

Weartech™

# HARDFACING & WEAR-RESISTANT

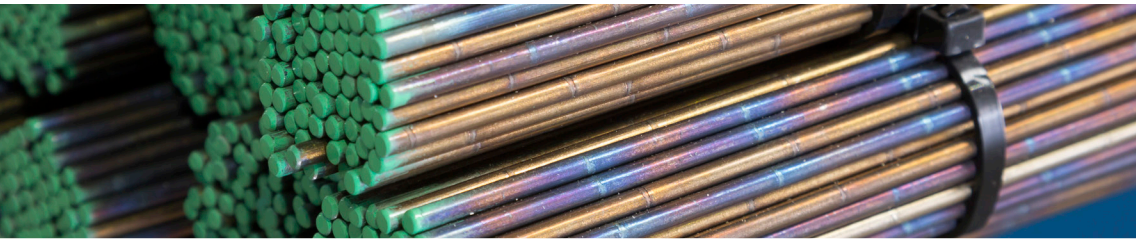
WELDING CONSUMABLES





*Weartech is dedicated to providing our customers with high quality products and excellent customer service.*





## WHO WE ARE AND WHAT WE DO

Founded in 1990, Weartech International, Inc. is a producer of cobalt and nickel-based hardfacing and wear-resistant alloys. For over 20 years, Weartech has provided technical solutions to customers facing significant wear problems. Headquartered in Anaheim CA with an additional manufacturing facility in Port Talbot, Wales, Weartech can support all your needs internationally.

### INNOVATION

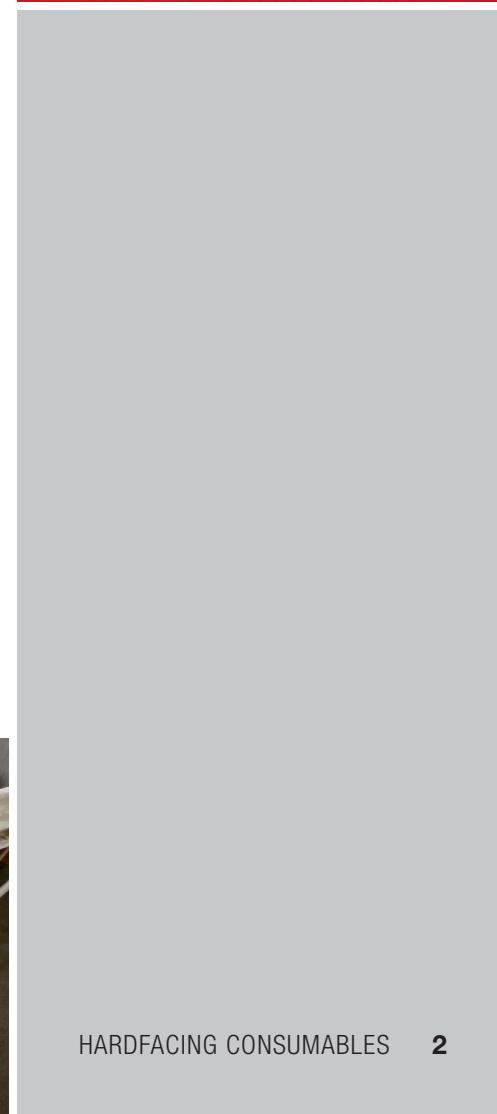
Our long history of cutting-edge manufacturing hardfacing and wear-resistant welding consumables, along with our dedication to innovation and technology allow us to provide the right solution for your most critical wear applications.

### QUALITY

We are committed to providing consistent, high quality, reliable products that exceed the industry standard and customer expectation by implementing in-process quality controls. Our quality control system conforms to the ISO 9001-2008 and begins with the raw materials and continues with quality checks throughout the manufacturing process.

All of our alloys are manufactured using pre-tested and approved raw materials. Mastermelts are created using metallurgically tested melt practices to ensure high quality alloys.

Samples from each heat are tested and re-tested for chemical composition, as weldability, deposition soundness, and hardness. Liquid Penetration Inspection (LPI) tests are also performed on the weld deposits. Microstructural analyses of deposits, alloy verification, and mechanical testing are available upon request.





Hardfacing can be performed by a variety of welding processes, including:

Oxy-Acetylene (O-A), Gas Tungsten Arc Welding (GTAW), Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Plasma Transferred Arc (PTA)





## WHAT IS HARDFACING?

Hardfacing is the process of depositing a wear resistant hard surface onto a component part through welding to increase the life of the component part. Hardfacing can extend the service life of a component subject to one or more types of wear: metal-to-metal, severe impact, abrasion plus impact, severe abrasion, metal-to-earth, and corrosion. At elevated temperatures, Weartech products provide best in class abrasion, corrosion, and impact properties. Hardfacing increases efficiency, reduces the need for replacement parts, power consumption, and equipment downtime.

## WORLD CLASS PRODUCTS

### COBALT & NICKEL BASE ALLOYS

Proven to be the most versatile of hardfacing alloys, Weartech's cobalt and nickel based alloys are specially formulated to resist a variety of hostile environments including, abrasion, corrosion, galling, oxidation, and erosion. These alloys are capable of maintaining wear properties at temperatures up to 1500°F (800°C), which is required in industries such as aerospace and petrochemical.

### POWDERS

We offer a variety of gas-atomized hardfacing alloy powders in a consistent spherical shape. Our controlled mesh analysis enhances the flow characteristics of the powder. The low gas content provides clean sound deposits. Metal powders are available in a variety of mesh sizes to meet your specific application.



## INDUSTRY SEGMENTS

Weartech is committed to developing hardfacing and wear resistant solutions to meet the needs of a number of industries.

- Chemical & Petrochemical
- Timber & Wood Cutting
- Metal Forming
- Automotive Internal Combustion Engines
- Power Generation
- Ship Building
- Food Processing
- Steel Mills
- Rubber
- Brick & Tile
- Battery
- Glass
- Sewage, Plastic Extrusion





## WEARTECH HARDFACING AND WEAR-RESISTANT ALLOYS

Alloy	AWS Specification	Nomial Chemical Composition (wt %)									RC Hardness
		C	Cr	Co	W	Ni	Fe	Si	Mo	Other	
<b>COBALT</b>											
WT-1	ERCoCr-C	2.3	30	Bal.	13	< 3	< 3	0.8	-	-	48 - 59
WT-4	-	0.8	30	Bal.	14	< 3	< 3	1.5	-	-	44 - 50
WT-6	ERCoCr-A	1.1	28	Bal.	4	< 3	< 3	1.1	-	-	38 - 48
WT-6H	-	1.3	30	Bal.	5.5	1	2	1.3	-	-	42 - 48
WT-12	ERCoCr-B	1.4	29	Bal.	8	< 3	< 3	1.5	-	-	44 - 52
WT-12H	-	1.7	29	Bal.	8	< 3	< 3	1.5	-	-	44 - 54
WT-20	-	2.5	32	Bal.	17	< 3	< 3	1 Max.	-	-	50 - 60
WT-21	-	0.25	27	Bal.	-	2.5	< 3	1 Max.	5	-	27
WT-25	-	0.1	20	Bal.	15	10	< 3	1	-	-	16 - 24
WT-31	-	0.5	25	Bal.	8	10	2	1	-	-	21
WT-32	ERCoCr-F	1.7	26	Bal.	12	23	< 3	1.4	-	-	32 - 46
WT-190	ERCoCr-G	3.2	26	Bal.	14	< 3	< 3	-	-	-	50 - 62
WT-306	-	0.4	25	Bal.	2	5	-	-	-	Nb 6	36
WT-400	-	0.08	8	Bal.	-	-	-	2.6	29	-	51 - 58
WT-694	PWA 694	0.9	28	Bal.	19	5	< 3	-	-	V 1	47 - 54
WT-800	-	0.08	17	Bal.	-	-	-	3.5	29	-	54 - 62
<b>NICKEL</b>											
WT-40	RNiCr-A	0.4	11	-	-	Bal.	2	2.2	-	B 2	35 - 45
WT-50	RNiCr-B	0.6	13	-	-	Bal.	4	3.7	-	B 3	45 - 56
WT-56	-	0.6	12.5	-	-	Bal.	3.3	3.3	-	B 2.7	50 - 58
WT-60	RNiCr-C	0.7	14	-	-	Bal.	4.5	4	-	B 3	54 - 62
WT-700	-	0.08	15	-	-	Bal.	-	3.5	32	-	42 - 48
WT-C	AMS 5388	0.12	16	-	-	Bal.	5.5	0.8	17	Mn 0.8, V 0.3	20 - 26
WT Ni-60	-	0.4	16	-	-	Bal.	20	3	-	-	30
WT 45	-	0.5	14	-	-	Bal.	4.5	4.5	-	B 2	53
<b>IRON</b>											
WT-NR-02 A	-	1.25	25	-	-	4	Bal.	3.3	2	Mn 4.5, N2 < 0.06	36 - 42
WT-NR-04 A	-	1.1	22	-	-	4.5	Bal.	2.5	1.9	Mn 3.7, N2 < 0.1	37 - 40
WT-NR-04 B	-	1.1	22.5	-	-	4.5	Bal.	2.8	1.9	Mn 4.5, N2 < 0.1	32 - 36
WT-590	Superwear	4.2	25	11.3	-	1.5	Bal.	1	8.5	-	58
WT-595	-	4.2	30	-	-	-	Bal.	2.2	-	Mn 4.2	58



Alloy	Application	Available Forms			
		Rods	Electrodes	Wires	Powders
<b>COBALT</b>					
WT-1	Seaming Rolls, Valve Seats, Wear Pads, Pump Sleeves, Seals, Bearings, Bushings, Saw Blades, Cutters	X	X	X	X
WT-4	Battery Mold, Guide Rolls for Galvanized Tanks	X			
WT-6	Engine Valves, Pump Shafts & Sleeves, Hot Cutting & Rotary Knives, High Pressure & Temperature Valves, Extrusion Screws	X	X	X	X
WT-6H	Engine Valves, Pump Shafts & Sleeves, Hot Cutting & Rotary Knives, High Pressure & Temperature Valves, Extrusion Screws	X			
WT-12	Extrusion Dies, Scissor Blades, Saw Blades, Guide Bars, Wood Cutting Tools, Pump Sleeves, Twist Rolls, Knives	X	X	X	X
WT-12H	Saw Blades and Tips, Wood Cutting Tools	X			
WT-20	Marine Engine Valves, Control Valves for Petrochemicals, Steel Mill Rolls, Homogenizer Valve Components	X			
WT-21	Hot Trimming & Forging Dies, High Pressure & Temperature Valves, Hot Shears, Valve Seats, Pump Impellers, Rings	X	X	X	X
WT-25	-	X	X		
WT-31	-	X			
WT-32	Engine Valves and Seats	X			X
WT-190	Tri-Cone Rock Bits for Oil Drilling	X			
WT-306	-	X			
WT-400	Bearings (Journal or Sleeves)	X			
WT-694	-	X			
WT-800	Magnetic Tape Heads, Valves, Extruder Barrels	X			
<b>NICKEL</b>					
WT-40	Glass Industry Plungers & Mold Components	X			X
WT-50	Liners, Thrust Shoes, Bushings, Cages & Other Valve Components for Nuclear Applications	X		X	X
WT-56	Plastic Extrusion Screws	X			X
WT-60	Pump Sleeves	X		X	X
WT-700	Nuclear Applications	X			
WT-C	Seals, Sleeves & Dies, Plastic Extrusion, Agitator Bearings, Pump Impellers, Ball Valves	X		X	
WT Ni-60	Engine Valves	X			
WT 45	-			X	
<b>IRON</b>					
WT-NR-02 A	For Cobalt-Free Components in Nuclear Applications, Valves	X			
WT-NR-04 A	For Cobalt-Free Components in Nuclear Applications, Valves	X			
WT-NR-04 B	For Cobalt-Free Components in Nuclear Applications, Valves	X			
WT-590	-	X			
WT-595	-	X			

#### CUSTOMER ASSISTANCE POLICY

Weartech International, Inc. a Lincoln Electric company is manufacturing and selling high quality welding consumables. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Weartech International, Inc. for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Weartech International, Inc. does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

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