

## Dual Shield II 70T-12H4

Each of the new Dual Shield II H4 wires is an all-position flux cored wire that provides excellent low temperature toughness in both the as welded and/or stress relieved conditions (as applicable) when used with 75% Ar / 25% CO<sub>2</sub>. Each can produce diffusible hydrogen levels of 4 mL/100g over a wide range of welding parameters. Dual Shield II 70T-12H4 also provides the smooth arc and low spatter levels characteristic of other Dual Shield II wires. Dual Shield II 70T-12H4 can be used in construction, heavy equipment fabrication, offshore oil components, shipbuilding, and railcar. Weld metal analysis is similar to E7018.

| Specifications         |                                                                                                                                                  |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Classifications</b> | ASME SFA 5.36<br>ASME SFA 5.20<br>AWS A5.36 : E71T1-M21P2-CS2-H4<br>AWS A5.36 : E71T1-M21A4-CS2-H4<br>AWS A5.20 : E71T-1MJ-H4/T-9MJ-H4/T-12MJ-H4 |
| <b>Approvals</b>       | ABS<br>CWB : CSA W48 E491T-12MJ-H4<br>DNV-GL<br>LR                                                                                               |
| <b>Industry</b>        | Bridge Construction<br>Civil Construction<br>Mobile Equipment<br>Industrial and General Fabrication<br>Railcars<br>Ship/Barge Building           |

Approvals are based on factory location. Please contact ESAB for more information.

| Typical Tensile Properties                      |                    |                    |            |                   |
|-------------------------------------------------|--------------------|--------------------|------------|-------------------|
| Condition                                       | Yield Strength     | Tensile Strength   | Elongation | Reduction in Area |
| <b>75% Ar - 25% CO<sub>2</sub></b>              |                    |                    |            |                   |
| As Welded                                       | 495 MPa ( 72 ksi ) | 550 MPa ( 80 ksi ) | 27 %       | 71 %              |
| Stress Relieved<br>2 hour(s) 621 °C ( 1150 °F ) | 460 MPa ( 68 ksi ) | 540 MPa ( 78 ksi ) | 30 %       | 73 %              |

| Typical Charpy V-Notch Properties  |                     |                    |
|------------------------------------|---------------------|--------------------|
| Condition                          | Testing Temperature | Impact Value       |
| <b>75% Ar - 25% CO<sub>2</sub></b> |                     |                    |
| Stress Relieved                    | -29 °C ( -20 °F )   | 103 J ( 76 ft-lb ) |

| Typical Weld Metal Analysis %      |      |      |       |       |
|------------------------------------|------|------|-------|-------|
| C                                  | Mn   | Si   | S     | P     |
| <b>75% Ar - 25% CO<sub>2</sub></b> |      |      |       |       |
| 0.049                              | 1.18 | 0.37 | 0.007 | 0.012 |

| Deposition Data        |         |         |                                |                           |                             |
|------------------------|---------|---------|--------------------------------|---------------------------|-----------------------------|
| Diameter               | Current | Voltage | Wire Feed Speed                | Deposition Efficiency (%) | Deposition Rate             |
| <b>C - 25</b>          |         |         |                                |                           |                             |
| 1.4 mm<br>( .052 in. ) | 155 A   | 24 V    | 381 cm/min<br>( 150 in./min )  | 72.3 %                    | 1.58 kg/h<br>( 3.5 lbs/h )  |
| 1.6 mm<br>( 1/16 in. ) | 365 A   | 27 V    | 889 cm/min<br>( 350 in./min )  | 86.9 %                    | 5.85 kg/h<br>( 12.9 lbs/h ) |
| 1.4 mm<br>( .052 in. ) | 185 A   | 25 V    | 508 cm/min<br>( 200 in./min )  | 82.1 %                    | 2.44 kg/h<br>( 5.4 lbs/h )  |
| 1.4 mm<br>( .052 in. ) | 305 A   | 28 V    | 1016 cm/min<br>( 400 in./min ) | 85.2 %                    | 5.03 kg/h<br>( 11.1 lbs/h ) |

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### Deposition Data

| Diameter             | Current | Voltage | Wire Feed Speed              | Deposition Efficiency (%) | Deposition Rate           |
|----------------------|---------|---------|------------------------------|---------------------------|---------------------------|
| 1.2 mm<br>(.045 in.) | 245 A   | 27.5 V  | 1016 cm/min<br>(400 in./min) | 82.9 %                    | 3.58 kg/h<br>(7.9 lbs/h)  |
| 1.4 mm<br>(.052 in.) | 250 A   | 26.5 V  | 762 cm/min<br>(300 in./min)  | 83.6 %                    | 3.67 kg/h<br>(8.1 lbs/h)  |
| 1.6 mm<br>(1/16 in.) | 190 A   | 24 V    | 381 cm/min<br>(150 in./min)  | 80.3 %                    | 2.40 kg/h<br>(5.3 lbs/h)  |
| 1.2 mm<br>(.045 in.) | 195 A   | 26 V    | 762 cm/min<br>(300 in./min)  | 81.8 %                    | 2.63 kg/h<br>(5.8 lbs/h)  |
| 1.2 mm<br>(.045 in.) | 285 A   | 29 V    | 1270 cm/min<br>(500 in./min) | 84.6 %                    | 4.49 kg/h<br>(9.9 lbs/h)  |
| 1.6 mm<br>(1/16 in.) | 335 A   | 26 V    | 762 cm/min<br>(300 in./min)  | 85.4 %                    | 4.89 kg/h<br>(10.8 lbs/h) |
| 1.2 mm<br>(.045 in.) | 145 A   | 24.5 V  | 508 cm/min<br>(200 in./min)  | 81.5 %                    | 1.72 kg/h<br>(3.8 lbs/h)  |
| 1.6 mm<br>(1/16 in.) | 295 A   | 25 V    | 635 cm/min<br>(250 in./min)  | 80.8 %                    | 3.90 kg/h<br>(8.6 lbs/h)  |
| 1.6 mm<br>(1/16 in.) | 410 A   | 28 V    | 1016 cm/min<br>(400 in./min) | 87.9 %                    | 6.80 kg/h<br>(15.0 lbs/h) |

### Recommended Welding Parameters

| Current                            | Wire Diameter        | TTW Dist.                     | Voltage | Wire Feed Speed                      |
|------------------------------------|----------------------|-------------------------------|---------|--------------------------------------|
| <b>75% Ar - 25% CO<sub>2</sub></b> |                      |                               |         |                                      |
| 130-220 A                          | 1.2 mm<br>(.045 in.) | 12.7-16 mm<br>(1/2-5/8 in.)   | 22-26 V | 249-508 cm/min<br>(110-200 in./min)  |
| 185-290 A                          | 1.6 mm<br>(1/16 in.) | 16-25.4 mm<br>(5/8-1 in.)     | 24-28 V | 279-559 cm/min<br>(110-220 in./min)  |
| 135-250 A                          | 1.4 mm<br>(.052 in.) | 25.4-16 mm<br>(1/2-5/8 in.)   | 22-26 V | 279-584 cm/min<br>(110-230 in./min)  |
| 220-280 A                          | 1.2 mm<br>(.045 in.) | 16-19 mm<br>(5/8-3/4 in.)     | 25-29 V | 508-762 cm/min<br>(200-300 in./min)  |
| 280-320 A                          | 1.2 mm<br>(.045 in.) | 19-25.4 mm<br>(3/4-1 in.)     | 26-31 V | 762-1016 cm/min<br>(300-400 in./min) |
| 290-350 A                          | 1.6 mm<br>(1/16 in.) | 25.4-31.75 mm<br>(1-1.25 in.) | 26-30 V | 559-838 cm/min<br>(220-330 in./min)  |
| 280-330 A                          | 1.4 mm<br>(.052 in.) | 19-25.4 mm<br>(3/4-1 in.)     | 26-31 V | 762-1016 cm/min<br>(300-400 in./min) |
| 250-280 A                          | 1.4 mm<br>(.052 in.) | 16-19 mm<br>(5/8-3/4 in.)     | 25-29 V | 584-762 cm/min<br>(230-300 in./min)  |