FILLER METALS

PRODUCT CATALOGUE



SETTING THE INDUSTRY STANDARD FOR OVER 40 YEARS

With a proven history of over 40 years in the Australian market, WIA has built a reputation for delivering high quality filler metal products for the industrial user. Known for their quality, consistency and performance, WIA filler metal products are preferred by operators across a wide range of industry sectors. WIA's comprehensive product range spans from mild steel and low hydrogen electrodes to specialist flux cored wires and hardfacing products.

Backed by a team of technical professionals who understand our customers' needs, we are committed to delivering welding solutions to improve efficiency and boost productivity for our customers.

For more information on the WIA range of filler metal products, visit **welding.com.au** or call **1300 300 884.**

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TECHNICAL REFERENCE SECTION

KEY TO SYMBOLS

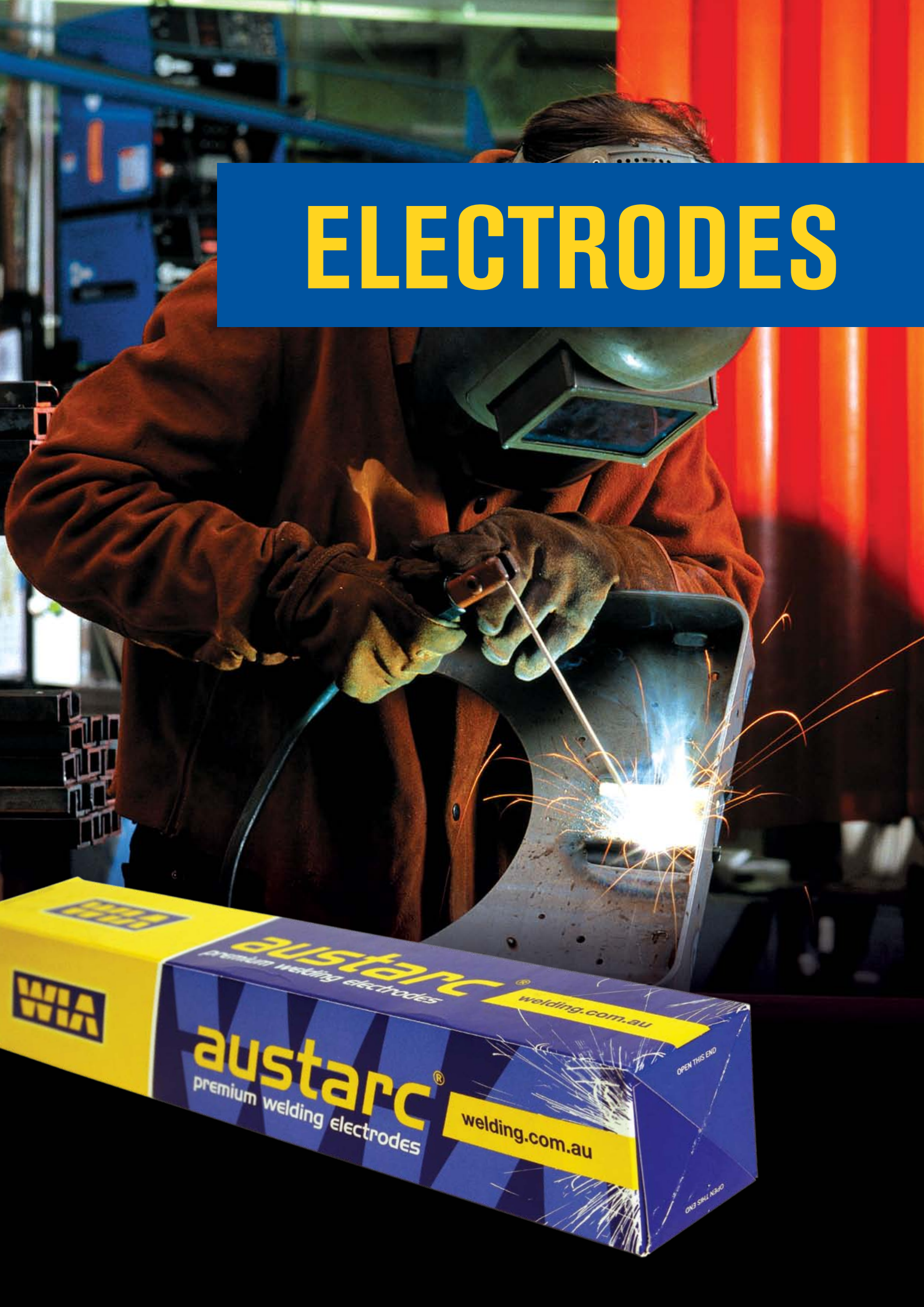
MIG — Metal Inert Gas Welding GMAW - Gas Metal Arc Welding Product - Gas Shielded ("Solid Wire")

FC — FCAW - Flux Cored Arc Welding Product - Gas Shielded ("Flux Cored") Self Shielded ("Flux Cored")

MC — MCAW - Metal Cored Arc Welding Product - Gas Shielded ("Metal-Cored")

STICK — SMAW - Shielded Metal Arc Welding Product ("Stick").

ELECTRODES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premium welding electrodes
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WIA

GENERAL PURPOSE ELECTRODES MILD STEEL

AUSTARC 12P

AUSTARC 13S

AUSTARC 12P STICK

CLASSIFICATION:

AS/NZS 4855-B – E43 12 A

AWS A5.1: E6012

DESCRIPTION:

Easy starting, smooth running, popular all positional mild steel general purpose electrode. Austarc 12P has the extra arc force and fast freezing slag required for vertical down welds. With great operator appeal, it's the ideal general purpose choice for the 'one electrode' workshop.

TYPICAL APPLICATIONS:

Typical applications include welding of general purpose structural steel, galvanised gates and fences, trailers, steel furniture and wrought iron.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS			
C	**Mn**	**Si**	**Fe**
0.07	0.5	0.3	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	450 MPa
Tensile Strength	500 MPa
Elongation	26%
CVN Impact Values	70J @ 0°C

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
2.0	2.5	12.5	103	12P20
2.5	2.5	12.5	67	12P25
3.2	3.2	15	31	12P32
4.0	4.0	15	20	12P40
5.0	5.0	15	11	12P50

ELECTRODES

GENERAL PURPOSE ELECTRODES - MILD STEEL

AUSTARC 13S STICK

CLASSIFICATION:
AS/NZS 4855-B – E43 13 A
AWS A5.1: E6013

DESCRIPTION:
Austarc 13S is a popular blue and white striped mild steel general purpose electrode for welding in down hand and vertical up positions. It has a soft and stable arc and produces flat, uniform fillet welds with ease and a self-peeling slag action. Easy to use for less experienced operators.

TYPICAL APPLICATIONS:
Typical applications include structural welding of sheet and plate steel (galvanised or otherwise) and tubular sections, including trailers, duct work, hoppers and storage tanks.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS			
C	**Mn**	**Si**	**Fe**
0.07	0.55	0.45	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	450 MPa
Tensile Strength	500 MPa
Elongation	26%
CVN Impact Values	60J @ 0˚C

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
2.0	2.5	12.5	99	13S20
2.5	2.5	12.5	63	13S25
3.2	3.2	15	29	13S32
4.0	4.0	15	19	13S40
5.0	5.0	15	10	13S50
6.0	5.0	15	6	13S60

HYDROGEN CONTROLLED ELECTRODES

AUSTARC 16TC
AUSTARC 18TC
AUSTARC 77

AUSTARC 16TC

CLASSIFICATION:

AS/NZS 4855-B - E49 16 A U H10
AWS A5.1: E7016-1 H8

DESCRIPTION:

Austarc 16TC is a smooth running, basic low hydrogen electrode, developed for all positional (except vertical down) welding, using AC or DC power sources. It has exceptional arc stability and weldability and delivers high quality weld deposits with reliable notch toughness to -40˚C.

Austarc 16TC is manufactured using a unique twin coating extrusion process, which means all the arc stabilising elements are concentrated in the inner coating. This delivers significantly improved arc stability and control for all applications.

TYPICAL APPLICATIONS:

The ideal hydrogen controlled electrode for welding carbon, carbon-manganese and low alloy high strength steels used in a multitude of critical and non-critical applications.

Typical applications include pipe welding, single sided weld joints, highly restrained joints, maintenance applications, buffer layer prior to hard surfacing build-up, structural steel and sub zero temperature applications.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS					
C	**Mn**	**Si**	**S**	**P**	**Fe**
0.06	1.2	0.4	0.010	0.015	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	460 MPa
Tensile Strength	560 MPa
Elongation	28%
CVN Impact Values	130J @ -20˚C 110J @ -40˚C

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
2.5	2.5	12.5	61	16TC25
3.2	5.0	15	29	16TC32
4.0	5.0	15	19	16TC40
5.0	5.0	15	10	16TC50
6.0	5.0	15	7	16TC60

AUSTARC 18TC

CLASSIFICATION:

AS/NZS 4855-B - E49 18-A U H5
AWS A5. 1: E7018-1

DESCRIPTION:

Austarc 18TC is a basic iron powder electrode used primarily on C-Mn and low alloy structural steels. The unique twin-coat design for 18 type low hydrogen electrode offers excellent AC arc stability and superb DC+ arc transfer, excellent re-strike, reduced spatter level and extraordinary ease of use for out-of-position welding.

TYPICAL APPLICATIONS:

Typical applications include oil and gas, pipe welding, structural steel construction, off-shore where Ni-alloying is prohibited, mining equipment, heavy girders and earth moving plant repair and maintenance.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS					
C	**Mn**	**Si**	**S**	**P**	**Fe**
0.06	1.55	0.54	0.02	0.010	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	530 MPa
Tensile Strength	602 MPa
Elongation	24%
CVN Impact Values	87J @ -50˚C

ORDERING INFORMATION			
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**PART NUMBER**
	PACKET	**CARTON**	
2.5	2.5	12.5	18TC25
3.2	5	5	18TC32
4.0	5	5	18TC40

ELECTRODES

HYDROGEN CONTROLLED ELECTRODES

AUSTARC 77 STICK

CLASSIFICATION:
AS/NZS 4855-B - E49 18-1 A U H5
AWS A5.1: E7018-1 H8

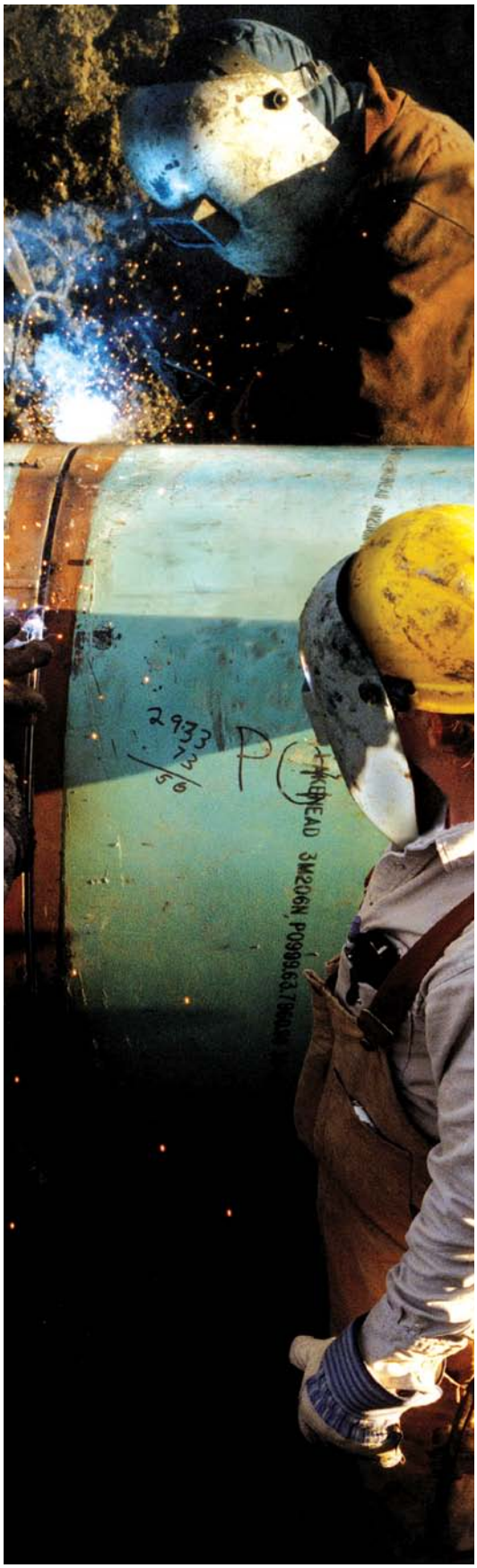
DESCRIPTION:
Smooth running basic type iron powder electrode used for all positional welding except vertical down. This electrode is used where the highest standards are required. Weld features include high ductility, x-ray quality and sub zero temperature impact to -50˚C.

TYPICAL APPLICATIONS:
For critical welding applications including repair and maintenance of heavy plate and highly restrained work pieces such as penstocks, turbines, pressure vessels, heavy girders, earth moving plants etc.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS					
C	**Mn**	**Si**	**S**	**P**	**Fe**
0.05	1.28	0.30	0.011	0.022	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	455 MPa
Tensile Strength	534 MPa
Elongation	30%
CVN Impact Values	123J @ -50˚C

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
2.5	2.2	11	43	7725
3.2	5	15	26	7732
4.0	5	15	17	7740
5.0	5	15	9	7750



IRON POWDER ELECTRODES

AUSTARC 24

AUSTARC 24 STICK

CLASSIFICATION:

AS/NZS 4855-B - E49 24 A
AWS A5.1: E7024

DESCRIPTION:

Easy to use, smooth running, heavy coated, high iron powder rutile electrode for high speed welding of mild steel. Suited to long, heavy fillet and butt welding using the touch welding or 'short arc' technique and can be used on AC or DC power sources.

It's instant arc initiation, high arc stability, and low spatter combines in an excellent fillet weld contour, edge washing and slag release. It is recommended for high quality down hand welding of heavy sections where high deposition rates are required.

TYPICAL APPLICATIONS:

Typical applications include tanks, structural frames, tractor, truck and trailer bodies, rolling stock, roof trusses etc.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS			
C	**Mn**	**Si**	**Fe**
0.06	0.7	0.4	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	455 MPa
Tensile Strength	510 MPa
Elongation	27%
CVN Impact Values	60J @ 0°C

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
3.2	5.0	15	18	2432
4.0	5.0	15	12	2440
5.0	5.0	15	6	2450

CELLULOSE ELECTRODES

AUSTARC 11

AUSTARC 11 STICK

CLASSIFICATION:

AS/NZS 4855-B - E43 11 A
AWS A5.1: E6011

DESCRIPTION:

High cellulose electrode developed for all positional welding on both AC and DC current. It is particularly suited for vertical and incline pipe welding where complete root penetration is required.

TYPICAL APPLICATIONS:

Recommended for pipeline welding and storage tank construction where either the 'Stove Pipe' or 'Flick' techniques can be used to obtain full-root penetration in critical structural joints.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS			
C	**Mn**	**Si**	**Fe**
0.13	0.5	0.1	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	416 MPa
Tensile Strength	510 MPa
Elongation	32%
CVN Impact Values	70J @ -30°C

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
2.5	2.5	12.5	66	1125
3.2	5.0	15	33	1132
4.0	5.0	15	21	1140
5.0	5.0	15	14	1150

STAINLESS STEEL ELECTRODES

STAINCORD 309Mo-16
STAINCORD 316L-16
UNICORD 312

STAINCORD 309Mo-16 STICK

CLASSIFICATION:

AS/NZS 4854-B - E309LMo-16
AWS A5.4: E309MoL-16

DESCRIPTION:

Staincord 309Mo-16 is a Molybdenum bearing, highly alloyed 23Cr/12Ni/2.5Mo extra low carbon rutile type stainless steel electrode, exhibiting superior all positional (except vertical down) performance with an improved moisture resistant coating for weld metal of high radiographic integrity. The smooth arc action of Staincord 309Mo-16, together with low spatter and excellent slag control/detachability, promotes exceptional weld appearance and profile.

TYPICAL APPLICATIONS:

Suitable for welding of matching 309 and 309Mo base metals and a wide range of 300 and 400 series stainless steels to alloyed and non-alloyed dissimilar ferrous metal combinations.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**Cr**	**Ni**	**Mo**	**Fe**
0.025	0.8	0.7	23.5	13.0	2.4	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	400 MPa
Tensile Strength	670 MPa
Elongation	38%

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
2.5	2.5	15	86	SC309M025
3.2	2.5	15	55	SC309M032

ELECTRODES

STAINLESS STEEL ELECTRODES

STAINCORD 316L-16 STICK

CLASSIFICATION:
AS/NZS 4854-B - ES316L-16
AWS A5.4: E316L-16

DESCRIPTION:
Staincord 316L-16 is a Molybdenum bearing, 19Cr/12Ni/2.5Mo extra low carbon, rutile type electrode exhibiting superior all positional (except vertical down) performance with an improved moisture resistant "Pink" flux coating for weld metal of high radiographic integrity. The smooth arc action of Staincord 316L-16, together with low spatter and excellent slag control/detachability, promotes exceptional weld appearance and profile. Other features include high arc stability and easy restriking on low voltage AC welding machines.

TYPICAL APPLICATIONS:
Recommended for welding 316, 316L and common 300 series stainless steels such as 301, 302, 304 and 304L. Also suitable for welding ferritic stainless steel alloys such as 3Cr12.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**Cr**	**Ni**	**Mo**	**Fe**
0.025	0.7	0.7	18.5	12.0	2.4	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	380 MPa
Tensile Strength	600 MPa
Elongation	40%

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
2.0	2.5	15	86	SC31620
2.5	2.5	15	55	SC31625
3.2	2.5	15	27	SC31632

UNICORD 312 STICK

CLASSIFICATION:
AS/NZS 4854-B - ES312-16
AWS A5.4: E312-16

DESCRIPTION:
Unicord 312 is a basic, rutile type electrode depositing a 29%Cr/9%Ni stainless steel weld metal for the high strength welding of a wide range of alloy steels and dissimilar ferrous metals. The high ferrite, austenitic stainless steel deposit has excellent resistance to hot cracking, even under dilution by high carbon, alloy and tool steels. Unicord 312 is a universal maintenance electrode combining high strength, toughness, wear and corrosion resistance with compatibility to most ferrous metals.

TYPICAL APPLICATIONS:
For repair and maintenance of steels of unknown composition.
Also suitable as a buffer or intermediate layer prior to the application of hard surfacing.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS					
C	**Mn**	**Si**	**Cr**	**Ni**	**Fe**
0.04	0.9	0.85	30.0	9.0	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	500 MPa
Tensile Strength	770 MPa
Elongation	45%
Deposit Hardness	28-35 HRc

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
2.5	2.5	15	52	UC31225
3.2	2.5	15	27	UC31232

CAST IRON ELECTRODES

SUPERCAST Ni

SUPERCAST NI/Fe

SUPERCAST Ni STICK

CLASSIFICATION:

AWS A5.15: ENi-CI

DESCRIPTION:

Supercast Ni is a basic, graphite coated AC/DC electrode for the lower strength welding of cast irons. It is characterised by a soft, smooth arc with low penetration and spatter levels on both AC and DC power sources. Ease of striking is a feature of Supercast Ni and it also has a particularly good wetting action resulting in well bonded welds of regular contour and attractive appearance.

TYPICAL APPLICATIONS:

For repair and build-up of all standard grades of grey cast iron, malleable iron, austenitic cast iron and some grades of meehanite cast iron.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS			
Mn	**Ni**	**S**	**Fe**
0.3	97.0	0.006	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	200 MPa
Tensile Strength	400 MPa
Deposit Hardness	150-170 HV (30)

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
3.2	2.5	15	37	SNI32

CAST IRON ELECTRODES

SUPERCAST Ni/Fe STICK

CLASSIFICATION:
AWS A5.15: ENiFe-CI

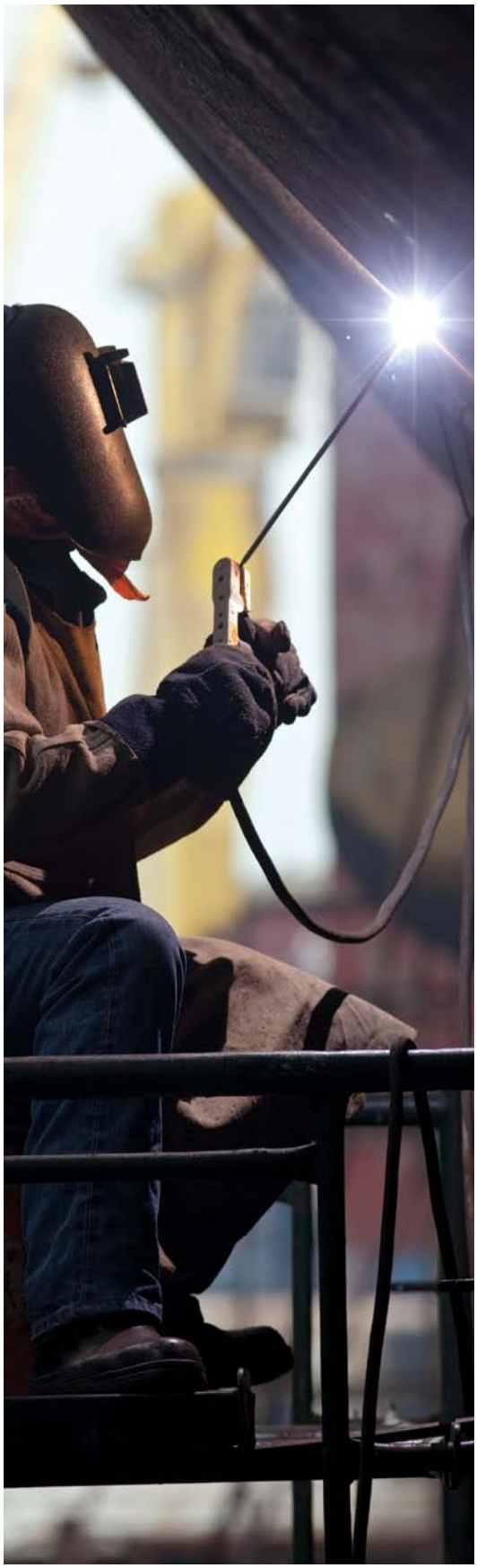
DESCRIPTION:
Supercast Ni/Fe is a basic, graphite coated AC/DC electrode for the higher strength welding of cast irons. It is characterised by a soft, smooth arc with low penetration and spatter levels on both AC and DC power sources. Ease of striking is a feature of Supercast Ni/Fe. This electrode is made from a Nickel-Iron core wire and produces a ductile, machineable weld deposit with the extra strength required for welding SG (Spheroidal Graphite) irons.

TYPICAL APPLICATIONS:
For repair and build-up of SG irons and all standard grades of grey cast iron, malleable iron, austenitic cast iron and some grades of meehanite cast iron. Also suited to welding these cast irons to steel.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS			
Mn	**Ni**	**S**	**Fe**
0.85	57.8	0.007	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	300 MPa
Tensile Strength	500 MPa
Deposit Hardness	200-220 HV (30)

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
3.2	2.5	15	39	SNIFE32



GOUGING AND CUTTING ELECTRODES

AUSTARC C&G

AUSTARC C&G STICK

DESCRIPTION:

Austarc C&G is a heavy coated electrode providing a highly mobile means of cutting, gouging and piercing most steels, using standard AC or DC arc welding equipment. Austarc C&G produces a very high arc force and can be used for general cutting and grooving in joint preparation, removing defective welds and reclaiming scrap metal.

Oxy-acetylene and carbon arc-air cutting and gouging are two processes available to industry capable of giving high quality, smooth preparations. Austarc C&G will not replace these processes but rather provide a convenient, easy to use and mobile tool for the arc gouging and cutting of most metals.

TYPICAL APPLICATIONS:

It is particularly useful to the maintenance welder operating in awkward locations to remove welds, open up joints and trim off bolt or rivet heads. Similarly, the rural welder will find C&G handy in repairing or preparing joints when operating away from (or without) oxy-acetylene equipment.

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	PACKAGING (KG)		APPROX NO OF RODS PER KG	PART NUMBER
	PACKET	CARTON		
3.2	4	12	26	CG32
4.0	4	12	17	CG40

WIRES


HOBART WELDING WIRE
HOBART
PREMIUM WELDING WIRE
Outstanding quality, reliability and performance for hundreds of applications including:
• Auto body
• Bicycles
• Lawn mowers
• Wheel barrows
• Fencing
• Basketball rims
• Wagons
• Axles
• Farm equipment
• Duct work
• Tail pipes
• Brackets
• Framework
• Patio furniture
• Garden tools
• Mailbox posts
• Sheet metal work
• Yard ornaments
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SOLID MIG WIRES - MILD STEEL

AUSTMIG ES6

AUSTMIG ES6

CLASSIFICATION:

AS/NZS 2717.1: ES6-GC-W503AH
AS/NZS 2717.1: ES6-GM-W503AH
AWS A5.18: ER70S-6

DESCRIPTION:

Copper coated, low carbon steel MIG wire specifically formulated for optimum performance under CO_2 and Ar/CO_2 mixed gases.

TYPICAL APPLICATIONS:

Suitable for welding mild and medium strength steels. Ideal for positional welding of sheet steel and steel pipes and tubes where the high silicon content promotes smooth even weld beads with excellent edge wetting and contour.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS					
C	**Mn**	**Si**	**S**	**P**	**Fe**
0.1	1.45	0.88	0.02	0.022	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS		
Gas Type	CO_2	Ar+18% CO_2
Yield Stress	460 MPa	480 MPa
Tensile Strength	560 MPa	580 MPa
Elongation	28%	26%
CVN Impact Values	80J @ -20˚C	70J @ -30˚C

ORDERING INFORMATION			
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PACKET TYPE**	**PART NUMBER**
0.6	5	Spool	ES606M5KG
	15	Spool	ES606S
0.8	5	Spool	ES608M5KG
	15	Spool	ES608S
0.9	5	Spool	ES609M5KG
	15	Spool	ES609S
1.0	15	Spool	ES6010S
1.2	15	Spool	ES6012S
1.6	15	Spool	ES6016S

SOLID MIG WIRES - LOW ALLOY STEEL

AUSTMIG ESD2

AUSTMIG NiCrMo

SOLID MIG WIRES - LOW ALLOY STEEL

AUSTMIG ESD2

CLASSIFICATION:

AS/NZS 2717.1: ESD2-GC-W559AH
AS/NZS 2717.1: ESD2-GM-W559AH
AWS A5.18: ER80S-D2

DESCRIPTION:

Copper coated, all positional low alloy wire used for welding medium to high strength steels, particularly where service temperatures up to 500˚C are encountered.

TYPICAL APPLICATIONS:

Typical applications include structural welding of sheet and plate steel (galvanised or otherwise) and tubular sections, including trailers, duct work, hoppers and storage tanks.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS				
C	**Mn**	**Si**	**Mo**	**Fe**
0.01	1.95	0.75	0.5	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS		
Gas Type	CO^2	Ar+18% CO^2
Yield Stress	560 MPa	570 MPa
Tensile Strength	645 MPa	660 MPa
Elongation	19%	20%
CVN Impact Values	35J @ -30˚C	50J @ -30˚C

ORDERING INFORMATION			
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PACKET TYPE**	**PART NUMBER**
0.9	15	RW	ESD209S
1.2	15	RW	ESD212S

AUSTMIG NiCrMo

CLASSIFICATION:

AS/NZS 2717.1: ESMG-GM-W769AH-G
AWS A5.28: ER110S-G

DESCRIPTION:

Copper coated, low alloy solid wire suitable for all positional welding of high strength steels using Ar/CO_2 mixed gases.

TYPICAL APPLICATIONS:

Used for full strength welding of quenched and tempered structural steels of 760 MPa tensile class, such as USS-T1, Welten 80, N-A-XTRA and Bisplate 80.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS							
C	**Mn**	**Si**	**Ni**	**Cr**	**Mo**	**V**	**Fe**
0.07	1.22	0.37	1.42	0.29	0.24	0.07	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Gas Type	Ar+18% CO_2
Yield Stress	732 MPa
Tensile Strength	799 MPa
Elongation	18%
CVN Impact Values	78J @ -51°C

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
0.9	15	MNICRM009S
1.2	15	MNICRM012S

SOLID MIG WIRES - ALUMINIUM

AUSTMIG 5183
AUSTMIG 5356

WIRES

SOLID MIG WIRES - ALUMINIUM

AUSTMIG 5183

CLASSIFICATION:
AS/NZS ISO 18273 – S Al 5183
AWS A5.10: ER5183

DESCRIPTION:
Precision layer wound aluminium wire alloyed with Mg, Mn and Cr. Double shaved for superb feedability. The Austmig 5183 can achieve higher tensile strength in the as welded condition of alloy 5083, which the filler alloy 5356 will generally fail.

TYPICAL APPLICATIONS:
Recommended for welding 5083 type material in the annealed condition, particularly for low temperature applications where good ductility and toughness are required such as cryogenic plants and boat building.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS								
Si	**Fe**	**Cu**	**Mn**	**Mg**	**Cr**	**Zn**	**Ti**	**Al**
0.4	0.4	0.1	0.5-1.0	4.3-5.2	0.05-0.25	0.25	0.15	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Gas Type	Ar
Yield Stress	110 MPa
Tensile Strength	240 MPa
Elongation	17%

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.2	6	M518312S
1.6	6	M518316S

AUSTMIG 5356

CLASSIFICATION:
AS/NZS ISO 18273 - S Al 5356
AWS A5.10: ER5356

DESCRIPTION:
Precision layer wound Al/5%Mg wire suitable for welding wrought or cast aluminium alloys containing magnesium as the major alloying element. The Austmig 5356 is the most widely used welding alloy filler metal, due to its excellent corrosion resistance and high shear strength.

TYPICAL APPLICATIONS:
Suitable for welding selected grades of wrought Al/Mg alloys including 5083, 5086, 5454 and 5456.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS							
Zn	**Mg**	**Mn**	**Cr**	**Si**	**Fe**	**Ti**	**Al**
0.1	5.2	0.15	0.1	0.25	0.4	0.15	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Gas Type	Ar
Yield Stress	125 MPa
Tensile Strength	275 MPa
Elongation	17%

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
0.9	2	M5356092KG
	6	M535609S
1.0	2	M5356102KG
	6	M535610S
1.2	2	M5356122KG
	6	M535612S
1.6	6	M535616S

METAL CORED GAS SHIELDED WIRES

AUSTFIL 70C-6M

AUSTFIL 70C-6M

CLASSIFICATION:

AS/NZS ISO 17632-B - T 492T15-0MA-UH5
AWS A5.18: E70C-6M

DESCRIPTION:

A metal-cored wire designed for high speed fillet and butt welding in the down-hand position using Argon + 18-25% CO_2 shielding gas mixtures. Weld beads are almost completely slag free with only minimal silicon islands, reducing the time and effort spent cleaning up prior to painting, coating or plating.

TYPICAL APPLICATIONS:

Recommended for single pass and multi pass welding in both the flat and horizontal positions for mild, carbon and manganese carbon steels with minimum clean up and where high deposition rates and efficiencies are required in high productivity, semi-automatic and fully automatic welding installations.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**S**	**P**	**Cu**	**Fe**
0.038	1.46	0.68	0.009	0.012	0.02	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Gas Type	Ar+25% CO_2
Yield Stress	628 MPa
Tensile Strength	587 MPa
Elongation	29%
CVN Impact Values	51J @ -20˚C

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.2	15	70C6M12S
1.6	15	70C6M16S
1.2	250 *(Drum)	70C6M12D

*Austarc 70C-6M is also available in drum pack for reduced downtime on automatic application.

FLUX CORED GAS SHIELDED WIRES

AUSTFIL 71T
AUSTFIL 71T-1M
HOBART XL-525
TM-71HYD
TM-811N2

AUSTFIL 71T

CLASSIFICATION:
AS/NZS ISO 17632-B - T492T1-1 CA-UH10
AWS A5.20: E71T-1 H8

DESCRIPTION:
A flux cored wire designed for excellent performance in all positional fillet weld and butt-welding applications. It is formulated exclusively for use with cost effective CO_2 shielding gas.

TYPICAL APPLICATIONS:
Recommended for general purpose all positional welding of mild, carbon and carbon-manganese steels where an excellent weld profile and penetration is required. Suitable for applications such as storage tanks, structural fabrication, machinery, earth moving equipment and fatigue loaded structures.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS					
C	**Mn**	**Si**	**S**	**P**	**Fe**
0.03	1.28	0.44	0.01	0.013	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Gas Type	CO_2
Yield Stress	531 MPa
Tensile Strength	580 MPa
Elongation	26%
CVN Impact Values	93J @ -20°C

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.2	15	71T112S
1.6	15	71T116S

AUSTFIL 71T-1M

CLASSIFICATION:

AS/NZS ISO 17632-B - T492T1-1MA-UH10
AWS A5.20: E71T-1M

DESCRIPTION:

All positional rutile micro-alloyed type flux cored wire formulated for Ar/CO_2 shielding gas mixtures (18-25% CO_2). For optimum performance, Argon with 25% CO_2 is recommended. Exceptionally smooth arc performance producing a superb weld with low spatter losses in all positions with excellent operator appeal.

TYPICAL APPLICATIONS:

Recommended for the welding of mild, carbon and carbon-manganese medium steels where good impact properties at -20˚C are required. Typical applications include steel fabrication such as plate sections, beams, girders, truck chassis/bodies, ship building, earth moving equipment and storage tanks.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**S**	**P**	**B**	**Fe**
0.04	1.20	0.42	0.012	0.013	0.001	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Gas Type	Ar+25% CO_2
Yield Stress	487 MPa
Tensile Strength	565 MPa
Elongation	25%
CVN Impact Values	103J @ -20˚C

ORDERING INFORMATION			
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PALLET SIZE (KG)**	**PART NUMBER**
1.2	15	1080	71T1M12S
1.6	15	1080	71T1M16S

HOBART XL-525

CLASSIFICATION:

AS/NZS ISO 17632-B - T494T1-1MA-UH5
AWS A5.20: E71T-1M, E71T-12MJ H8

DESCRIPTION:

A rutile flux cored all position wire designed for welding mild and carbon steels, especially when good impact toughness is required at sub zero temperatures. Ideal for single and multi-pass applications, it delivers outstanding welding performance and produces high quality X-ray clear weld deposit with a bead contour that is flat to slightly convex.

It can be used over rust, mill scale and some primers with no pre-cleaning of the steel necessary. Formula XL-525 has outstanding mechanical properties that resemble those of E7018 MMAW (SMAW) electrodes, plus high operator appeal with low fume levels, low spatter and easy slag removal.

TYPICAL APPLICATIONS:

Recommended for ship building, storage vessels, off-shore structures, earth moving equipment and pipe welding.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS				
C	**Mn**	**Si**	**Ni**	**Fe**
0.04	1.24	0.29	0.37	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Gas Type	Ar+20% CO_2
Yield Stress	503 MPa
Tensile Strength	566 MPa
Elongation	29%
CVN Impact Values	90J @ -40˚C

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.2	15	S283212-029
1.6	15	S283219-029

FLUX CORED GAS SHIELDED WIRES

TM-71HYD

CLASSIFICATION:
AS/NZS ISO 17632-B - T494T1-1CA-UH5
1.2mm, AWS E71T-1C, E71T-12CJ H4
1.6mm, AWS E71T-1C, E71T-12CJ H8

DESCRIPTION:
Formulated to provide extremely low hydrogen levels. This outstanding all positional wire produces a high quality X-ray clear weld deposit with high impact values at low temperature. Every batch of the TM-71HYD is actual tested to certify the quoted mechanical property, and the vacuum sealed packaging further ensures the product integrity upon delivery.

TYPICAL APPLICATIONS:
Applications include ship building and repair, earth moving equipment, structures, pressure vessel and storage vessels.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**S**	**P**	**Ni**	**Fe**
0.05	1.17	0.25	0.014	0.12	0.5	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Gas Type	100% CO_2
Yield Stress	533 MPa
Tensile Strength	585 MPa
Elongation	26.6%
CVN Impact Values	150J @ -18˚C 137J @ -40˚C
Aged 48 hours @ 104˚C	

ORDERING INFORMATION			
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PACKET TYPE**	**PART NUMBER**
1.2	15	Vacuum	S245112-K53
1.6	15	Vacuum	S245019-K53

TM-811N2

CLASSIFICATION:
AS/NZS ISO 17632-B - T555T1-1C/MA-2Ni-UH5
AWS A5.29: E81T1-Ni2C/MJ H8

DESCRIPTION:
Offers excellent arc stability and low spatter using either CO_2 or Ar/CO_2 mixtures with up to 80% argon. These weldability features, combined with low diffusible hydrogen levels and good impact values makes the wire a good choice for single and multiple pass welding in all positions.

TYPICAL APPLICATIONS:
Applications include ship building, offshore drilling rigs, HSLA steels and weathering steels with no colour match requirement.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
Shielding Gas	**C**	**Mn**	**Si**	**P**	**S**	**Ni**
100% CO_2	0.04	1.02	0.29	0.010	0.007	2.09
75% Ar/25% CO_2	0.05	1.26	0.44	0.010	0.007	2.07

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS		
Gas Type	100% CO_2	75% Ar/25% CO_2
Yield Stress	535 MPa	579 MPa
Tensile Strength	600 MPa	662 MPa
Elongation	27.5%	26%
CVN Impact Values	126J @ -40˚C 95J @ -51˚C	104J @ -40˚C 71J @ -51˚C

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.2	15	S283712-K29

FLUX CORED SELF SHIELDED WIRES

FABSHIELD 4
FABSHIELD 23
FABSHIELD 21B
FABSHIELD XLR-8

FABSHIELD 4

CLASSIFICATION:

AS/NZS ISO 17632-B - T49ZT4-0NA-H15
AWS A5.20: E70T-4

DESCRIPTION:

Very high deposition rate, self-shielding flux cored wire for down hand single or multi-pass welding applications. Specifically designed to desulphurise the weld deposit to reduce risk of weld cracking.

TYPICAL APPLICATIONS:

Typical applications include on site field construction and repair of structural members and machinery.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**P**	**S**	**Al**	**Fe**
0.27	0.73	0.30	0.011	0.005	1.42	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	432 MPa
Tensile Strength	652 MPa
Elongation	25%
CVN Impact Values	Not Required

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
2.4	22.7	S224529-014
3.0	22.7	S224541-014

FLUX CORED SELF SHIELDED WIRES

FABSHIELD 23

CLASSIFICATION:
AS/NZS ISO 17632-B - T49ZTG-1SNA
AWS A5.20: E71T-GS

DESCRIPTION:
A general purpose, all positional self-shielding flux cored wire suited for single pass fillet and lap welds on thin-gauge mild or galvanised steels. Outstanding performance when welding outdoors in windy conditions, this all positional wire also provides very low spatter levels with a smooth spray arc type transfer with a good wetting-in-action.

TYPICAL APPLICATIONS:
Suits on-site applications such as mild/galvanised gates, fences, frames, sheds, prefab building fabrications, ornamental ironwork and general fabrications.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**S**	**P**	**Al**	**Fe**
0.18	0.65	0.40	0.01	0.01	1.30	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Tensile Strength (Transverse)	572 MPa
Note: Yield stress and impact values not applicable.	

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
0.8	4.5	S222306-022
0.9	4.5	S222308-022
0.9	15	S222308-029

FABSHIELD 21B

CLASSIFICATION:
AS/NZS ISO 17632-B - T49ZT11-1NA-H15
AWS A5.20: E71T-11

DESCRIPTION:
An all positional general purpose, self-shielding, flux cored wire, designed specifically for multi-pass welding of mild steel and galvanised steel up to a maximum of 20mm in thickness.

TYPICAL APPLICATIONS:
For on-site welding applications including farm and rural fabrication, fences, frames and sheds, etc. Other uses include prefabricated steel frame construction, galvanised tank fabrication, repair of trucks, tractors and earth moving equipment.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**S**	**P**	**Al**	**Fe**
0.28	0.34	0.15	0.008	0.003	1.04	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	427 MPa
Tensile Strength	627 MPa
Elongation	22%
CVN Impact Values	Not Required

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
0.9	4.5	S222108-022
1.2	4.5	S222112-022
1.2	15	S222112-029
1.6	15	S222119-029
2.0	15	S222125-029

FABSHIELD XLR-8

CLASSIFICATION:

AS/NZS ISO 17632-B - T494T8-1NP-H10
AWS A5.20: E71T-8JD H8

DESCRIPTION:

Low hydrogen T-8 self-shielded, all positional flux cored wire, producing a stable arc and flat bead profile, especially suited for vertical-up welds at high currents with excellent mechanical properties and a tensile strength of 490 MPa. Capable of depositing X-ray quality welds, making it highly suitable for critical welding applications requiring a high degree of crack resistance due to its low diffusible hydrogen levels, less than 6.7ml per 100g of weld metal deposited. XLR-8 has been designed for single and multi-pass welding applications with improved productivity in out-of-position welding, offering high impact strength of (42J) at sub zero temperatures to -40˚C.

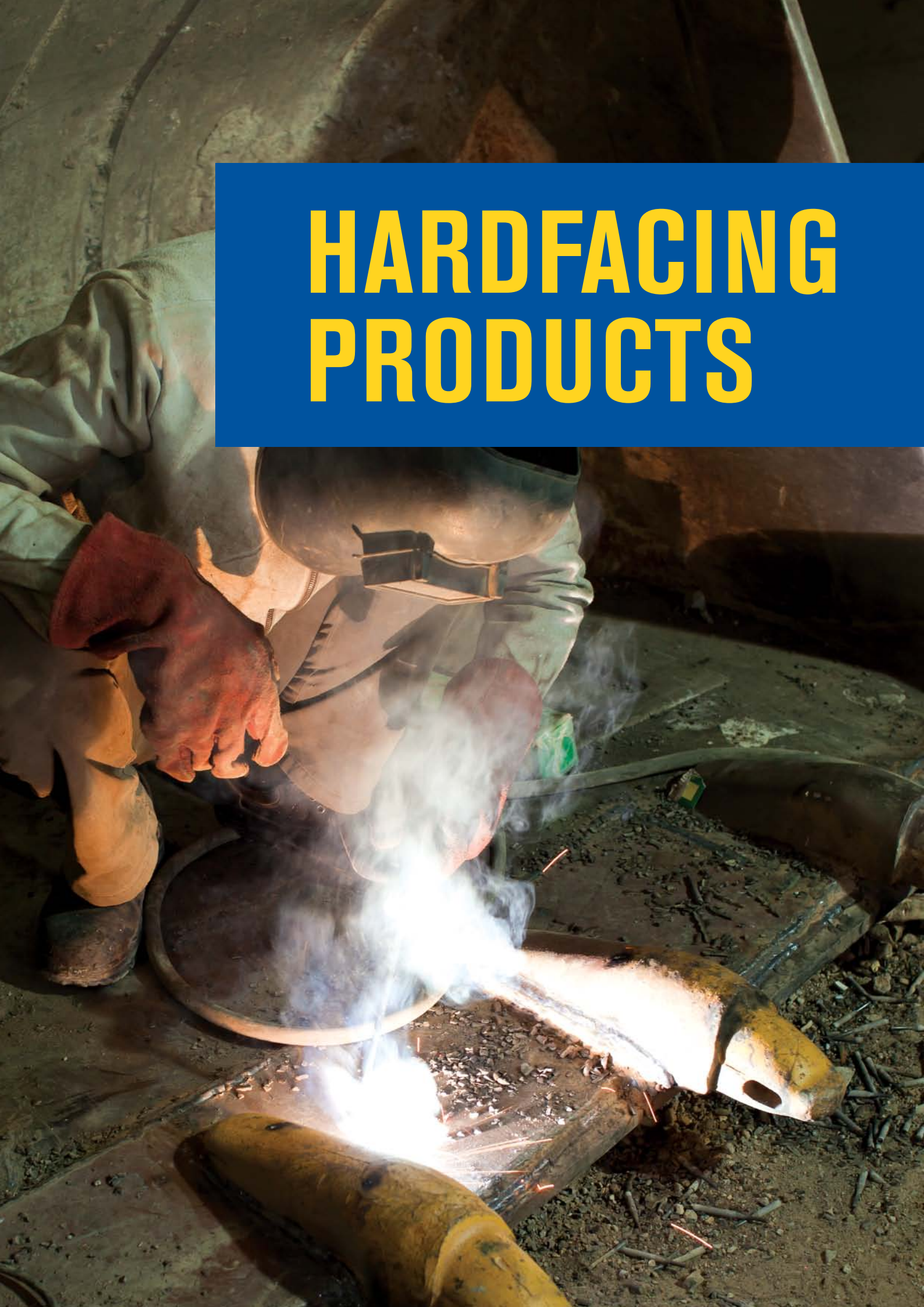
TYPICAL APPLICATIONS:

Specifically designed for increased productivity and high deposition rates on challenging structural steel erection, heavy equipment repair, mining equipment, bucket repairs, storage tanks, pipe spooling, ship construction and site work applications.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**P**	**S**	**Al**	**Fe**
0.19	0.51	0.17	0.009	0.006	1.51	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Yield Stress	470 MPa
Tensile Strength	580 MPa
Elongation	25%
CVN Impact Values	42J @ -40˚C
Diffusible Hydrogen	6.7ml/100g of weld desposited

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.6	15	S225719-053
1.8	15	S225724-053
2.0	15	S225725-053
2.0	22.7	S225725-014



HARDFACING PRODUCTS

HARDFACING ELECTRODES

ABRASOCORD 43
ABRASOCORD 350
ABRASOCORD 700
TUBECORD D - 2355
TUBECORD E - 2460

ABRASOCORD 43 STICK

CLASSIFICATION:
AS/NZS 2576: 2465-A4

DESCRIPTION:
Heavy coated hardfacing electrode depositing very hard Chromium/Niobium carbides in an austenitic matrix. It is ideal for hard surfacing applications where resistance to extreme abrasion (in particular sliding abrasion) and moderate to heavy impact are required.

TYPICAL APPLICATIONS:
Suitable for applications where resistance to extreme abrasion and moderate to heavy impact are required such as press screw, grizzly bars, crusher hammers, ripper teeth and shovel teeth.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS				
C	**Mn**	**Cr**	**Nb**	**Fe**
5.0	0.7	22.0	7.0	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Single Layer Onto Mild Steel	Typical Hardness 60-65 Hrc
Multi-Layer	Typical Hardness 64-69 Hrc

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
3.2	5	15	16	AC4332
4.0	5	15	11	AC4340
5.0	5	15	6	AC4350

HARDFACING PRODUCTS

HARDFACING ELECTRODES

ABRASOCORD 350 STICK

CLASSIFICATION:
AS/NZS 2576: 1435-A4

DESCRIPTION:
Smooth running, AC/DC electrode depositing a tough wear resistant air hardening C/Mn/Cr steel alloy which is machinable and can be readily hot forged. It offers high compressive strength and excellent resistance to impact for all types of metal-to-metal wear.

TYPICAL APPLICATIONS:
Suitable for the heavy build-up and surfacing of steel components subjected to metal-to-metal wear and compressive loading such as, track components, gears and shafts, etc.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS				
C	**Mn**	**Si**	**Cr**	**Fe**
0.2	0.4	0.3	2.8	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Single Layer Onto Mild Steel	Typical Hardness 30-35 Hrc
Multi-Layer	Typical Hardness 35-40 Hrc

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
3.2	5	15	24	HF35032
4.0	5	15	16	HF35040
5.0	5	15	9	HF35050

ABRASOCORD 700 STICK

CLASSIFICATION:
AS/NZS 2576: 1855-A4

DESCRIPTION:
Smooth running, AC/DC electrode depositing an air hardening martensitic Cr/Mo/V steel alloy. It is one of the hardest steel alloys available, is free from relief checks and offers good resistance to all types of abrasion under low to moderate impact conditions.

TYPICAL APPLICATIONS:
Suitable for surfacing of post hole augers, agricultural points, shares and tynes, grader and cultivator blades and other components subject to fatigue or flexing during service.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Mn**	**Si**	**Cr**	**Mo**	**V**	**Fe**
0.7	0.3	0.5	8.5	0.3	0.5	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Single Layer Onto Mild Steel	Typical Hardness 53-56 Hrc
Multi-Layer	Typical Hardness 55-60 Hrc

ORDERING INFORMATION				
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**APPROX NO OF RODS PER KG**	**PART NUMBER**
	PACKET	**CARTON**		
3.2	5	15	27	HF70032
4.0	5	15	18	HF70040
5.0	5	15	10	HF70050

TUBECORD D - 2355

CLASSIFICATION:

AS/NZS 2576: 2355-A1*
* Nearest Classification

DESCRIPTION:

Weld deposit offers improved abrasion resistance through high levels of carbon and chromium. Ideal for hard surfacing components subjected to heavy abrasion and moderate impact loading.

TYPICAL APPLICATIONS:

Applications include hard surfacing of dredge bucket lips, shovel buckets, scraper and dozer sides, cone crushers and mill hammers, etc. Deposits are grindable, subject to relief checking and may be multi-layered up to 3 layers.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS			
C	**Cr**	**Mn**	**Fe**
5.0	40.0	1.5	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Single Layer	Typical Hardness 55-60 Hrc

ORDERING INFORMATION			
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**PART NUMBER**
	PACKET	**CARTON**	
6.3	5	15	TUBD60

TUBECORD E - 2460

CLASSIFICATION:

AS/NZS 2576: 2460-A1

DESCRIPTION:

Weld deposit contains carbon, chromium, niobium and molybdenum for good resistance to both impact and abrasion.

TYPICAL APPLICATIONS:

Applications include hard surfacing of grizzly bars, bucket teeth, crusher hammers, rail ballast tampers, dredger and ripper teeth etc.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS							
C	**Cr**	**Mo**	**Nb**	**V**	**Mn**	**Si**	**Fe**
4.0	26.5	0.9	7.9	0.4	0.8	1.5	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Single Layer	Typical Hardness 58-61 Hrc

ORDERING INFORMATION			
ELECTRODE SIZE (MM)	**PACKAGING (KG)**		**PART NUMBER**
	PACKET	**CARTON**	
6.3	5	15	TUBE60
8.0	5	15	TUBE80

HARDFACING SOLID MIG WIRES

AUSTMIG TD-600

AUSTMIG TD-600

CLASSIFICATION:
AS/NZS 2576: 1855-B6

DESCRIPTION:
A copper coated, chromium alloy welding wire depositing weld metal with a hardness of 55-60 HRc which has a high resistance against severe abrasion and impact. The deposit is non-machineable but can be shaped by grinding.

Recommended shielding gas: Argon/18-25/CO_2 or 100% CO_2.

TYPICAL APPLICATIONS:
Applications include excavator blades, bucket lips, bucket teeth, screw conveyors, crushing mills and shear blades.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS						
C	**Si**	**Mn**	**P**	**S**	**Cr**	**Fe**
0.45	3.00	0.40	0.025	0.020	9.00	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
As Welded	Two Layers 55-60 HRC

ORDERING INFORMATION		
ELECTRODE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.2	15	MTD60012S

HARDFACING SELF SHIELDED FLUX CORED WIRES

TUBEALLOY 240-O

TUBEALLOY 258-O

TUBEALLOY A43-O

TUBEALLOY 240-O

CLASSIFICATION:
AS/NZS 2576: 2155-B7

DESCRIPTION:
Chromium carbide surfacing alloy self-shielded hard surfacing wire which can be used on components subject to severe abrasive wear and heavy impact. Tougher than conventional chromium carbide.

TYPICAL APPLICATIONS:
Applications include final overlays on roll crusher shells, final overlays on hammermill hammers, cone crushers, shovel teeth, augers and screw conveyors.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS				
C	**Mn**	**Si**	**Cr**	**Fe**
3.20	1.80	1.90	15.50	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS			
	NUMBER OF LAYERS	**AS DEPOSITED ON**	
		1020 STEEL	**Mn STEEL**
HARDNESS	1	40 Rc	35 Rc
	2	48 Rc	42 Rc
	3-5	52 Rc	50 Rc
Abrasion Resistance		Very Good	
Impact Resistance		Fair	
Non Machinable		Grinding Is Difficult	
Cannot be flame cut			
Deposit will relief cracks			
Thickness should be limited to five layers maximum			

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.2	11.3	S604012-029
1.6	11.3	S604019-029

HARDFACING PRODUCTS

HARDFACING SELF SHIELDED FLUX CORED WIRES

TUBEALLOY 258-0

CLASSIFICATION:
AS/NZS 2576: 1550-B7

DESCRIPTION:
A fabricated type, open arc tubular flux cored wire depositing a Cr-Mo-W Martensitic steel alloy. It is designed for surfacing mild and low alloy steel components subject to moderate abrasive wear and impact under high compressive stresses and/or at temperatures up to 530˚C. Crack free deposits can be obtained by controlled heat input or the use of preheat.

TYPICAL APPLICATIONS:
Applications include machine components, tools and sliding metal to metal parts, dragline chains, kiln trunnions, mill guides, spindles and wobbler ends.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS

C	Mn	Si	Cr	Mo	W	Fe
0.45	1.40	0.80	6.00	1.50	1.50	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS

HARDNESS	NUMBER OF LAYERS	AS DEPOSITED ON	
		1020 STEEL	Mn STEEL
	1	49 Rc	51Rc
	2	53 Rc	54 Rc
	3	57 Rc	57 Rc
Abrasion Resistance		Good	
Impact Resistance		Good	
Non Machinable		Grinding Only	
Flame Cutting		Difficult	
Heat treatable and forgetable			
Maintains hot hardness up to 530˚C			

ORDERING INFORMATION

WIRE SIZE (MM)	PACKET SIZE (KG)	PART NUMBER
1.2	11.3	S605812-029
1.6	11.3	S605819-029

TUBEALLOY A43-0

CLASSIFICATION:
AS/NZS 2576: 2460-B7

DESCRIPTION:
Self shielding wire depositing a high Cr/Nb surfacing alloy which resists severe high and low stress abrasion and low to moderate impact. The weld deposit will check crack readily and can be used where high temperature wear resistance is required.

TYPICAL APPLICATIONS:
Applications include augers, bucket lips and teeth, coal pulverizer rolls and tables, coke chutes, conveyor screws, dredge cutter heads and teeth, fan blades, grizzly and fingers, muller tires, paving agitator screws, pipeline ball joints, pub mill paddles, scraper blades, sheepsfoot tampers and sizing screws.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS

C	Mn	Si	Cr	Nb	Fe
5.50	0.20	1.00	22.00	6.50	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS

HARDNESS	NUMBER OF LAYERS	AS DEPOSITED ON	
		1020 STEEL	Mn STEEL
	1	56-60 Rc	45-50 Rc
	2	60-64 Rc	54-58 Rc
Abrasion Resistance		Excellent	
Impact Resistance		Poor	
Non Machinable		Grinding Only	
Cannot be flame cut			
Thickness 2-3 layers maximum			

ORDERING INFORMATION

WIRE SIZE (MM)	PACKET SIZE (KG)	PART NUMBER
1.6	11.3	S607719-029

HARDFACING GAS SHIELDED FLUX CORED WIRES

VERTIWEAR 600

VERTIWEAR 600

CLASSIFICATION:

AS 2576: 1855-B5*
*Nearest Classification

DESCRIPTION:

Gas shielded, all position, hard surfacing flux cored wire depositing a multi-purpose martensitic steel alloy. Can be used to hard surface mild and low alloy steel components subject to moderate abrasion coupled with medium to high impact. It also exhibits excellent compressive strength and metal to metal wear resistance. Excellent operator appeal in all positions. Recommended shielding gas is 75% Argon -25% CO_2.

TYPICAL APPLICATIONS:

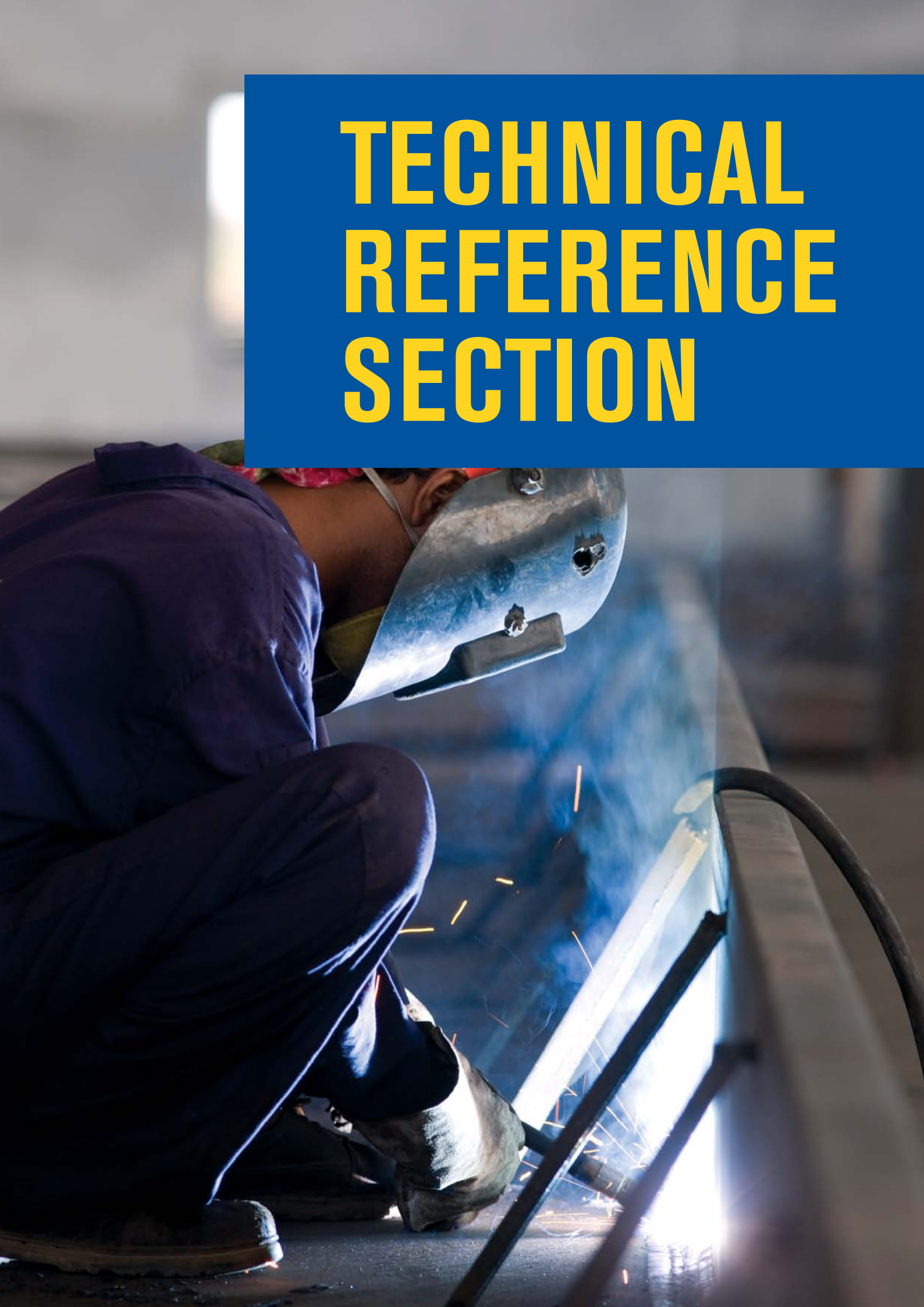
Typical applications include ripper teeth, dozer blades, dragline chains, facing of agricultural points and equipment, sliding metal parts and kiln trunnions.

TYPICAL ALL WELD METAL CHEMICAL ANALYSIS					
C	**Mn**	**Si**	**Cr**	**Mo**	**Fe**
0.40	0.85	0.70	6.0	0.50	Bal

TYPICAL ALL WELD METAL MECHANICAL ANALYSIS	
Single Layer - As Welded (1020 Steel)	Typically, 52 HRC
Three layer - As Welded (1020 Steel)	Typically, 57 HRC

ORDERING INFORMATION		
WIRE SIZE (MM)	**PACKET SIZE (KG)**	**PART NUMBER**
1.2	11.3	S607112-029

TECHNICAL REFERENCE SECTION

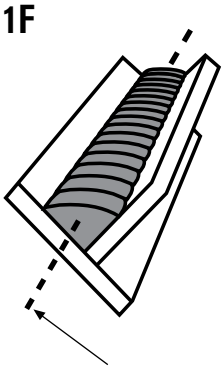


WELDING POSITION DIAGRAMS

DIAGRAMS: FILLET, PIPE BUTT AND BUTT WELDS

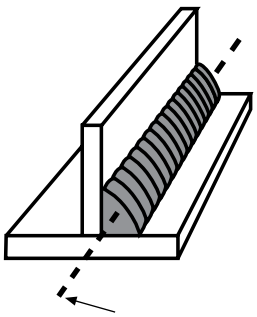
FILLET WELDS

FLAT POSITION
1F



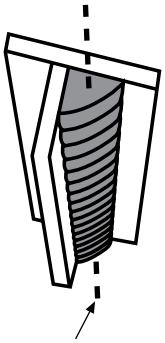
Axis of Weld
Horizontal

HORIZONTAL POSITION
2F



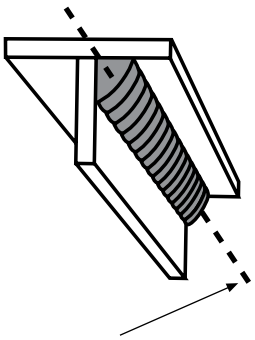
Axis of Weld
Horizontal

VERTICAL POSITION
3F



Axis of Weld
Vertical

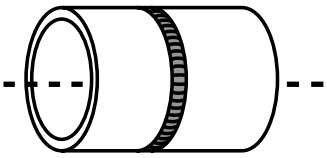
OVERHEAD POSITION
4F



Axis of Weld
Vertical

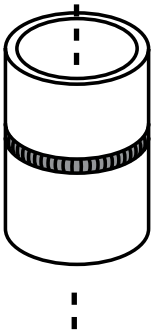
PIPE BUTT WELDS

FLAT
1G



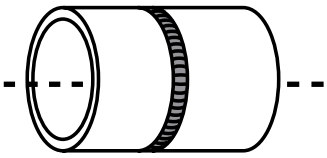
Pipe shall be turned or rolled while welding, Axis of Pipe Horizontal

HORIZONTAL
2G



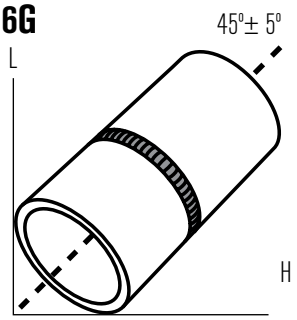
Axis of pipe Vertical

POSITION
5G



Pipe shall NOT be turned or rolled while welding, Axis of Pipe Horizontal

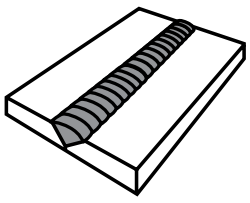
POSITION
6G



Inclined Axis with Pipe Stationary

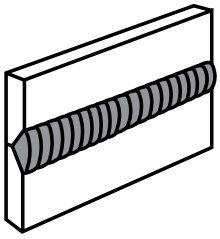
BUTT WELDS

FLAT POSITION
1G



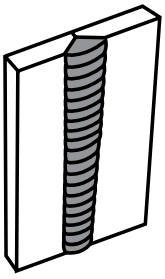
Plates Horizontal

HORIZONTAL POSITION
2G



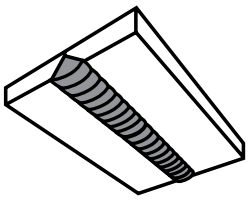
Plates Vertical

VERTICAL POSITION
3G



Plates Vertical

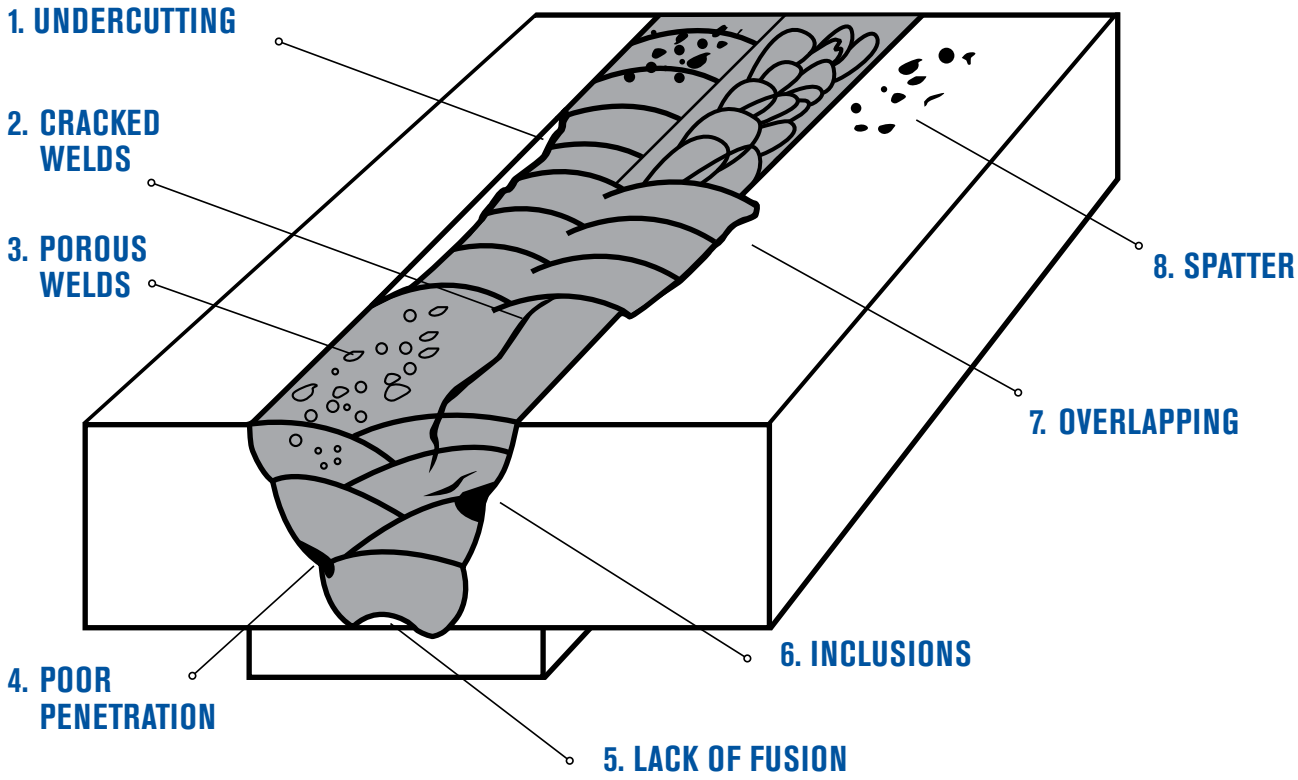
OVERHEAD POSITION
4G



Plates Horizontal

WELDING TROUBLE GUIDE

COMMON WELDING PROBLEMS SOLVED



1. UNDERCUTTING

WHY

1. Faulty electrode manipulation
2. Welding current too high
3. Too long an arc length
4. Too fast travel speed
5. Arc blow

WHAT TO DO

1. Pause at each side of the weld bead when using a weaving technique
2. Use proper electrode angles
3. Use proper welding current for electrode size and welding position
4. Reduce arc length
5. Reduce travel speed
6. Reduce effects of arc blow

2. CRACKED WELDS

WHY

1. Insufficient weld size
2. Excessive joint restraint
3. Poor joint design and/or preparation
4. Filler metal does not match base metal
5. Rapid cooling rate
6. Base metal surface covered with oil, grease, moisture, rust, dirt or mill scale

WHAT TO DO

1. Adjust weld size to part thickness
2. Reduce joint restraint through proper design
3. Select the proper joint design
4. Use more ductile filler
5. Reduce cooling rate through preheat
6. Properly clean base metal prior to welding

3. POROUS WELDS

WHY

1. Excessively long or short arc length
2. Welding current too high
3. Insufficient or damp shielding gas
4. Too fast travel speed
5. Base metal surface covered with oil, grease, moisture, rust, mill scale, etc

WHAT TO DO

1. Maintain proper arc length
2. Use proper welding current
3. Increase gas flowrate and check gas purity
4. Reduce travel speed
5. Properly clean base metal prior to welding
6. Properly maintain and store electrode

4. POOR PENETRATION

WHY

1. Travel speed too fast
2. Welding current too low
3. Poor joint design and/or preparation
4. Electrode diameter too large
5. Wrong type of electrode
6. Excessively long arc length

WHAT TO DO

1. Decrease travel speed
2. Increase welding current
3. Increase root opening or decrease root face
4. Use smaller electrode
5. Use electrode with deeper penetration characteristics
6. Reduce arc length

5. LACK OF FUSION

WHY

1. Improper travel speed
2. Welding current too low
3. Faulty joint preparation
4. Too large an electrode diameter
5. Magnetic arc blow
6. Wrong electrode angle
6. Use proper electrode angles

WHAT TO DO

1. Reduce travel speed
2. Increase welding current
3. Weld design should allow electrode accessibility to all surfaces within the joint
4. Reduce electrode diameter
5. Reduce effects of magnetic arc blow

6. INCLUSIONS

WHY

1. Incomplete slag removal between passes
2. Erratic travel speed
3. Too wide a weaving motion
4. Too large an electrode
5. Letting slag run ahead of arc
6. Tungsten spitting or sticking

WHAT TO DO

1. Completely remove slag between passes
2. Use a uniform travel speed
3. Reduce width of weaving technique
4. Use a smaller electrode size for better access to joint
5. Increase travel speed or change electrode angle or reduce arc length
6. Properly prepare tungsten and use proper current

7. OVERLAPPING

WHY

1. Too slow travel speed
2. Incorrect electrode angle
3. Too large an electrode

WHAT TO DO

1. Increase travel speed
2. Use proper electrode angles
3. Use a smaller electrode size

8. SPATTER

WHY

1. Arc blow
2. Welding current too high
3. Too long an arch length
4. Wet, unclean or damaged electrode

WHAT TO DO

1. Attempt to reduce the effect of arc blow
2. Reduce welding current
3. Reduce arc length
4. Properly maintain and store electrodes

CLASSIFICATION REFERENCE CHART

ELECTRODE CLASSIFICATIONS

ELECTRODE TYPE	AS/NZS	AWS
GENERAL PURPOSE & LOW HYDROGEN		
AUSTARC 12P	AS/NZS 4855-B - E43 12 A	AWS A5.1: E6012
AUSTARC 13S	AS/NZS 4855-B - E43 13 A	AWS A5.1: E6013
AUSTARC 16TC	AS/NZS 4855-B - E49 16 A U H10	AWS A5.1: E7016
AUSTARC 18TC	AS/NZS 4855-B - E49 18-1 A U H5	AWS A5.1: E7018-1 H8
AUSTARC 77	AS/NZS 4855-B - E49 18-1 A U H5	AWS A5.1: E7018-1 H8
IRON POWDER		
AUSTARC 24	AS/NZS 4855-B - E4924A	AWS A5.1: E7024
CELLULOSE		
AUSTARC 11	AS/NZS 4855-B - E43 11 A	AWS A5.1: E6011
STAINLESS		
STAINCORD 309MO-16	AS/NZS 4854-B - ES309LMo-16	AWS A5.4: E309MoL-16
STAINCORD 316L-16	AS/NZS 4854-B - ES316L-16	AWS A5.4: E316L-16
UNICORD 312	AS/NZS 4854-B - ES312-16	AWS A5.4: E312-16
CAST IRON		
SUPERCAST Ni		AWS A5.15: ENi-CI
SUPERCAST Ni/Fe		AWS A5.15: ENiFe-CI

WIRE CLASSIFICATIONS

WIRE TYPE	AS/NZS	AWS
AUSTFIL 71T	AS/NZS ISO 17632-B - T492T1-1CA-UH10	AWS A5.20: E71T-1
AUSTFIL 71T-1M	AS/NZS ISO 17632-B - T492T1-1MA-UH10	AWS A5.20: E71T-1M
TM-71 HYD	AS/NZS ISO 17632-B - T494T1-1CA-UH5	AWS A5.20: E71T-1C, E71T-12CJ H4/H8
FORMULA XL-525	AS/NZS ISO 17632-B - T492T1-1MA-UH5	AWS A5.20: E71T-1M, E71T-12CJ H8
TM 811-N2	AS/NZS ISO 17632-B - T555T1-1C/MA-2Ni-U H5	AWS A5.29: E81T1-Ni2C/MJ H8
MCAW WIRE		
AUSTFIL 70C-6M	AS/NZS ISO 17632-B - T492T15-0MA-UH5	AWS A5.18: E70C-6M
FCAW-S WIRE		
FABSHIELD 4	AS/NZS ISO 17632-B - T49ZT4-0NA	AWS A5.20: E70T-4
FABSHIELD XLR-8	AS/NZS ISO 17632-B - T494T8-1NP-H10	AWS A5.20: E71T-8JD H8
FABSHIELD 21B	AS/NZS ISO 17632-B - T49ZT11-1NA	AWS A5.20: E71T-11
FABSHIELD 23	AS/NZS ISO 17632-B - T49ZTG-1SNA	AWS A5.20: E71T-GS
FCAW-S WIRE		
AUSTMIG ES6	AS/NZS 2717.1: ES6-GC/M-W503AH	AWS A5.18: ER70S-6
AUSTMIG ESD2	AS/NZS 2717.1: ESD2-GC/M-W559AH	AWS A5.28: ER80S-D2
AUSTMIG NiCrMo	AS/NZS 2717.1: ESMG-GM-W769AH-G	AWS A5.28: ER110S-G

HARDFACING AND MAINTENANCE CLASSIFICATIONS

AS/NZS	
MMAW (SMAW)	
ABRASOCORD 350	AS/NZS 2576: 1435-A4
ABRASOCORD 700	AS/NZS 2576: 1855-A4
ABRASOCORD 43	AS/NZS 2576: 2465-A4
TUBECORD D-2355	AS/NZS 2576: 2355-A1
TUBECORD E-2460	AS/NZS 2576: 2460-A1
FCAW-G WIRE	
VERTIWEAR 600	AS/NZS 2576: 1855-B5
FCAW-S WIRE	
TUBE-ALLOY 240-O	AS/NZS 2576: 2155-B7
TUBE-ALLOY 258-O	AS/NZS 2576: 1550-B7
TUBE-ALLOY A43-O	AS/NZS 2576: 2460-B7
GMAW (MIG) WIRE	
AUSTMIG TD600	AS/NZS 2576: 1855-B6
CUTTING & GOUGING	
AUSTARC C&G	

FILLER METALS SELECTION CHART

CARBON AND LOW ALLOY STEEL

MATERIALS TO BE WELDED		
CATEGORY	**STANDARD**	**GRADE**
Low Carbon, Mild Steel	AS/NZS 1163	C250
	AS 1397	G250, G300
	AS 1450	C/H 200, C/H 250
	AS/NZS 1594	HA 1, 3, 200, 250, 300, 1010, 1016. . .
	AS 2074	C2, C3 C4-1, C7A-1
	AS 3678	200, 250, 300
	AISI/SAE	1006, 1010, 1015, 106, 1020, 1022,1025
	ASTM	A36
Low Strength Steel	AS/NZS 1163	C350, C450
	AS 1397	G350, G450
	AS 1450	C350, H350, C450
	AS/NZS 1594	HA350, HA 00, HW350, XF400
	AS 3678	350, 400, 450
	AS 2074	C1, C4-2, C7A-2
	AISI/SAE	1035, 1040, 1045
	ASTM	A105, A106
	LR	Grade A, B, D, E
	ABS	Class A, B, CS, DS, D, E
	DNV	Grade NVA, NVD, NVE
	BV	Grade A, B, D, E
Medium Strength Steel	AISI/SAE	1050, 1055,
High Strength Steel	AISI/SAE	1060, 1070
	AISI/SAE	4140, 4340
Galvanised Steels		

QUENCHED AND TEMPERED HIGH STRENGTH STEELS AND WEAR PLATES

MATERIALS TO BE WELDED			WELDING CONSUMABLES			
CATEGORY	**STANDARD**	**GRADE**	**MMAW**		**GMAW**	
			MS	**LS**	**MS**	**LS**
Q&T High Strength Steel	AS/NZS 3597	Grade 500 (Bisplate® 60)	N/A	AUSTARC 16TC AUSTARC 18TC AUSTARC 77	AUSTMIG ESD2	AUSTMIG ES6
	AS/NZS 3597	Grade 600 (Bisplate® 70)	N/A	AUSTARC 16TC AUSTARC 18TC AUSTARC 77	AUSTMIG NICRMO	AUSTMIG ES6 AUSTMIG ESD2
	AS/NZS 3597	Grade 700 (Bisplate® 80, Weldox® 700)	N/A	AUSTARC 16TC AUSTARC 18TC AUSTARC 77	AUSTMIG NICRMO	AUSTMIG ES6 AUSTMIG ESD2
			MH	**LS**	**MH**	**LS**
Abrasion Resistant Grades		(Bisplate® 320, 360, 400, 500)	ABRASOCORD 350 ABRASOCORD 700	AUSTARC 16TC AUSTARC 18TC AUSTARC 77	AUSTMIG TD 600	AUSTMIG ES6 AUSTMIG ESD2 AUSTMIG NICRMO

Note: MS: Matching strength LS: Lower strength MH: Matching hardness

WELDING CONSUMABLES

	MMAW	GMAW	FCAW-G	FCAW-S
	AUSTARC 12P AUSTARC 13S AUSTARC 24	AUSTMIG ES6	AUSTFIL 71T AUSTFIL 71T-1M AUSTFIL 70C-6M FORMULA XL-525 TM-71HYD	FABSHIELD 21B FABSHIELD 23 FABSHIELD 4 FABSHIELD XLR-8
	AUSTARC 16TC AUSTARC 18TC AUSTARC 77	AUSTMIG ES6	AUSTFIL 71T AUSTFIL 71T-1M AUSTFIL 70C-6M FORMULA XL-525 TM-71HYD	FABSHIELD 21B FABSHIELD 23 FABSHIELD 4 FABSHIELD XLR-8
	N/A	AUSTMIG ESD2	TM 811N2	N/A
	N/A	AUSTMIG NICRMO	N/A	
	AUSTARC 12P AUSTARC 13S	AUSTMIG ES6	FABSHIELD 21B FABSHIELD 23	

WELDING CONSUMABLES

	FCAW-G		FCAW-S	
	MS	**LS**	**MS**	**LS**
	TM-71HYD TM 811N2	AUSTFIL 71T, AUSTFIL 71T-1M AUSTFIL 70C-6M, FORMULA XL-525	N/A	FABSHIELD 4 FABSHIELD XLR-8
	N/A	AUSTFIL 71T, AUSTFIL 71T-1M AUSTFIL 70C-6M, FORMULA XL-525, TM-71HYD, TM 811N2	N/A	FABSHIELD 4 FABSHIELD XLR-8
	N/A	AUSTFIL 71T, AUSTFIL 71T-1M AUSTFIL 70C-6M, FORMULA XL-525, TM-71HYD, TM 811N2	N/A	FABSHIELD 4 FABSHIELD XLR-8
	MH	**LS**	**MH**	**LS**
	VERTIWEAR 600	AUSTFIL 71T, AUSTFIL 71T-1M AUSTFIL 70C-6M, FORMULA XL-525, TM-71HYD,TM 811N2	TUBE ALLOY 240-O TUBE ALLOY 258-O TUBE ALLOY A43-O	FABSHIELD 4 FABSHIELD XLR-8

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