0.010	0.60	9.50	1.00	0.20	0.20	-	0.05	N=0.04	>770	>640	>22	65 (+20°C)
0.100	0.80	0.30	0.010	0.010	0.50	9.00	1.00	0.20	0.05	-	0.05	N=0.05	>780	>650	>20	25 (+20°C)
0.2	0.60	0.60	0.010	0.005	0.60	11	1.00	0.30	-	0.5	-	-	750	600	20	50(+20°C)
0.2	0.80	0.25	0.015	0.010	0.5	11	1	0.30	-	0.5	-	-	750	550	24	40 (+20°C)

HIGH TEMPERATURE ALLOYS

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
253MA	Designed to match equivalent alloys with good hot strength coupled with excellent resistance to oxidation up to about 1100°C.	DAIKO 253MA	MIG - TIG	NO AWS	-
		G-TECH 253MA	SMAW	NO AWS	-
254 SMO®	This electrode deposits weld metal that closely matches the composition of equivalent 6%Mo super-austenitic parent material, usually castings, and is used only when post weld solution annealing is applied.	G-TECH 20.18.6CuR	SMAW	NO AWS	-
800 / 800H	These consumables are designed to match composition and properties of alloy 800. These alloys are used for their resistance to corrosion, thermal fatigue and shock at temperatures up to 1000°C. Typical applications include radiant tubes, reformer furnace outlet manifolds, pyrolysis furnace tubes in the petrochemical industry and nuclear engineering industries.	DAIKO 21.33MnNb	MIG – TIG – SAW	NO AWS	W. Nr. (1.4850)
		G-TECH 800Nb	SMAW	NO AWS	EN ISO 3581-A EZ 21 32 Nb B 32
18-37 (HT-HU)	Product for welding and cladding of heat resistant steels and similar alloyed steel casts. Applications up to 950°C.	G-TECH 330H	SMAW	AWS A5.4 (E330-15)	EN ISO 3581-A EZ 18 36 Nb B 32
4830	Product for welding and cladding of heat resistant fully austenitic steels and similar alloyed steel casts- Applications up to 1000°C.	G-TECH 25.24Nb	SMAW	NO AWS	EN ISO 3581-A ZE 25 24 Nb 32
HP10Cb	Product designed to deposit weld metal which matches the composition of similar casting. It is used at temperature up to 1100°C. The principal applications are pyrolysis coils and reformer tubes in the petrochemical industry.	G-TECH 25.35Nb	SMAW	NO AWS	EN ISO 3581-A EZ 25 35 Nb B 32
HP40Nb	These consumables are designed to match heat resistant cast alloys with 0.4%C-25%Cr-35%Ni-Nb (typical service temperature 900-1100°C). They are also suitable for high carbon Cr-Ni alloys such as HK40, HT40 and IN519. High levels of Cr and Ni provide good resistance to oxidation and carburization. The principal applications are pyrolysis coils and reformer tubes in the petrochemical industry.	DAIKO 25.35.4CNb	MIG – TIG – SAW	NO AWS	W. Nr. (1.4853)
		G-TECH 25.35.4CNb	SMAW	NO AWS	-

COMPOSITION													MECHANICAL PROPERTIES			
C	Mn	Fe	Mo	Si	Cu	Ni	Co	Ti	Cr	Nb	W	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.07	0.6	Bal.	0.05	1.6	0.10	10.2	-	-	21	-	-	N-0.15	680	440	38	>80 (+20°C)
0.06	0.80	Bal.	0.10	1.50	0.20	10.3	-	-	22.00	-	-	N=0.15	>700	>540	38	-
0.03	0.80	Bal.	6.80	0.80	0.70	18.50	-	-	20.50	-	-	-	>550	>300	36	-
0.15	4.30	Bal.	0.30	0.50	0.10	33.00	-	0.15	21.00	1.00	-	-	>620	>410	27	40 (+20°C)
0.10	2.10	Bal.	0.40	0.30	0.15	32.00	-	-	21.00	-	-	-	>590	>390	35	50 (+20°C)
0.45	1.50	Bal.	0.40	0.40	-	38.00	-	-	17.50	-	-	-	>750	>500	12	-
0.25	0.80	Bal.	-	0.30	-	24.00	-	-	25.00	1.20	-	-	>590	>440	11	-
0.08	3.40	Bal.	0.30	0.40	0.50	35.00	-	-	26.00	0.80	-	-	>610	>400	34	-
0.40	1.70	Bal.	0.30	1.10	0.15	35.00	-	0.10	26.00	1.30	-	-	>750	>500	13	-
0.40	1.50	Bal.	0.20	0.50	0.10	35.00	-	0.08	26.00	1.20	-	-	>650	>480	15	-

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
35.45	These consumables are designed to match heat resistant cast alloys with 35%Cr-45%Ni-1%Nb. They have great oxidation and carburization resistance for applications up to 1150°C. The principal applications are pyrolysis coils and reformer tubes in the petrochemical industry.	DAIKO 35.45Nb	MIG - TIG	NO AWS	W. Nr. (1.4889)
		G-TECH 35.45Nb	SMAW	NO AWS	EN ISO 3581-A EZ 35 45 Nb B 32
22H	These electrodes are designed to match similar high carbon cast alloys type 22H. Excellent hot strength and oxidation resistance at typical service temperatures of 950-1250°C. Applications include highly stressed furnace parts, sintering and calcining muffles, cement kiln components resistant to hot abrasion, radiant tubes and pyrolysis coils.	G-TECH 50WCo	SMAW	NO AWS	-
		G-TECH 26.50.4W	SMAW	NO AWS	-

COMPOSITION														MECHANICAL PROPERTIES			
C	Mn	Fe	Mo	Si	Cu	Ni	Co	Ti	Cr	Nb	W	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]	
0.43	1.00	Bal.	0.10	1.20	-	46.00	-	0.10	36.00	1.00	-	-	>680	540	3	-	
0.45	0.90	Bal.	0.05	1.20	-	46.00	-	0.02	35.00	0.90	-	-	>730	>540	6	-	
0.50	0.60	Bal.	0.05	0.50	-	51.00	14.00	-	28.00	-	4.60	-	>820	>600	6	-	
0.50	1.20	Bal.	-	0.80	-	50.00	-	-	27.00	-	5.00	-	>760	>550	6	-	

CRYOGENIC STEELS

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
1Ni	Consumables designed for welding low-alloy steels with 1% Ni and fine grain steel as well as for low temperature applications. Suitable for the construction of offshore platforms, pressure vessels and pipelines and also for welding higher strength steel structures where PWHT is impracticable but toughness and crack resistance are required.	DAIKO 1Ni	MIG - TIG	A5.28 ER80S-Ni1	EN ISO 14341-A G 46 5 M21 3Ni1
		DAIKO 1Ni	SAW	A5.23 ENi1	EN ISO 14171-A S2Ni1
		G-TECH 1Ni	SMAW	A5.5 E8018-C3	EN ISO 2560-A E 46 6 1 NiMo B 42
		DAIKO FCW 1NiB	FCAW	A5.29 E80T5-Ni1	EN ISO 17632-A T 46 6 1Ni B M 3
		DAIKO FCW 1Ni	FCAW	A5.36 E81T1-M21A8-Ni1-H4	EN ISO 17632-A T 50 6 1Ni P M 1
		DAIKO MCW 1Ni	FCAW	A5.36 E80T15-M21A8-Ni1-H4	EN ISO 17632-A T 50 6 1Ni M M 1
2Ni	Consumables designed for welding low-alloy steels for low temperature applications. Typically, they are used for welding 2.5 nickel steels and other materials requiring good toughness at temperatures as low as -60°C.	DAIKO 2Ni	MIG - TIG	A5.28 ER80S-Ni2	EN ISO 14341-A G 50 9 M23 2Ni2
		DAIKO 2Ni	SAW	A5.23 ENi2	EN ISO 14171-A S2Ni2
		G-TECH 2Ni	SMAW	A5.5 E8018-C1	EN ISO 2560-A E 46 6 2Ni B 42
3Ni	Consumables designed for welding low-alloy steels with 3,5% Ni. Suitable for the construction of cryogenic plant and pipework in petrochemical industry and for general low temperature applications down to -80°C.	DAIKO 3Ni	MIG - TIG	A5.28 ER80S-Ni3	EN ISO 14341-A G 57P 7 M22 3Ni1
		DAIKO 3Ni	SAW	A5.23 ENi3	EN ISO 14171-A S2Ni3
		G-TECH 3Ni	SMAW	A5.5 E8018-C2	EN ISO 2560-A E 50 6 3Ni B 42
		DAIKO FCW 3NiB	FCAW	A5.29 E81T5-G H4	EN ISO 17632-A T 46 10 3Ni B M 3 H5

COMPOSITION										MECHANICAL PROPERTIES			
C	Mn	Si	P	S	Ni	Cr	Mo	Cu	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.10	1.10	0.60	0.010	0.010	1.00	-	0.02	0.12	<0.50	>590	>500	>25	120 (-50°C)
0.10	1.00	0.15	0.010	0.010	1.00	-	0.03	0.15	<0.50	>580	>500	>24	50 (-60°C)
0.05	1.10	0.60	0.010	0.010	1.00	-	0.30	0.10	-	>600	>500	>24	50 (-60°C)
0.06	1.30	0.50	0.020	0.020	0.90	-	0.04	0.10	-	>580	>500	>22	47 (-50°C)
0.06	1.30	0.45	0.020	0.020	1.00	-	0.05	0.15	-	>570	>490	>22	50 (-50°C)
0.06	1.30	0.50	0.020	0.020	1.00	-	0.03	0.15	-	>560	>470	24	47 (-50°C)
0.09	1.10	0.55	0.007	0.008	2.10	-	0.02	0.15	<0.50	>620	>520	>25	100 (-60°C)
0.10	1.00	0.15	0.010	0.010	2.25	-	0.10	0.15	<0.50	>610	>510	>24	65 (-60°C)
0.06	1.10	0.60	0.010	0.010	2.20	-	0.05	0.10	-	>630	>460	>20	47 (-75°C)
0.10	1.00	0.60	0.010	0.010	3.50	-	0.03	0.12	<0.50	>620	>540	>24	50 (-60°C)
0.10	1.00	0.15	0.010	0.010	3.50	-	0.02	0.15	<0.50	>630	>550	>24	50 (-60°C)
0.08	1.10	0.70	0.010	0.010	3.20	-	0.02	0.10	-	>680	>600	>20	27 (-75°C)
0.04	0.70	0.30	0.020	0.020	3.30	-	-	0.10	-	560	480	29	100 (-100°C)



ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
80-90ksi	High strength low alloy steels with improved elevated temperature performance over that of CMn steels. Used for the fabrication of vessel and associated pipework demanding creep rupture strength and ductility up to about 450°C. Good toughness at low temperatures.	DAIKO D2	MIG – TIG	A5.28 ER80S-D2	EN ISO 14341-A G 4Mo
		DAIKO SAW MnMo	SAW	A5.23 EA3	EN ISO 14171-A-S4Mo
		G-TECH 80G	SMAW	A5.5 E8018-G	EN ISO 18275-A E 50 6 Mn1NiB42
		G-TECH 90G	SMAW	A5.5 E9018-G	EN ISO 18275-A E 62 4 1NiMoB42
100ksi	Consumables designed for welding high yield strength steels (with tensile strength over 690 MPa). Daiko NiMo has good impact strength at low temperature and it is suitable for high strength low alloy (HSLA) constructions (cranes, earth moving equipment etc.). Applications include also offshore fabrication, chemical and petrochemical industry.	DAIKO NiMo	MIG – TIG	A5.28 ER100S-G	EN ISO 16834-A G 55 5 Mn3NiCrMo
		DAIKO SAW S3NiMo	SAW	A5.23 EF3	EN ISO 26304-A S3Ni1Mo
		G-TECH 109	SMAW	A5.5 E10018-G	EN ISO 18275-A E 62 5 1,5NiMo B 42
110ksi	These products are suitable to join high strength Ni-Cr-Mo low alloy steels requiring 760 MPa minimum tensile strength in the weld deposit. Typical applications include construction (HSLA), pressure vessels and pipes.	DAIKO 96	MIG – TIG	A5.28 ER110S-G	EN ISO 16834-A G 69 4 Mn3Ni1CrMo
		DAIKO 700	SAW	A5.23 EG	
		G-TECH 96	SMAW	A5.5 E11018-M	EN ISO 18275-A E 69 5 Mn2NiMo B 42
		DAIKO FCW 115B	FCAW	A5.36 E110T5	EN ISO 18276-A T 69 6 Mn2NiCrMo B M 3
		DAIKO MCW 115	FCAW	A5.36 E110T15	EN ISO 18276-A T 69 4 Mn2NiCrMo M M 2
		DAIKO FCW 97	FCAW	A5.29 E111T1-K3MJ	-
120ksi	Consumable designed for those applications requiring 120 Ksi minimum tensile strength and good charpy v-notch toughness, such as when welding HY-80, HY-100, Weldox 900, S890QL, S960Q. These materials are used in lifting and handling machines, bridges, tanks, transport, shipbuilding, railway sector, mines, frames, crane fabrication, trailer construction, and other structural applications involving higher strength materials.	DAIKO 120	MIG – TIG	A5.28 ER120S-G	EN ISO 16834-A G 89 Mn4Ni2CrMo
		G-TECH 120	SMAW	A5.5 E12018-G	EN ISO 18275-A E 79 5 Mn2Ni1CrMo B 42
		DAIKO FCW 120B	FCAW	A5.36 E120T5	EN ISO 18276-A T 89 4 Mn2Ni1CrMo B M 4
		DAIKO MCW 120	FCAW	A5.36 E120T15	EN ISO 18276-A T 89 4 Mn2Ni1CrMo M M 2
130ksi	Consumables designed for welding similar base metal requiring high yield strength (over 900 MPa).	DAIKO 4130	MIG – TIG – SAW	NO AWS	-

COMPOSITION											MECHANICAL PROPERTIES			
C	Mn	Si	P	S	Ni	Cr	Mo	Cu	Other		TS [MPa]	YS [MPa]	EL%	Impact [J]
0.08	1.90	0.70	0.010	0.010	0.05	0.09	0.45	0.12	-		>660	>540	>23	80 (-20°C)
0.07	1.60	0.60	0.010	0.010	0.06	0.08	0.40	0.15	-		>640	>510	>22	70 (-20°C)
0.06	1.70	0.60	0.010	0.010	0.60	0.03	0.07	0.040	-		>590	>510	>23	60 (-20°C)
0.07	1.10	0.70	0.010	0.010	0.70	0.05	0.40	0.40	-		>600	>500	>22	70 (-20°C)
0.09	1.37	0.70	0.010	0.007	0.55	0.40	0.22	0.19	-		>720	>630	>20	50 (-50°C)
0.11	1.80	0.20	0.005	0.002	0.95	0.03	0.52	0.30	-		>580	>680	>22	80 (-40°C)
0.08	1.30	0.60	0.010	0.010	1.30	0.05	0.40	0.25	-		>720	>620	>18	47 (-50°C)
0.08	1.60	0.60	0.010	0.015	1.50	0.27	0.22	0.17	-		>790	>710	>18	70 (-40°C)
0.07	1.70	0.50	0.005	0.004	1.60	0.15	0.25	0.20	-		>760	>690	>18	60 (-40°C)
0.06	1.50	0.30	0.010	0.010	2.20	0.025	0.40	0.30	-		>760	>690	>20	47 (-50°C)
0.06	1.40	0.40	0.020	0.020	2.20	-	0.40	0.10	-		>840	>690	>17	47 (-50°C)
0.07	1.40	0.40	0.020	0.020	2.20	-	0.40	0.15	-		>800	>670	>17	47 (-60°C)
0.07	2.00	0.40	0.010	0.010	2.00	-	0.40	0.15	-		870	740	19	>47 (-20°C)
0.07	1.86	0.31	0.007	0.006	2.49	-	0.16	-	-		900	750	21	>47 (-40°C)
0.11	1.90	0.80	0.010	0.010	2.40	0.60	0.60	0.15	-		>980	>890	>18	100 (-60°C)
0.09	1.80	0.50			2.30	0.90	0.50		-		>900	>800	>18	60 (-50°C)
0.06	1.40	0.40	0.020	0.020	2.20	0.40	0.40	0.15	-		>990	>890	>15	47 (-50°C)
0.06	1.60	0.50	0.020	0.020	2.20	1.00	0.40	0.15	-		>980	>880	>15	47 (-50°C)
0.30	0.50	0.30	0.015	0.010	0.01	1.00	0.20	0.15	-		>1150	>1100	-	-



ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
Al	Consumables suitable for welding aluminum and pure aluminum alloys.	DAIKO AI 99,5Ti	MIG – TIG	A5.10 ER1450	EN ISO 18273 S Al 1450
		DAIKO AI 99,7	MIG – TIG	A5.10 ER1070	EN ISO 18273 S Al 1070
		DAIKO AI 99,8	MIG – TIG	A5.10 ER1080	EN ISO 18273 S Al 1080 A
		G-TECH 99,8	SMAW	A5.3 E1080	DIN 1732 EL-Al 99,8
		DAIKO AI 99Cu	MIG – TIG	A5.10 ER1100	EN ISO 1873 S Al 1100
AlSi	Consumables for welding of Al-Mg-Si alloys. Applications include general constructions and components for the automotive industry.	DAIKO AISi5	MIG – TIG	A5.10 ER4043	EN ISO 18273 S Al 4043 A
		G-TECH 605	SMAW	A5.3 E4043	EN ISO 18273 E AL 4043
		DAIKO AISi12	MIG – TIG	A5.10 ER4047	EN ISO 18273 S Al 4047 A
		G-TECH 601	SMAW	A5.3 E4047	EN ISO 18273 E AL 4047
AlMg	Consumables suitable for welding aluminum magnesium alloys used in automotive industry, general structural fabrication and ship building.	DAIKO AlMg3	MIG – TIG	A5.10 ER5754	EN ISO 18273 S Al 5754
		DAIKO AlMg5	MIG – TIG	A5.10 ER5356	EN ISO 18273 S Al 5356
AlMgMn	Consumables for welding of Al-Mg, Al-Mg-Mn alloys up to 5% Mg. These Aluminium alloys having a high tensile and corrosion strength, are suitable to use in shipbuilding, railway and automotive industry, cryogenic tanks and pressure vessel fabrication	DAIKO AlMg4,5Mn	MIG – TIG	A5.10 ER5183	EN ISO 18273 S Al 5183
AlMn	Product designed for welding forged and cast aluminium-magnesium alloys and aluminium-manganese alloys.	G-TECH AlMn	SMAW	A5.3 E3003	EN ISO 18273 E Al 3103

COMPOSITION										MECHANICAL PROPERTIES			
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.25	0.40	0.05	0.03	0.03	-	0.07	0.03	Bal.	<0.15	>85	>35	35	-
0.20	0.25	0.04	0.03	0.03	.	0.04	0.03	Bal.	<0.15	>80	>35	30	-
0.15	0.15	0.03	0.02	0.02	-	0.06	0.02	Bal.	<0.15	>85	>35	30	-
0.10	0.10	0.02	-	-	-	-	-	Bal.	<0.15	>80	>50	25	-
0.40	0.45	0.15	0.05	-	-	0.10	-	Bal.	<0.15	>85	>38	30	-
4.90	0.10	0.037	0.01	0.003	-	0.01	0.013	Bal.	<0.15	>120	>60	15	-
5.25	0.31	0.035	0.04	0.04		0.08		Bal.	<0.15	>120	>90	15	-
11.70	0.13	0.006	0.05	0.006	-	0.01	0.02	Bal.	<0.15	>125	>70	5	-
11.8	0.45	0.04	0.04	0.04	-	0.08		Bal.	<0.15	200	80	14	-
0.40	0.40	0.05	0.50	2.90	0.30	0.20	0.10	Bal.	<0.15	>190	>80	20	-
0.05	0.11	0.01	0.16	5.10	0.12	0.01	0.065	Bal.	<0.15	>250	>115	17	-
0.05	0.11	0.01	0.65	5.10	0.06	0.01	0.06	Bal.	<0.15	>270	>135	15	-
0.02	-	-	1.20	0.20	-	-	-	Bal.	<0.15	>100	>40	20	-

CAST IRON

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
Ni Cl	Consumables used for welding and repair grey cast iron, malleable cast iron and cast steel. Suitable to join these cast irons to steels, monels, copper alloys, etc. ... Also suitable for buffer layer before welding with NiFe consumables.	DAIKO 99	MIG – TIG	A5.15 ERNi-Cl	EN ISO 18274 S Ni 2061
		G-TECH 99	SMAW	A5.15 ENi-Cl	EN ISO 1071 E C Ni-Cl 1
		G-TECH 324	SMAW	A5.15 ENi-Cl	EN ISO 1071 E C Ni-Cl 1
NiFe-Cl	Consumables used for welding cast iron, joining steel with cast iron and to repair casting.	DAIKO 55	MIG – TIG	A5.15 ERNiFe-Cl	-
		G-TECH 55	SMAW	A5.15 ENiFe-Cl	EN ISO 1071 E C NiFe-Cl
		G-TECH 323	SMAW	A5.15 ENiFe-Cl	EN ISO 1071 E C NiFe-Cl 1
		G-TECH 323S	SMAW	A5.15 ENiFe-Cl	EN ISO 1071 E C NiFe-Cl 1
		DAIKO FCW 321	FCAW	A5.15 – NO AWS	DIN 17006 Ni 36
		DAIKO FCW 345	FCAW	A5.15 – NO AWS	EN ISO T C NiFe2
		DAIKO FCW 323S	FCAW	A5.15 – NO AWS	DIN 8555 –MF – NiFe 2
NiFe-Cu	Special electrodes with Fe-Ni-Cu core for joining cast iron to steel and repairs on difficult to weld cast-iron.	G-TECH 330Cu	SMAW	A5.15 (E NiCu – B)	EN ISO 1071 E C NiCu 1
		G-TECH 306Cu	SMAW	A5.15 (E NiFe – Cl)	EN ISO 1071 E C Z 1
Bimetal	Bimetal Fe-Ni core wire electrode for joining cast-iron to steel.	G-TECH 305	SMAW	A5.15 ENiFe-Cl 1	EN ISO 1071 E C NiFe Cl 1
Fe-V	Special electrode without Nickel for welding of cast iron with a colour matching deposit. Used for repair cast iron and as 1st layer before surfacing of cast iron.	G-TECH 301V	SMAW	A5.15 E S t	EN ISO 1071 E C Z 1

COMPOSITION											MECHANICAL PROPERTIES			
C	Mn	Si	P	S	Fe	Ni	Mo	Cu	Al	Other	TS [MPa]	YS [MPa]	EL%	Hardnes
1.00	0.10	0.20	-	0.02	1.80	Bal.	-	-	-	<1.0	>350	>300	15	170 HB
1.00	0.20	0.70	-	0.02	3.00	Bal.	-	-	-	<1.0	>320	>270	18	170 HB
1.10	0.20	0.60	-	0.02	1.50	Bal.	-	-	-	<1.0	>440	>300	20	170 HB
0.03	0.30	0.20	0.013	0.01	Bal.	55.0	-	0.02	-	<1.0	>530	>300	22	160 HB
1.20	0.30	0.70	-	0.01	Bal.	53.0	-	-	-	<1.0	>430	>230	8	190 HB
1.00	0.80	0.70	-	0.02	Bal.	53.0	-	-	-	<1.0	>430	>250	8	190 HB
1.00	0.90	0.90	-	0.02	Bal.	53.0	-	-	-	<1.0	>480	>340	10	200 HB
0.10	2.50	0.40	-	0.02	Bal.	36.0	-	-	-	<1.0	>420	>220	12	210 HB
0.75	4.00	0.50	-	0.02	Bal.	45.0	-	-	-	<1.0	550	340	16	200 HB
0.08	4.00	0.90	-	0.02	40.00	Bal.	-	+	-	<1.0	>490	>340	10	180 HB
0.80	-	0.60	-	0.02	5.50	Bal.	-	29.00	-	<1.0	>390	>290	15	160 HB
0.80	0.60	0.60	-	0.02	Bal.	52.5	-	5.80	-	<1.0	>380	>260	12	190 HB
1.00	0.20	0.90	-	0.02	Bal.	53.0	-	-	-	<1.0	>430	>240	14	190 HB
1.20	-	1.20	-	0.02	Bal.	-	-	-	-	V=10	-	-	6	230 HB

FORMAT/ ALLOY	DESCRIPTION	PRODUCT	PROCESS	AWS	OTHER STANDARD
WIRE-TIG	Solid wire / TIG rod for welding carbon and carbon-manganese steels with tensile strength up to 530 MPa. Used for the fabrication of vessel, pipework and for structural steel applications.	DAIKO SG1	MIG – TIG	A5.18 ER70S-3	EN ISO 14341-A G 42 4 M 21 2 Si1
		DAIKO SG2	MIG – TIG	A5.18 ER70S-6	EN ISO 14341-A G 42 4 M 21 3 Si1
		DAIKO SG3	MIG – TIG	A5.18 ER70S-6	EN ISO 14341-A G 46 5 M 21 4 Si1
	Solid wire / TIG rod for welding of C-Mn steels on greasy, oxidized surface and surface destined to subsequent coating process.	DAIKO S2	MIG –TIG	A5.18 ER70S-2	EN ISO 14341-A G 42 3 M21 2Ti
Solid wire for welding thin, galvanised or electro-galvanised plates	DAIKO 107Ti	MIG	A5.18 ER70S-G	EN ISO 14341-A G 42 2 M 21 Z	
FCW	Rutile tubular flux cored wire for welding of C-Mn steels.	DAIKO FCW 102R	FCAW	A5.36 E71T1	EN ISO 17632-A T 46 4 P M 1
	Rutile flux cored wire for welding of C-Mn steels.	DAIKO FCW 102S	FCAW	A5.20 E71T1	EN ISO 17632-A T 42 2 C/M 1 H5
	High quality rutile flux cored wire for welding of C-Mn steels.	DAIKO FCW 102SP	FCAW	A5.20 E71T1M	EN ISO 17632-A T 46 2 P M 1 H5
	Basic flux cored wire for welding of C-Mn steels.	DAIKO FCW 107B	FCAW	A5.36 E70T5	EN ISO 17632-A T 46 4 B M 3
	Tubular metal cored wire for welding of C-Mn steels.	DAIKO MCW 107	FCAW	A5.36 E70T15	EN ISO 17632-A T 46 6 M M 1
	Metal cored wire for welding of C-Mn steels.	DAIKO MCW 107S	FCAW	A5.18 E70C-6M	EN ISO 17632-A T 42 4 M M 3 H5
	Low fume metal cored wire for welding of C-Mn steels.	DAIKO MCW 107LF	FCAW	A5.18 E70C-6M	EN ISO 17632-A T 42 4 M M 3 H5
	High quality metal cored wire for welding of C-Mn steels.	DAIKO MCW 107SP	FCAW	A5.18 E70C-6M	EN ISO 17632-A T 46 4 M M 1 H5
	Flux cored wire for welding of C-Mn steels without shielding gas (Open arc).	DAIKO FCW 107OP	FCAW	A5.20 E71T-GS	EN ISO 17632-A T 42 Z Z V N 1

COMPOSITION														MECHANICAL PROPERTIES			
C	Mn	Si	P	S	Ni	Cr	Mo	V	Cu	Ti	Zr	Al	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.08	1.21	0.50	0.010	0.010	-	0.02	-	-	0.04	-	-	-	-	550	440	32	60 (-40°C)
0.06	1.47	0.82	0.013	0.014	-	0.03	-	-	0.03	-	-	-	-	560	460	30	60 (-40°C)
0.07	1.64	0.95	0.010	0.015	-	0.03	-	-	0.05	-	-	-	-	600	500	26	50 (-50°C)
0.06	1.10	0.50	0.012	0.012	-	0.01	-	-	0.15	0.10	0.09	0.10	-	520	440	28	70 (-20°C)
0.06	1.30	0.65	0.010	0.015	-	0.02	-	-	0.03	0.10	0.07	0.10	-	520	440	28	70 (-20°C)
0.06	1.30	0.50	0.010	0.010	-	0.03	-	-	0.10	-	-	-	-	>550	>460	>20	47 (-20°C)
0.04	1.30	0.68	0.010	0.012	-	-	-	-	-	-	-	-	-	>540	>460	>20	47 (-20°C)
0.05	1.28	0.52	0.010	0.009	-	-	-	-	-	-	-	-	-	>540	>460	>20	47 (-20°C)
0.08	1.30	0.40	0.010	0.009	-	0.04	-	-	0.02	-	-	-	-	>550	>460	>20	47 (-40°C)
0.04	1.40	0.60	0.007	0.009	0.01	0.03	-	-	0.12	-	-	-	-	>550	>460	>20	47 (-60°C)
0.05	1.60	0.60	0.015	0.011	-	-	-	-	-	-	-	-	-	>550	>450	>20	47 (-40°C)
0.03	1.70	0.85	0.010	0.010	-	-	-	-	-	-	-	-	-	>550	>450	>20	47 (-30°C)
0.08	1.40	0.50	0.009	0.009	-	-	-	-	-	-	-	-	-	>550	>450	>20	47 (-40°C)
0.26	0.90	0.50	0.016	0.014	-	-	-	-	-	-	-	2.05	-	>580	>460	>22	-



FORMAT/ ALLOY	DESCRIPTION	PRODUCT	PROCESS	AWS	OTHER STANDARD
SMAW	Cellulosic type electrode, for welding in all positions including the vertical-down position of pipelines grades API 5L X42, X52 and X56 (only 102C). Especially recommended for root passes. Good radiography quality.	G-TECH 101C	SMAW	A5.1 E6010	EN ISO 2560-A E 38 3 C 21
		G-TECH 102C	SMAW	A5.1 E7010-G	EN ISO 2560-A E 42 3 Z C 21
	Medium coated rutile-cellulosic type electrode for universal application of non-alloyed structural steel. All positional welding, including vertical-downward.	G-TECH 101	SMAW	A5.1 E6013	EN ISO 2560-A E 42 A RC 11
	Thick coating rutile electrode for universal application of non-alloyed structural steel and for esthetical beads.	G-TECH 102	SMAW	A5.1 E6013	EN ISO 2560-A E 38 Z RR 12
	Rutile electrode for welding of non-alloyed structural steel, in special for thin plates.	G-TECH 103	SMAW	A5.1 E6013	EN ISO 2560-A E 42 A RR 12
	Rutile high recovery electrode for welding carbon steels.	G-TECH 102HR	SMAW	A5.1 E7024	EN ISO 2560-A E 42 0 RR 73
	Basic type electrode double coated for welding medium strength steels. Specially used for repairing and maintenance.	G-TECH 107	SMAW	A5.1 E7016	EN ISO 2560-A E 42 3 B 12
	Basic type electrode (110% recovery) for welding structural steels highly stressed connections. Crack resistant, stable arc, slag easy to remove.	G-TECH 107B	SMAW	A5.1 E7018.1	EN ISO 2560-A E 42 4 B 42
	Basic type electrode for welding highly stressed connections. Resistant to cold cracks, stable arc, slag easy to remove.	G-TECH 108	SMAW	A5.1 E7018	EN ISO 2560-A E 42 4 B 42
High recovery (150%) basic type electrode. Mainly used for fillet welding. Weld metal is crackfree and very tough. Smooth and clean welds, base metal without undercut.	G-TECH 107HR	SMAW	A5.1 E7028	EN ISO 2560-A E 42 2 B 83	
SAW	Submerged arc welding wire suitable to join carbon steels for construction, pressure vessels, pipes, ship buildings.	DAIKO S2	SAW	A5.23 EM12k	EN ISO 14171-A S2
		DAIKO S2Si	SAW	A5.23 EM12k	EN ISO 14171-A S2Si
		DAIKO S3Si	SAW	A5.23 EM12k	EN ISO 14171-A S3Si
		DAIKO S4	SAW	A5.23 EH14	EN ISO S4
CORTEN	Consumables for weather resistant steel with low content of Cu, Cr, and Ni as, Patinax, Corten, Acor 50, HSB 51, etc. Excellent mechanical properties.	DAIKO 66	MIG – TIG	A5.28 ER80S-G	EN ISO 14341-A G 50 4 M21 Z
		G-TECH 57B	SMAW	A5.5 E8018-W2	EN ISO 2560-A E 46 2 Z B 42
		DAIKO FCW 66R	FCAW	A5.36 E81T1-WC2	EN ISO 17632-A T 50 0 Z P C 1
		DAIKO FCW 66B	FCAW	A5.36 E80T5	EN ISO 17632-A T 46 4 Z P M 1
		DAIKO MCW 66	FCAW	A5.36 E80T15	EN ISO 17632-A T 42 4 M M 2
		DAIKO SAW 66	SAW	A5.23 EG	EN ISO 14171-A S2Ni1Cu

COMPOSITION														MECHANICAL PROPERTIES			
C	Mn	Si	P	S	Ni	Cr	Mo	V	Cu	Ti	Zr	Al	Other	TS [MPa]	YS [MPa]	EL%	Impact [J]
0.12	0.50	0.20	0.020	0.010	-	-	-	-	-	-	-	-	-	>470	>380	>25	50 (-30°C)
0.12	0.70	0.30	0.020	0.010	0.25	-	0.25	-	-	-	-	-	-	>550	>450	>25	47 (-30°C)
0.08	0.50	0.30	0.020	0.010	-	-	-	-	-	-	-	-	-	<510	>450	>24	47 (-30°C)
0.10	0.64	0.33	0.020	0.010	-	-	-	-	-	-	-	-	-	>520	>460	>25	47 (-20°C)
0.08	0.50	0.40	0.020	0.010	-	-	-	-	-	-	-	-	-	>510	>450	>22	47 (+20°C)
0.09	1.00	0.70	0.020	0.010	-	-	-	-	-	-	-	-	-	>520	>470	>22	47 (0°C)
0.08	1.10	0.45	0.010	0.008	0.02	0.03	0.02	-	-	0.02	-	-	-	>550	>450	>25	>40 (-30°C)
0.08	1.08	0.55	0.016	0.008	0.02	0.04	0.02	-	-	0.02	-	-	-	>500	>450	>22	>47 (-40°C)
0.07	1.00	0.50	0.020	0.010	-	-	-	-	-	-	-	-	-	>540	>420	>25	>90 (-29°C)
0.07	1.20	0.50	0.020	0.010	-	-	-	-	-	-	-	-	-	>510	>420	>26	47 (-20°C)
0.08	1.10	0.10	0.020	0.012	0.08	0.05	0.02	-	0.14	-	-	-	-	>510	>410	>29	55 (-40°C)
0.08	1.15	0.50	0.020	0.010	0.07	0.05	0.02	-	0.10	-	-	-	-	>510	>410	>29	60 (-40°C)
0.09	1.70	0.33	0.007	0.003	0.02	0.02	-	-	0.03	-	-	-	-	>580	>500	>29	68 (-40°C)
0.10	2.00	0.10	0.025	0.025	0.10	0.15	0.15	-	0.30	-	-	0.03	-	>590	>400	>22	27 (-20°C)
0.09	1.40	0.80	0.010	0.007	0.80	0.30	0.01	-	0.40	-	-	-	-	>630	>560	>24	60 (-40°C)
0.06	1.30	0.60	0.015	0.006	0.55	0.55	0.02	-	0.48	-	-	-	N=0,04	>600	>500	>22	70 (-20°C)
0.05	1.20	0.45	0.025	0.025	1.20	0.30	-	-	0.50	-	-	-	-	>630	>430	>22	47 (-40°C)
0.05	1.20	0.45	0.020	0.020	1.20	0.30	-	-	0.50	-	-	-	-	>600	>500	>22	47 (-40°C)
0.06	1.20	0.45	0.025	0.025	-	0.30	-	-	0.50	-	-	-	-	>550	>420	>22	47 (-60°C)
0.10	1.00	0.20	0.009	0.008	0.70	0.30	0.03	-	0.40	-	-	-	-	640	560	23	103 (-40°C)

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
Cu	Consumables for joining copper parts, furnace soldering and electrical and electronic components.	DAIKO CuSn	MIG – TIG	A5.7 ERCu	DIN 1733 – SG – CuSn
		G-TECH CuSn	SMAW	A5.6 ECu	DIN 1733 EL-CuMn2
CuSi	Consumables used for a wide range of general purpose applications including weld overlay. Applications include component for chemical plant, tube for heat exchangers, electrical components. Specially used for welding car bodies in the automotive industries.	DAIKO CuSi3	MIG – TIG	A5.7 ERCuSi-A	DIN 1733 – SG – CuSi3
CuAg	Copper-silver alloy specially used for welding electronic components.	DAIKO CuAg	MIG – TIG	-	DIN 1733 – SG – CuAg
CuSn	Consumables used for welding a range of copper base alloys to themselves and to carbon steels or cast irons. The higher tin content increases strength and wear resistance and increases the solidification temperature range during deposition of the weld metal (lower preheating to about 200°C is required). Also suitable for weld overlays on steel component. Not suitable for stainless steels because Cr pick-up cause embrittlement.	DAIKO CuSn6	MIG – TIG	A5.7 ERCuSn-A	DIN 1733 – SG – CuSn6
		G-TECH CuSn7	SMAW	A5.6 ECuSn-C	DIN 1733 EL – CuSn7
		DAIKO CuSn8	MIG – TIG	A5.7 ERCuSn-C	DIN 1733 – SG – CuSn6 mod.
		DAIKO CuSn10	MIG – TIG	A5.7 – NO AWS	-
		DAIKO CuSn12	MIG – TIG	A5.7 – NO AWS	-
CuAl	aluminum bronze alloy used for welding aluminum bronze (copper-aluminium alloys). It is excellent for cladding components undergoing metal to metal wear and for corrosion resistant surfaces. Applications include tube sheets, pickling hooks, impellers, valve seats, chemical plants, pulp mills, etc. to corrosion and wear.	DAIKO CuAl8	MIG – TIG	A5.7 ERCuAl-A1	
		G-TECH 401	SMAW	A5.6 ECuAl-8	DIN 1733 EL-CuAL8
		DAIKO CuAl9Fe	MIG – TIG	A5.7 ERCuAl-A2	
		G-TECH 405	SMAW	A5.6 ECuAl-A2	DIN 1733 EL-CuAL9
CuAlNi	Aluminum bronze alloy used for welding steel and aluminum bronze (copper-aluminium alloys). It is excellent for cladding components undergoing metal to metal wear and for corrosion resistant surfaces. The addition of nickel improves corrosion resistance in heat and rough seawater. Applications include tube sheets, pickling hooks, impellers, valve seats, chemical plants, pulp mills, etc.	DAIKO CuAl8Ni2	MIG – TIG	-	DIN 1733 – SG – CuAl8Ni2
		DAIKO CuAl8Ni6	MIG – TIG	A5.7 ERCuNiAl	DIN 1733 – SG – CuAl9Ni5
CuMnAl	Highest grade of the Al-Bronze-types. Seawater-resistant copper-aluminum alloy without Zn with high toughness and improved hardness (excellent wear and abrasion resistance and to cavitation and erosion). Excellently suitable for joining and cladding of copper alloys, unalloyed and low-alloy steels and grey cast iron. Very good weldability compare to the more common Al bronzes.	DAIKO CuMn13Al	MIG – TIG	A5.7 ERCuMn-NiAl	DIN 1733 EL-CuMn13Al7
		G-TECH 403	SMAW	A5.6 ECuMnNiAl	DIN 1733 EL-CuMn14Al
CuNi 70-30	Designed to match the CuNi 70/30 alloys. The consumables are suitable for surfacing and cladding provided buttering layer is made (normally buttering is made with alloy 400 or pure nickel). Applications include offshore construction, desalination plant, evaporators, condenser, etc, in salt and sea water processing system.	DAIKO 413	MIG – TIG	A5.7 ERCuNi	DIN 1733 – SG – CuNi30Fe
		DAIKO 187	SMAW	A5.6 ECuNi	-
		DAIKO STRIP 413	STRIP	A5.7 EQCuNi	-
CuNi 90-10	Consumable with nominal composition 86%Cu and 10.5%Ni for welding 90/10 base materials. Applications include offshore construction, desalination plant, evaporators, condenser, etc, in salt and sea water processing system.	DAIKO 412	MIG – TIG	-	DIN 1733 – SG – CuNi10Fe

COMPOSITION													MECHANICAL PROPERTIES			
Cu	Zn	Sn	Mn	Fe	Si	Ni	P	Al	Pb	Ti	Other	TS [MPa]	YS [MPa]	EL%	Hardness	
Bal.	-	0.80	0.20	-	0.20	-	0.01	-	-	-	<0.50	>190	>70	>33	60 HB	
Bal.	-	0.80	1.50	0.10	-	-	0.01	-	-	-	<0.50	>180	>70	>33	70 HB	
Bal.	0.004	0.003	0.90	0.003	2.90	0.002	0.02	0.003	0.020	-	<0.50	>340	>140	>40	90 HB	
Bal.	-	-	0.10	-	-	-	0.01	-	-	-	<0.50	>200	>70	>35	80 HB	
Bal.	-	6.50	-	-	-	-	0.25	-	-	-	<0.50	>250	>130	>20	80 HB	
Bal.	-	8.00	0.10	-	-	-	0.20	-	-	-	<0.50	>300	>130	>20	>100 HB	
Bal.	-	8.00	-	-	-	-	0.10	-	-	-	<0.50	>310	>130	>25	>90 HB	
Bal.	-	9.50	0.25	-	0.25	-	-	-	-	-	<0.50	>320	>130	>20	90 HB	
Bal.	-	13.00	-	-	-	-	0.20	-	-	-	<0.50	>280	>140	>20	90 HB	
Bal.	0.004	0.003	0.50	0.01	0.003	0.003	0.001	8.20	0.002	-	<0.50	600	420	38	>100 HB	
Bal.	-	-	0.50	1.20	0.50	-	-	8.10	-	-	<0.50	440	190	>20	>130 HB	
Bal.	0.004	0.005	0.50	0.90	0.003	0.002	0.002	9.10	0.002	-	<0.50	>500	>200	>32	>160 HB	
Bal.	-	-	1.00	0.70	-	-	-	8.10	-	-	<0.50	>500	>200	>35	>170 HB	
Bal.	0.004	0.003	1.35	2.15	0.003	1.95	0.001	8.10	0.001	-	<0.50	>520	>230	>30	>150 HB	
Bal.	0.004	0.003	0.85	3.85	0.003	4.55	0.001	8.70	0.015	-	<0.50	>680	>260	>15	>190	
Bal.	0.004	0.003	12.10	2.50	0.003	2.40	0.001	7.70	0.001	-	<0.50	>890	>340	>10	>220	
Bal.	-	-	13.50	2.50	-	2.20	-	7.10	0.010	-	<0.50	660	400	15	>210	
Bal.	-	-	1.00	0.50	-	31.00	-	-	-	0.40	<0.50	>420	-	>34	>100	
Bal.	-	-	1.80	0.60	0.40	30.00	0.015	-	-	-	<0.50	>390	>240	>25	>100	
Bal.	0.025	-	0.80	0.70	0.10	31.00	-	-	-	0.30	<0.50	-	-	-	-	
Bal.	-	-	1.10	0.50	-	10.50	-	-	-	0.40	<0.50	>300	>180	>32	>80	



ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
Gr. 6	These consumables combine good abrasion resistance with resistance to corrosion, erosion and thermal shock. It is used to surface valves and valve seats, hot shear blades, cold and hot forming rolls, equipment for handling hot steel and for applications in a very wide range of industries including petrochemical, steel, cement, marine and power generation	DAIKO 1006LC	FCAW	A5.21 ERCCoCr-A	DIN 8555 MF 20-MF-40-CKTZ
		DAIKO 1006	FCAW	A5.21 ERCCoCr-A	DIN 8555 MF 20-MF-40-CKTZ
		DAIKO 1006	TIG	A5.21 ERCoCr-A	-
		GTECH 1006	SMAW	A5.13 ECoCr-A	DIN 8555 E-20-UM-55-CTZ
Gr. 12	These consumables combine exceptional resistance to metal to metal wear with resistance to corrosion, erosion and thermal shock. It is used for temperature service up to 800°C. It is used to surface valves and valve seats for oil & gas industries, screw conveyors and augers for rubber and plastic, saw teeth for wood industries, cams, shafts, tappets and push rods for engines, etc. ...	DAIKO 1008	FCAW	A5.21 ERCCoCr-B	DIN 8555 MF 20-MF-50-CTZ
		DAIKO 1008	TIG	A5.21 ERCoCr-B	-
		G-TECH 1008	SMAW	A5.13 ECoCr-B	DIN 8555 E20-UM-50-CTZ
Gr 1	Consumables for hardfacing with excellent abrasion and corrosion resistance for applications such as pump sleeves, rotary seal rings, wear pads, expeller screws and bearing sleeves. It retains its hardness at temperatures up to 760°C.	DAIKO 1010	FCAW	A5.21 ERCCoCr-C	DIN 8555 MF 20-MF-55-CTZ
		DAIKO 1010	TIG	A5.21 ERCoCr-C	-
		G-TECH 1010	SMAW	A5.13 ECoCr-C	DIN 8555 E20-UM-55-CTZ
Gr. 21	These electrodes are used for hardsurfacing parts subject to a combination of impact, abrasion, corrosion and high temperatures. Excellent for corrosion resistance and metal-to-metal wear resistance. Used for integral seats and guides of large water and high-pressure valve bodies, hot shears, forging dies, pump shafts and sleeves, hot punches etc.	DAIKO 1021	FCAW	A5.21 ERCCoCr-E	DIN 8555 MF 20-MF-350-CKTZ
		DAIKO 1021	TIG	A5.21 ERCoCr-E	-
		G-TECH 1021	SMAW	A5.13 ECoCr-E	DIN 8555 E20-UM-300-CTZ
Gr.25	These products combine excellent high temperature strength with good corrosion resistance up to 980°C. Typical applications include gas turbine engine components, furnace components, tools to work hot steel etc.	DAIKO 1025	TIG	-	EN 14700 T Z Co (L 605)
		G-TECH 1025	SMAW	-	EN 14700 E Z Co1 (L 605)

COMPOSITION												MECHANICAL PROPERTIES	
C	Mn	Si	Cr	Ni	Mo	Fe	W	Co	B	Other	Hardness		
0.80	0.95	1.20	29.0	0.12	0.04	3.60	4.60	Bal.	-	-	39 HRc		
1.00	0.93	1.16	28.0	0.15	0.04	3.80	5.20	Bal.	-	-	41 HRc		
1.00	0.35	1.35	29.0	2.30	0.05	2.10	4.70	Bal.	-	<0.50	41 HRc		
0.90	0.80	1.10	29.0	2.50	0.02	3.00	4.70	Bal.	-	-	42 HRc		
1.50	1.10	1.00	30.0	-	-	2.80	7.50	Bal.	-	-	46 HRc		
1.10	-	1.30	30.0	2.20	-	2.00	8.60	Bal.	0.20	<0.50	47 HRc		
1.20	-	1.20	30.0	2.30	-	3.20	8.70	Bal.	-	-	48 HRc		
2.40	0.10	0.70	29.0	-	-	3.60	11.00	Bal.	-	-	54 HRc		
2.20	0.30	0.80	30.0	2.20	-	2.20	12.00	Bal.	-	-	54 HRc		
2.00	0.50	0.70	32.0	1.80	-	2.50	12.50	Bal.	-	-	55 HRc		
0.21	1.00	1.10	28.3	2.85	5.50	3.50	0.010	Bal.	-	-	31 HRc		
0.24	0.80	1.00	28.0	2.70	5.40	3.90	0.030	Bal.	-	-	32 HRc		
0.30	0.70	0.90	27.1	2.50	5.30	4.30	0.050	Bal.	-	<1,0	35 HRc		
0.20	0.80	0.90	21.0	11.0	-	2.30	15.50	Bal.	-	-	23 HRc		
0.10	1.00	0.80	20.0	10.0	-	2.00	15.00	Bal.	-	-	25 HRc		

TITANIUM ALLOYS

ALLOY	DESCRIPTION	PRODUCT	FORMAT	AWS	OTHER STANDARD
Gr. 1	This consumable is the lowest strength unalloyed commercially pure grade and it is suitable for welding Titanium grade 1, 2, 3 and 4. The weld deposit is ductile and offers excellent corrosion resistance. This product has excellent weldability. Typical applications is in chemical industry.	DAIKO Ti 1	MIG – TIG	A5.16 ERTi-1	-
Gr. 2	Daiko Ti 2 is the most common Commercially Pure grade. It is used for process equipment like pressure vessels, columns, tanks, heat exchangers, shafts, blowers and fans, condenser tubing, valves, fittings, and pipe. This product is developed for welding Titanium grade 1, 2, 3 and 4 and offers excellent weldability.	DAIKO Ti 2	MIG – TIG	A5.16 ERTi-2	-
Gr. 5	Daiko Ti 5 is a titanium grade 5 (Ti 6Al-4V), commonly called "6-4," is the most common and widely used alloy grade. It has a UTS of 895 MPa minimum, good weldability, and can be heat treated to a higher strength or toughness. Grade 5 is used in aircraft components such as landing gear, wing spars, and compressor blades. Its corrosion resistance is generally comparable to Grade 2 and it is often used in corrosion service where higher strength is required, particularly in shafts, high strength bolting, and keys.	DAIKO Ti 5	MIG – TIG	A5.16 ERTi-5	-
Gr. 7	Daiko Ti 7 has the same mechanical properties as Daiko Ti 2. Daiko Ti 7 can be used for welding Grade 2 or 16 where improved corrosion performance is required. The 0.12 wt% palladium addition improves corrosion performance.	DAIKO Ti 7	MIG – TIG	A5.16 ERTi-7	-
Gr. 12	Daiko Ti 12 is a highly corrosion resistant alloy containing small additions of nickel and molybdenum, which enhance corrosion resistance and increase the strength of the alloy to give better mechanical properties than the commercially pure grades.	DAIKO Ti 12	MIG – TIG	A5.16 ERTi-12	-

COMPOSITION												MECHANICAL PROPERTIES		
C	O	N	H	Fe	Al	V	Pd	Ru	Ni	Ti	Other	TS [MPa]	YS [MPa]	EL%
0.10	0.08	0.010	0.003	0.05	-	-	-	-	-	Bal.	-	240	170	24
0.02	0.90	0.010	0.007	0.10	-	-	-	-	-	Bal.	-	460	390	20
0.01	0.14	0.006	0.004	0.10	6.00	4.00				Bal.	-	1000	900	8
0.02	0.09	0.009	0.006	0.10	-	-	0.20	-	-	Bal.	-	420	280	20
0.08	0.12	0.010	0.006	0.10	-	-	-	-	0.70	Bal.	Mo=0.30	490	350	25

ALLOY	DESCRIPTION	PRODUCT
Carbon and Low Alloy steels	agglomerate rutile flux for welding general structural steels and fine-grain steels with yield strength up to 355 mpa in max two run technique or maximum three passes at high travel speed.	DAIKOFLUX 470-W
	agglomerate semi-basic flux for carbon steel ad low alloy steels for general application with excellent welding performance. suitable for structural steels, fine-grained steels, weather resistant steel.	DAIKOFLUX 480-W
	agglomerate basic flux for joining carbon steel and low alloy steels. specific for structural steels with high resistance, such as pressure vessels, boilers, pipes, etc.	DAIKOFLUX 490-W
	agglomerate basic flux for carbon steel and low alloy steels for critical applications of thick section materials when there is demand on high impact toughness values at very low temp (-60°C). suitable for high tensile steel such as s690ql.	DAIKOFLUX 491-W
Low Alloy and Martensitic Steels	agglomerated high basic flux for low alloys and martensitic steels (400 serie).	DAIKOFLUX 493-W
Stainless Steels	semi-basic flux for welding and cladding austenitic stainless and heat resistant steels	DAIKOFLUX 303
	semi-basic flux for welding and cladding austenitic, duplex and superduplex steels	DAIKOFLUX 900-W
Low Alloy and austenitic stainless steels	semi-basic prefused flux for cr-mo steels (e.g. p5, p9, p91) and austenitic stainless steels. also suitable for nickel base alloys.	DAIKOFLUX 982
Nickel Alloys	basic flux for heavy thickness welding/cladding of nickel base alloys	DAIKOFLUX 960-W
Strip Cladding	agglomerate high basic flux for stainless steel strip cladding with esw process	DAIKOFLUX 930
	agglomerate flux for stainless steel strip cladding with saw process	DAIKOFLUX 937AS
	agglomerate basic flux for high speed cladding with nickel base strips	DAIKOFLUX 940
	basic flux for subarc strip cladding with nickel base strips	DAIKOFLUX 942AS
	agglomerate high basic flux for nickel base strip cladding	DAIKOFLUX 944

PROCESS	BASICITY	STANDARD
SAW	0,5	ISO 14174: S A AR 1 87 AC
SAW	1,7	ISO 14174: S A AB 1 67 AC H5
SAW	3,1	ISO 14174: S A FB 1 55 AC H5
SAW	3	ISO 14174: S A FB 1 55 AC H5
SAW	3,1	ISO 14174: S A FB 1 55 DC H5
SAW	1,6	ISO 14174: S A FB 2 5635 DC
SAW	1,9	ISO 14174: S A AF 2 5644 DC H5
SAW	1,3	ISO 14174: S F CS 1 63 DC (LOW ALLOY) ISO 14174: S F CS 2 5742 DC (STAINLESS)
SAW	3,5	ISO 14174: S A AF 2
ESW	4,6	ISO 14174: ES A FB 2B 5644 DC
SAW	1,2	ISO 14174: S A CS 2 5644 DC
ESW	4	ISO 14174: S A FB 2
SAW	2,3	EN 760-SA AB 2
ESW	4,6	ISO 14174: ES A FB 2B 5644 DC



CERTIFICATIONS AND TECHNICAL ASSISTANCE



- / UNI EN ISO 9001 quality system ICIM certificate nr.1245/3
- / TuV certificate (nr. 0035-CPR-C908) for Factory Production Control system
- / TuV approval of a qualified manufacturer of Welding Consumables pursuant to VdTUV 1153
- / Technical assistance provided by qualified Welding Engineer I.W.E. nr.120085A

TÜV APPROVALS

PRODUCT	PROCESS	AWS	TÜV APPROVAL No.
Daiko SF 308LSi	MIG	AWS A5.9: ER308LSi	11857
Daiko SF 308L	TIG	AWS A5.9: ER308L	11865
Daiko SF 307Si	MIG	AWS A5.9: ER307Si	11858
Daiko SF 309LSi	MIG	AWS A5.9: ER309LSi	11864
Daiko SF 309LSi	TIG	AWS A5.9: ER309LSi	11869
Daiko SF 316LSi	MIG	AWS A5.9: ER316LSi	11859
Daiko SF 316L	TIG	AWS A5.9: ER316L	11866
Daiko SF 318Si	MIG	AWS A5.9: (ER318Si)	11860
Daiko SF 347Si	MIG	AWS A5.9: ER347	11863
Daiko SF 2209	MIG	AWS A5.9: ER2209	11861
Daiko SF 2209	TIG	AWS A5.9: ER2209	11867
Daiko SF 82	MIG	AWS A5.14: ERNiCr-3	11862
Daiko SF 625	MIG	AWS A5.14: ERNiCrMo-3	10735
Daiko SF 625	TIG	AWS A5.14: ERNiCrMo-3	11868
Daiko 82	TIG	AWS A5.14: ERNiCr-3	19020
FCW DAIKO 316L	FCAW	AWS A5.22: E316LT0-1/4	19445
FCW DAIKO 308L	FCAW	AWS A5.22: E308LT0-1/4	19446
FCW DAIKO 347P	FCAW	AWS A5.22: E347T1-1/4	19448
FCW DAIKO 309L	FCAW	AWS A5.22: E309LT0-1/4	19447
FCW DAIKO 309LMo	FCAW	AWS A5.22: E309LMoT0-1/4	19449
FCW DAIKO 2209	FCAW	AWS A5.22: E2209T0-4	19444

FORMS OF SUPPLY FOR THE WELDING PRODUCTS

Mig/Mag, Tig and Subarc.
Note: Weights shown are standard, and may change for some alloys i.e. Aluminium alloys.

WIRE



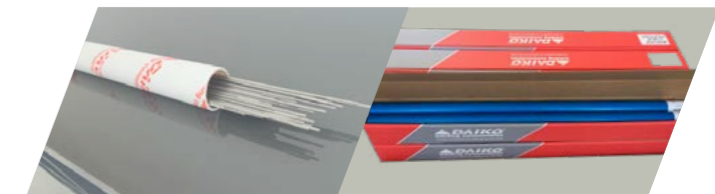
BS 300 basket spool (15 kg) DIN 760 Big Reel (150-250 kg) Drum (150-250 kg)



K 415 spool (25 kg) D200 plastic spool (5 kg) D100 plastic spool (1 kg)

Note: Weights shown are standard, and may change for some alloys i.e. Aluminium alloys.

TIG ROD



Tube (5 kg) Box – 4 tubes (20 kg)

STICK ELECTRODE



Cardboard box Dry pack Tube

FLUX

STRIP



Metallic drum (15-25 kg) Bag (15-25 kg) Coil 30/60/90 x 0.5mm (25-300 kg)

STORAGE AND HANDLING



UNI EN 3834 for welding quality management requires that procedures for storage and handling should be provided, so that material is not damaged.

Storage of coated electrodes contained in cardboard boxes should be carried out in controlled temperature and humidity areas. The best conditions for storage are:

- / Temperature $17 \pm 27^\circ \text{C}$, relative humidity 60% (max);
- / Temperature $27 \pm 37^\circ \text{C}$, relative humidity 50% (max);

The maximum storage life should not exceed 3 years.

It is advisable to not overstock more than 5 boxes one over the other.

Electrodes hermetically sealed in cans can be used directly in welding activities generally for 8 hours after opening and have no storage life limit before opening the pack.

After exposure to moisture, the electrodes must be reconditioned and maintained before welding according to the directions given for each product.

Temperature and humidity storage conditions for wires are same as coated electrodes.

Submerged arc fluxes stored in sealed bags can be used directly. It may be necessary to recondition fluxes according to manufacturer's instructions if they are exposed to moisture.

Fluxes that have not been fused may generally be recovered and reused after separation from scum and other pollutants.

Mig wires and Tig rods are not affected by the moisture absorption problem, however, contact with water, moisture, grease, dirt and other potentially polluting substances should be avoided.

Wires should be stored in dry environments and relative temperatures and humidity should be monitored.

Condensation: In order to prevent moisture condensation on the surface of materials, it is appropriate, when there is a significant difference in temperature between usage area and storage area, to wait for material to reach room temperature before opening the package.

Storage and handling must always be adequate to prevent damages.

Particular attention should be paid to the handling of wire in drums since any damage may compromise the subsequent feeding of the wire during welding.

WELDING POSITIONS

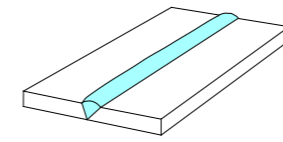
Welding positions according to ASME IX

1G, 1F	Flat Position
2G, 2F	Horizontal Position
3G, 3F	Vertical Position
4G, 4F	Overhead Position
5G, 5F	Multiple Position
6G	Multiple Position

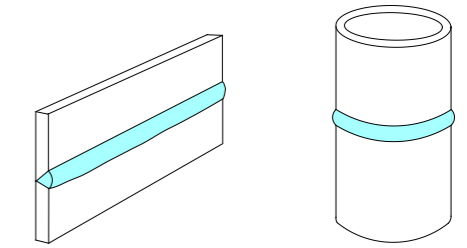
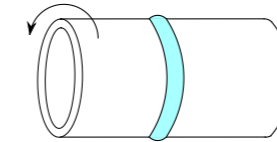
Welding positions according to EN ISO 6947

PA	flat position
PB	horizontal vertical position
PC	horizontal position
PD	horizontal overhead position
PE	overhead position
PF	vertical up position
PG	vertical down position
PH	pipe position for welding upwards (formerly PF)
PJ	pipe position for welding downwards (formerly PG)

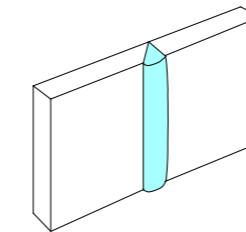
ASME (EN ISO) POSITIONS FIGURES



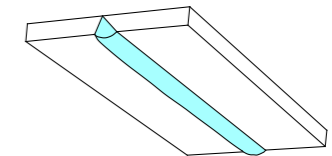
1G (PA) – downhand / gravity butt



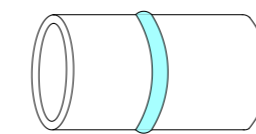
2G (PC) – horizontal-vertical butt



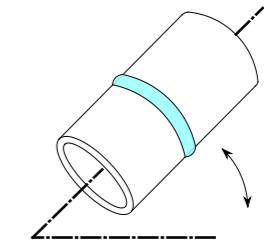
3G (PF) – vertical butt



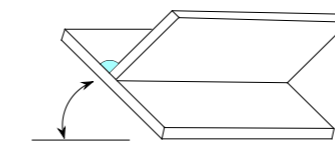
4G (PE) – overhead butt



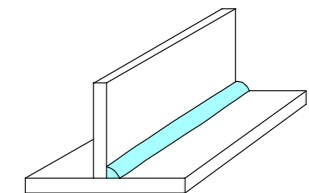
5G (PF) – horizontal pipe butt



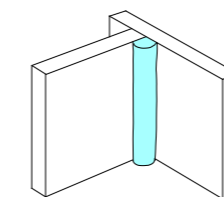
6G (H-LO45) – inclined pipe butt



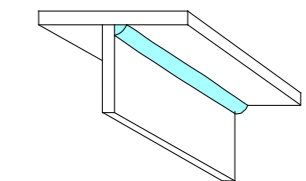
1F (PA) – downhand or gravity fillet



2F (PB) – standing fillet



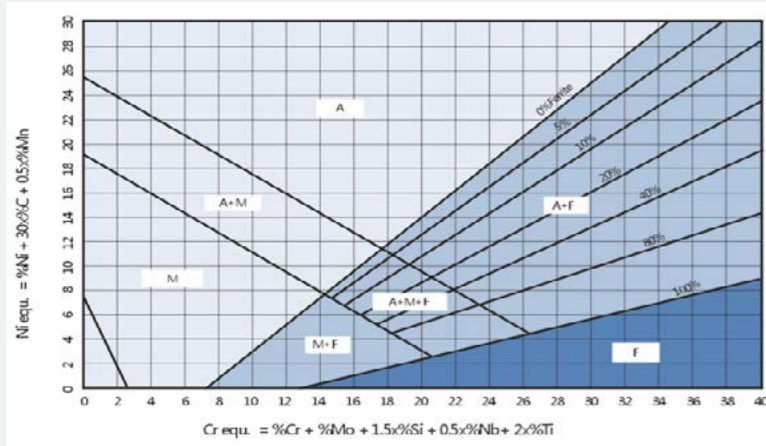
3F (PF) – vertical fillet



4F (PD) – overhead fillet

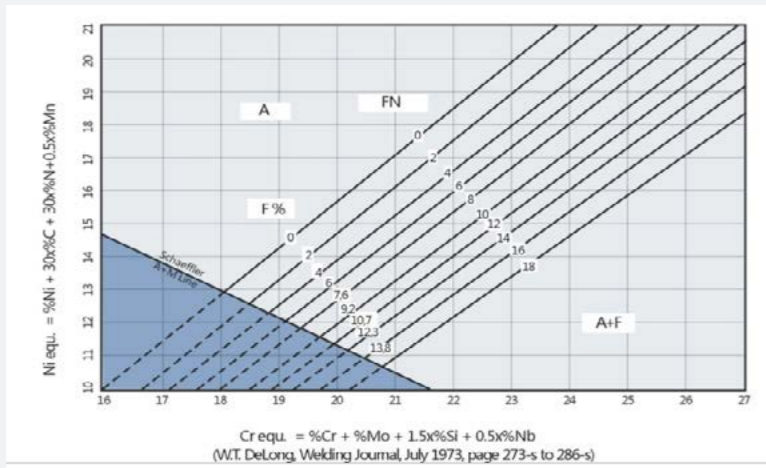
DIAGRAMS

SCHAEFFLER DIAGRAM



The Schaeffler diagram is useful for predicting the constitution of your stainless steel weld deposit. Depending on the alloying elements it contains, the Schaeffler diagram provides information on the various phases (structures) present. The chromium equivalent is calculated from the weight percentage of ferrite-forming elements (Cr, Si, Mo, Nb, W) and the nickel equivalent is calculated from the weight percentage of austenite-forming elements (C, Ni, Mn, Cu, N). The position in the Schaeffler diagram defined by the Cr- and Ni-equivalents gives the proportions of martensite, austenite and ferrite in the resulting microstructure.

DELONG DIAGRAM



This refines the Schaeffler diagram by taking account of the strong austenite stabilising tendency of nitrogen. The chromium equivalent is unaffected but the nickel equivalent is modified to $Ni\text{ (eq)} = Ni + (30 \times C) + (0.5 \times Mn) + (30 \times N)$.

WRC - 1992 DIAGRAM

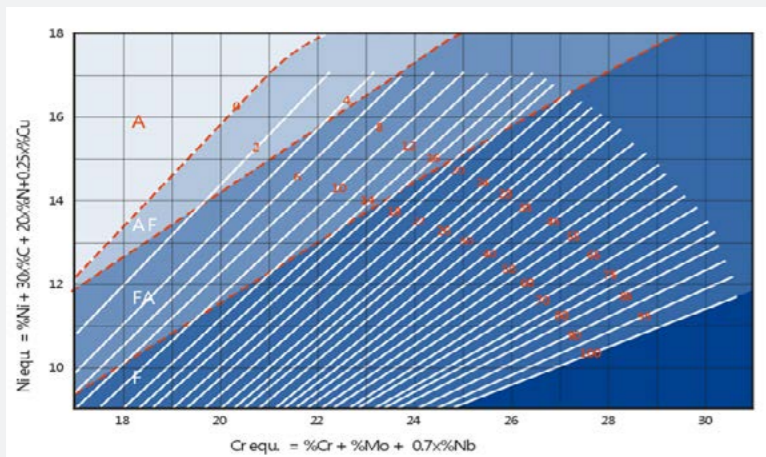


Diagram developed to increase the accuracy of Ferrite Number (FN) prediction in stainless steel weld metal and related dissimilar metal joints. The WRC-1992 diagram includes a coefficient for Cu in the Ni equivalent.

APPROXIMATE HARDNESS CONVERSION

Resistenza alla trazione N/mm ²	Scala Vickers HV	Impronta sfera mm	Scala Brinell HB	Scala Rockwell HRB	HRC
200	63	7.32	60		
210	65	7.22	62		
220	69	7.04	66		
230	72	6.95	68		
240	75	6.82	71		
250	79	6.67	75		
255	80	6.63	76		
260	82	6.56	78		
270	85	6.45	81	41	
280	88	6.35	84	45	
285	90	6.28	86	48	
290	91	6.25	87	49	
300	94	6.19	89	51	
305	95	6.16	90	52	
310	97	6.1	92	54	
320	100	6.01	95	56	
330	103	5.93	98	58	
335	105	5.87	100	59	
340	107	5.83	102	60	
350	110	5.75	105	62	
360	113	5.7	107	63.5	
370	115	5.66	109	64.5	
380	118	5.61	113	66	
385	120	5.54	114	67	
390	122	5.5	116	67.5	
400	125	5.44	119	69	
410	128	5.38	122	70	
415	130	5.33	124	71	
420	132	5.32	125	72	
430	135	5.26	128	73	
440	138	5.2	131	74	
450	140	5.17	133	75	
460	143	5.11	136	76.5	
465	145	5.08	138	77	
470	147	5.05	140	77.5	
480	150	5.00	143	78.5	
490	153	4.96	145	79.5	
495	155	4.93	147	80	
500	157	4.9	149	81	
510	160	4.86	152	81.5	
520	163	4.81	155	82.5	
530	165	4.78	157	83	
540	168	4.74	160	84.5	
545	170	4.71	162	85	
550	172	4.7	163	85.5	
560	175	4.66	166	86	
570	178	4.62	169	86.5	
575	180	4.59	171	87	
580	181	4.58	172	87.5	
590	184	4.54	175	88	
595	185	4.53	176	88	
600	187	4.51	178	89	
610	190	4.47	181	89.5	
620	193	4.44	184	90	
625	195	4.43	185	90	
630	197	4.4	187	91	
640	200	4.37	190	91.5	
650	203	4.34	193	92	
660	205	4.32	195	92.5	
670	208	4.29	198	93	
675	210	4.27	199	93.5	
680	212	4.25	201	94	

Resistenza alla trazione N/mm ²	Scala Vickers HV	Impronta sfera mm	Scala Brinell HB	Scala Rockwell HRC
1200	373	3.24	364	38
1210	376	3.23	367	
1220	380	3.21	369	
1230	382	3.2	373	39
1240	385	3.19	366	
1250	388	3.18	369	
1255	390	3.17	371	
1260	392	3.17	372	40
1270	394	3.16	374	
1280	397	3.14	377	
1290	400	3.13	380	
1300	403	3.12	383	41
1310	407	3.10	387	
1320	410	3.09	390	
1330	413	3.08	393	42
1340	417	3.07	396	
1350	420	3.06	399	
1360	423	3.05	402	43
1370	426	3.04	405	
1380	429	3.03	408	
1385	430	3.02	409	
1390	431	3.01	410	
1400	434	3.01	413	44
1410	437	3.00	415	
1420	440	2.99	418	
1430	443	2.98	421	
1440	446	2.97	424	45
1450	449	2.96	427	
1455	450	2.95	428	
1460	452	2.95	429	
1470	455	2.94	432	
1480	458	2.93	435	46
1485	460	2.93	437	
1490	461	2.92	438	
1500	464	2.91	441	
1510	467	2.9	444	
1520	470	2.89	447	
1530	473	2.88	449	47
1540	476	2.88	452	
1550	479	2.87	455	
1555	480	2.86	456	
1560	481	2.86	457	
1570	484	2.85	460	48
1580	486	2.84	462	
1590	489	2.84	465	
1595	490	2.83	466	
1600	491	2.83	467	
1610	494	2.82	470	
1620	497	2.81	472	49
1630	500	2.81	475	
1640	503	2.80	478	
1650	506	2.79	481	
1660	509	2.78	483	
1665	510	2.78	485	
1670	511	2.77	486	
1680	514	2.77	488	50
1690	517	2.76	491	
1700	520	2.75	494	
1710	522	2.74	496	
1720	525	2.74	499	
1730	527	2.73	501	51
1740	530	2.73	504	



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