



INTERNATIONAL STANDARD ISO 10303-50:2001

TECHNICAL CORRIGENDUM 2

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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

Part 50:

Integrated generic resource:

Mathematical constructs

TECHNICAL CORRIGENDUM 2 iTeh Standards

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Systèmes d'automatisation industrielle et intégration – Représentation et échange de données de produits

- Partie 50: Ressources génériques intégrées: Constructions mathématiques

RECTIFICATIF TECHNIQUE 2

[ISO 10303-50:2002/Cor 2:2014](https://standards.itih.ai/catalog/standards/iso/21f2570b-f522-41de-aa1e-2075c283ab20/iso-10303-50-2002-cor-2-2014)

<https://standards.itih.ai/catalog/standards/iso/21f2570b-f522-41de-aa1e-2075c283ab20/iso-10303-50-2002-cor-2-2014>

Technical Corrigendum 2 to International Standard ISO 10303-50:2001 was prepared by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 4, *Industrial data*.

This Technical Corrigendum is intended to be used in conjunction with ISO 10303-50:2001/Cor.1:2010. Included SEDS reports: SEDS 1299. Included Bugzilla reports: Bug 979, Bug 1109, Bug 2574, Bug 4114, Bug 5046, Bug 5053, Bug 5059

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Introduction

This Technical Corrigendum applies to ISO 10303-50:2001 as modified by TC1.

The purpose of the modifications to the text of ISO 10303-50:2001 is to correct EXPRESS errors relating to incorrect data types in EXPRESS type, entity and function definitions, and to update the document identifiers in annex B.

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Modifications to the text of ISO 10303-50:2001

Delete the current list of normative references and replace with the following undated references and move the reference to ISO//IEC 8824-1 to the bibliography:

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

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

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

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

ISO 13584-20, *Industrial automation systems and integration — Parts Library — Part 20: Logical resource: Logical model of expressions.*

Page 6, 4 Mathematical functions, EXPRESS specification

In the EXPRESS references to the schemas from ISO 13584-20 the wrong case is used in the schema names. Delete the line:

~~REFERENCE FROM ISO13584_generic_expressions_schema – ISO 13584-20~~

And replace with:

<https://standard.iso.org/standards/std/10303-50/2002/Cor.2.2014/>

~~REFERENCE FROM iso13584_generic_expressions_schema -- ISO 13584-20~~

Delete the line:

~~REFERENCE FROM ISO13584_expressions_schema – ISO 13584-20~~

And replace with:

REFERENCE FROM iso13584_expressions_schema -- ISO 13584-20

In NOTE 1 change the schema names from ISO13584_generic_expressions_schema and ISO13584_expressions_schema to:

iso13584_generic_expressions_schema and

iso13584_expressions_schema.

Page 34, 4.4.27, tuple_space

This type requires extensions in other parts of ISO 10303. Delete the current EXPRESS definition of the type **tuple_space** and replace with:

EXPRESS specification:

```
*)
TYPE tuple_space = EXTENSIBLE GENERIC_ENTITY SELECT
  (product_space,
   extended_tuple_space);
END_TYPE;
(*
```

Page 38, 4.5.5, complex_number_literal

The definition of complex_number_literal lacks a subtype to enable the definition of complex numbers by giving the values of modulus and argument. Immediately after clause 4.5.5 insert the following new definition as clause 4.5.6 and re-number the existing clauses 4.5.6 to 4.5.77 as 4.5.7 to 4.5.78.

4.5.6 complex_number_literal_polar

A **complex_number_literal_polar** is a type of **complex_number_literal** defined by the values of its modulus and argument.

EXPRESS specification:

```
*)
ENTITY complex_number_literal_polar
  SUBTYPE OF (complex_number_literal);
  modulus : REAL;
  argument : REAL;
  DERIVE
    SELF\complex_number_literal.real_part : REAL := modulus * cos(argument);
    SELF\complex_number_literal.imag_part : REAL := modulus * sin(argument);
  WHERE
    WR1: modulus >= 0;
    WR2: {0 <= argument <= 2*PI};
END_ENTITY;
(*
```

Attribute definitions:

modulus: The value of the modulus of the complex number. This is equal to the distance from the point representing the complex number to the origin of the complex plane.

argument: The value of the argument of the complex number. This is equal to the angle between the line joining the point representing the complex number to the origin and the real axis.

Formal propositions:

WR1: The **modulus** shall not be negative.

WR2: The **argument** shall be between 0 and 2π .

Page 54, 4.5.32, *extended_tuple_space*

*This entity contains an incorrect data type for the first attribute. Delete the current EXPRESS definition of the entity type **extended_tuple_space** and replace with:*

EXPRESS specification:

```

*)
ENTITY extended_tuple_space
  SUBTYPE OF (maths_space, generic_literal);
  base : tuple_space;
  extender : maths_space;
WHERE
  WR1: expression_is_constant(base) AND expression_is_constant(extender);
  WR2: no_cyclic_space_reference(SELF, []);
  WR3: extender <> the_empty_space;
END_ENTITY;
(*

```

*Remove the description given for the first attribute **base** and replace with:*

[ISO 10303-50:2002/Cor 2:2014](https://standards.iteh.ai/ISO 10303-50:2002/Cor 2:2014)

<https://standards.iteh.ai/catalog/standards/iso/21f2570b-f522-41de-aa1e-2075c283ab20/iso-10303-50-2002-cor-2-2014>

The **tuple_space** describing the common initial component spaces of all the ordered tuples belonging to this tuple space. When there are no ocommon initial components, the value of **base** will be the zero-tuple space.

Page 73, 4.5.52, *linearized_table_function*

*This entity contains an incomplete reference path in WR2. Delete the current EXPRESS definition of the entity type **linearized_table_function** and replace with:*

EXPRESS specification:

```

*)
ENTITY linearized_table_function
  SUPERTYPE OF (ONEOF (standard_table_function,
                        regular_table_function,
                        triangular_matrix,
                        symmetric_matrix,
                        banded_matrix))
  SUBTYPE OF (explicit_table_function, unary_generic_expression);
  SELF\unary_generic_expression.operand : maths_function;
  first : integer;
DERIVE
  source : maths_function := SELF\unary_generic_expression.operand;
WHERE
  WR1: function_is_1d_array(source);
  WR2: member_of(first, source\maths_function.domain);
END_ENTITY;
(*

```

Page 79, 4.5.57, symmetric_matrix

*The entity **symmetric_matrix** contains incorrect data types in WR3 and WR4. Delete the current EXPRESS definition of the entity **symmetric_matrix** and replace with:*

EXPRESS specification:

<https://standards.iteh.ai/catalog/standards/iso/21f2570b-f522-41de-aa1e-2075c283ab20/iso-10303-50-2002-cor-2-2014>

```

*)
ENTITY symmetric_matrix
  SUBTYPE OF (linearized_table_function);
  symmetry : symmetry_type;
  triangle : lower_upper;
  order : ordering_type;
WHERE
  WR1: SIZEOF (SELF\explicit_table_function.shape) = 2;
  WR2: SELF\explicit_table_function.shape[1] =
        SELF\explicit_table_function.shape[2];
  WR3: NOT (symmetry = symmetry_type.skew) OR (
        (space_dimension(SELF\linearized_table_function.source.range) = 1) AND
        subspace_of_es(factor1(SELF\linearized_table_function.source.range),
        es_numbers));
  WR4: NOT ((symmetry = symmetry_type.hermitian) OR
        (symmetry = symmetry_type.skew_hermitian)) OR (
        (space_dimension(SELF\linearized_table_function.source.range) = 1) AND
        subspace_of_es(factor1(SELF\linearized_table_function.source.range),
        es_complex_numbers));
END_ENTITY;
(*

```