

## Classifications

| EN ISO 14343-A | EN ISO 14343-B | AWS A5.9     |
|----------------|----------------|--------------|
| G 13           | SS(410)        | ER410 (mod.) |

## Characteristics and typical fields of application

GMAW solid wire of type G 13 / ER 410 (mod.) predominantly used for surfacing of sealing faces of valves for gas, water, and steam piping systems at service temperatures up to +450 °C. The machinability of the weld metal depends largely upon the kind of base metal and degree of dilution. Joint welding of similar 13 % chromium steels shows matching colour of the weld metal and very good ability to polishing. Good feeding, welding and wetting characteristics.

## Base materials

**Surfacings:** all weld able substrates, unalloyed and low-alloyed

**Joint welds:** corrosion resistant Cr-steels as well as other similar-alloyed steels with C-contents ≤ 0.20 % (repair welding); heat resistant Cr-steels of similar chemical composition. Be careful with dilution and welding technology.

1.4006 X12Cr13, 1.4021 X20Cr13

AISI 410, 420

## Typical analysis of solid wire (wt.-%)

|       | C    | Si  | Mn  | Cr   |
|-------|------|-----|-----|------|
| wt.-% | 0.06 | 0.7 | 0.6 | 13.6 |

## Mechanical properties of all-weld metal

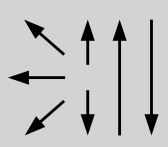
| Condition | Yield strength $R_{p0.2}$ | Tensile strength $R_m$ | Elongation A ( $L_0=5d_0$ ) | Impact work ISO-V KV J | Brinell-hardness |
|-----------|---------------------------|------------------------|-----------------------------|------------------------|------------------|
|           | MPa                       | MPa                    | %                           | +20 °C                 | HB               |
| u         |                           |                        |                             |                        | <b>320</b>       |
| a         | ≥ 250                     | ≥ 450                  | ≥ 15                        |                        | <b>200</b>       |

u untreated, as welded – shielding gas Ar + 8 – 10 % CO<sub>2</sub>

a annealed, 720 °C/2 h – shielding gas Ar + 8 – 10 % CO<sub>2</sub>

The hardness of the deposit is greatly influenced by the degree of dilution with the base metal (depending on the relevant welding conditions) and by its chemical composition. As a general rule it can be observed that the higher the degree of dilution and the C-content of the base metal, the higher the deposit hardness. Gas mixtures containing CO<sub>2</sub> result in higher deposit hardness than CO<sub>2</sub>-free gas mixtures.

## Operating data

|  | Polarity:<br>DC ( + ) | Shielding gases:<br>Argon + 8 – 10 % CO <sub>2</sub><br>(Argon + 3 % O <sub>2</sub> or max. 5 % CO <sub>2</sub><br>(shielding gas depends on the application) | Ø (mm) |
|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                                                     |                       |                                                                                                                                                               | 1.2    |
|                                                                                     |                       |                                                                                                                                                               | 1.6    |

For joint welding preheating to +200 – 300 °C is recommended.

Tempering at +700 – 750 °C to increase toughness.

## Approvals

SEPROZ