



# CEWELD ER 90S-B9 (P91)

|                                                   |                                                                                                                                                                                                                                                                                                                                                                                          |                         |                      |                    |                         |      |          |      |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|--------------------|-------------------------|------|----------|------|
| TYPE                                              | Medium alloyed copper-plated welding wire for welding creep and hydrogen pressure resistant steels. 9%Cr-alloyed steels (CrMo91, B91)                                                                                                                                                                                                                                                    |                         |                      |                    |                         |      |          |      |
| APPLICATIONS                                      | CEWELD® ER 90S-B9 (P91) is designed for welding equivalent type 91~ 9% Cr Steels modified with small additions of Niobium, Vanadium and Nitrogen to offer improved long term creep properties. This alloy is specially intended for high integrity structural service at elevated temperature such as: Headers, main steam piping and turbine casings, gasification plants etc..         |                         |                      |                    |                         |      |          |      |
| PROPERTIES                                        | CEWELD® ER 90S-B9 (P91) is specially designed for use in high-strength constructions at elevated temperatures. The optimized chem. The optimized chemical composition guarantees that the minor alloy additives responsible for creep resistance are above the minimum.                                                                                                                  |                         |                      |                    |                         |      |          |      |
| CLASSIFICATION                                    | AWS                                                                                                                                                                                                                                                                                                                                                                                      | A 5.28: ER 90S-B91      |                      |                    |                         |      |          |      |
|                                                   | EN ISO                                                                                                                                                                                                                                                                                                                                                                                   | 21952-A: G CrMo91       |                      |                    |                         |      |          |      |
|                                                   | W.Nr.                                                                                                                                                                                                                                                                                                                                                                                    | 1.4903                  |                      |                    |                         |      |          |      |
|                                                   | F-nr                                                                                                                                                                                                                                                                                                                                                                                     | 6                       |                      |                    |                         |      |          |      |
|                                                   | FM                                                                                                                                                                                                                                                                                                                                                                                       | 4                       |                      |                    |                         |      |          |      |
| SUITABLE FOR                                      | <b>P91: 9%Cr-1% Mo ISO 15608: ~5,4 C ≤ 0,35 %, 7,0 % ≤ Cr &lt; 10,0 % und 0,7 &lt; Mo ≤ 1,2 %</b><br>1.4903, 1.4904, 1.4922, 1.4955, 1.7386, 1.7389,<br>X12CrMo 9 1, GX12CrMo 10 1, X11CrMo9-1, X7CrMo9-1, X10CrMoVNb9-1,<br>ASTM: Grade 91, T91, P91, F91, FP91, A182/A336 grade F91, A213 grade T91, A217 grade C12A, A234 grade WP91, A387 grade 91, A335 grade P91<br>STPA28, STBA28 |                         |                      |                    |                         |      |          |      |
| APPROVALS                                         | CE                                                                                                                                                                                                                                                                                                                                                                                       |                         |                      |                    |                         |      |          |      |
| WELDING POSITIONS                                 |                                                                                                                                                                                                                                                                                                       |                         |                      |                    |                         |      |          |      |
| TYPICAL CHEMICAL ANALYSIS OF THE FILLER METAL (%) | C                                                                                                                                                                                                                                                                                                                                                                                        | Si                      | Mn                   | Cr                 | Ni                      | Mo   | V        | Nb   |
|                                                   | 0.07                                                                                                                                                                                                                                                                                                                                                                                     | 0.4                     | 0.5                  | 9                  | 0.45                    | 0.95 | 0.2      | 0.05 |
| MECHANICAL PROPERTIES                             | Heat Treatment                                                                                                                                                                                                                                                                                                                                                                           | R <sub>P0,2</sub> (MPa) | R <sub>m</sub> (MPa) | A <sub>5</sub> (%) | Impact Energy (J) ISO-V |      | Hardness |      |
|                                                   | 730°C- 760°C 2h                                                                                                                                                                                                                                                                                                                                                                          | 560                     | 780                  | 23                 | RT                      |      | HRc      |      |
| REDRYING                                          | Not required                                                                                                                                                                                                                                                                                                                                                                             |                         |                      |                    |                         |      |          |      |
| GAS ACC. EN ISO 14175                             | M21                                                                                                                                                                                                                                                                                                                                                                                      |                         |                      |                    |                         |      |          |      |



# CEWELD ER 90S-B9 (P91)

ER 90S-B9 (P91) 0,8MM

| Packaging | KG/unit | EanCode       |
|-----------|---------|---------------|
| BS-300    | 15      | 8720663416926 |

ER 90S-B9 (P91) 1,0MM

| Packaging | KG/unit | EanCode       |
|-----------|---------|---------------|
| BS-300    | 15      | 8720663416940 |

ER 90S-B9 (P91) 1,2MM

| Packaging | KG/unit | EanCode       |
|-----------|---------|---------------|
| BS-300    | 15      | 8720663416988 |