
**Industrial automation systems and
integration — Product data representation
and exchange —**

Part 203:
**Application protocol: Configuration
controlled design**

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AMENDMENT 1
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*Systemes d'automatisation industrielle et integration — Représentation et
échange de données de produits —*

Partie 203: Protocole d'application: Conception contrôlée de configuration

AMENDEMENT 1



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this Amendment may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to International Standard ISO 10303-203:1994 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration*, Subcommittee SC 4, *Industrial data*.

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Introduction

This document amends ISO 10303-203:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 203: Application protocol: Configuration controlled design*. The corrected document supersedes ISO 10303-203:1994.

The purpose of the modifications to the text of ISO 10303-203:1994 is to correct errors in the EXPRESS definitions likely to cause compilation problems and to replace the object identifier for the document and the applicable schema.

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Industrial automation systems and integration — Product data representation and exchange —

Part 203:

Application protocol: Configuration controlled design

Amendment 1

Modifications to the text of ISO 10303-203:1994

Table of contents, pp. iii-iv, clause 2, p. 3, clause 5.2, pp. 89-242, annex A, pp. 270-400 and index, pp. 482-515

The purpose of these modifications is to correct Express errors that were not detected at the time of publication due to the immaturity of the checking tools at that time. The corrections have been documented in change pages for readability. The following pages replace Clause 2, Clause 5.2, Annex A and the index of ISO 10303-203:1994 in their entirety as well as pages iii and iv of the table of contents. The net affect of these changes in the short listing is:

- corrected `geometric_representation_item_3d` rule
- corrected `assembly_shape` is defined function
- corrected `subtype_mandatory_shape_representation` rule
- corrected `cc_design_date_time_correlation` function
- added USEs from AICs and removed the OLD 203 entities and functions
- added `dummy_gri` constant
- added `dummy_tri` constant
- added `degenerate_toroidal_surface` (per TC2)
- added `approval_person_organization_constraints` (to solve type pruning issue)
- added `approval_date_time_constraints` (to solve type pruning issue)
- removed `cartesian_transformation_opertor_2d` (per tc2)
- removed `offset_curve_2d` (per tc2)
- added `property_definition_representation` (per seds 57)
- added `representation_relationship` (per seds 57)
- added `b_spline_curve` (per seds 57)
- added `b_spline_surface` (per seds 57)
- added `conic` (per seds 57)
- added `point_replica` (per seds 57)
- added `swept_surface` (per seds 57)
- added `oriented_closed_shell` (per seds 57)
- added `path` (per seds 57)
- added `brep_with_voids` (per seds 57)

Since the long listing is generated from the short listing, the best method of presenting the long listing is to republish it as change pages. The index is being reissued to aid in navigation of the revised short and long listings. The clause 2 changes were made so the document references the appropriate 500 series parts.

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2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of the IEC and ISO maintain registers of currently valid International Standards.

ISO 31:1992, *Quantities and units*.

ISO 1000:1992, *SI units and recommendations for the use of their multiples and of certain other units*.

ISO/IEC 8824-1:1998, *Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation*.

ISO 10303-1:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 1: Overview and fundamental principles*.

ISO 10303-11:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 11: Description methods: The EXPRESS language reference manual*.

ISO 10303-21:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 21: Clear text encoding of the exchange structure*.

ISO 10303-31:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 31: Conformance testing methodology and framework: General concepts*.

ISO 10303-41:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 41: Integrated generic resources: Fundamentals of product description and support*.

ISO 10303-42:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 42: Integrated generic resources: Geometric and topological representation*.

ISO 10303-43:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 43: Integrated generic resources: Representation structures*.

ISO 10303-44:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 44: Integrated generic resources: Product structure configuration*.

ISO 10303-501, *Industrial automation systems and integration | Product data representation and exchange | Part 501: Application interpreted construct: Edge-based wireframe.*

ISO 10303-502, *Industrial automation systems and integration | Product data representation and exchange | Part 502: Application interpreted construct: Shell-based wireframe.*

ISO 10303-507, *Industrial automation systems and integration - Product data representation and exchange | Part 507: Application interpreted construct: Geometrically bounded surface.*

ISO 10303-509, *Industrial automation systems and integration - Product data representation and exchange | Part 509: Application interpreted construct: Manifold surface.*

ISO 10303-510, *Industrial automation systems and integration - Product data representation and exchange | Part 510: Application interpreted construct: Geometrically bounded wireframe.*

ISO 10303-511, *Industrial automation systems and integration - Product data representation and exchange | Part 511: Application interpreted construct: Topologically bounded surface.*

ISO 10303-512, *Industrial automation systems and integration - Product data representation and exchange | Part 512: Application interpreted construct: Faceted boundary representation.*

ISO 10303-514, *Industrial automation systems and integration - Product data representation and exchange | Part 514: Application interpreted construct: Advanced boundary representation.*

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3 Definitions and abbreviations

For the purposes of this part of ISO 10303, the following definitions and abbreviations apply.

3.1 Terms defined in ISO 10303-1

This part of ISO 10303 makes use of the following terms defined in ISO 10303-1.

- abstract test suite;
- application;
- application activity model;
- application context;
- application interpreted model;
- application object;
- application protocol;
- application reference model;
- assembly;
- component;
- conformance class;
- conformance requirement;
- data;
- data exchange;
- implementation method;
- information;
- integrated resource;
- interpretation;

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- 43) product_requires_product_category
- 44) product_requires_version
- 45) product_version_requires_approval
- 46) product_version_requires_person_organization
- 47) product_version_requires_security_classification
- 48) restrict_action_request_status
- 49) restrict_approval_status
- 50) restrict_certification_type
- 51) restrict_contract_type
- 52) restrict_date_time_role
- 53) restrict_document_type
- 54) restrict_person_organization_role
- 55) restrict_product_category_value
- 56) restrict_security_classification_level
- 57) security_classification_optional_date_time
- 58) security_classification_requires_approval
- 59) security_classification_requires_date_time
- 60) security_classification_requires_person_organization
- 61) start_request_requires_approval
- 62) start_request_requires_date_time
- 63) start_request_requires_person_organization
- 64) start_work_requires_approval
- 65) start_work_requires_date_time [ISO 10303-203:1994/Amd 1:2000](https://standards.iteh.ai/catalog/standards/sist/75568a1d-a0a1-484d-85b2-901f83c16b73/iso-10303-203-1994-amd-1-2000)
- 66) subtype_mandatory_action <https://standards.iteh.ai/catalog/standards/sist/75568a1d-a0a1-484d-85b2-901f83c16b73/iso-10303-203-1994-amd-1-2000>
- 67) subtype_mandatory_effectivity
- 68) subtype_mandatory_product_context
- 69) subtype_mandatory_product_definition_formation
- 70) subtype_mandatory_product_definition_usage
- 71) subtype_mandatory_representation
- 72) subtype_mandatory_representation_context
- 73) subtype_mandatory_shape_representation
- 74) unique_version_change_order_rule
- 75) versioned_action_request_requires_solution
- 76) versioned_action_request_requires_status

5.2 AIM EXPRESS short listing

This clause specifies the EXPRESS schema that uses elements from the integrated resources and contains the types, entity specializations, rules, and functions that are specific to this part of ISO 10303. This clause also specifies modifications to the textual material for constructs that are imported from the integrated resources. The definitions and EXPRESS provided in the integrated resources for constructs used in the AIM may include select list items and subtypes which are not imported into the AIM. Requirements stated in the

integrated resources which refer to such items and subtypes apply exclusively to those items which are imported into the AIM.

EXPRESS specification:

*)

```
SCHEMA config_control_design;
```

```
USE FROM application_context_schema -- ISO 10303-41
(application_context,
 application_protocol_definition,
 product_context,
 product_definition_context,
 product_concept_context);
```

```
USE FROM product_definition_schema -- ISO 10303-41
(product,
 product_definition,
 product_definition_formation,
 product_definition_formation_with_specified_source,
 product_definition_relationship,
 product_category,
 product_category_relationship,
 product_related_product_category,
 product_definition_with_associated_documents);
```

```
USE FROM product_structure_schema -- ISO 10303-44
(product_definition_usage,
 assembly_component_usage,
 next_assembly_usage_occurrence,
 promissory_usage_occurrence,
 quantified_assembly_component_usage,
 specified_higher_usage_occurrence,
 assembly_component_usage_substitute,
 alternate_product_relationship);
```

```
USE FROM configuration_management_schema -- ISO 10303-44
(configuration_item,
 configuration_design,
 configuration_effectivity);
```

```
USE FROM product_concept_schema -- ISO 10303-44
(product_concept);

USE FROM product_property_definition_schema -- ISO 10303-41
(product_definition_shape,
property_definition,
shape_aspect,
shape_aspect_relationship);

USE FROM product_property_representation_schema -- ISO 10303-41
(context_dependent_shape_representation,
property_definition_representation,
shape_representation,
shape_representation_relationship,
shape_definition_representation);

USE FROM representation_schema -- ISO 10303-43
(functionally_defined_transformation,
item_defined_transformation,
global_uncertainty_assigned_context,
mapped_item,
representation,
representation_context,
parametric_representation_context,
representation_item,
representation_map,
representation_relationship,
representation_relationship_with_transformation,
using_representations);

USE FROM geometry_schema -- ISO 10303-42
(axis1_placement,
axis2_placement_2d,
axis2_placement_3d,
b_spline_curve,
b_spline_curve_with_knots,
b_spline_surface,
b_spline_surface_with_knots,
bezier_curve,
bezier_surface,
boundary_curve,
cartesian_point,
```

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