



DESCRIPTON

QuantumArc D2 is a *high-strength, copper-coated* mild steel solid wire that provides X-ray quality welds when used on carbon and low alloy steels. Ideal for single or multi-pass welding, it can be used with CO₂ gas - as well as with Ar/CO₂ mixtures - to produce a high quality weld that is virtually porosity and slag free.

APPLICATIONS:

Construction equipment, pipe, trailers, or any high quality, high strength application. Root pass on open butt weld joints.

FEATURES:

- Higher tensile and yield strength weldments than ER70S-X wires
- High in deoxidizers
- Excellent wetting characteristics
- Low silicon

BENEFITS:

- High quality welds - matched to meet the requirements of many high strength applications
- Excellent for rusty, scaly, oily plate and pipes
- Smoother weld beads with uniform tie-in
- Excellent for open root pass welding

SHIELDING GAS: 100% CO₂, 75% Ar/25% CO₂, 90% Ar/10% CO₂, 92% Ar/8% CO₂ and other commercially available shielding gas mixtures.

TYPICAL CHEMISTRIES*:

	Wire		Weld Deposit		
	AWS Wire Spec	Wire (Melt Button)	100% CO ₂	75%Ar/25% CO ₂	90%Ar/10% CO ₂
Carbon (C)	0.07 - 0.12	0.09	0.09	0.09	0.09
Manganese (Mn)	1.60 - 2.10	1.90	1.37	1.53	1.58
Silicon (Si)	0.50 - 0.80	0.60	0.22	0.46	0.49
Phosphorus (P)	.025 max	0.015	0.015	0.015	0.014
Sulphur (S)	.025 max	0.015	0.015	0.015	0.014
Molybdenum (Mo)	0.40 - 0.60	0.51	0.42	0.48	0.49
Nickel (Ni)	0.15 max	0.015	0.015	0.015	0.014
Copper (Cu)	.50*	0.13	0.13	0.12	0.12

*Cooper content of wire and copper shall not exceed .5% max.

TYPICAL MECHANICAL PROPERTIES:(AW)

	AWS SPEC (CO ₂)	100% CO ₂	75%Ar/25% CO ₂	90%Ar/10% CO ₂
Tensile Strength	80,000 psi (min)	93,300 psi (643 MPa)	103,000 psi (710 MPa)	106,000 psi (731 MPa)
Yield Strength	68,000 psi (min)	81,900 psi (565 MPa)	89,900 psi (613 MPa)	76,400 psi (622 MPa)
Elongation % in 2"	17%	19.8%	22.5%	24%
Reduction in Area	not specified	62%	62.3%	49%

TYPICAL CHARPY V-NOTCH IMPACT*VALUES(AW):**

	AWS SPEC (CO ₂)	100% CO ₂	75%Ar/25% CO ₂	90%Ar/10% CO ₂
Avg. at room temperature	not specified	55 ft•lbs (75 J)	118 ft•lbs (84 J)	114 ft•lbs (102 J)
Avg. at 0°F (-18°C)	not specified	33 ft•lbs (47 J)	84 ft•lbs (54 J)	78 ft•lbs (71 J)
Avg. at -20°F (-29°C)	20 ft•lbs (min)	27 ft•lbs (37 J)	53 ft•lbs (41 J)	83 ft•lbs (49 J)

CONFORMANCES AND APPROVALS:

- AWS A5.28, ER80S-D2/ER90S-G • ASME SFA 5.28, A-2, F-6
- CWB

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SHORT-CIRCUIT TRANSFER WELDING PARAMETERS*:

Material Thickness ¹			Electrode Diameter		Welding Current (DC) amps	Arc Voltage (electrode positive)	Wire Feed Speed ipm	Travel Speed ipm	Deposition Rate lbs/hr
size	in. (decimal)	mm	in.	mm					
20 ga.	0.037	0.9	.035	0.9	55-85	16-18	70-120	15-25	1.0-1.6
18 ga.	0.050	1.3	.035	0.9	70-100	17-20	100-160	20-35	1.3-2.1
1/16"	0.063	1.6	.035	0.9	80-120	17-20	120-180	20-35	1.6-2.4
5/64"	0.078	2.0	.035	0.9	100-130	18-21	160-220	20-35	2.1-2.9
1/8"	0.125	3.2	.035	0.9	120-175	19-22	210-290	20-30	2.7-3.8
1/8"	0.125	3.2	.045	1.1	140-160	18-21	120-160	15-25	3.1-4.2
3/16"	0.187	4.7	.035	0.9	140-175	19-22	240-290	14-19	3.1-3.8
3/16"	0.187	4.7	.045	1.1	160-200	19-22	150-225	15-22	3.9-5.9
1/4"	0.250	6.4	.035	0.9	140-160	19.22	240-290	9-13	3.1-3.8
1/4"	0.250	6.4	.045	1.1	180-225	20-23	190-240	12-18	5.0-6.3

NOTE: Single-pass flat and horizontal fillet positions. Reduce current 10 to 15% for vertical and overhead welding.

¹ For fillet and groove welds—for fillet welds, size equals metal thickness; for square groove welds, the root opening should equal 1/2 the metal thickness.

² Shielding gas is 100% CO₂ or 75% Ar/25% CO₂; 20-35 cfh.

SPRAY TRANSFER WELDING PARAMETERS*:

Material Thickness ¹			Electrode Diameter		Welding Current (DC) amps	Arc Voltage (electrode positive)	Wire Feed Speed ipm	Travel Speed ipm	Deposition Rate lbs/hr
size	in. (decimal)	mm	in.	mm					
1/8"	0.125	3.2	.035	0.9	160-170	23-24	320-340	17-22	5.1-5.4
1/8"	0.125	3.2	.045	1.1	170-180	23-24	170-185	16-21	4.5-4.8
3/16"	0.187	4.7	.035	0.9	180-190	24-25	360-380	15-20	5.7-6.0
3/16"	0.187	4.7	.045	1.1	190-200	24-25	195-210	14-19	5.1-5.5
1/4"	0.250	6.4	.035	0.9	200-210	24-25	400-420	12-18	6.3-6.6
1/4"	0.250	6.4	.045	1.1	210-220	25-26	220-240	11-17	5.8-6.3
5/16"	0.313	7.9	.035	0.9	220-250	25-26	420-510	11-16	6.6-8.0
5/16"	0.313	7.9	.045	1.1	220-300	26-28	240-375	11-18	6.3-9.8
3/8"	0.375	9.5	.045	1.1	300-350	26-28	375-475	11-19	9.8-12.4
1/2"	0.500	12.7	.045	1.1	325-375	27-29	400-550	12-18	10.5-14.4

*Shielding gas: 90% Ar/10% CO₂ at 35-50 cfh with electrode stick-out, 3/4" ± 1/8". (Voltage adjustments likely if other spray arc gases are used—85% Ar min.)

¹Fillet and groove welds (backing may be required on groove welds).

AVAILABLE DIAMETERS AND PACKAGES:

Diameter		10-lb. Spool	33-lb. Steel Reel™	45-lb. Steel Reel™	60-lb. Spool	600-lb. RoboPak®
in	mm					
.035	0.9	S307208-022	S307208-033	S307208-045	--	S307208-011
.045	1.2	--	S307212-033	S307212-045	S307212-028	S307212-011

Material Safety Data Sheets on any Hobart Brothers Company product may be obtained from Hobart Customer Service.

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