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# STICK ELECTRODES

**Mild Steel Rutile & Basic Low Hydrogen  
& High Recovery  
Pipeline - Cellulosic**

## BEST ELECTRODES FOR BEST WELDERS

Our modern world would be unimaginable without **electric arc welding**; it is one of the oldest processes for joining metals. In electric arc welding with stick electrodes, the arc is struck between a flux coated metal rod and the base metal. This welding process is generally known as **MMA (manual metal arc welding)** or **SMAW (Shielded Metal Arc Welding)**. Today, this process is still indispensable in steel and pipeline constructions and can be used in all weather conditions.

Approximately **25 to 30% of the world's welded products are produced with stick electrodes.**

### Mild Steel - Rutile

Mild Steel Rutile welding electrodes have many advantages, thanks to which a welder with any experience level can perform uniform and high-quality welds. Electrodes of this type can be used in both alternating and direct current. In both cases, the welding arc maintains combustion stability. **Types:**

- **Q E 6013 RT** Covered electrode, mild steel, rutile coated.
- **Q E 6013 RC** Covered electrode, mild steel, rutile-cellulosic coated
- **FOX Green** Covered electrode, mild steel, rutile coated, for welding of thin sheets
- **FOX SUM** Covered electrode, mild steel, thick rutile coated
- **FOX ETI** Covered electrode, mild steel, rutile coated
- **FOX OHV** Covered electrode, mild steel, rutile-cellulosic coated
- **FOX KE** Covered electrode, mild steel, rutile coated, mixed type
- **FOX SPE** Covered electrode, mild steel, rutile-basic coated
- **FOX Yellow** Covered electrode, mild steel, rutile-basic coated
- **Phoenix Blau** Covered electrode, mild steel, rutile-cellulosic coated
- **Phoenix Grün T** Covered electrode, mild steel, rutile coated, well suited for tack welding

### Mild Steel - Basic Low Hydrogen

Various low-hydrogen stick electrodes are used as filler metal for the shielded metal arc welding (**SMAW**) process. Low-hydrogen is the **most popular type** of stick electrode used. Low-hydrogen stick electrodes have smooth arc characteristics, easy slag removal, good bead shape, higher deposition rates and most can be used in all welding positions. They are used in a variety of industries involved in welding. Bridge and building construction, offshore drilling, pressure vessels, pipelines and power generation are all good examples. **Types:**

⇒ <b>Q E 7018</b>	Covered electrode, mild steel, basic coated, down to -40°C
⇒ <b>Q E 7018-1</b>	Covered electrode, mild steel, basic coated, down to -50°C
⇒ <b>FOX EV 40</b>	Covered electrode, mild steel, basic coated, extra low strength
⇒ <b>FOX EV 47</b>	Covered electrode, mild steel, basic coated, lower strength
⇒ <b>FOX EV 50</b>	Covered electrode, mild steel, basic coated, down to -50°C
⇒ <b>FOX EV 50-W</b>	Covered electrode, mild steel, basic coated, suitable for AC current
⇒ <b>FOX EV 55</b>	Covered electrode, mild steel, basic coated, higher strength
⇒ <b>FOX K 50</b>	Covered electrode, mild steel, basic coated, acc. to AWS 7015
⇒ <b>FOX K 55</b>	Covered electrode, mild steel, basic coated, special for rail frogs
⇒ <b>Phoenix 120 K</b>	Covered electrode, mild steel, basic coated, suitable for DC +/- and AC
⇒ <b>Phoenix Spezial D</b>	Covered electrode, mild steel, rutile coated, well suited for tack welding

### Mild Steel - Basic Low Hydrogen

Designed for use in severe conditions, with excellent arc stability and deep penetration.

#### Types:

⇒ <b>FOX Red R 160</b>	Covered electrode, mild steel, rutile coated, 160% high efficiency
⇒ <b>FOX Red AR 160</b>	Covered electrode, mild steel, rutile-acid coated, 160% high efficiency
⇒ <b>FOX Red BR 160</b>	Covered electrode, mild steel, rutile-basic coated, 160% high efficiency
⇒ <b>FOX Multifер 130</b>	Covered electrode, mild steel, rutile coated, 130% high efficiency
⇒ <b>FOX Multifер 180</b>	Covered electrode, mild steel, rutile coated, 180% high efficiency
⇒ <b>FOX HL 180 Ti</b>	Covered electrode, mild steel, rutile coated, 180% high efficiency

### Pipeline - Cellulosic

For welding and repairing of pipelines, mainly **cellulosic and basic coated electrodes are used**. Cellulosic electrodes are characterized by deep penetration, formation of good root reinforcement, low sensitivity to contamination of welded edges, absence of start porosity, relatively high welding velocities.

⇒ <b>FOX CEL</b>	Covered electrode, mild steel, cellulose coated, pipeline welding, low strength
⇒ <b>FOX CEL+</b>	Covered electrode, mild steel, cellulose coated, for root-pass pipeline welding on DC +
⇒ <b>FOX CEL Mo</b>	Covered electrode, mild steel, cellulose coated, Mo-alloyed, pipeline welding
⇒ <b>FOX CEL 70-P</b>	Covered electrode, mild steel, cellulose coated, pipeline welding with very intense arc, low-middle
⇒ <b>FOX CEL 75</b>	Covered electrode, mild steel, cellulose coated, pipeline welding, low-middle strength
⇒ <b>FOX CEL 80-P</b>	Covered electrode, mild steel, cellulose coated, pipeline welding with very intense arc, middle-high
⇒ <b>FOX CEL 85</b>	Covered electrode, mild steel, cellulose coated, pipeline welding, middle-high strength
⇒ <b>FOX CEL 90</b>	Covered electrode, mild steel, cellulose coated, pipeline welding, highest strength