

SLOVENSKI STANDARD SIST EN 10210-1:1997

01-december-1997

Vroče valjani votli profili iz nelegiranih in drobnozrnatih konstrukcijskih jekel - 1. del: Tehnični dobavni pogoji

Hot finished structural hollow sections of non-alloy and fine grain structural steels - Part 1: Technical delivery requirements

Warmgefertigte Hohlprofile für den Stahlbau aus unlegierten Baustählen und aus Feinkornbaustählen - Teil 1 Technische Lieferbedingungen VIII W

Profils creux pour la construction finis a chaud en aciers de construction non alliés et a grains fins - Partie 1: Conditions techniques de livraison

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Ta slovenski standard je istoveten z: EN 10210-1-1997

ICS:

77.140.45 Nelegirana jekla Non-alloyed steels

77.140.70 Jekleni profili Steel profiles

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iTeh STANDARD PREVIEW (standards.iteh.ai)

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NORME EUROPÉENNE

EUROPÄISCHE NORM

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Descriptors:

Metal sections, hollow profiles, hot rolled products, structural steels, unalloyed steels, classifications, designation, delivery condition, chemical composition, mechanical properties, mechanical tests, marking

English version

Hot finished structural hollow sections of non-alloy and fine grain structural steels - Part 1:

Technical delivery requirements

Profils creux pour la construction finis à AR Warmgefertigte Hohlprofile für den Stahlbau aus chaud en aciers de construction non alliés et unlegierten Baustählen und aus à grains fins - Partie 1: Conditions techniques arcsiten a Feinkornbaustählen - Teil 1: Technische de livraison

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This European Standard was approved by CEN on 1994-03-03. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization Comité Européen de Normalisation Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Page 2 EN 10210-1:1994

Contents

Scope		Pag
1	Foreword	•
2.1 General Standards 2.2 Standards for tolerances and dimensions 3 Definitions 4 Classification and designation 4.1 Classification 4.2 Designations 5 Information to be supplied by the purchaser 5.1 General 5.2 Options 5.3 Examples 6 Technical requirements 6.1 General 6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing 7 process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.itch.ai) 7.1 Types of inspection and testing as a surface condition a	1 Scope	
2.1 General Standards for tolerances and dimensions 2.2 Standards for testing 3 Definitions 4 Classification and designation 4.1 Classification 5 Information to be supplied by the purchaser 6 Technical requirements 6.1 General 6.2 Options 6.3 Delivery conditions 6.4 Structural hollow sections 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 7 Types of inspection and testing 7 Types of inspection and testing 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9 Test methods 9 Te	Normative references	_
2.2 Standards for tolerances and dimensions 2.3 Definitions 4 Classification and designation 4.1 Classification 5 Information to be supplied by the purchaser 6 I	2.1 General standards	
2.3 Standards for testing 3 Definitions 4 Classification and designation 7, 4.1 Classification 7, 4.2 Designations 5 Information to be supplied by the purchaser 7, 5.1 General 7, 5.2 Options 7, 6.3 Examples 7, 6.4 General 7, 6.5 Technical requirements 7, 6.6 General 7, 6.7 Steel manufacturing process 8, 6.8 Structural hollow section manufacturing process 8, 6.9 Non-destructive testing of welds 8, 6.10 Tolerances and mass 7 Inspection and testing 18, 7 Types of inspection and testing 18, 7 Types of inspection and testing 18, 7 Types of inspection and testing 19, 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 19 9.5 Re-tests, sorting and reprocessing 27 10 Marking 10 Marking 11 Annex A (normative) Structural hollow sections 12 Office and machanical properties 13 Annex B (normative) Location of samples and 21 Annex B (normative) Location of samples and 19 10 Fine grain steels - Chemical composition and mechanical properties 12 Annex C (normative) Location of samples and 21 Annex C (normative) Location of samples and 22 Annex C (normative) Location of samples and 23 Annex C (normative) Location of samples and 24 Annex C (normative) Location of samples and 24 Annex C (normative) Location of samples and 25 Annex C (normative) Loca		
3 Definitions 4 Classification and designation 7 4.1 Classification 7 4.2 Designations 5 Information to be supplied by the purchaser 7 Information to be supplied by the purchaser 7 Information to be supplied by the purchaser 8 Information to be supplied by the purchaser 9 Information to supplied by the pu	2.3 Standards for testing	
4.1 Classification 7 4.2 Designations 7 4.2 Designations 8 Information to be supplied by the purchaser 10 5.1 General 10 5.3 Examples 10 6.1 General 13 6.2 Steel manufacturing process 13 6.3 Delivery conditions 13 6.4 Structural hollow section manufacturing process 13 6.5 Chemical composition 14 6.6 Mechanical properties NDARD PREVIEW 16 6.7 Technological properties 16 6.8 Surface condition standards.iteh.ai 17 6.9 Non-destructive testing of welds 18 6.10 Tolerances and mass SISTEN 10210-11997 18 7.1 Types of Inspection and testing 19 7.2 Types of Inspection and testing 19 8 Samples 19 8.1 Frequency of tests 23 8.2 Preparation of samples and test pieces 23 7 Test methods 25 9 Test methods 26 9.4 Non-destructive testing 27 Annex A (normative) Structural hollow sections 28 of non-alloy steels - Chemical composition and mechanical properties 29 Annex B (normative) Structural hollow sections 31 of fine grain steels - Chemical composition and mechanical properties 25 Annex C (normative) Location of samples and 31	3 Definitions	
4.1 Classification 4.2 Designations 8 Information to be supplied by the purchaser 10 5.1 General 10.2 Options 110 5.2 Options 110 6.3 Examples 111 6.1 General 112 6.2 Steel manufacturing process 113 6.3 Delivery conditions 113 6.4 Structural hollow section manufacturing process 113 6.5 Chemical composition 114 6.6 Mechanical properties ANDARD PREVIEW 115 6.7 Technological properties ANDARD PREVIEW 116 6.8 Surface condition (standards.iteh.ai) 117 6.9 Non-destructive testing of welds 118 119 119 119 119 120 119 119 119 119 119 119 119 119 119 11	4 Classification and designation	
4.2 Designations 5 Information to be supplied by the purchaser 5.1 General 5.2 Options 6.3 Examples 6 Technical requirements 6.1 General 6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing 7.1 Types of inspection and testing 7.2 Types of inspection document 7.3 Product inspection and testing 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 21 Annex A (normative) Structural hollow sections 22 of fine grain steels 23 chemical composition and mechanical properties 24 Annex B (normative) Structural hollow sections 25 of fine grain steels 26 chemical composition and mechanical properties 27 Annex C (normative) Location of samples and	4.1 Classification	
5 Information to be supplied by the purchaser 5.1 General 5.2 Options 5.3 Examples 6 Technical requirements 6.1 General 6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties ANDARD PREVIEW 6.8 Surface condition (standards.itch.ai) 7 Inspection and mass 7 Inspection and testing of welds 6.10 Tolerances and mass 7 Inspection and testing standards.itch.ai 7.1 Types of inspection and testing standards.itch.ai 7.2 Types of inspection and testing 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing Marking 27 Annex A (normative) Structural hollow sections of fine grain steels — Chemical composition and mechanical properties Annex C (normative) Location of samples and	4.2 Designations	
5.1 General 5.2 Options 5.3 Examples 6 Technical requirements 6.1 General 6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties ANDARD PREVIEW 6.8 Surface condition (standards.iteh.ai) 6.10 Tolerances and mass 7 Inspection and testing of welds 6.10 Tolerances and mass 7 Inspection and testing SITE 1010-1997 7.1 Types of inspection and testing stated delect debeloal 7.2 Types of inspection and testing samples and testing samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	5 Information to be supplied by the purchaser	
5.2 Options 5.3 Examples 6 Technical requirements 6.1 General 6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.10 Tolerances and mass 7 Inspection and testing of welds 6.10 Tolerances and mass 7.1 Types of inspection and testing stationable classes of inspection and dimensional check of inspection and mechanical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels — Chemical composition and mechanical properties Annex C (normative) Location of samples and	5.1 General	
Examples Technical requirements 6.1 General 6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing SITE 10210-1:097 7.1 Types of inspection and testing 18 7.2 Types of inspection and testing 19 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	5.2 Options	
6.1 General 6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing SISTEN_0210-1:997 7.1 Types of Inspection and testing 18 7.2 Types of Inspection and testing 19 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	5.3 Examples	
6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing SSTEN_0210-1:997 7.1 Types of inspection and testing 18 7.2 Types of inspection and testing 19 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections 28 Annex B (normative) Structural hollow sections 29 Chemical composition and mechanical 20 Chemical composition and mechanical 21 Chemical composition and mechanical 22 Chemical composition and mechanical 23 Chemical composition and mechanical 24 Chemical composition and mechanical 25 Chemical composition and mechanical 26 Chemical composition and mechanical 27 Chemical composition and mechanical	5 Technical requirements	
6.2 Steel manufacturing process 6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties ANDARD PREVIEW 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing standards.iteh.ai) 7.1 Types of inspection and testing standards.iteh.ai 7.2 Types of inspection and testing standards.iteh.ai 7.3 Product inspection and testing standards.iteh.ai 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties	6.1 General	
6.3 Delivery conditions 6.4 Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing SISTEM 0210-11997 7.1 Types of inspection and testing 18 7.2 Types of inspection and testing 19 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 23 9 Test methods 9.1 Chemical analysis 25 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 26 9.4 Non-destructive testing 27 9.5 Re-tests, sorting and reprocessing 27 Annex A (normative) Structural hollow sections 28 Annex B (normative) Structural hollow sections 31 of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	6.2 Steel manufacturing masses	
Structural hollow section manufacturing process 6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing 7.1 Types of inspection and testing 7.2 Types of inspection and testing 8 Samples 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties	6.3 Delivery conditions	
6.5 Chemical composition 6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing 7.1 Types of inspection and testing 7.2 Types of inspection and testing 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections 28 of fine grain steels - Chemical composition and mechanical Properties 29 Annex C (normative) Location of samples and	6.4 Structural hollow section manufacturing	
6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing SISTEN 10210-1:1997 7.1 Types of inspection and testing 18 7.2 Types of inspection and testing 19 8 Samples 19 8.1 Frequency of tests 23 8.2 Preparation of samples and test pieces 23 9 Test methods 25 9.1 Chemical analysis 25 9.2 Mechanical tests 25 9.3 Visual inspection and dimensional check 26 9.4 Non-destructive testing 26 9.5 Re-tests, sorting and reprocessing 27 Annex A (normative) Structural hollow sections 28 Annex B (normative) Structural hollow sections 31 of fine grain steels - Chemical composition and mechanical properties 31 Annex C (normative) Location of samples and 31 Annex C (normative) Location of samples and 32 Annex C (normative) Location of samples and 33 Annex C (normative) Location of samples and 34 Annex C (normative) Location of sam	process	13
6.6 Mechanical properties ANDARD PREVIEW 6.7 Technological properties 6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing SISTEN 10210-1:1997 7.1 Types of inspection and testing 18 7.2 Types of inspection and testing 19 8 Samples 19 8.1 Frequency of tests 23 8.2 Preparation of samples and test pieces 23 9 Test methods 25 9.1 Chemical analysis 25 9.2 Mechanical tests 25 9.3 Visual inspection and dimensional check 26 9.4 Non-destructive testing 26 9.5 Re-tests, sorting and reprocessing 27 Annex A (normative) Structural hollow sections 28 Annex B (normative) Structural hollow sections 31 of fine grain steels - Chemical composition and mechanical properties 31 Annex C (normative) Location of samples and 31 Annex C (normative) Location of samples and 32 Annex C (normative) Location of samples and 33 Annex C (normative) Location of samples and 34 Annex C (normative) Location of sam	6.5 Chemical composition	1.4
6.8 Surface condition (standards.iteh.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing SISTER 10210-1:1997 7.1 Types of inspection and testing 7.2 Types of inspection and testing 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	6.6 Mechanical properties A NID A DID DID TYTE XX	
6.8 Surface condition (standards.itch.ai) 6.9 Non-destructive testing of welds 6.10 Tolerances and mass 7 Inspection and testing SISTED 10210-1:1997 7.1 Types of inspection and testing 7.2 Types of inspection and testing 7.3 Product inspection and testing 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections 28 of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections 31 of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	o., recimological properties	
6.10 Tolerances and mass 7	6.8 Surface condition (standards itch ai)	
Inspection and testing Types of inspection of samples and testing Types of inspection of samples and Types Types of inspection and testing Types of inspection and testing Types of inspection and dimensional check Types of inspection and itself of inspection of inspection of inspection and itself of	Non-destructive testing of welds	
7.1 Types of inspection and testing 7.2 Types of inspection and testing 7.3 Product inspection document 8 Samples 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of non-alloy steels Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	0.10 TOlerances and mass	
7.1 Types of inspection and testing 7.2 Types of inspection and testing 8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	7 Inspection and testing SISTEN 10210-1:1997	
8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	7.1 Types of this pection and testing	10
8 Samples 8.1 Frequency of tests 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	7.2 Types of inspection document 10210-1-1997	10
8 Samples 8.1 Frequency of tests 23 8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	/·3 FIUQUET Inspection and testing	
8.2 Preparation of samples and test pieces 9 Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	8 Samples Rayles Rayles Rayles	
Test methods 9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	8.1 Frequency of tests	
9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and		
9.1 Chemical analysis 9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking 27 Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	9 Test methods	
9.2 Mechanical tests 9.3 Visual inspection and dimensional check 9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	9.1 Chemical analysis	
9.4 Non-destructive testing 9.5 Re-tests, sorting and reprocessing 10 Marking Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and		
9.5 Re-tests, sorting and reprocessing 27 10 Marking Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and		
Annex B (normative) Structural hollow sections of fine grain steels — Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels — Chemical composition and mechanical properties Annex C (normative) Location of samples and	9.4 Non-destructive testing	
Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	condey borching and leptocessing	
Annex A (normative) Structural hollow sections of non-alloy steels - Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	10 Marking	
Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	Branch & Constant of the August 1997	~,
Chemical composition and mechanical properties Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	of non-allow structural hollow sections	28
Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	Chemical composition and market and	
Annex B (normative) Structural hollow sections of fine grain steels - Chemical composition and mechanical properties Annex C (normative) Location of samples and	properties	
Chemical composition and mechanical properties Annex C (normative) Location of samples and	brobercies	
Chemical composition and mechanical properties Annex C (normative) Location of samples and	Annex B (normative) Structural ballon and	
Chemical composition and mechanical properties Annex C (normative) Location of samples and	of fine grain steels -	31
Annex C (normative) Location of samples and	Chemical composition and machanizat	
Annex C (normative) Location of samples and	properties	
Annex C (normative) Location of samples and test pieces 34		
test niege 34	Annex C (normative) Location of samples and	~ 4
opp biccep	test pieces	34



Page 3 EN 10210-1:1994

	Page
Annex D (informative) List of national standards which correspond with EURONORMs referenced	35
Annex E (informative) Designation of product steel grades in this standard and the corresponding former national designations	36

Foreword

This European Standard has been prepared by the Technical Committee ECISS/TC 10 "Structural steels - Qualities", the secretariat of which is held by NNI.

This European Standard shall be given the status of National Standard, either by publication of an identical text or by endorsement, at the latest by September 1994, and conflicting National Standards shall be withdrawn at the latest by September 1994.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This part of this European Standard specifies the technical delivery requirements for hot finished hollow sections of circular, square or rectangular form and applies to hollow sections formed hot with or without subsequent heat treatment or formed cold with subsequent heat treatment to obtain equivalent metallurgical conditions to those obtained in the hot formed product. Fine grain steels are generally delivered in the normalized condition.

The specified requirements apply to non-alloy base steel, non-alloy quality steel, fine grain non-alloy quality steel and fine grain alloy special steels as defined in European Standard EN 10020.

The grades, chemical composition and mechanical properties for the non-alloy base and quality steels are given in annex A.

The grades, chemical composition and mechanical properties for the fine grain non-alloy quality and alloy special steels are given in annex B.

The products specified in this part of this European Standard are intended for use in construction.

Requirements for tolerances, dimensions and sectional properties are contained in Part 2 of this standard (prEN 10210-2).

NOTE: A range of material grades is specified in this standard and the user should select the grade appropriate to the intended use and service conditions. The grades and mechanical properties are compatible with those in EN 10025 and EN 10113.

SIST EN 10210-1:1997

This European standard does not apply to products covered by the following European Standards:

 ${\tt EN}\ 10025\ {\tt Hot}\ {\tt rolled}\ {\tt products}\ {\tt of}\ {\tt non-alloy}\ {\tt structural}\ {\tt steels}$. Technical delivery conditions

EN 10113 Hot rolled products in weldable fine grain structural steels

EN 10155 Structural steels with improved atmospheric corrosion resistance

prEN 10219 Cold formed wel ded structural hollow sections of non-alloy and fine grain steels

prEN 10225 Weldable structural steels for fixed offshore structures

Page 5 EN 10210-1:1994

2 Normative references

This part of this European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this part of this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

2.1 General standards

EN 10020 Definition and classification of grades of steel

EN 10021 General technical delivery requirements for steel and iron products

EN 10027 Designation systems for steel

Part 1 : Steel names, principal symbols

Part 2 : Steel numbers

EN 10079 Definition of steel products

EN 10204 Metallic products - Types of inspection documents

prEN 10052 Vocabulary of heat treatment terms for ferrous products

EURONORM 1681) Iron and steel products - Inspection documents - Contents

Information Circular No. 2 Weldable fine-grained structural steels - Recommendations for processing, in particular for welding

Information Circular No. 10 Designation system for steel: Additional symbols for steel names

EN 287-1 Approval testing of welders - Fusion welding - Part 1 : Steels

EN 288 Specification and approval of welding procedures for metallic materials

Part 1 : General rules for fusion welding

Part 2 : Welding procedure specification for arc welding

Part 3 : Welding procedure tests for arc welding of steels

EN 29002 Quality systems : Model for quality assurance in production and installation

¹⁾ Until these EURONORMS are transformed into European Standards, they can either be implemented or reference made to the corresponding national standards, the list of which is given in annex D to this part of this European Standard.

Page 6 EN 10210-1:1994

14

1.75

2.2 Standards for tolerances and dimensions

prEN 10210-2 Hot finished structural hollow sections of non-alloy and fine grain steels - Part 2 : Tolerances, dimensions and sectional properties

2.3 Standards for testing

EN 10002-1 Metallic materials - Tensile testing - Part 1 : Method of test (at ambient temperature)

EN 10045-1 Metallic materials - Charpy impact test - Part 1 : Test method

EURONORM $18^{1)}$ Selection and preparation of samples and test pieces for steel and iron and steel products

EURONORM $103^{1)}$ Micrographic determination of ferritic or austenitic grain size of steel

prEN 102463Non-destructive testing of steel tubes
Part 3: Seamless and welded (except submerged arc-welded) steel tubes Automatic eddy current testing for the detection of imperfections

prEN 102465Non-destructive testing of steel tubes
Part 5: Seamless and welded (except submerged arc-welded) ferromagnetic
steel tubes - Automatic full peripheral magnetic transducer/flux leakage
testing for the detection of longitudinal imperfections

prEN 10246-8Non-destructive testing of steel tubes
Part 8: Electric resistance and induction welded steel tubes - Automatic
ultrasonic testing of the weld seam for the detection of longitudinal
imperfections

SISTEN 10210-1:1997

https://standards.iteh.ai/catalog/standards/sist/361a5c1d-c1c3-4eba-b6a2-prEN 10246-Non-destructive/testing3/of-steel0-tubes
Part 9: Submerged arc-welded steel tubes - Automatic ultrasonic testing of the weld seam for the detection of longitudinal and/or transverse imperfections.

ISO 2566-1 Steel - Conversion of elongation values - Part 1 : Carbon and low alloy steels

¹⁾ Until these EURONORMS are transformed into European Standards, they can either be implemented or reference made to the corresponding national standards, the list of which is given in annex D to this part of this European Standard.

Page 7 EN 10210-1:1994

3 Definitions

For the purposes of this European Standard, the following definitions apply:

- non-alloy base steel, non-alloy quality steel and alloy special steel: as defined in EN 10020;
- inspection and testing: as defined in EN 10021;
- heat treatment terms: as defined in prEN 10052;
- hollow section: as defined in EN 10079;
- inspection documents: as defined in EN 10204 and their contents as defined in EURONORM 168^{1} ;
- normalizing rolling: a rolling process in which the final deformation is carried out in a certain temperature range leading to a material condition equivalent to that obtained after normalizing so that the specified values of the mechanical properties are retained even after normalizing:
- supplier: the manufacturer for material supplied ex-mill, the merchant for material supplied from a merchant's stock.

iTeh STANDARD PRE

(standards.iteh.ai)

4 Classification and designation

SIST EN 10210-1:1997

4.1 Classification https://standards.iteh.ai/catalog/standards/sist/361a5c1d-c1c3-4eba-b6a2-

4.1.1 Within the strength grades of the non-alloy steels given in annex A. three qualities JR, JO and J2 are specified. These differ in respect of specified impact requirements, method of deoxidation, limits on values of various elements with particular reference to sulphur and phosphorus and the inspection and testing requirements.

In accordance with the classification system in EN 10020 steel grade S235 is a non-alloy base steel. All other steel grades in annex A are nonalloy quality steels.

4.1.2 Within the strength grades of the fine grain steels given in annex B, two qualities N and NL are specified. These differ in respect of the carbon, sulphur and phosphorus content and low temperature impact properties.

In accordance with the classification system in EN 10020 steel grades S275 and S355 are non-alloy quality steels and steel grade S460 is an alloy special steel.

¹⁾ Until these EURONORMS are transformed into European Standards, they can either be implemented or reference made to the corresponding national standards, the list of which is given in annex D to this part of this European Standard.

Page 8 EN 10210-1:1994

4.2 Designations

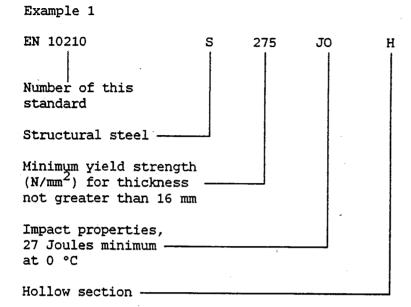
4.2.1 For the products covered by this European Standard the steel names are allocated in accordance with EN 10027-1 and ECISS IC 10; the steel numbers are allocated in accordance with EN 10027-2.

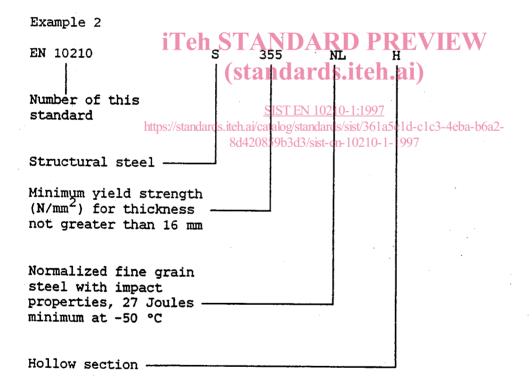
NOTE: For a list of corresponding former national designations, see annex E, table E.1.

- **4.2.2** For non-alloy steel structural hollow sections the designation shall consist of:
 - the number of this European Standard (EN 10210);
 - the capital letter S for structural steel;
 - the indication of the minimum specified yield strength for thicknesses
 ≤ 16 mm expressed in N/mm²;
 - the capital letters JR for the qualities with specified impact properties at room temperature;
 - the capital letter J and a number 0 or 2 for the qualities with specified impact properties at 0 °C and -20 °C respectively;
 - the capital letter H to indicate hollow sections.
- 4.2.3 For fine grain steel structural hollow sections the designation shall consist of:
 - the number of this European Standard (EN 10210); https://standards.iteh.ai/catalog/standards/sist/361a5c1d-c1c3-4eba-b6a2-
 - the capital letter S of structural steel; 1-1997
 - the indication of the minimum specified yield strength for thicknesses \leq 16 mm expressed in N/mm²;
 - the capital letter N to indicate normalized or normalized rolled, (see 6.3);
 - the capital letter L for the qualities with specified minimum values of impact energy at a temperature of -50 $^{\circ}\text{C}$;
 - the capital letter H to indicate hollow sections.

Page 9 EN 10210-1:1994

4.2.4 The product shall be designated as illustrated by the following examples:





Page 10 EN 10210-1:1994

5 Information to be supplied by the purchaser

5.1 General

The following information shall be supplied by the purchaser at the time of enquiry and order:

- a) The quantity (mass or total length);
- b) The range and type of length (see prEN 10210-2);
- c) details of the product form

HFCHS = hot finished circular hollow sections
HFRHS = hot finished square or rectangular hollow sections

- d) the designation (see 4.2);
- e) the dimensions (see prEN 10210-2);
- f) the options required (see 5.2);
- g) the type of inspection document required (see 7.2 and tables 2 and 3).

5.2 Options iTeh STANDARD PREVIEW

A number of options are specified in Parts 1 and 2 of this European Standard. Those relevant to this part are listed below with appropriate clause references. In the event that the purchaser does not indicate his wish to implement any of these options at the time of enquiry and order the supplier shall supply in accordance with the basic specification.

- 1.1 Product analysis shall be carried out (see 6.5.1).
- 1.2 A maximum carbon equivalent value in accordance with table A.2 shall be provided for non-alloy grades (see 6.5.2).
- 1.3 The Cr, Cu, Mo, Ni, Ti and V ladle analysis contents shall be reported in the inspection certificate or inspection report for non-alloy grades (see 6.5.2).
- 1.4 A maximum carbon equivalent value in accordance with table B.2 shall be provided for fine grain steels S275 and S355 (see 6.5.3).
- 1.5 The ladle analysis limits for grade S460 (see 6.5.3) shall be:
 - a) $V + Nb + Ti \le 0,22 %$; and
 - b) Mo + Cr $\leq 0.30 %$.
- 1.6 Impact properties of quality JO and JR shall be verified by test. This option applies only when products are ordered with specific inspection and testing (see 6.6.4).