

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 683 / IV

HEAT-TREATED STEELS, ALLOY STEELS
AND FREE-CUTTING STEELS

PART 4

WROUGHT QUENCHED AND TEMPERED STEELS
WITH 1 % CHROMIUM AND 0.2 % MOLYBDENUM
AND CONTROLLED SULPHUR CONTENT

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 683/IV, *Heat-treated steels, alloy steels and free-cutting steels – Part IV : Wrought quenched and tempered steels with 1 % chromium and 0.2 % molybdenum and controlled sulphur content*, was drawn up by Technical Committee ISO/TC 17, *Steel*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of a Draft ISO Recommendation.

In December 1967, this Draft ISO Recommendation (No. 1359) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	India	Spain
Austria	Israel	Sweden
Belgium	Italy	Switzerland
Canada	Japan	Thailand
Colombia	Korea, Rep. of	Turkey
Czechoslovakia	Netherlands	U.A.R.
Denmark	New Zealand	United Kingdom
Finland	Norway	U.S.A.
France	Poland	U.S.S.R.
Germany	Romania	
Hungary	South Africa, Rep. of	

One Member Body opposed the approval of the Draft :

Brazil

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in January 1970, to accept it as an ISO RECOMMENDATION.

HEAT-TREATED STEELS, ALLOY STEELS AND FREE-CUTTING STEELS

PART 4 WROUGHT QUENCHED AND TEMPERED STEELS WITH 1 % CHROMIUM AND 0.2 % MOLYBDENUM AND CONTROLLED SULPHUR CONTENT

1. SCOPE

- 1.1 This ISO Recommendation covers the grades of wrought chromium-molybdenum steels with 1 % chromium and 0.2 % molybdenum for mechanical purposes and controlled sulphur contents for machinability and usually intended for use
 - (a) in the quenched and tempered condition, or
 - (b) in the austempered condition, with or without subsequent cold reduction.
- 1.2 For the purpose of simplification, the steels covered by this ISO Recommendation in both conditions are called “quenched and tempered steels” and both conditions are summarized under the term “quenched and tempered”.
- 1.3 This ISO Recommendation comprises the two series of steels listed in Table 2, which differ from the steels covered by ISO Recommendation R 683/II, *Heat-treated steels, alloy steels and free-cutting steels – Part 2 : Wrought quenched and tempered steels with 1 % chromium and 0.2 % molybdenum*, in their sulphur contents to improve the machinability.

2. REQUIREMENTS

2.1 Production processes

Unless otherwise agreed in the order, the processes used in making the steel and the product are left to the discretion of the manufacturer, but the steel should be killed. When he so requests, the user should be informed what steelmaking process is being used.

2.2 Chemical composition, mechanical properties and hardenability

- 2.2.1 The steels covered by this ISO Recommendation should be ordered and delivered in accordance with Table 1.

TABLE 1 – Types of condition of delivery

Requirements	Types of condition of delivery*									
	1	1(a)	2	2(a)	3	3(a)	4	4(a)	5	6
Chemical composition	X	X	X	X	X	X	X	X	X	X
Hardenability	—	—	X	X	—	—	—	—	—	—
Hardness in a condition of delivery other than quenched and tempered	—	X	—	X	—	X	—	X	—	—
Mechanical properties of										
– quenched and tempered test bars of 16 mm diameter	—	—	—	—	X	X	—	—	—	—
– quenched and tempered ruling sections	—	—	—	—	—	—	X	X	—	—
– quenched and tempered product in final dimensions	—	—	—	—	—	—	—	—	X	—
– quenched and tempered product subsequently cold-reduced to final dimensions	—	—	—	—	—	—	—	—	—	X

* The numbers indicating the types of condition of delivery follow a co-ordinated series of numbers throughout all relevant ISO Recommendations.

The type of condition of delivery according to Table 1 should be stated at the time of enquiry and order.