



PRODUCT GUIDE



OUR HISTORY

Arctec Alloys Limited is a privately owned and operated Canadian company established in Calgary, Alberta in 1968. Arctec supplies high quality welding wire, rods, electrodes, and related products. We have a long history of helping our customers with their specialized welding needs. Arctec serves all major industries, those who make a living welding, and the home hobbyist. We have worked closely with the welding community growing into a supplier of choice while still welcoming walk in customers to each of our four locations. We are proud to be involved with the welding community providing innovation and technology for the industry.

CUSTOMER SERVICE

The leadership team at **Arctec Alloys Limited** is committed to providing customers with quality products, value, reliability, and prompt service.

Local Technical Representatives are available to answer your questions and assist with product selection.

Customer Service Representatives ensure the timely processing of orders. We pride ourselves on same day shipping from all four of our locations.



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buy Arctec products direct
from our branch locations?
Call us today!*

www.arctecalloys.com

CALGARY • EDMONTON • SURREY • WINNIPEG

MISSION STATEMENT

We strive for continuous improvement through innovation and experience, providing our customers the highest level of value, service, and quality products.

Proud Members of:



American Welding Society
SUSTAINING COMPANY MEMBER



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HARDFACING and BUILDUP ELECTRODES

PRODUCT NAME	PRODUCT DESCRIPTION	HARDNESS	PROCESS
RAILTEC®	A general buildup and underlay electrode with all position capabilities that produces non-cracking, wear resistant, machinable deposits on carbon steel and performs under severe impact loads.	26 - 35 HRC	SMAW DCEP/AC
41 Cr-Ni-Mn	Chrome, nickel, manganese electrode for joining and buildup of manganese steels. Excellent resistance to impact and compressive loads. The deposit work hardens up to 500 HRB.	200 HRB AS WELDED 500 HRB IN SERVICE	SMAW DCEP/AC
43 ECOFACE®	An economical coated electrode used as a hardfacing on tool steel type applications with metal to metal wear and high stress. Deposit has a combination of toughness, impact resistance, cutting edge retention, and can be age hardened (50 - 54 HRC). Suitable for hard overlays on cutting tools, edges, dies, knives, shears, and crushing equipment. Deposit can also withstand hot and cold pressure and impact while in service.	41 - 45 HRC	SMAW DCEP/AC
60 ECOFACE®	Economical general hardfacing electrode for build-up and hard overlays where high hardness and impact resistance is required. Designed for all position use.	58 - 60 HRC	SMAW DCEP/AC
61 HARDCRO®	High deposition rate that produces highly wear resistant deposits on steel and alloyed steels such as augers, earth moving equipment, bucket teeth, plough shears, and other components subject to severe abrasion. Machinable by grinding only.	61 - 63 HRC	SMAW DCEP/AC
63 HARDCRO®	Chromium carbide electrode for severe abrasion and moderate impact. Deposits on steel or steel alloys. Produces high profile with smooth surface and easy slag removal.	58 - 63 HRC	SMAW DCEP/AC
64 ECOFACE®	Hardfacing electrode designed for high speed steel applications. Combines tough, high impact resistance with cutting edge retention. Can be heat treated to increase hardness range 63 - 65 HRC.	58 - 62 HRC	SMAW DCEP/AC
67 HARDCRO®	Chromium, vanadium carbide composite electrode for high abrasion conditions with very high deposition rates. A cushion layer is recommended where more than 3 layers are required. Retains hardness at elevated temperatures 400°C (750°F).	UP TO 67 HRC	SMAW DCEP/AC
661 T	Chrome carbide tubular electrode for high abrasion and moderate impact at temperatures up to 540°C (1000°F). Applied in 2 to 3 passes and has out of position capabilities. Equivalent wire:W1063.	58 - 62 HRC	SMAW DCEP/AC
667 T	Complex chrome carbide tubular electrode for severe abrasion and high temperature up to 760°C (1400°F). Applied in 2 to 3 passes and has out of position capabilities. Equivalent wire:W5070.	62 - 67 HRC	SMAW DCEP/AC
668 T	Complex chrome carbide with additional carbides in a tubular electrode for severe abrasion and moderate impact. Can be used in service temperatures up to 820°C (1500°F). Equivalent wire:W5080.	65 - 68 HRC	SMAW DCEP/AC
TUNGCOTE® E	A tubular tungsten carbide electrode with approximately 63% fused tungsten carbide embedded in a Ni-B-Si matrix. Used for extreme abrasion, moderate impact, and has corrosion resistance properties.	W ² C >2300 HV MATRIX ~52 HRC	SMAW DCEP/AC
FLEXTUNG® 700	Tungsten carbides embedded in a flexible flux coating with a nickel core wire. Used for extreme abrasion conditions. Available with fused tungsten carbides or, for maximum wear resistance, spherical carbides.	W ² C >2200 HV MATRIX 45-52 HRC	OAW / OFW

HARDFACING and BUILDUP WIRES

PRODUCT NAME	PRODUCT DESCRIPTION	HARDNESS	PROCESS
FCS ECOFACE® AP	Seamless flux cored hardfacing wire. Excellent performance where high abrasion and compressive loads are present. Seamless wire provides trouble free feeding, moisture resistant, and all position capabilities.	57 - 62 HRC	FCAW DCEP
MCS 450	Dual shield metal core multipass austenitic manganese type steel wire for metal to metal wear applications, with exceptional joining, buildup and surfacing properties. It may be used for buildup on most weldable steels and as a cushion layer for hard overlays and carbon steel.	48-55 HRC	MCAW DCEP
FCS 350	Dual shield all position, multipass, low alloy build up wire with a high deposition rate that produces crack free weld deposits with good machinability and can be flame cut, operates in the short-arc transfer mode and produces sound deposits.	30 - 38 HRC	FCAW DCEP
W 1030 CP	A low alloy, high deposition rate, self shielding flux cored wire for build up that can be used on most weldable steels for metal to metal wear and compressive loads.	29 - 33 HRC	FCAW DCEP
W 1041 CP	Chrome nickel, manganese, austenitic steel with self shielding flux cored welding wire with outstanding work hardening characteristics. Used for joining and build up on carbon steel and manganese base materials. Work hardens up to 55 HRC.	22 - 26 HRC (55 HRC)	FCAW DCEP
W 1060	An economical general purpose chromium carbon alloy. This flux cored wire is self shielding and is used for all abrasion conditions under moderate impact.	55 - 60 HRC	FCAW DCEP
W 1063	This high chrome carbide wire has excellent resistance to low and high stress abrasion with moderate corrosion resistance. Retains hardness at elevated temperatures. Self-shielding and versatile for all abrasion conditions under low impact.	58 - 63 HRC	FCAW DCEP
W 5070	Flux cored self shielding wire with chromium niobium carbides which provides high abrasion wear resistance up to 550°C (1000°F) under low impact conditions.	63 - 67 HRC	FCAW DCEP
W 5080	Self shielding flux cored wire suitable for extreme abrasive wear and a cost-effective alternative to tungsten carbide products. The weld metal forms a ductile matrix with embedded ultra-fine complex tungsten-niobium-molybdenum borocarbides. The weld metal has a hardness of 64-67 HR, at elevated temperatures 600°C (1110°F). Maintains a hardness of 60 HRC.	65 - 68	FCAW DCEP
TUNGCORE® FCS	Fused tungsten carbide in a Ni-B-Si matrix. For hardfacing on steel, steel alloys, nickel alloys, and stainless steel. Designed for severe abrasion and provides good resistance to heat and corrosion. Also available in mono-crystalline tungsten carbide (MC).	W ² C >2300 HV MATRIX ~47 HRC	MCAW DCEP

STEEL and STEEL ALLOY ELECTRODES

PRODUCT NAME	PRODUCT DESCRIPTION	TENSILE	YIELD	ELON-GATION	PROCESS
221 RP	For joining mild steel, this low alloy electrode has an easily controlled forceful arc with deep penetration and all position capabilities. Excellent re-striking and produces sound, crack free welds.	≥ 60 KSI 410 MPA	≥ 48 KSI 330 MPA	≥ 22%	SMAW DCEN / AC
222 LOW ALLOY	A low alloy electrode for fabrication and maintenance work. This all position electrode produces smooth, low spatter welds with easy slag removal and excellent welding characteristics.	≥ 60 KSI 410 MPA	≥ 48 KSI 330 MPA	≥ 22%	SMAW DCEN(P) / AC
223 XC®	High strength and highly crack resistant electrode for the repair, joining, and build up of medium carbon and cast steels. Outstanding welding characteristics in all positions with low spatter, easy slag removal, and excellent notch toughness properties.	≤ 85 KSI 590 MPA	≤ 77 KSI 535 MPA	≤ 34%	SMAW DCEP / AC
293 XC	A high tensile, all position, low hydrogen electrode with good weldability that produces smooth, porosity free welds without undercut or spatter. Used for joining and repair on most carbon steels, low alloy steels, and cast steels. (AWS 100-18M).	≥ 100 KSI 690 MPA	≥ 88 KSI 610 MPA	≥ 20%	SMAW DCEP
UNICROM® 265 S	A superior low heat electrode for joining and build up of dissimilar steels where high strength, impact, and corrosion resistant welds are required. This versatile electrode can also be used as a cushion layer and for repairs on various grades of alloyed steels.	≤ 120 KSI 830 MPA	≤ 85 KSI 588 MPA	≤ 30%	SMAW DCEP / AC
277 HIGH ALLOY	With excellent metal to metal wear and strain hardening properties, this highly ductile and crack resistant electrode is used for joining and build up applications. Suitable for manganese frogs/rails and manganese to itself or carbon steel.	≥ 85 KSI 590 MPA	≥ 58 KSI 400 MPA	≥ 30%	SMAW DCEP / AC
278 HIGH ALLOY	A versatile fabrication and maintenance electrode with all position capabilities. Very crack resistant. Excellent for joining and repair of dissimilar steels, manganese machinery components, cladding carbon steels, and recommended for wear plate installation.	≥ 80 KSI 550 MPA	≥ 50 KSI 350 MPA	≥ 30%	SMAW DCEP / AC

STEEL and STEEL ALLOY WIRES

PRODUCT NAME	PRODUCT DESCRIPTION	TENSILE	YIELD	ELONGATION
ARCFUSION XR71	Seamless FCAW wire, H4 classification, all position capabilities and superior mechanical properties. Conforms to AWS A5.36 E71T-9M-JH4 and A5.20 E71T-9C/M-JH4. CWB CERTIFIED TO -50° C.	≥590 MPA - M21 ≥85,500 PSI ≥560 MPA - 100% CO2 ≥81,200 PSI	≥500 MPA - M21 ≥72,500 PSI ≥470 MPA - 100% CO2 ≥68,100 PSI	≥26% - M20 ≥26% - M21 ≥28% - 100% CO2
ARCFUSION XM71	Seamless MCAW wire, H4 classification, all position capabilities and superior mechanical properties. Conforms to AWS A5.36 E71T15-M21-AP5-CS2-H4 and A5.18 E70T-6M-H4. CWB CERTIFIED TO -60° C.	≥600 MPA - M21 ≥87,000 PSI ≥560 MPA - 100% CO2 ≥81,200 PSI	≥500 MPA - M21 ≥72,500 PSI ≥460 MPA - 100% CO2 ≥ 66,700 PSI	≥29% - M21 ≥30% - 100% CO2
ARCFUSION XR81	Seamless FCAW wire, H4 classification with ~1% nickel content. All position capabilities and superior mechanical properties. Conforms to AWS A5.36 E81T1-M21-AP8-Ni1-H4 and A5.29 E81T1-Ni1C/M-JH4. CWB CERTIFIED TO -60° C.	≥610 MPA - M21 ≥88,400 PSI	≥550 MPA - M21 ≥79,700 PSI	≥25% - M21
ARCFUSION XM81	Seamless MCAW wire, H4 classification with Ni and Mn content. All position capabilities and superior mechanical properties. Conforms to AWS A5.36 E81T15-M21-AP8-Ni1-H4 and A5.28 E80C-Ni1-H4. CWB CERTIFIED TO -60° C.	≥620 MPA - M21 ≥89,900 PSI	≥530 MPA P- M21 ≥76,800 PSI	≥27% - M21
ARCFUSION XR91	Seamless FCAW wire, H4 classification, all position capabilities and superior mechanical properties. Conforms to AWS A5.36 E91T1-M21A6-K2-H4 and A5.29 E91T1-K2M-JH4.	≥640 MPA - M21 ≥92,800 PSI	≥550 MPA - M21 ≥79,700 PSI	≥18% - M21



CAST IRON

PRODUCT NAME	PRODUCT DESCRIPTION	TENSILE	HARDNESS	PROCESS
1 CAST IRON	For economical welding on oxidized, scaly, and corroded castings. Recommended for quantity applications in foundries and for build up on worn sections.	≤ 60 KSI 410 MPA	350 HB	SMAW DCEP /AC
2 CAST IRON	A high strength welding electrode for cold welding on gray cast iron, malleable cast iron, and spheroidal graphite castings. Can be used to join cast iron to steel, build up and repair on worn castings, heavy equipment, and malleable cast iron components.	≤ 66 KSI 455 MPA	190 HB	SMAW DCEP /AC
3 CAST IRON	A high strength, high nickel electrode that is recommended for the repair and build up of broken and worn castings such as machine bases, sprockets, levers, motor housings, frames, and heavy components where bonding quality and machinability is required.	≤ 64 KSI 440 MPA	160 HB	SMAW DCEN / AC
SUPERCAST® 90	A specialized bi-metal core provides superior welding characteristics. Developed for depositing sound, porosity and crack free welds on gray, malleable, and nodular cast iron. Recommended for housings, sprockets, bases, levers, and heavy equipment.	≤ 58 KSI 400 MPA	180 HB	SMAW DCEP /AC
SUPERCAST® 8000	A high quality and versatile electrode with a smooth arc and unique core for welding cast iron, alloyed cast iron, and can be used for cast iron to steel. Used for build up, repair, and cladding applications on gear teeth, sprockets, pump housings, machine bases, and engine blocks.	≤ 60 KSI 410 MPA	180 HB	SMAW DCEP/N / AC
FCS 2300 (wire)	A composite machinable FCAW wire for cast iron repair and joining various types of cast iron and cast iron to steel and alloys. 98% Argon 2% CO ₂ , shielding gas.	≤ 70 KSI 480 MPA	190 HB	FCAW DCEP



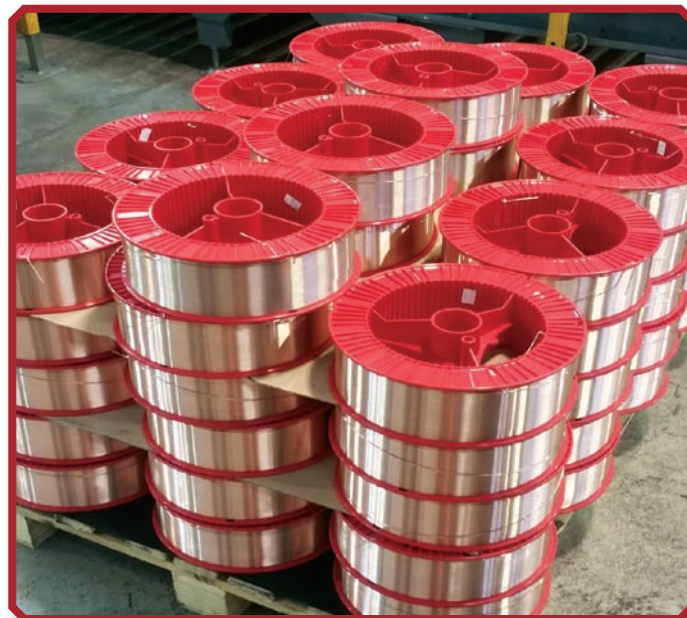
STAINLESS STEEL

PRODUCT NAME	PRODUCT DESCRIPTION	TENSILE	PROCESS
E308L-17	Conforms to AWS A5.4 E308L-17. This electrode is generally used for welding stainless steel base metals with similar composition (19.5% Cr and 10% Ni), such as 304 and has a maximum carbon content of 0.04%. Available in MIG and TIG. CWB CERTIFIED.	≥ 75KSI 520 MPA	SMAW DCEP / AC
E309L-17	Conforms to AWS A5.4 E309L-17. This electrode is generally used for welding different grades to each other. Such as 304 to mild/low alloy steel. Contains ~23.5% Cr, ~13% Ni and a maximum carbon content of 0.04%. Available in MIG and TIG. CWB CERTIFIED.	≥ 75KSI 520 MPA	SMAW DCEP / AC
E316L-17	Conforms to AWS A5.4 E316L-17. Used for welding 316 and similar grades of stainless steel with Mo content. Contains ~18.5% Cr, ~12.5% Ni, ~2.5% Mo and a maximum carbon content of 0.04%. Available in MIG and TIG. CWB CERTIFIED.	≥ 75KSI 520 MPA	SMAW DCEP / AC
E317L-17	Conforms to AWS A5.4 E317L-17. Used for welding similar grades of stainless steel and results in a higher alloy content than 316 and where a higher corrosion is beneficial. Contains ~19.5% Cr, ~13% Ni, ~3.5% Mo and a maximum carbon content of 0.04%. Available in MIG and TIG.	≥ 75KSI 520 MPA	SMAW DCEP / AC
308L FLUX CORED	Conforms to AWS A5.22 E308L-T1-1/T1-4. This FCAW wire is generally used for welding stainless steel base metals with similar composition (~19.5% Cr and ~10% Ni), such as 304 and has a maximum carbon content of 0.04%. CWB CERTIFIED.	≥ 75KSI 520 MPA	FCAW DCEP
309L FLUX CORED	Conforms to AWS A5.22 E309L-T1-1/T1-4. This FCAW wire is generally used for welding similar or different grades to each other, such as 304 to mild / low alloy steel. Contains ~23.5% Cr, ~13% Ni and a maximum carbon content of 0.04%. CWB CERTIFIED.	≥ 75KSI 520 MPA	FCAW DCEP
316L FLUX CORED	Conforms to AWS A5.22 E316L-T1-1/T1-4. This FCAW wire is used for welding 316 and similar grades of stainless steel with Mo content. Contains ~19% Cr, ~12.5% Ni, ~2.5% Mo and a maximum carbon content of 0.03%. CWB CERTIFIED.	≥ 70KSI 485 MPA	FCAW DCEP
FCS 2780	Designed for joining equipment components of manganese, medium carbon steels, and steels of dissimilar composition. For joining bucket shells, lips, and teeth. For shaft build up and cladding of carbon steel with austenitic stainless steel. Recommended for installation and build up of pipeline ditcher segments and installation of Arctec® Wear Plates.	≥ 75KSI 520 MPA	FCAW DCEP



SILVER SOLDER and BRAZING

PRODUCT NAME	PRODUCT DESCRIPTION	PROCESS
1004 FC / BARE	A premium quality flux coated silver brazing rod and CADMIUM FREE. Both forms are low melting and have free flowing characteristics. The rods have good electrical conductivity and very good color match on stainless steel. Also available in bare wire form and used with Arctec® #96 or #98 Flux.	TORCH BRAZING
1005 FC / BARE	A premium quality flux coated high silver brazing rod and CADMIUM FREE. Both forms are low melting and have free flowing characteristics. The rods have good electrical conductivity and very good color match on stainless steel. Also available in bare wire and foil form and used with Arctec® #96 or #98 Flux.	TORCH BRAZING
1018 FC	A high strength, thin flowing, flux coated, nickel braze welding alloy (called nickel silver). Produces high strength joints on practically all ferrous and non-ferrous metals except the white metals.	TORCH BRAZING
1050 FC BUILD UP	A nickel bearing, low fuming, flux coated alloy. Produces deposits with high ductility, corrosion resistance, and resistance to frictional wear. Excellent machinability and good work hardening properties. Used for overlays and build up on surfaces subject to frictional wear and ferrous/non-ferrous metal components.	TORCH BRAZING
1080 FC	A low fuming, general purpose flux coated brazing alloy with good wetting action. Meets all specifications for strength, ductility, and soundness in brazing applications. For overlays and joining of steel, cast iron, copper, nickel alloys, and other nonferrous metal except aluminum and magnesium.	TORCH BRAZING



BRONZE and COPPER

PRODUCT NAME	PRODUCT DESCRIPTION	TENSILE	HARDNESS	PROCESS
600 COPPER	A pure copper alloy for build-up and joining of commercial deoxidized copper. This electrode enables oxygen-free types of pure copper to be welded with good, porosity free results. The weld metal contains more than 98% copper.	10 - 28 KSI 70-190 MPA	60 - 70 HB	SMAW DCEP
603 PHB BRONZE	A versatile phosphor bronze alloy developed for joining and cladding. This electrode has a smooth arc and produces a dense, porosity free deposit in all positions with low spatter and easily removable slag. Excellent color match to bronze.	~60 KSI 410 MPA	100 - 120 HB	SMAW DCEP
604 C BRONZE	A phosphor bronze alloy specially developed for joining and cladding operations using alternating current. For use on phosphor bronze, tin bronze, brass, brass or bronze friction wear strips on booms, cast iron, and galvanized steels.	40 - 50 KSI 275 - 345 MPA	80 - 120 HB	SMAW AC
606 BRONZE	A wear resistant, machinable aluminum bronze electrode containing manganese and nickel. The weld deposit has work hardening capabilities and a low coefficient of friction that makes it suitable for bearing surfaces.	95 - 100 KSI 655 - 670 MPA	~200 HB	SMAW DCEP
610 AL-BRONZE	An all position aluminum bronze welding wire for use with the GMAW welding process. Used for overlays on shafts, propellers, housings, bushings, valve seats, pumps, and other surfaces requiring a bronze wear surface. AWS A5.7 ERCuAl-A1.	≥ 55 KSI 380 MPA	80 - 110 HB	GMAW DCEP
618 AL-BRONZE	An all position aluminum bronze welding wire or rod used to weld base metals of steels and cast iron to copper, brass, and bronze. Ideally suited for overlays on shafts, propellers, housings, bushings, valve seats, pumps, and surfaces requiring a bronze wear surface. AWS A5.7 ERCuAl-A2.	≥ 60 KSI 415 MPA	130 - 150 HB	GMAW DCEP
656 Si-BRONZE	An all position silicon bronze welding wire for use with the GMAW & GTAW welding process. Primarily used to weld base metals of steels and cast iron to copper, brass, and bronze. May also be used to weld on galvanized steels. AWS A5.7 ERCuSi-A. GTAW rod also available.	≥ 50 KSI 345 MPA	80 - 100 HB	GTAW GMAW DCEP
PCO 105	A very fluid, economical, silver bearing phosphor copper brazing alloy. It is used primarily for those applications where close joint fit cannot be maintained. Primary uses are for refrigeration piping, instrumentation, and electrical applications. AWS A5.8 BCuP-3.	~40 KSI 275 MPA		TORCH BRAZING
PCO 115	A very fluid, economical, silver bearing phosphor copper brazing alloy. Similar to PCO 105, but has a lower melting temperature and a higher silver content. Primary uses are for refrigeration piping, instrumentation, and electrical applications. AWS A5.8 BCuP-5.	~50 KSI 345 MPA		TORCH BRAZING



ALUMINUM and MAGNESIUM

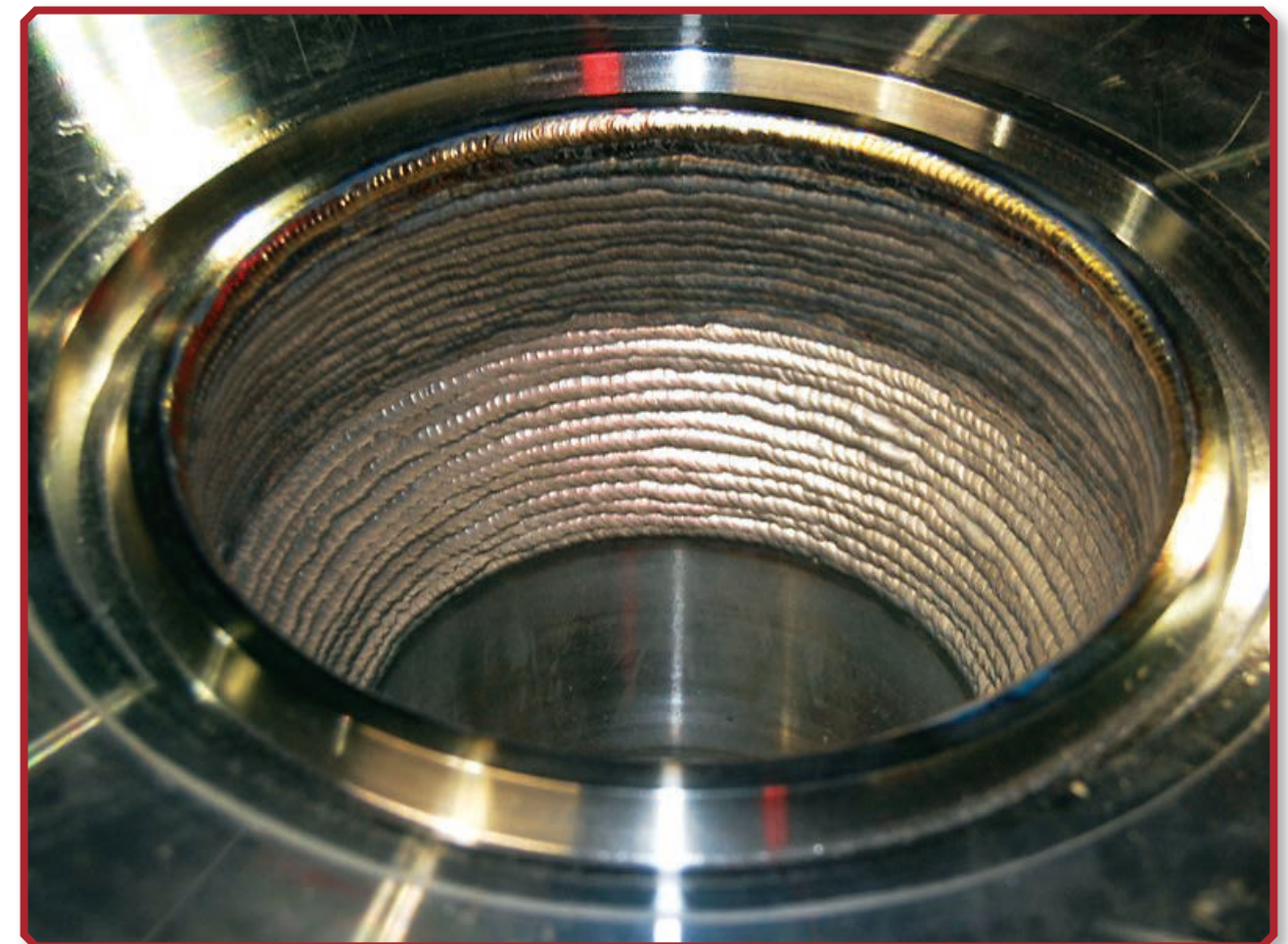
PRODUCT NAME	PRODUCT DESCRIPTION	TENSILE	PROCESS
402 ALUMINUM	A thin flowing, low melting aluminum brazing alloy for use on all weldable grades of aluminum. Has good capillary action with thin flowing, smooth deposits that have good color match with the base metal. Use with Arctec® #71 Flux.	≤ 34 KSI 235 MPA	OAW / OFW TORCH BRAZING
AS 406 ALUMINUM	A bare brazing alloy designed for brazing of zinc base material such as zinc die castings, white metal, and pot metal. This alloy produces strong, dense, and porosity free welds. May also be used for brazing aluminum alloys. Use with Arctec® #71, #73 or #75 Flux. Can be applied using T.I.G. (GTAW) equipment.	≤ 47 KSI 325 MPA	OAW / OFW TORCH BRAZING
430 MAGNESIUM	A magnesium alloy for use on all brazeable grades of magnesium. Used for joining extruded shapes, sheets, and magnesium castings. The properties of the deposit are equal to that of the base metal in color and strength. Use with Arctec® #75 Flux. Can also be used as GTAW rod.	≤ 35 KSI 240 MPA	OAW / OFW GTAW
435 FC ALUMINUM	An aluminum torch rod for use with brazing all weldable grades of aluminum. This alloy contains a flux core which allows for easy application and very economical use. The melting range of the flux is controlled which yields dense, porosity free welds.	≤ 34 KSI 235 MPA	OAW / OFW TORCH BRAZING
440S	A coated electrode for arc welding of aluminum and aluminum alloys. This electrode produces strong, dense, and porosity free welds. Can also be used with an OAW/OFW torch. A very stable arc operates at low amperage with a minimum of spatter and fuming.	≤ 34 KSI 235 MPA	SMAW DCEP



CUTTING and GOUGING

PRODUCT NAME	PRODUCT DESCRIPTION	PROCESS
88 GOUGING (Airless)	A grooving, chamfering, cutting, and gouging electrode used without compressed air or oxygen. It is a very fast and efficient metal working tool and can be used on all ferrous and nonferrous metals including: manganese steel, cast iron, stainless steel, and aluminum. The electrode performs well on both DC and AC current and can be used in all positions.	SMAW DCEN / AC
COPPER COATED GOUGING CARBONS	Premium copper coated gouging carbon electrodes are designed for use in the air arc cutting process with the use of a DC power source. Permits rapid removal and cutting of various metals, such as carbon, low alloy and stainless steel, cast iron, copper, and nickel alloys. Also suitable for welding joint preparation. Available in round, flat, and jointed form.	CARBON ARC CUTTING DCEN

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TECHNICAL INFORMATION

DECIMAL and MILLIMETER EQUIVALENTS

INCH FRACTION	INCH DECIMAL	MM	INCH FRACTION	INCH DECIMAL	MM	INCH FRACTION	INCH DECIMAL	MM
1/64	.0156	.397	23/64	.3594	9.128	43/64	.6719	17.065
1/32	.0312	.794	3/8	.3750	9.525	11.16	.6875	17.462
3/64	.0468	1.191	25/64	.3906	9.922	45/64	.7031	17.859
1/16	.0625	1.587	13/32	.4062	10.319	23/32	.7187	18.256
5/64	.0781	1.984	27/64	.4219	10.716	47/64	.7344	18.653
3/32	.0937	2.381	7/16	.4375	11.113	3/4	.7500	19.050
7/64	.1094	2.778	29/64	.4531	11.509	49/64	.7656	19.447
1/8	.1250	3.175	15/32	.4687	11.906	25/32	.7812	19.844
9/64	.1406	3.572	31/64	.4844	12.303	51/64	.7969	20.240
5/32	.1562	3.969	1/2	.5000	12.700	13/16	.8125	20.637
11/64	.1719	4.366	33/64	.5156	13.097	53/64	.8281	21.034
3/16	.1875	4.762	17/32	.5312	13.494	27/32	.8437	21.431
13/64	.2031	5.159	35/64	.5469	13.890	55/64	.8594	21.828
7/32	.2187	5.556	9/16	.5625	14.287	7/8	.8750	22.225
15/64	.2344	5.953	37/64	.5781	14.684	57/64	.8906	22.622
1/4	.2500	6.350	19/32	.5937	15.081	29/32	.9062	23.019
17/64	.2656	6.747	39/64	.6094	15.478	59/64	.9219	23.415
9/32	.2812	7.144	5/8	.6250	15.875	15/16	.9375	23.812
19/64	.2969	7.541	41/64	.6406	16.272	61/64	.9531	24.209
5/16	.3125	7.937	21/32	.6562	16.669	31/32	.9687	24.604
21/64	.3281	8.334				63/64	.9843	25.003
11/32	.3437	8.731				1	1.000	25.400

QUICK REFERENCE FORMULAS

- 1) $(\text{ }^\circ\text{F} - 32) \times 0.555 = \text{ }^\circ\text{C}$
- 2) $(\text{ }^\circ\text{C} \times 1.8) + 32 = \text{ }^\circ\text{F}$
- 3) $25.40 \times \text{ } \text{inch} = \text{ } \text{mm}$
- 4) $304.8 \times \text{ } \text{feet} = \text{ } \text{mm}$
- 5) $0.0393 \times \text{ } \text{mm} = \text{ } \text{inch}$
- 6) $0.4536 \times \text{ } \text{lbs} = \text{ } \text{kg}$
- 7) $0.621 \times \text{ } \text{km} = \text{ } \text{miles}$
- 8) $1.609 \times \text{ } \text{miles} = \text{ } \text{km}$
- 9) $1.356 \times \text{ } \text{ft-lbs} = \text{ } \text{Joule}$
- 10) $0.7376 \times \text{ } \text{Joule} = \text{ } \text{ft-lbs}$
- 11) $0.006895 \times \text{ } \text{PSI} = \text{ } \text{MPa}$
- 12) $2.2046 \times \text{ } \text{kg} = \text{ } \text{lbs}$

HARDNESS CONVERSION GUIDE

BRINELL	ROCKWELL		VICKERS	BRINELL	ROCKWELL		VICKERS	BRINELL	ROCKWELL		VICKERS
	RC	RB			RC	RB			RC	RB	
	68		940	370	40		392	183	12	90	192
757	66		860	350	38	110	370	174	9	88	182
722	64		800	341	36	109	350	166	7	86	175
686	62		745	321	34	108	327	159	4	84	167
660	60		700	302	32	107	305	153	2	82	162
615	58		655	285	30	105	287	148		80	156
559	55		595	277	28	104	279	140		78	148
500	52		545	262	26	103	263	135		76	142
475	50		510	248	24	102	248	131		74	137
452	48		485	228	22	98	240	126		72	132
431	46		459	210	20	96	222	121		70	121
410	44		435	202	17	94	213	112		66	114
390	42		412	192	14	92	202				

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