

UNIBRAZE® 70S-2

Specifications: AISI/AWS A5.18, ASME SFA 5.18

Classification: ER70S-2

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 70S-2 is a premium welding wire designed for welding on all grades of mild and carbon steel, producing quality welds with minimal porosity. UNIBRAZE 70S-2 is also a triple deoxidized wire (Zirconium, Titanium, and Aluminum) making it an excellent choice for welding over rust and mill scale.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.07 max	0.15 max	0.15 max	0.90- 1.40 max	0.40- 0.70 max	0.025 max
S	Cu	Mo	V	Al	Ti
0.035 max	0.50 max	0.15 max	0.03 max	0.05- 0.15 max	0.05- 0.15 max
Fe	Zr				
bal.	0.02- 0.12				

Typical Mechanical Properties*	
Tensile Strength	78,000 psi
Yield Strength	60,000 psi
Elongation in 2"	25 %

*using 98%Ar/2%O₂.

UNIBRAZE® 70S-3

Specifications: AISI/AWS A5.18, ASME SFA 5.18

Classification: ER 70S-3

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 70S-3 is a premium mild steel solid wire, with silicon and manganese levels suitable for general purpose welding over clean to light levels of rust and mill scale. UNIBRAZE 70S-3 has the flexibility to provide trouble-free performance in heavy-duty, high-speed spray or pulse applications to lighter duty, lower speed short-arc applications. GMAW is designed for use with various gas mixtures such as CO₂, 75/25 Ar/CO₂ or 98/2 Ar/O₂. UNIBRAZE 70S-3 produces a smooth stable arc with low spatter, producing a weld bead that ties in evenly with the sides and has a smooth finished appearance.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
.06-.15	0.15 max	0.15 max	0.90- 1.40 max	0.45- 0.75 max	0.025 max
S	Cu	Mo	V	Fe	Other
.035 max	.50 max	0.15 max	0.03 max	bal.	.50 max

Typical Mechanical Properties*	
Tensile Strength	82,000 psi
Yield Strength	65,000 psi
Elongation in 2"	24 %

*using 98%Ar/2%O₂.

UNIBRAZE® 70S-6

Specifications: AISI/AWS A5.18, ASME SFA 5.18

Classification: ER70S-6

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 70S-6 is a premium mild steel solid wire formulated to provide high quality welds and trouble-free performance from heavy duty, high speed, spray transfer applications all the way to light duty low speed, short-arc applications. UNIBRAZE 70S-6 GMAW is designed for use with various gas mixtures such as 100% CO₂, 75/25 Ar/CO₂ or 98/2 Ar/O₂. Even in the most difficult applications UNIBRAZE 70S-6 produces a smooth stable arc with low spatter, producing a weld bead that ties in evenly with the sides and has a smooth finished appearance.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.06- 0.15	0.15 max	0.15 max	1.40- 1.85 max	0.80- 1.15 max	0.025 max
S	Cu	Mo	V	Fe	Other
0.035 max	0.50 max	0.15 max	0.03 max	bal.	0.50 max

Typical Mechanical Properties*	
Tensile Strength	87,000 psi
Yield Strength	74,000 psi
Elongation in 2"	28 %

*using 98%Ar/2%O₂.



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UNIBRAZE[®] 70S-B2L

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER70S-B2L

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 70S-B2L is identical to UNIBRAZE 80S-B2 except for the low-carbon content (1/2% maximum). It exhibits greater resistance to cracking and is more suitable for welds to be left in the as-welded condition or when the accuracy of the postweld heat treatment operation is questionable. The classification was previously ER80S-B2L but the strength requirements and classification designator have been changed to reflect the true strength capabilities due to the lower carbon content in the chemical composition.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.05 max	1.20-1.50	0.20 max	0.40-0.70	0.40-0.70	0.025 max
S	Cu	Mo	Other	Al	Ti
0.025 max	0.35 max	0.40-0.65	0.50 max		

Typical Mechanical Properties	
Tensile Strength	75,000 psi
Yield Strength	58,000 psi
Elongation in 2"	19 %

UNIBRAZE[®] 80S-B2

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER80S-B2

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 80S-B2 is used to weld 1¼% Cr - 1/2% Mo steels for elevated temperatures and corrosive service. Careful control of preheat, interpass temperatures, and post-weld heat treatment is necessary to prevent cracking. UNIBRAZE 80S-B2 is classified after post-weld heat treatment. Special care must be taken when using it in the as-welded condition due to higher strength levels. Recommended GMAW shielding gas is CO₂ or an Argon/CO₂ mixture.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.07-0.12	1.20-1.50	0.20 max	0.40-0.60	0.40-0.70	0.25 max
S	Cu	Mo	Other	Al	Ti
0.025 max	0.35 max	0.40-0.65	0.50 max		

Typical Mechanical Properties	
Tensile Strength	80,000 psi
Yield Strength	68,000 psi
Elongation in 2"	19 %

UNIBRAZE[®] 80S-B3L

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER80S-B3L

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 80S-B3L is identical to Unibraze 90S-B3 except for the lower carbon content (.05% max.) and the lower tensile and yield strengths. It is used to weld 2 ¼ Chrome - 1 Moly steels used for high temperature, high pressure piping and pressure vessels. UNIBRAZE 80S-B3L exhibits greater resistance to cracking and is more suitable for welds left in the as-welded condition. Recommended GMAW shielding gas is CO₂, an Argon/CO₂ mixture or a 98%/2% Argon/O₂ mixture.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.05 max	2.30-2.70	0.20 max	0.40-0.70	0.40-0.70	0.025 max
S	Cu	Mo	Other	Al	Ti
0.025 max	0.35 max	0.90-1.20	0.50 max		

Typical Mechanical Properties (PWHT)	
Tensile Strength	80,000 psi
Yield Strength	68,000 psi
Elongation in 2"	17 %



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UNIBRAZE® 80S-B6 (ER502)

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER80S-B6

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

Unibraze 80S-B6 is used for joining 5% Cr and 1/2% Mo steels such as A336 Gr. F5, A155 Gr. 5 Cr, A335 Grs. P5 and P5b, A217 C5 (cast) and A199/A213 Grs. T5 and T5b. These grades are used for elevated temperature creep service and with corrosion resistance against steam, hot hydrogen gas and high sulfur crude oils. Used primarily in the petro-chemical and refinery industries. A preheat and inter-pass temperature of not less than 350°F should be maintained during welding. Unibraze 80S-B6 is similar to material previously classified as ER502 in AWS A5.9-93.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.10 max	4.50- 6.00	0.60 max	0.40- 0.70	.050 max	0.025 max
S	Cu	Mo	Other		
0.025 max	0.35 max	0.45- 0.65	0.05 max		

Typical Mechanical Properties	
Tensile Strength	80,000 psi
Yield Strength	68,000 psi
Elongation in 2"	17 %

UNIBRAZE® 80S-B8 (ER505)

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER80S-B8

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 80S-B8 welding wire is used for joining 9% Cr -1% Mo air hardening steels for elevated temperature creep service, and with corrosion resistance from steam, hot hydrogen gas, and high sulfur crude oils. These include steels such as A335 Grade P9, A336 Grade F9, A217 C12 (Cast), and A199, A200, and A213 grade T9, used primarily in the petrochemical and refinery industries. A preheat and interpass temperature of not less than 400°F should be maintained during welding. Unibraze 80S-B8 is similar to material previously classified as ER505 in AWS A5.9-93.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.09	8.85	0.09	0.49	0.39	0.008
S	Cu	Mo	N		
0.01	0.35	0.90	0.02		

Typical Mechanical Properties	
Tensile Strength	82,000 psi
Yield Strength	70,000 psi
Elongation in 2"	20 %

UNIBRAZE® 80S-D2

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER80S-D2 / ER90S-D2

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 80S-D2 is a mild steel solid wire that contains 1/2% Mo for increased strength and high levels of manganese and silicon to provide good wetting and good rust and scale tolerance. It will give radiographic quality welds with excellent bead appearance in both ordinary and difficult-to-weld carbon and low alloy steels. UNIBRAZE 80S-D2 is suitable for single and multiple pass welding of carbon and low alloy steels and higher strength steels in the as welded and postweld heat treated conditions. It exhibits excellent out of position characteristics with the short circuiting and pulsed arc processes.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.07- 1.12		0.158 max	1.60- 2.10	0.50- 0.80	0.025 max
S	Cu	Mo	Other	Al	Ti
0.025 max	0.50 max	0.40- 0.60	0.50 max		

Typical Mechanical Properties*	
Tensile Strength	106,000 psi
Yield Strength	90,200 psi
Elongation in 2"	22.5 %

*using 90%Ar/10%CO₂.



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UNIBRAZE[®] 80S-Ni1

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER80S-Ni1

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 80S-Ni1 wire deposits weld metal containing a nominal 1% Ni, similar to an E8018-C3 coated electrode. It is used for welding low alloy high-strength steels that require toughness at temperatures as low as -50°F (-46°C).

Typical Chemistry Analysis						
C	Cr	Ni	Mn	Si	P	
0.12 max	0.15 max	0.80-1.10	1.25 max	0.40-0.80	0.025 max	
S	Cu	Mo	V	Other	TI	
0.025 max	0.35 max	0.35 max	0.05 max	0.5 max		

Typical Mechanical Properties	
Tensile Strength	87,000 psi
Yield Strength	73,950 psi
Elongation in 2"	25 %

UNIBRAZE[®] 80S-Ni2

Specifications: AWSA5.28, ASME SFA 5.28

Classification: ER80S-Ni2

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 80S-Ni2 is a mild steel solid wire that contains over 2% Ni. It will give radiographic quality welds with excellent bead appearance and is suitable for single and multiple pass welding. UNIBRAZE 80S-Ni2 is used for welding of fine grain structural steels if low temperature impact values are required. For service temperatures down to -76°F (-60°C).

Typical Chemistry Analysis						
C	Cr	Ni	Mn	Si	P	
0.12 max		2.00-2.75	1.25 max	0.40-0.80	0.025 max	
S	Cu	Mo	V	Other	TI	
0.025 max	0.35 max			0.5 max		

Typical Mechanical Properties	
Tensile Strength	91,300 psi
Yield Strength	78,300 psi
Elongation in 2"	28 %

UNIBRAZE[®] 90S-B3

Specifications: AWS A5.28, SFA 5.28

Classification: ER90SB3

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE 90S-B3 is used to weld 2¼% Cr - 1% Mo steels used for high temperature, high pressure piping and pressure vessels. It is also used for joining carbon steel and Cr-Mo alloys. Careful control of preheat, interpass temperatures, and postweld heat treatment is essential to prevent cracking. When using UNIBRAZE 90S-B3 in the as-welded condition special care is required due to the higher strength levels. It can be used in all positions. Recommended shielding gas for GMAW is Argon/1-5% O₂.

Typical Chemistry Analysis						
C	Cr	Ni	Mn	Si	P	
0.07-0.12	2.30-2.70	0.20 max	0.40-0.70	0.40-0.70	0.025 max	
S	Cu	Mo	Other	Al	TI	
0.025 max	0.35 max	0.90-1.20	0.50 max			

Typical Mechanical Properties	
Tensile Strength	80,000 psi
Yield Strength	68,000 psi
Elongation in 2"	17 %



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UNIBRAZE® 100S-1

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER100S-1

Type of power: GMAW-DCEP, GTAW-DCEN

Description:

UNIBRAZE ER100S-1 produces high tensile strength, high impact resistant weld deposits that retain their toughness to -70°F (-57°C), making it suitable for low temperature critical applications. UNIBRAZE ER100S-1 is meant for the welding of HY80 and HY100 steels.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.06	0.20	1.60	1.60	0.45	
S	Cu	Mo	V	Al	Ti
		0.40			

Typical Mechanical Properties	
Tensile Strength	104,000 psi
Yield Strength	92,000 psi
Elongation in 2"	16 %

UNIBRAZE® 110S-1

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER110S-1

Description:

UNIBRAZE ER110S-1 produces high tensile strength, high impact resistant weld deposits that retain their toughness to -70°F (-57°C) making it suitable for low temperature critical applications. UNIBRAZE ER110S-1 is meant for the welding of HY100 steels as well as a variety of structural applications where tensile strength requirements exceed 100 ksi (690 MPa).

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.06	0.30	2.20	1.60	0.40	
S	Cu	Mo	V	Al	Ti
		0.40			

Typical Mechanical Properties	
Tensile Strength	114,000 psi
Yield Strength	98,500 psi
Elongation in 2"	15 %

UNIBRAZE® 120S-1

Specifications: AWS A5.28, ASME SFA 5.28

Classification: ER120S-1

Description:

UNIBRAZE 120S-1 deposits high-strength, very tough weld metal for critical applications. Originally developed for welding HY100 steels for military applications, it is also used for a variety of structural applications where tensile strength requirements exceed 100 ksi (690 MPa), and excellent toughness is required to temperatures as low as -60°F (-51°C). UNIBRAZE 120S-1 can be welded in all positions. Recommended shielding gas is CO₂ or Argon/O₂ mix.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.07	0.40	2.40	1.70	0.50	0.006
S	Cu	Mo	Other		Ti
0.008		0.50	0.50 max		

Typical Mechanical Properties	
Tensile Strength	120,000 psi
Yield Strength	105,000 psi
Elongation in 2"	15 %



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UNIBRAZE® RG-45

Specifications: AWS, SFA A5.2

Classification: RG-45

Description:

UNIBRAZE RG-45 is a copper coated gas welding rod that is used for welding ordinary low carbon steel up to 1/4" thick. UNIBRAZE RG-45 produces ductile porosity free welds. It is recommended where ductility and machinability are most important. This rod is excellent for the welding of steel sheets, plates, pipes, castings and structural shapes where the minimum tensile strength requirement does not exceed 45,000 psi.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.08			0.50 max	0.10 max	0.035 max
S	Cu	Mo	V	Al	Tl
0.035				0.02	

Typical Mechanical Properties	
Tensile Strength	45,000 psi
Yield Strength	na psi
Elongation in 2"	22 %

UNIBRAZE® RG-60

Specifications: AWS, SFA A5.2

Classification: RG-60

Description:

UNIBRAZE RG-60 is used to produce high tensile strength quality welds on low carbon and low alloy steels. The high silicon and manganese composition removes impurities from the molten metal thereby eliminating the need for flux. UNIBRAZE RG-60 is also used for the oxyfuel gas welding of carbon steels, where the minimum tensile strength requirement does not exceed 60,000 psi.

Typical Chemistry Analysis					
C	Cr	Ni	Mn	Si	P
0.15			0.90- 1.40	0.10- 0.35	0.035 max
S	Cu	Mo	V	Al	Tl
0.035 max					

Typical Mechanical Properties	
Tensile Strength	60,000 psi
Yield Strength	na psi
Elongation in 2"	20 %

Please note that not all of UNIBRAZES Mild Steel & Low Alloy Wires are listed in this catalog. If you can not find what you are looking for, please contact us toll free at 1-800-364-6900 or directly at 1-713-869-6000.

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Data contained in this catalog are typical of the products described, but are not suitable for specifications.



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