

# ISO 18276:2005-02 (E)

## Welding consumables - Tubular cored electrodes for gas-shielded and non-gas-shielded metal arc welding of high-strength steels - Classification

---

| <b>Contents</b>   |  | <b>Page</b> |
|---|--|-------------|
| Foreword .....  |  | iv          |
| Introduction .....  |  | v           |
| 1   | Scope .....  | 1           |
| 2   | Normative references .....   | 1           |
| 3   | Classification .....   | 2           |
| 4   | Symbols and requirements .....   | 4           |
| 4.1   | Symbol for the product/process .....   | 4           |
| 4.2   | Symbol for tensile properties of all-weld metal .....                                      | 4           |
| 4.3   | Symbol for impact properties of all-weld metal .....                                       | 4           |
| 4.4   | Symbol for chemical composition of all-weld metal .....                                    | 5           |
| 4.5   | Symbol for type of electrode core or the usability characteristics of the electrodes ..... | 8           |
| 4.6   | Symbol for shielding gas .....   | 9           |
| 4.7   | Symbol for welding position .....  | 9           |
| 4.8   | Symbol for hydrogen content of deposited metal .....                                       | 10          |
| 4.9   | Symbol for conditions of post-weld heat treatment .....                                    | 10          |
| 4.10  | Rounding-off procedure .....   | 10          |
| 5   | Mechanical tests .....   | 10          |
| 5.1   | Preheating and interpass temperatures .....  | 11          |
| 5.2   | Pass sequence .....  | 12          |
| 5.3   | Post-weld heat treatment (PWHT) condition .....  | 12          |
| 6   | Chemical analysis .....  | 13          |
| 7   | Fillet weld test .....   | 13          |
| 8   | Retest .....   | 14          |
| 9   | Technical delivery conditions .....  | 14          |
| 10  | Examples of designations .....   | 14          |
| Annex A (informative) Classification systems .....  |  | 16          |
| Annex B (informative) Description of composition designations for electrodes in the classification system based upon tensile strength and average impact energy of 27 J ..... |  | 19          |
| Annex C (informative) Description of types of electrode core in the classification system based upon yield strength and average impact energy of 47 J .....                   |  | 20          |
| Annex D (informative) Descriptions of types of usability characteristics in the classification system based upon tensile strength and average impact energy of 27 J .....     |  | 21          |
| Annex E (informative) Notes on hydrogen content .....   |  | 23          |