INNOVATIVE ALLOYS

INNOVATIVE ALLOYS GROUP MALAYSIA

Contact Information

Get in touch with us today to learn more about how we can help your business.

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INNOVATIVE ALLOYS GROUP

As a premier Asian manufacturer of flux-cored welding wire, Innovative Alloys Group has over 30 years of industry expertise. Our commitment is to be the one-stop destination for quality flux-cored welding wire in Asia, and to achieve this, we continuously invest in research and development to stay ahead of the latest cutting-edge technologies and market needs.

QUALITY ASSURANCE

At Innovative Alloys Group, we continuously strive to enhance the efficiency and effectiveness of our quality management system. Our commitment to consistent quality is achieved through the use of specialized and customized manufacturing processes and technologies. This allows us to easily verify quality standards and deliver products of superior quality, surpassing market standards.

A Wide Selection of Welding Wires for Every Need

Our extensive product line is a major contributor to our market growth. We offer a variety of flux-cored welding wire consumables, including wires for low, medium, and high alloy hardfacing, as well as tungsten carbide wires for highly abrasive environments and cobalt and nickel base wires for superior protection against different types of wear. Our proprietary manufacturing technology allows us to produce wire diameters from 1.2mm to 4.0mm.

WELDING WIRE CONSUMABLES

Over the past decade, the Innovative Alloys Group has been committed to continuous improvement and establishing industry standards in the manufacture of various flux cored welding wires for various applications such as Rebuilding, Hardfacing, Cladding, and Joining. Our welding wires are suitable for use in open arc welding, gas shielded welding, and submerged arc welding processes.

In addition to our standard product range, Innovative Alloys Group can also produce materials to custom specifications and custom compositions for commercial and research applications, as well as new proprietary technologies.

Abrasion Resistance

Heat Treated Steels for Tooling Resistance

Martensitic Stainless

Work Hardening Manganese Alloys

Cobalt Base Alloys

Low and Medium Alloys Steels

Nickel Base Alloys

Tungsten Carbide Alloys

ABRASION RESISTANCE

At Innovative Alloys, we provide a range of hardfacing welding wires that are engineered to enhance resistance against abrasion. Our HARDCORED wire series is perfect for reinforcing the wear resistance of various components including those in agriculture and mining equipment, screw conveyors, grinding mills, ventilators, blades, screws, vertical mills and more.

Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance									Description and applications	
			C	Si	Mn	Cr	Mo	Nb	V	Other	Fe		
Hardcored 101	MF-10-60-GR	58/62 HRC	5.15	1.00	1.35	27.50					Bal	Most economical of hardfacing alloys in high wear applications.	Designed for applications subject to extremely severe abrasive mineral wear and moderate impact. Deposit contains a high proportion of hard primary carbides and M7C3 eutectic carbides in a tough austenitic matrix.
Hardcored 101(Mo)	MF-10-60-GR	58/62 HRC	5.25	1.00	1.35	27.20	1.00				Bal	C-Cr-Mo-alloyed hardfacing wire, it has higher temperature resistance than Hardcored 101.	
Hardcored 102	MF-10-60-CGT	56/60 HRC	3.50	1.00	0.80	33.00	0.45				Bal	Specially designed to use in hardfacing of Palm Oil Mill screws and high-pressure kernel worms.	
Hardcored 103	MF-10-65-G	60/64 HRC	5.20	0.90	0.50	22.50		6.80	0.45		Bal	Deposit consists of primary chromium carbides and secondary niobium carbides in a tough matrix and performs exceptionally well in both fine and coarse abrasion.	

ABRASION RESISTANCE

Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance									Description and applications	
			C	Si	Mn	Cr	Mo	Nb	V	Other	Fe		
Hardcored 104	MF-10-65-GZ	63/66 HRC	5.30	0.80	0.50	21.50	6.50	6.40	1.30	W: 1.60	Bal	Microstructure consists of austenitic matrix with complex carbides of different type; chromium rich hexagonal primary carbide, complex eutectic and globular niobium rich carbide.	
Hardcored 106	MF-10-65-GZ	62/66 HRC	5.30	0.90	0.40	22.00			10.00		Bal	High C-Cr-V-alloyed hardfacing wire that produces a fine vanadium carbide and chromium carbides in an austenitic hard matrix.	
Hardcored 107	MF-10-65-GZ	62/64 HRC	5.30	0.90	0.50	22.50	3.30	6.20	0.50	W: 1.10	Bal	High C-Cr-Nb-Mo-V-W-alloyed hardfacing wire that produces ledeburitic structure with different carbides.	Specially designed for surfacing parts that subject to high fine particle abrasion with low impact at service temperature up to 650°C
Hardcored 109	MF-10-65-GZ	62/65 HRC	4.70	0.90	1.50	24.50			0.80	W: 0.90, B: 1.00	Bal	High C-Cr-V-W-B-alloyed hardfacing wire that produces a hard martensitic structure with different carbides	

LOW AND MEDIUM ALLOYS STEELS

Innovative Alloys provides a range of hardfacing wires that offer superior resistance against wear, toughness, and strength for low and medium alloy steels. Our hardfacing wires are perfect for rebuilding components that are exposed to moderate abrasion and metal-metal wear. The weld deposits produced are even machineable. These wires are ideal for welding various applications, such as wheels, shafts, rollers, bucket teeth/blades, gear teeth, forging tools, conveyor screws, roller bearing sets, and more.

Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance								Description and applications	
			C	Si	Mn	Cr	Mo	Nb	V	Fe		
Hardcored 250	MF-1-300-P	27/31 HRC	0.11	0.50	1.50	1.10	0.25			Bal	A low-alloyed self-shielded hardfacing wire that produces a bainite microstructure.	Designed for applications subject to metal-metal wear and moderate abrasion. Mainly use for building up application and multiple layers welding. Good slag detachability and low spatter level. Deposits are crack free and easily machinable with carbide tools.
Hardcored 300	MF-1-300-P	30/35 HRC	0.13	0.70	1.50	1.50	0.30			Bal	A low-alloyed self-shielded hardfacing wire that produces a tough pearlitic/martensitic microstructure.	
Hardcored 400	UP-1-40-P	39/44 HRC	0.20	1.00	1.90	3.20				Bal		

HEAT TREATED STEELS FOR TOOLING

At Innovative Alloys, we offer specialized welding wires designed for heat treated steels commonly used in tooling applications. Our wires provide an effective solution for repairing tools that are subject to erosion, friction, cracks, and thermal fatigue. By repairing rather than replacing these tools, our customers can achieve significant cost savings while improving the wear resistance and overall lifespan of their tools. Whether it's for mandrels, punches, plastic molds, or die-casting molds, our welding wires are a reliable and cost-effective solution.

Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance									Description and applications
			C	Si	Mn	Cr	Mo	Nb	V	Other	Fe	
Hardcored 550	MF 6-55-PT	52/56 HRC	0.53	0.70	2.20	6.20	1.40			W: 1.30	Bal	Medium-alloyed self-shielded hardfacing wire that produces a premium martensitic structure. Excellent resistance to adhesive wear and has good resistance to abrasion and impact wear. Maintain high hardness up to 500C and can be heat treated to increase hardness.
Hardcored 600	MF 6-55-RP	54/60 HRC	0.53	0.70	2.20	7.00	0.40		0.25	Bal	Bal	
Hardcored 610	MF 6-60-PT	55/60 HRC	0.53	0.90	2.70	7.00	1.50		1.60	W: 1.00	Bal	
HARDCORED 601TIC	MF 6-60-GP	54/60 HRC	1.80	0.90	1.20	7.50	1.00			Ti: 5.30	Bal	The weld deposit is crack free and containing dispersed titanium carbide in a martensitic matrix Excellent resistance to high stress abrasion and heavy impact

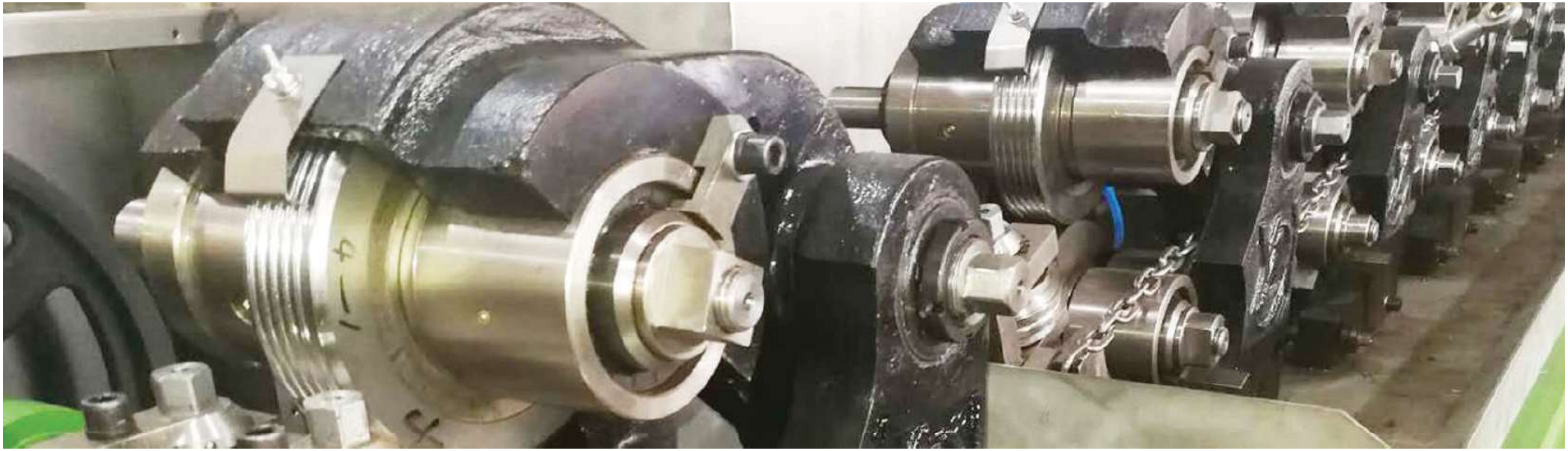
WORK HARDENING MANGANESE ALLOYS

At Innovative Alloys, we are proud to offer a comprehensive selection of work hardening manganese alloy welding wires designed to address high pressure, cracking, and impact wear. Our state-of-the-art welding wires are ideal for use in the assembly of manganese steel, buffer layers, and rebuilding applications, offering superior durability and work hardening capabilities to meet a range of demanding requirements. Whether you need to repair railway frogs/crossings, crusher jaws, cones, bars, or hammers, or retouch casting imperfections and wear plates, our welding wires have got you covered. Browse our selection today to find the right solution for your needs.

Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance									Description and applications	
			C	Si	Mn	Cr	Mo	Ni	V	Other	Fe		
Cladcored 19/9/6	MF 8-200-CKNPZ	Work hardened 43 HRC	0.08	0.80	6.50	19.80		9.00			Bal	Heat and thermal shock resistant up to 850 C	The austenitic weld deposit is corrosion resistant, non-magnetic, and work hardening.
Hardcored AP	MF 7-250-KNP	Work hardened 45/48 HRC	0.45	0.70	14.20	14.50			0.20		Bal	High Cr-Mn-alloyed self-shielded flux-cored wire with a higher rate of work-hardening	Mainly use as a buffer layer before hardfacing, for joining dissimilar steels and rebuild components exposed to high impact loading.
Hardcored Mn14	MF 7-250-KNP	Work hardened 40/45 HRC	0.90	0.60	14.50	3.00		1.00			Bal	Specially designed for rebuilding 14% manganese steel parts, it gives a "Hadfield" manganese type deposit.	Deposit work hardens rapidly under high impact and to different degrees depending on amount of impact applied.
Hardcored Mn-O	MF 7-250-KNP	Work hardened 40/45 HRC	0.60	0.60	14.00			3.50			Bal		

MARTENSITIC STAINLESS STEELS

Innovative Alloys provides a range of hardfacing wires for superior protection against various forms of wear, such as thermal fatigue, erosion, temperature, friction, and corrosion. These wires are perfect for the steel production industry and other applications facing high temperature wear issues. Our CLADCORED wire series offers a wide range of wires for cladding or hardfacing, ideal for use in pullers/rolls in port/waterway installations, pump bodies, safety valves, continuous casting rolls, pinch rolls, steam turbine components, and more.

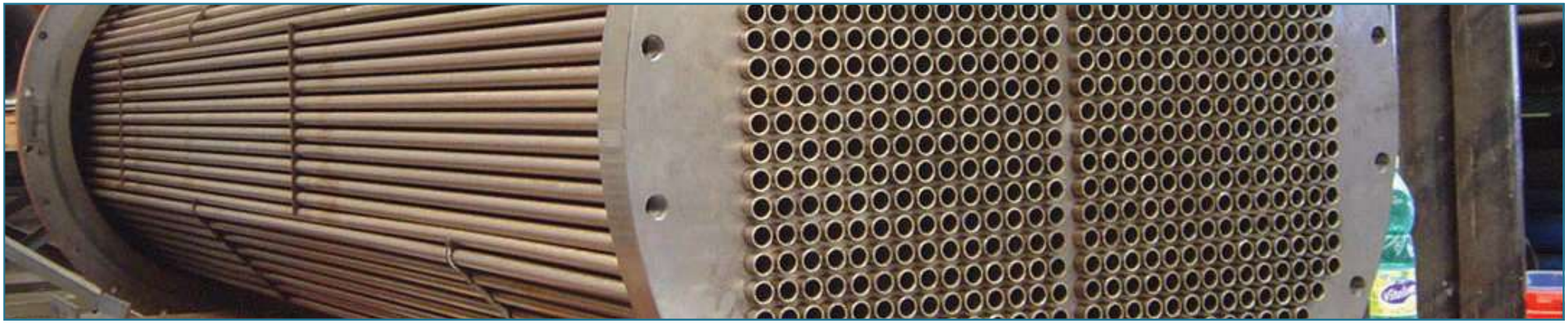


Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance									Description and applications	
			C	Si	Mn	Cr	Mo	Nb	V	Other	Fe		
Cladcored 410	MF 5-40-CZ	40/43 HRC	0.08	0.30	0.50	13.00					Bal	Deposit a 13% Cr ferritic-martensitic stainless steel.	Good resistance to abrasion in metal-metal wear, corrosion-erosion wear, and thermal cracking.
Cladcored 430	MF 5-250-CZ	200HB	0.06	0.80	1.00	17.00					Bal	Deposit a 17% Cr ferritic-martensitic stainless steel. Good resistance to corrosion-erosion wear at service temperature up to 900°C	Designed for applications subject to moderate corrosion and metal-metal wear.
Cladcored 414N	MF 5-45-CZ	39/44 HRC	0.07	0.70	1.10	13.70	0.40	0.21			Bal	Weld deposits produce nitrogen-containing low carbon 13% Cr in a fully martensitic microstructure.	Designed for applications subject to metal-metal wear, corrosion and repetitive thermal stresses. Mainly used for cladding of various steel mill rolls
Cladcored 414MM	UP 5-45-CZ	40/46 HRC	0.15	0.50	1.20	12.50	1.20	0.10	0.20		Bal	Single layer technique to achieve required 414MM-S composition on new rolls.	

COBALT BASE ALLOYS

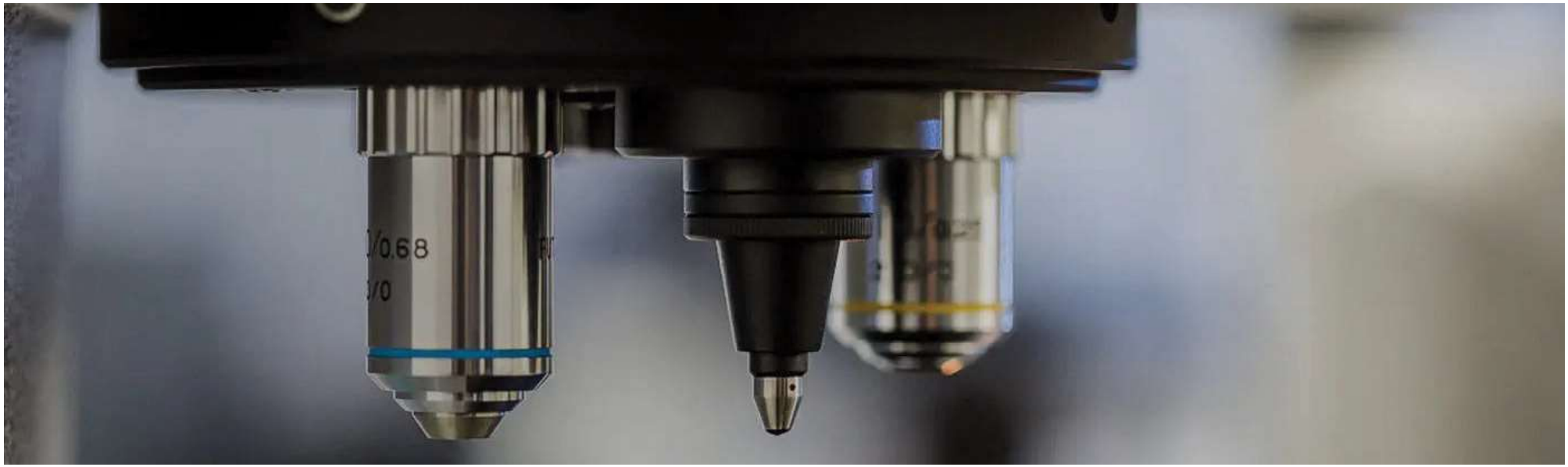
Innovative Alloys presents its COBACORED series wires, recognized worldwide as the leading alloys with exceptional versatility. These cobalt-based wires deliver remarkable resistance against a broad spectrum of stresses, including corrosion, erosion, abrasion, and high temperatures.
COBACORED alloys are known for their ability to retain their properties at elevated temperatures and exhibit exceptional resistance to oxidation. These alloys are ideal for use in temperatures between 315 – 600° C (600 – 1112° F) and can deliver exceptional surface finishes with a low friction coefficient for optimal sliding wear. Our COBACORED series wires are ideal for use in applications such as rubber kneaders, forging dies, hot shearing blades, industrial valve components, and components in the paper and wood industries.

Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance									Description and applications	
			C	Si	Mn	Cr	Ni	Mo	W	Fe	Co		
Cobacored 1	MF 20-55-CGTZ	51/53 HRC	2.30	1.00	1.00	28.50			12.00	4.00	Bal	The hardest of all Cobacored series. Excellent resistance to abrasion in corrosive media and high temperature shocks.	
Cobacored 6	MF 20-45-CTZ	40/43 HRC	1.00	1.00	0.90	28.50			4.50	5.00	Bal	Weld deposits with required hardness and good machinability.	Combine all the outstanding properties of Cobacored 1 with additional high resistance to erosion.
Cobacored 12	MF 20-55-CTZ	45/48 HRC	1.40	1.20	0.80	29.00			8.00	4.00	Bal	The toughest, with the highest corrosion and thermal resistance of all Cobacored series.	
Cobacored 21	MF 20-350-CKTZ	300/330 HB	0.25	1.00	0.90	28.50	3.20	5.50		4.00	Bal	Co-Cr-Ni-Mo-alloyed cobalt based tubular wire. This is used for building up large scale sections and is less crack sensitive than other Cobacored series.	



TUNGSTEN CARBIDE ALLOYS

At Innovative Alloys, we offer a comprehensive range of Tungsten Carbide (WC) Hardfacing wires designed to extend the service life of hardfaced surfaces to the maximum. Our products are engineered with a variety of metals, such as nickel, boron, chromium, and silicon, to provide the highest level of protection against almost any environment.



Product	Hardness	Typical All-Weld Metal Analysis (%)	Description and applications	
Hardcored WC	55/60 HRC	Ni, Si, B Matrix + 62% WSC (2400 HV)	Weld deposits containing up to 62% FTC (W2C) in a corrosion resistant nickel-based matrix	Designed for applications subject to extreme abrasive wear, especially fine-grained. Composite wire filled with fused tungsten carbide (W2C) particles. Weld at the lowest possible amperage and voltage to avoid tungsten carbides decay and to obtain a smooth and clean surface.
Hardcored WC 40+	60/62 HRC	Alloyed Fe-Matrix + 40% WSC (2400 HV)	Weld deposits containing up to 40% FTC (W2C) in a martensitic matrix	
Hardcored WC (Fe-Based)	60/65 HRC	Fe, C, Co, W Matrix + 62% WSC (2400 HV)	Weld deposits containing up to 62% FTC (W2C) in a martensitic matrix	

NICKEL BASE ALLOYS

Innovative Alloys offers a range of NICORED series welding wires that are highly resistant to thermal shock and high temperatures. These nickel-based alloys offer a range of hardness levels, from extremely tough and wear-resistant to soft and build-up alloys that can be easily machined. They are ideal for high-temperature applications that experience impact, abrasion, and high stress levels, particularly in hot forging dies and exposed tooling areas for hot upsetting, shaping, and extrusion.
Innovative Alloys' NICORED series of welding wires delivers reliable protection in high-temperature environments, making them an excellent choice for a variety of industries and applications.

Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance									Description and applications	
			C	Si	Mn	Cr	Mo	Nb	Fe	Other	Fe		
Nicored C-O	MF 23-200-CKNTZ	200HB	0.05	0.50	0.60	16.00	16.00	0.21	5.00	W: 4.50	Bal	High Cr-Mo-W-alloyed nickel-based self-shielded flux-cored wire. Offers excellent properties of resistance to impact, abrasion oxidation, pressure loads, corrosion, and high-temperature environments.	
Nicored 182	MSG 23-200-CZ	Work hardened 40/45 HRC	0.02	0.09	6.50	17.00		1.80			Bal	Excellent choice for joining dissimilar alloys, nickel to stainless steel, nickel to carbon steel, and other nickel-based alloy claddings.	Specially designed nickel-based gas-shielded flux-cored wire for joining and repairing difficult-to-weld steels.
Nicored 625			0.03	0.30	0.40	21.00	9.00	3.30	0.40		Bal	In addition to joining dissimilar alloys, Nicored 625 is also suitable for joining 9% nickel alloys or 6% molybdenum super austenitic alloys.	

NICKEL BASE ALLOYS

Product	Standards DIN 8555	Hardness	Typical All-Weld Metal Analysis (%) - Fe Balance									Description and applications
			C	Si	Mn	Cr	Mo	Nb	Fe	Other	Fe	
Nicored 40	MSG 23-40-CGT	39/42 HRC	0.40	2.30	0.10	12.00			3.20	B: 2.50	Bal	Specially designed to provide excellent corrosion and abrasion resistance at service temperatures up to 650C with moderate impact. Contains deposits of chromium boride and chromium carbide in a nickel-rich matrix. Due to the low melting point of the deposit, the weld metal has a good appearance, smooth surface, and low dilution.
Nicored 50	MSG 23-50-CGRZ	46/51 HRC	0.60	3.80	0.15	11.50			3.50	B: 2.50	Bal	
Nicored 60	MSG 23-55-CGT	55/60 HRC	0.65	4.00	0.20	14.20			4.00	B: 3.00	Bal	

TECHNICAL EXPERTISE AND SOLUTIONS TO SOLVE WEAR PROBLEMS IN YOUR INDUSTRY

INNOVATIVE ALLOYS

Choose Your Industry

At Innovative Alloys Group, our expertise in custom solutions is evident through our product range, including HARDCORED, CLADCORED, NICORED, and COBACORED, which serves a wide range of industries. From the established Steel, Cement, and Mining sectors to the growing Thermal Power, Waste and Recycle markets, customers can expect improved performance and efficiency at both the plant and component levels.

CEMENT INDUSTRY

MINING INDUSTRY

WASTE & RECYCLE INDUSTRY

STEEL INDUSTRY

PAPER & PULP INDUSTRY

OIL & GAS INDUSTRY

SUGAR INDUSTRY

THERMAL POWER INDUSTRY

FOUNDRY & CERAMIC INDUSTRYINDUSTRY