

This is a preview of "ISO 4954:2022". Click here to purchase the full version from the ANSI store.

Fifth edition 2022-06

# Steels for cold heading and cold extruding

Aciers pour transformation à froid et extrusion à froid



Reference number ISO 4954:2022(E)

#### ISO 4954:2022(E)

This is a preview of "ISO 4954:2022". Click here to purchase the full version from the ANSI store.



## **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office CP 401 • Ch. de Blandonnet 8 CH-1214 Vernier, Geneva Phone: +41 22 749 01 11 Email: copyright@iso.org Website: www.iso.org Published in Switzerland This is a preview of "ISO 4954:2022". Click here to purchase the full version from the ANSI store.

Coı	Contents					
Fore	Forewordv					
1	Scop	e	1			
2	Norn	native references	1			
3		ns and definitions				
4		sification and designation				
т	4.1	Classification				
	4.2	Designation				
5	Info	mation to be supplied by the purchaser	3			
	5.1	Mandatory information	3			
	5.2 5.3	Options and/or supplementary or special requirementsOrdering example	4			
6	<b>Man</b> 6.1	ufacturing process General				
	6.2	Deoxidation				
	6.3	Heat-treatment condition and surface condition at delivery	5			
		6.3.1 Heat-treatment condition				
	<i>C</i> 1	6.3.2 Particular surface conditions				
	6.4 6.5	Traceability of the cast Statistical evaluation				
_						
7	<b>Req</b> ı 7.1	irementsChemical composition, mechanical properties and hardenability				
	7.1	7.1.1 General				
		7.1.2 Chemical composition				
		7.1.3 Mechanical properties	8			
		7.1.4 Hardenability (only applicable to steel grades of <u>Annexes B</u> and <u>C</u> )				
	7.2 7.3	Grain size  Corbide or benefitigation (only applicable for steels of Appendix A B and C)				
	7.3 7.4	Carbide spheroidization (only applicable for steels of <u>Annexes A</u> , <u>B</u> and <u>C</u> ) Non-metallic inclusions	9 9			
	7.1	7.4.1 Microscopic inclusions (only applicable for steels of <u>Annexes B</u> and <u>C</u> )				
		7.4.2 Macroscopic inclusions	9			
	7.5	Internal soundness				
	7.6	Aptitude to cold forming				
	7.7	Surface quality				
		7.7.2 Wire rod (only applicable for steels of <u>Annexes A</u> , <u>B</u> and <u>C</u> )				
		7.7.3 Bars (only applicable for steels of <u>Annexes A</u> , <u>B</u> and <u>C</u> )	10			
		7.7.4 Wire rod and bars for stainless steels (only applicable for steels of Annex D)	10			
		7.7.5 Bright products				
		7.7.6 Removal of surface defects				
	7.8	Decarburization (only applicable for steels of $\frac{C}{D}$ )	10 10			
	7.9	Corrosion resistance of stainless steels	11			
	7.10	Shape, dimensions and tolerances	11			
8	Inspection					
	8.1	Testing procedures and types of documents	11			
	8.2	Summary of specific inspection and frequency of testing	12			
9	Prep	aration of samples and test pieces				
	9.1	Selection and preparation of samples for product analysis				
	9.2	Selection and preparation of samples and test pieces for the mechanical test	13			
<b>10</b>		methods				
	10.1	Chemical analysis	14			

# ISO 4954:2022(E)

This is a preview of "ISO 4954:2022". Click here to purchase the full version from the ANSI store.

	10.2	Mechanical tests	
	10.3	Hardenability and core hardness tests	14
		10.3.1 Verification of hardenability	14
		10.3.2 Verification of core hardness	14
	10.4	Aptitude to cold forming	
		10.4.1 Upsetting test for non-alloy and alloy steels of <u>Annexes A, B</u> and <u>C</u>	
		10.4.2 Upsetting test for stainless steels of <u>Annex D</u>	
	10.5	Non-destructive testing	
	10.6	Visual and dimensional test	15
	10.7	Retests	
11		ce treatment, marking and packaging	
	11.1	Surface treatment and temporary corrosion protection	
	11.2	Marking	
	11.3	Packaging	16
Annex	<b>A</b> (nor <b>inten</b>	mative) Specific requirements for cold heading and cold extruding steels not led for heat treatment after cold working	17
Anne	<b>B</b> (no	ormative) Specific requirements for cold heading and cold extruding case-	
Anne	<b>c</b> C (nor	mative) Specific requirements for cold heading and cold extruding steels for thing and tempering	
Anne		rmative) Specific requirements for cold heading and cold extruding stainless	51
Anne	<b>E</b> (nor	mative) Supplementary or special requirements	59
Anne		formative) Designation of steels given in Annexes A, B, C and D and the	
	compa	arable grades covered in various designation systems	63
Biblio	granhy	<i>I</i>	67

This is a preview of "ISO 4954:2022". Click here to purchase the full version from the ANSI store.

### Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see <a href="www.iso.org/directives">www.iso.org/directives</a>).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see <a href="https://www.iso.org/patents">www.iso.org/patents</a>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see <a href="https://www.iso.org/iso/foreword.html">www.iso.org/iso/foreword.html</a>.

This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 4, *Heat treatable and alloy steels*.

This fifth edition cancels and replaces the fourth edition (ISO 4954:2021), of which it constitutes a minor revision. The changes are as follows:

- the wording in 5.2 c) was corrected;
- in <u>Table F.1</u> the steel numbers in column 6 were corrected for steel grades 17Cr3, 10NiCr5-4 and X3NiCr18-16 and the steel number for steel grade 20MnB5 was added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at <a href="https://www.iso.org/members.html">www.iso.org/members.html</a>.