7.3.2 Selection and preparation of samples

7.3.2.1 Sampling and sample preparation shall be in accordance with the requirements of EN ISO 14284 and EN ISO 377. In addition, for the mechanical tests the stipulations in 7.3.2.2 apply.

7.3.2.2 The samples for tensile testing shall be taken in accordance with Figures 1 to 3. If it has been agreed that optional impact tests shall be carried out, the samples shall be taken from the same location.

The samples shall be taken from products in the delivery condition. If agreed, samples from bars may be taken before straightening. For samples to be given a simulated heat treatment (see also 6.5.1) the conditions for annealing, hardening and tempering shall be agreed.

7.3.2.3 The samples for hardness testing on martensitic steels and for optional testing of the resistance to intergranular corrosion, shall be taken from the same locations as those for the mechanical tests see 7.3.2.2).

7.4 Test methods

7.4.1 The chemical analysis shall be carried out using appropriate European Standards. The choice of a suitable physical or chemical analytical method for the analysis shall be at the discretion of the manufacturer. The manufacturer shall declare the test method used if required.

NOTE The list of available European Standards on chemical analysis is given in CEN/TR 10261.

7.4.2 Tensile testing at room temperature shall be carried out in accordance with EN ISO 6892-1, this generally being with proportional test pieces having a gauge length L_0 = 5,65 $\sqrt{S_0}$. (S_0 = cross-section of the parallel length). In cases of doubt and in referee testing these test pieces shall be used.

The tensile strength, elongation after fracture and the 0,2 %-proof strength shall be determined. In addition, for austenitic steels in condition 1C, 1E, 1D, 1X, 1G and 2D only, the 1,0 %-proof strength shall also be determined.

For wire of nominal diameter < 4 mm, the tensile test is made directly on the product using a gauge length of 100 mm.

7.4.3 If a tensile test at elevated temperature has been ordered, this shall be carried out in accordance with EN ISO 6892-2. If the proof strength shall be verified, the 0,2 %-proof strength shall be determined, for ferritic, martensitic, precipitation hardening and austenitic-ferritic steels. In the case of austenitic steels, the 0,2 % and the 1,0 %-proof strength shall be determined.

7.4.4 For the determination of the tensile properties, the manufacturer may use modelling with a verification method approved in accordance with EN 10373, if agreed with the purchaser at the time of enquiry and order.

7.4.5 If an impact test has been ordered, it shall be carried out in accordance with EN ISO 148-1 on test pieces with a V-notch. The impact test shall be performed according to EN ISO 148-1, and using a striker with a radius of 2 mm (KV_2). The test results shall be determined as an average value obtained from a set of at least three test pieces (see also EN 10021).

7.4.6 A Brinell hardness test shall be carried out in accordance with EN ISO 6506-1.

7.4.7 The resistance to intergranular corrosion shall be tested in accordance with EN ISO 3651-2.