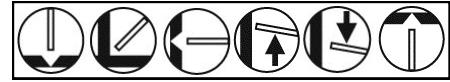


# HB-25



AWS ER70S-3

WELDING POSITIONS:



**FEATURES:**

- High welder appeal
- Lower spatter level
- Clean weld deposit

**BENEFITS:**

- Arc is smooth and stable
- Minimal after weld clean-up
- Weld is virtually ready to paint or plate, fewer silicon islands than with EROS-6 wire

**APPLICATIONS:**

- Auto frames
- Metal furniture
- Railcars
- Storage bins
- Sheet metal
- General fabrication

**SLAG SYSTEM:** Fast freezing, rutile type, flux-cored wire

**SHIELDING GAS:** 100% Carbon Dioxide (CO<sub>2</sub>), 75-92% Argon (Ar)/Balance Carbon Dioxide (CO<sub>2</sub>) 25-50 cfm (9-24 l/min)

**TYPE OF CURRENT:** Direct Current Electrode Positive (DCEP)

**STANDARD DIAMETERS:** 0.035" (0.9 mm), 0.045" (1.2 mm)

**RE-DRYING:** Not recommended

**STORAGE:** Product should be stored in a dry, enclosed environment, and in its original intact packaging.

**TYPICAL WELD METAL PROPERTIES\* (Wire Chemistry):**

Weld Metal Analysis		AWS Spec
Carbon (C)	0.09	0.06-0.15
Manganese (Mn)	1.18	0.90-1.40
Silicon (Si)	0.57	0.45-0.75
Phosphorus (P)	0.007	0.025 max
Sulphur (S)	0.012	0.035 max
Copper (Cu)	0.22	0.50 <sub>†</sub>

† Copper content of wire and copper coating shall not exceed .5% max.

**TYPICAL MECHANICAL PROPERTIES\* (As Welded):**

Mechanical Tests	100% CO <sub>2</sub>	AWS Spec
Tensile Strength	80,000 psi (552 MPa)	70,000 psi (483 MPa) Minimum
Yield Strength	64,000 psi (442 MPa)	58,000 psi (400 MPa) Minimum
Elongation % in 2" (50 mm)	27%	22%

**TYPICAL CHARPY V-NOTCH IMPACT VALUES\* (As Welded):**

CVN Temperatures	100% CO <sub>2</sub>	AWS Spec
Avg. at -0°F (-18°C)	94 ft•lbs (128 Joules)	20 ft•lbs (27 Joules) Minimum

\*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and Hobart Brothers Company expressly disclaims any liability incurred from any reliance thereon. Typical data are those obtained when welded and tested in accordance with the AWS A5.18 specification. Other tests and procedures may produce different results. No data is to be construed as a recommendation for any welding condition or technique not controlled by Hobart Brothers Company.

# HB-25

## SHORT-CIRCUIT TRANSFER WELDING PARAMETERS\*:

Material Thickness <sup>1</sup>			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.**

<sup>1</sup> 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.

<sup>2</sup> Shielding gas is 100% CO<sub>2</sub> or 75% Ar/25% CO<sub>2</sub>; 20-35 cfh.

## SPRAY TRANSFER WELDING PARAMETERS\*:

Material Thickness <sup>1</sup>			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% CO<sub>2</sub> 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.)

<sup>1</sup>Fillet and groove welds (backing may be required on groove welds).

- **Maintaining a proper welding procedure - including pre-heat and interpass temperatures - may be critical depending on the type and thickness of steel being welded.**
- **For out of position welding, short circuit or pulsed spray transfer modes must be used.**
- **See Above:** The information above was determined by welding using 75% Ar/25% CO<sub>2</sub> shielding gas with a flow rate between 25-50 cfh (14-24 l/min).

### CONFORMANCES AND APPROVALS:

- AWS A5.18, ER70S-3
- ASME SFA 5.18, F-6, A-1

### CAUTION:

Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standard Z49.1, "Safety in Welding and Cutting," published by the American Welding Society, 550 NW LeJune Road, Miami, FL 33126; OSHA Safety and Health Standards 29 CFR 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210

Material Safety Data Sheets on any Hobart Brothers Company product may be obtained from Hobart Customer Service or at [www.hobartbrothers.com](http://www.hobartbrothers.com).

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