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

Part 520:
Application interpreted construct: Associative draughting elements

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

Partie 520: Construction interprétée d'application: Éléments de dessin associatif

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

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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.

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.

International Standard ISO 10303–520 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration,* Subcommittee SC4, *Industrial data.*

This International Standard is organized as a series of parts, each published separately. The parts of ISO 10303 fall into one of the following series: description methods, integrated resources, application protocols, abstract test suites, implementation methods, and conformance testing. The series are described in ISO 10303–1.

A complete list of parts of ISO 10303 is available from the internet:

http://www.nist.gov/sc4/editing/step/titles/

Annexes A and B form an integral part of this part of ISO 10303. Annexes C and D are for information only.

Introduction

ISO 10303 is an International Standard for the computer-interpretable representation and exchange of product data. The objective is to provide a neutral mechanism capable of describing product data throughout the life cycle of a product independent from any particular system. The nature of this description makes it suitable not only for neutral file exchange, but also as a basis for implementing and sharing product databases and archiving.

This International Standard is organized as a series of parts, each published separately. The parts of ISO 10303 fall into one of the following series: description methods, integrated resources, application interpreted constructs, application protocols, abstract test suites, implementation methods, and conformance testing. The series are described in ISO 10303–1. This part of ISO 10303 is a member of the application interpreted constructs series.

An application interpreted construct (AIC) provides a logical grouping of interpreted constructs that supports a specific functionality for the usage of product data across multiple application contexts. An interpreted construct is a common interpretation of the integrated resources that supports shared information requirements among application protocols.

This document specifies the application interpreted construct for the description of structures to associate the annotation used in draughting with the geometric aspects of the shape where the annotation applies.

Industrial automation systems and integration — Product data representation and exchange — Part 520: Application interpreted construct: Associative draughting elements

1 Scope

This part of ISO 10303 specifies the interpretation of the integrated resources to satisfy requirements for the representation of associations between annotation and geometrics aspects of the shape of a product.

The following are within the scope of this part of ISO 10303:

— the structures for representing associations between dimensions or draughting callouts and their respective target product shape geometry or annotation;

— the structures for representing associations between the boundaries of a fill area and the product shape geometry or annotation from which they are derived.

The following are outside the scope of this part of ISO 10303:

— the representation of the product's shape;

— the styling of dimensions, annotation, and geometry.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 10303. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 10303 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 8824–1:1995, *Information Technology – Open Systems Interconnection – Abstract Syntax Notation One (ASN.1) – Part 1: Specification of Basic Notation.*

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

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

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

ISO 10303–46:1994, *Industrial automation systems and integration – Product data representation and exchange – Part 46: Integrated generic resources: Visual presentation.*

ISO 10303–47:1997, *Industrial automation systems and integration – Product data representation and exchange – Part 47: Integrated generic resources: Shape variation tolerances.*

ISO 10303–101:1994, *Industrial automation systems and integration – Product data representation and exchange – Part 101: Integrated application resources: Draughting.*

ISO 10303–202:1996, *Industrial automation systems and integration – Product data representation and exchange – Part 202: Application protocol: Associative draughting.*

3 Terms, definitions, and abbreviations

3.1 Terms defined in ISO 10303–1

For the purpose of this part of ISO 10303, the following terms defined in ISO 10303–1 apply:

— abstract test suite (ATS);

— application;

— application context;

— application protocol (AP);

— implementation method;

— information;

— integrated resource;

— interpretation;

— model;

— product;

— product data.

3.2 Terms defined in ISO 10303–202

For the purpose of this part of ISO 10303, the following terms defined in ISO 10303–202 apply:

3.2.1
application interpreted construct
a logical grouping of interpreted constructs that supports a specific function for the usage of product data across multiple application contexts

[ISO 10303–202:1996, definition 3.7.1]

3.3 Abbreviations

For the purpose of this part of ISO 10303, the following abbreviations apply:

AIC	application interpreted construct
AP	application protocol
ATS	abstract test suite

4 EXPRESS short listing

This clause specifies the EXPRESS schema that uses elements from the integrated resources and contains the types, entity specializations, and functions that are specific to this part of ISO 10303.

NOTE 1 - There may be subtypes and items of select lists that appear in the integrated resources that are not imported into the AIC. Constructs are eliminated from the subtype tree or select list through the use of the implicit interface rules of ISO 10303-11. References to eliminated constructs are outside the scope of the AIC. In some cases, all items of the select list are eliminated. Because AICs are intended to be implemented in the context of an application protocol, the items of the select list will be defined by the scope of the application protocol.

EXPRESS specification:

```
*)
SCHEMA aic_associative_draughting_elements;

 USE FROM measure_schema                              -- ISO 10303-41
  (derived_unit,
  named_unit);

 USE FROM product_property_definition_schema          -- ISO 10303-41
```

```
  (shape_aspect_relationship);

 USE FROM product_property_representation_schema    -- ISO 10303-41
   (shape_definition_representation);

 REFERENCE FROM support_resource_schema             -- ISO 10303-41
  (bag_to_set);

 USE FROM representation_schema                     -- ISO 10303-43
  (mapped_item,
  representation,
  representation_item,
  representation_map);

 REFERENCE FROM representation_schema               -- ISO 10303-43
  (using_representations);

 USE FROM qualified_measure_schema                  -- ISO 10303-45
  (measure_representation_item);

 USE FROM presentation_appearance_schema            -- ISO 10303-46
  (curve_style,
  styled_item);

 USE FROM presentation_definition_schema            -- ISO 10303-46
  (annotation_curve_occurrence,
  annotation_fill_area_occurrence,
  annotation_occurrence,
  annotation_occurrence_relationship,
  annotation_symbol_occurrence,
  annotation_text_occurrence,
  text_literal);

 USE FROM presentation_organization_schema           -- ISO 10303-46
  (camera_model);

 USE FROM shape_dimension_schema                    -- ISO 10303-47
  (dimensional_characteristic_representation,
  shape_dimension_representation);

 USE FROM draughting_element_schema                 -- ISO 10303-101
  (draughting_callout,
  leader_curve,
  projection_curve);
```

(*

NOTE 2 - The schemas referenced above can be found in the following parts of ISO 10303:

draughting_element_schema	ISO 10303-101
measure_schema	ISO 10303-41
presentation_appearance_schema	ISO 10303-46

presentation_definition_schema	ISO 10303-46
presentation_organization_schema	ISO 10303-46
product_property_definition_schema	ISO 10303-41
product_property_representation_schema	ISO 10303-41
representation_schema	ISO 10303-43
shape_dimension_schema	ISO 10303-47
support_resource_schema	ISO 10303-41

4.1 Fundamental concepts and assumptions

The following entities are intended to be independently instantiated in the application protocol schemas that use this AIC:

— annotation_curve_occurrence;

— annotation_fill_area_occurrence;

— annotation_occurrence_associativity;

— annotation_symbol_occurrence;

— dimension_text_associativity;

— draughting_callout;

— draughting_model;

— leader_curve;

— projection_curve;

— shape_aspect_associativity;

— shape_definition_representation;

— shape_dimension_representation.

4.2 aic_associative_draughting_elements entity definitions

4.2.1 annotation_occurrence_associativity

An **annotation_occurrence_associativity** is an **annotation_occurrence_relationship** that relates an element of annotation to the leader or projection curve which visually directs information in the drawing to the element or to the fill area whose boundary is derived from the element.

EXPRESS specification:

```
*)
ENTITY annotation_occurrence_associativity
  SUBTYPE OF (annotation_occurrence_relationship);
WHERE
  WR1:  SIZEOF (TYPEOF (SELF.related_annotation_occurrence) *
                ['AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.ANNOTATION_FILL_AREA_OCCURRENCE',
                'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.PROJECTION_CURVE',
                'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.LEADER_CURVE']) = 1;
END_ENTITY;
(*
```

Formal propositions:

WR1: The **related_annotation_occurrence** shall be a **leader_curve**, **projection_curve**, or **annotation_fill_area_occurrence**.

4.2.2 dimension_text_associativity

A **dimension_text_associativity** is a **text_literal** that maps a **shape_dimension_representation** onto the **draughting_callout** which presents the measurement.

NOTE - The measurement of the **shape_dimension_representation** need not be identical to the character string presented by the text literal.

EXPRESS specification:

```
*)
ENTITY dimension_text_associativity
  SUBTYPE OF (text_literal, mapped_item);
WHERE
  WR1:  ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.SHAPE_DIMENSION_REPRESENTATION'
          IN TYPEOF (SELF\mapped_item.
                     mapping_source.mapped_representation));
  WR2:  ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.DRAUGHTING_CALLOUT'
          IN TYPEOF (SELF\mapped_item.mapping_target));
  WR3:  SIZEOF (QUERY (ato <* QUERY (si <*
                USEDIN (SELF, 'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.STYLED_ITEM.ITEM') |
                  ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.ANNOTATION_TEXT_OCCURRENCE'
                    IN TYPEOF(si))) |
                NOT (SIZEOF( QUERY (dc <*
                   USEDIN (ato, 'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.' +
                                'DRAUGHTING_CALLOUT.CONTENTS') |
                     ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.DRAUGHTING_CALLOUT'
                    IN TYPEOF (dc)))
```

```
                * [SELF\mapped_item.mapping_target]) = 1)
              )) = 0;
END_ENTITY;
(*
```

Formal propositions:

WR1: The **mapped_representation** shall be a **shape_dimension_representation**.

WR2: The **mapping_target** shall be a **draughting_callout**.

WR3: The **dimension_text_associativity** shall be used in an **annotation_text_occurrence** that is in the contents of the target **draughting_callout**.

4.2.3 draughting_model

A **draughting_model** is a representation of the shape of a product for the purpose of draughting. A **draughting_model** may contain **mapped_items** that are the mappings of **shape_representations** or of other **draughting_models**. A **mapped_item** that is the mapping of a **shape_representation** specifies an explicit representation of the shape of a product that is to be presented in the drawing. A **mapped_item** that is the mapping of another **draughting_model** specifies the use of a sub-model. The **draughting_model** may contain **styled_items**. These **styled_items** specify the style for a **mapped_item** that is the mapping of a **shape_representation**, and provide the **curve_style** to be used in presenting the **shape_representation** in the drawing. The **draughting_model** may contain **annotation_occurrences**. These **annotation_occurrences** specify the annotation that is placed in the same coordiante system as the **shape_representation**, and is projected into a view when the **draughting_model** is presented in a drawing.

EXPRESS specification:

```
*)
ENTITY draughting_model
  SUBTYPE OF (representation);
UNIQUE
  UR1:  SELF\representation.name;
WHERE
  WR1:  SIZEOF (QUERY (it <* SELF.items |
                NOT (SIZEOF (['AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.MAPPED_ITEM',
                              'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.STYLED_ITEM',
                              'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.AXIS2_PLACEMENT',
                              'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.CAMERA_MODEL'] *
                     TYPEOF (it)) = 1
              ))) = 0;
  WR2:  SIZEOF (QUERY (mi <* QUERY (it <* SELF.items |
                ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.MAPPED_ITEM' IN TYPEOF(it))) |
                NOT (
```

```
                  SIZEOF (['AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.SHAPE_REPRESENTATION',
                           'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.DRAUGHTING_MODEL'] *
                     TYPEOF (mi\mapped_item.mapping_source.
                              mapped_representation)) = 1
              ))) = 0;
  WR3:  SIZEOF (QUERY (smi <* QUERY (si <* QUERY (it <* SELF.items |
                ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.STYLED_ITEM' IN TYPEOF(it))) |
                ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.MAPPED_ITEM' IN
                    TYPEOF(si\styled_item.item))) |
                (NOT (('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.SHAPE_REPRESENTATION' IN
                         TYPEOF(smi\styled_item.item\mapped_item.
                                mapping_source.mapped_representation))
                    AND
                     (SIZEOF (QUERY (sty <* smi\styled_item.styles |
                       (NOT (SIZEOF (QUERY (psa <* sty.styles |
                              (NOT ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.CURVE_STYLE'
                                    IN TYPEOF(psa))))) = 1
                    )))) = 1)))
              )) = 0;
END_ENTITY;
(*
```

Formal propositions:

UR1: The name of a **draughting_model** shall be unique.

WR1: Each item of a **draughting_model** shall be a **mapped_item**, **styled_item**, **axis2_placement**, or **camera_model**.

WR2: If there is a **mapped_item** in the **draughting_model**, the source of the **mapped_item** shall be a **shape_representation** or another **draughting_model**.

WR3: If a **mapped_item** is styled, the source of the **mapped_item** shall be a **shape_representation** and the style applied to the **mapped_item** shall be a **curve_style**.

4.2.4 shape_aspect_associativity

A **shape_aspect_associativity** is a **shape_aspect_relationship** that relates an element of the **shape_representation** to the leader or projection curve which visually directs information in the drawing to the element or to the fill area boundary that is derived from the element.

EXPRESS specification:

```
*)
ENTITY shape_aspect_associativity
  SUBTYPE OF (shape_aspect_relationship);
WHERE
  WR1:  SELF.relating_shape_aspect.product_definitional;
```

```
  WR2:  NOT (SELF.related_shape_aspect.product_definitional);
  WR3:  SIZEOF (QUERY (pd <* USEDIN (SELF, 'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.' +
                  'PROPERTY_DEFINITION.DEFINITION') |
          NOT (SIZEOF (QUERY (sdr <* QUERY (pdr <* USEDIN (pd,
                          'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.' +
                          'PROPERTY_DEFINITION_REPRESENTATION.DEFINITION') |
                ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.SHAPE_DEFINITION_REPRESENTATION'
                    IN TYPEOF (pdr))) |
            NOT (SIZEOF (QUERY (it <* sdr.used_representation.items |
              NOT ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.CURVE' IN TYPEOF(it))
              AND
              (SIZEOF (QUERY (aco <* USEDIN (it,
                          'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.STYLED_ITEM.ITEM') |
               SIZEOF (TYPEOF (aco) *
                     ['AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.LEADER_CURVE',
                      'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.PROJECTION_CURVE']) = 1)) +
               SIZEOF (USEDIN (it, 'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.' +
                      'ANNOTATION_FILL_AREA.BOUNDARIES')) >= 1)
            )) = 1)
          )) = 0)
        )) = 0;
  WR4:  SIZEOF (QUERY (pd <* USEDIN (SELF, 'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.' +
                  'PROPERTY_DEFINITION.DEFINITION') |
          NOT (SIZEOF (QUERY (sdr <* QUERY (pdr <* USEDIN (pd,
                          'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.' +
                          'PROPERTY_DEFINITION_REPRESENTATION.DEFINITION') |
                ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.SHAPE_DEFINITION_REPRESENTATION'
                    IN TYPEOF (pdr))) |
            NOT (check_associative_shape_aspects(sdr))
          )) = 0)
        )) = 0;
END_ENTITY;
(*
```

Formal propositions:

WR1: The **relating_shape_aspect** shall define the product.

WR2: The **related_shape_aspect** shall not define the product.

WR3: One of the items in the **shape_representation** for the **shape_aspect_associativity** shall be the basis curve for a **leader_curve**, a **projection_curve**, or a **fill_area_boundary**.

WR4: The **shape_representation** for the **shape_aspect_associativity** shall contain two items. One item shall be an item in a **shape_representation** that is mapped into a **draughting_model**. This **draughting_model** shall either contain the related leader, projection curve, or fill area as an element or be projected into the **presentation_view** in which the related leader, projection curve, or fill area is an element.

4.3 aic_associative_draughting_elements function definitions

4.3.1 check_associative_shape_aspects

The **check_associative_shape_aspects** function checks that the **used_representation** of a **shape_definition_representation** contains two items, one of which is an item in a **shape_representation** that is mapped into a **draughting_model**. This **draughting_model** shall either contain the related leader, projection curve, or fill area as an element or be projected into the **presentation_view** in which the related leader, projection curve, or fill area is an element. The function returns TRUE if the items of the **used_representation** satisfy this requirement. The function returns FALSE if the items do not satisfy this requirement.

EXPRESS specification:

```
*)
FUNCTION check_associative_shape_aspects
  (sdr : shape_definition_representation) : BOOLEAN;
  LOCAL
    sr1, sr2 : SET OF representation;
    dm, pv   : SET OF representation;
  END_LOCAL;

  -- Check if the representation contains only two items
  IF (SIZEOF (sdr.used_representation.items) <> 2) THEN
     RETURN (FALSE);
  END_IF;

  -- Find the representations that use each item
  sr1 := using_representations(sdr.used_representation.items[1]);
  sr2 := using_representations(sdr.used_representation.items[2]);

  -- Find the representations in which item 1 representations are mapped
  REPEAT i := 1 TO HIINDEX(sr1);
    dm := representations_mapped_into(sr1[i]);
    REPEAT j := 1 TO HIINDEX(dm);
      IF ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.DRAUGHTING_MODEL' IN TYPEOF(dm[j]))
      THEN
        IF (dm[j] IN sr2) THEN RETURN (TRUE);
        END_IF;
        -- Find the views that the draughting model is mapped into
        pv := representations_mapped_into(dm[j]);
        REPEAT k := 1 TO HIINDEX(pv);
          IF ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.PRESENTATION_VIEW' IN TYPEOF(pv[k]))
          THEN
            IF (pv[k] IN sr2) THEN RETURN (TRUE);
            END_IF;
          END_IF;
        END_REPEAT;
```

```
      END_IF;
    END_REPEAT;
  END_REPEAT;

  -- Find the representations in which item 2 representations are mapped
  REPEAT i := 1 TO HIINDEX(sr2);
    dm := representations_mapped_into(sr2[i]);
    REPEAT j := 1 TO HIINDEX(dm);
      IF ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.DRAUGHTING_MODEL' IN TYPEOF(dm[j]))
      THEN
        IF (dm[j] IN sr1) THEN RETURN (TRUE);
        END_IF;
        -- Find the views that the draughting model is mapped into
        pv := representations_mapped_into(dm[j]);
        REPEAT k := 1 TO HIINDEX(pv);
          IF ('AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.PRESENTATION_VIEW' IN TYPEOF(pv[k]))
          THEN
            IF (pv[k] IN sr1) THEN RETURN (TRUE);
            END_IF;
          END_IF;
        END_REPEAT;
      END_IF;
    END_REPEAT;
  END_REPEAT;
  RETURN(FALSE);
END_FUNCTION;
(*
```

Argument definitions:

sdr: The input **shape_definition_representation** to be checked.

4.3.2 representations_mapped_into

The **representations_mapped_into** function returns the set of **representations** that are defined by the use of the input **representation** as a **mapped_item**.

EXPRESS specification:

```
*)
FUNCTION representations_mapped_into
  (rep : representation) : SET of representation;
  LOCAL
    results : SET OF representation := [];
    rm      : SET OF representation_map;
    mi      : SET OF mapped_item := [];
  END_LOCAL;
```

```
  -- Find set of representation_maps which specify the representation
  rm := bag_to_set(USEDIN(rep, 'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.' +
                    'REPRESENTATION_MAP.MAPPED_REPRESENTATION'));
  -- Find the set of mapped_items that use each representation_map
  REPEAT i := 1 TO HIINDEX(rm);
    mi := mi + rm[i].map_usage;
  END_REPEAT;
  -- Find the set of representations that use each mapped_item
  REPEAT j := 1 TO HIINDEX(mi);
    results := results + USEDIN(mi[j],'AIC_ASSOCIATIVE_DRAUGHTING_ELEMENTS.' +
                                      'REPRESENTATION.ITEMS');
  END_REPEAT;
  RETURN(results);
END_FUNCTION;
(*
```

Argument definitions:

rep: The input **representation** to be checked.

EXPRESS specification:

```
*)
END_SCHEMA;
(*
```

Annex A
(normative)

Short names of entities

Table A.1 provides the short names of entities specified in this part of ISO 10303. Requirements on the use of the short names are found in the implementation methods included in ISO 10303.

Table A.1 – Short names of entities

Entity names	Short names
ANNOTATION_OCCURRENCE_ASSOCIATIVITY	ANOCAS
DIMENSION_TEXT_ASSOCIATIVITY	DMTXAS
DRAUGHTING_MODEL	DRGMDL
SHAPE_ASPECT_ASSOCIATIVITY	SHASAS

Annex B
(normative)

Information object registration

B.1 Document identification

To provide for unambiguous identification of an information object in an open system, the object identifier

{ iso standard 10303 part(520) version(1) }

is assigned to this part of ISO 10303. The meaning of this value is defined in ISO/IEC 8824-1, and is described in ISO 10303-1.

B.2 Schema identification

To provide for unambiguous identification of the aic_associative_draughting_elements_schema in an open information system, the object identifier

{ iso standard 10303 part(520) version(1) object(1) aic-associative-draughting-elements-schema(1) }

is assigned to the aic_associative_draughting_elements_schema schema (see clause 4). The meaning of this value is defined in ISO/IEC 8824-1, and is described in ISO 10303-1.

Annex C
(informative)

EXPRESS-G diagrams

Figures C.1 through C.6 correspond to the EXPRESS generated from the short listing given in clause 4 using the interface specifications of ISO 10303-11. The diagrams use the EXPRESS-G graphical notation for the EXPRESS language. EXPRESS-G is defined in annex D of ISO 10303-11.

NOTE - The following select types: character_spacing_select, curve_or_annotation_curve_occurrence, curve_or_render, invisible_item, layered_item, style_context_select, and text_or_character are interfaced into the AIC expanded listing according to the implicit interface rules of ISO 10303-11. These select types are not referenced by other entities in this part of ISO 10303.

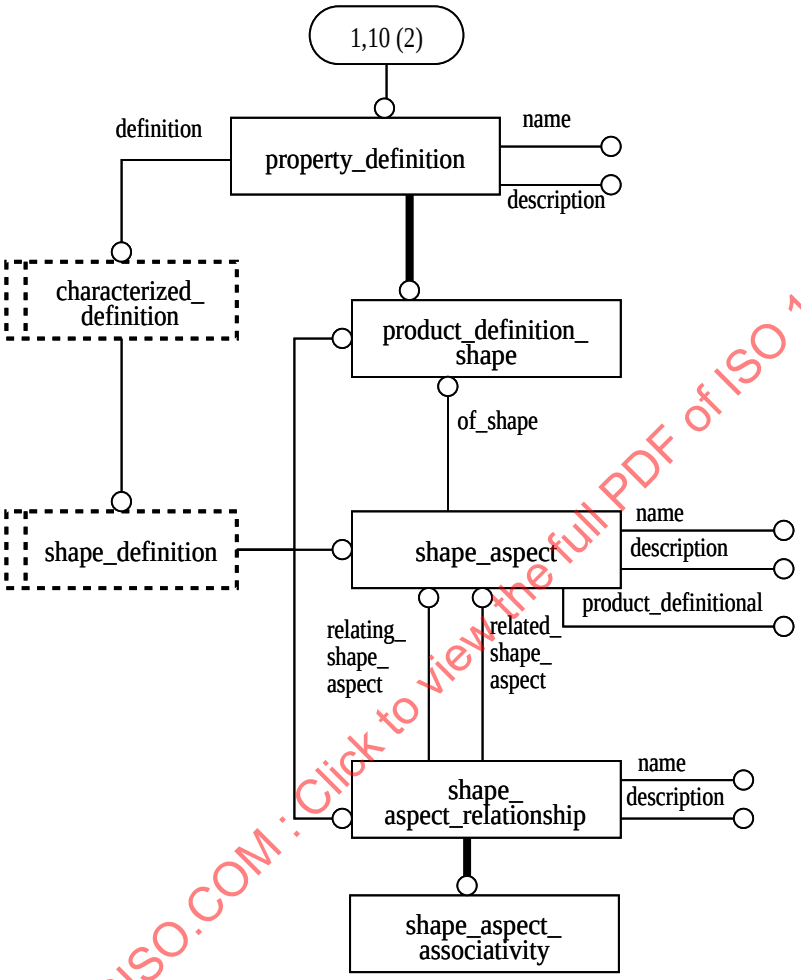

Figure C.1 – AIC expanded listing diagram in EXPRESS–G: 1 of 6

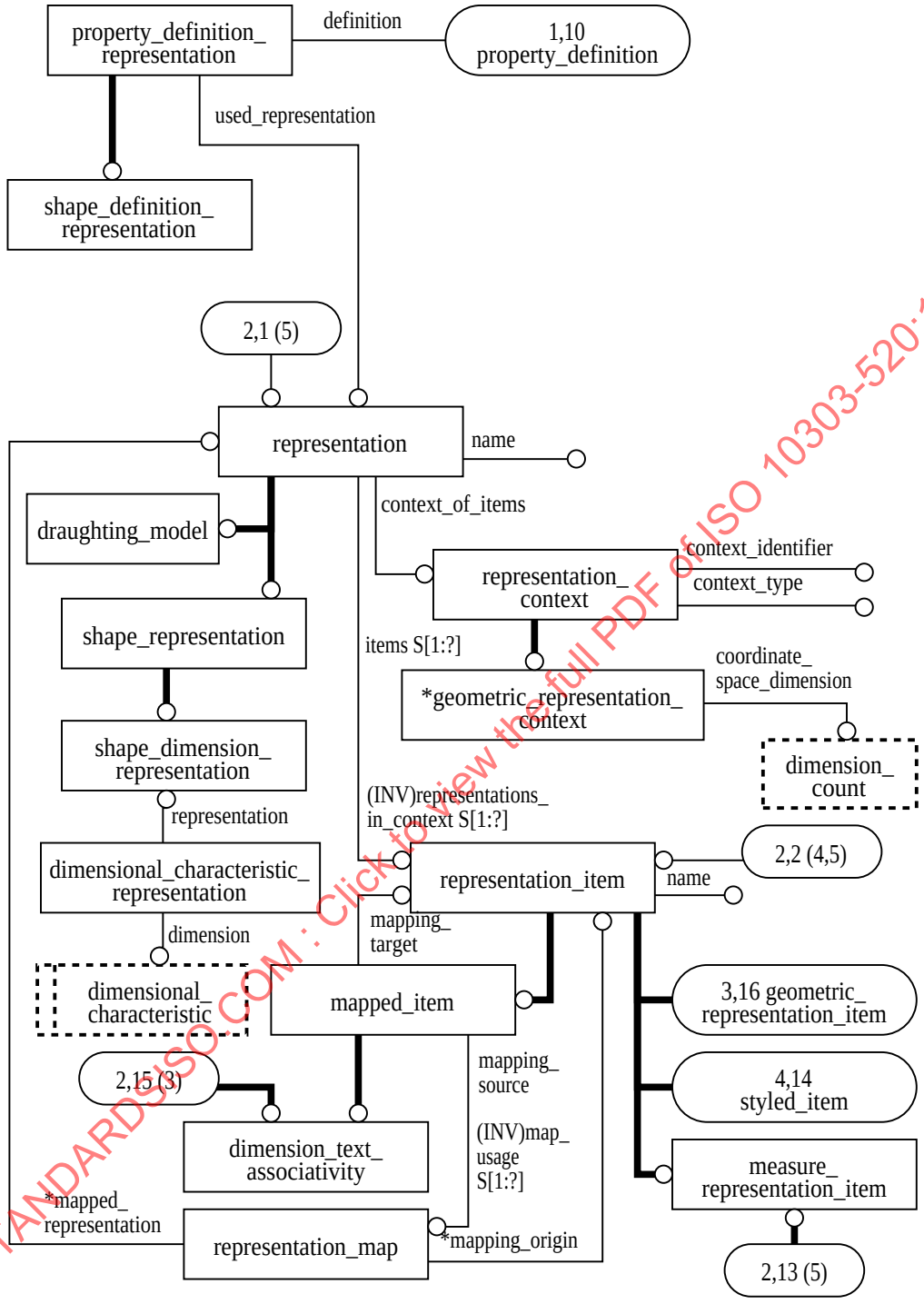

Figure C.2 – AIC expanded listing diagram in EXPRESS–G: 2 of 6

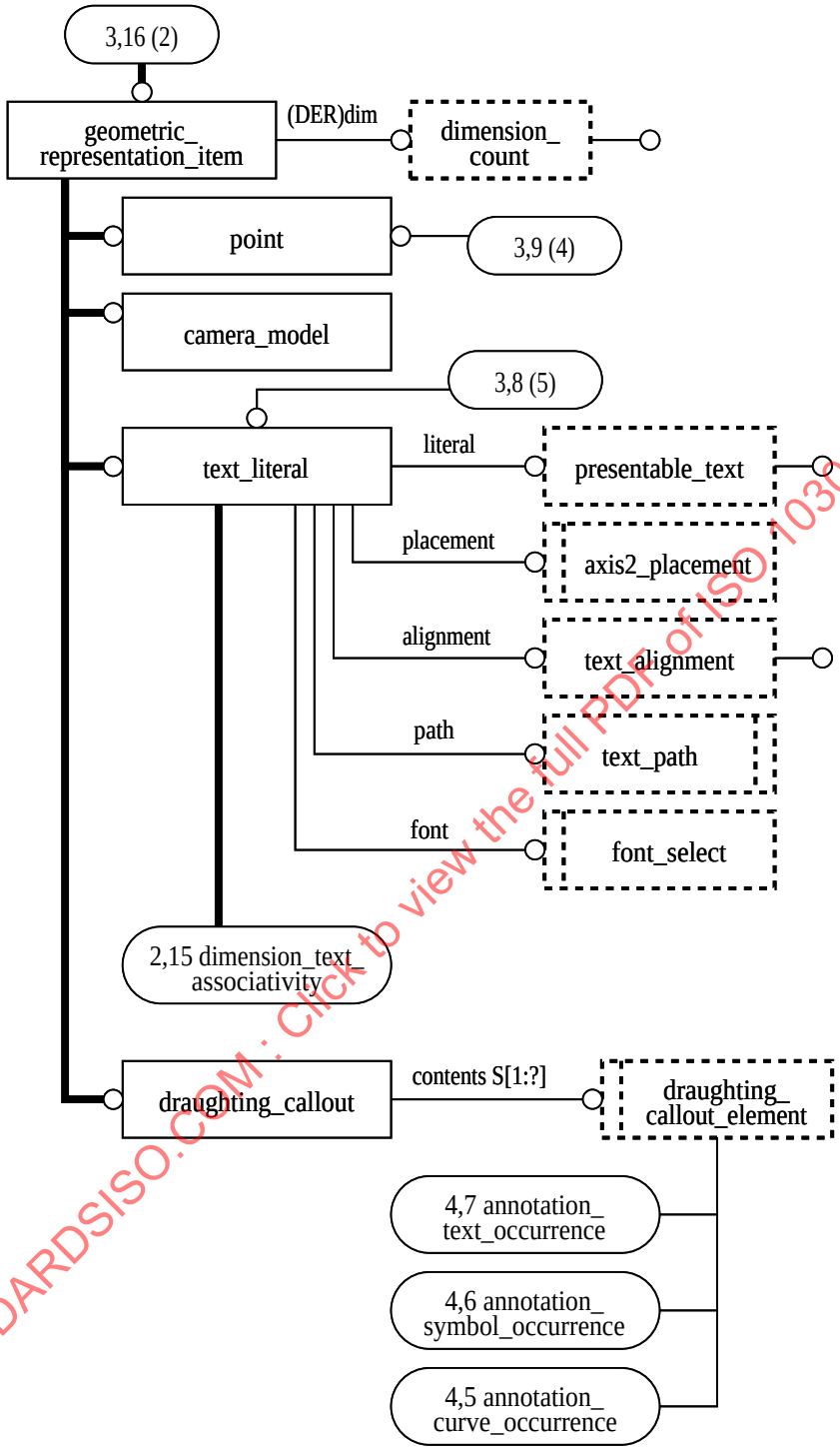

Figure C.3 – AIC expanded listing diagram in EXPRESS–G: 3 of 6

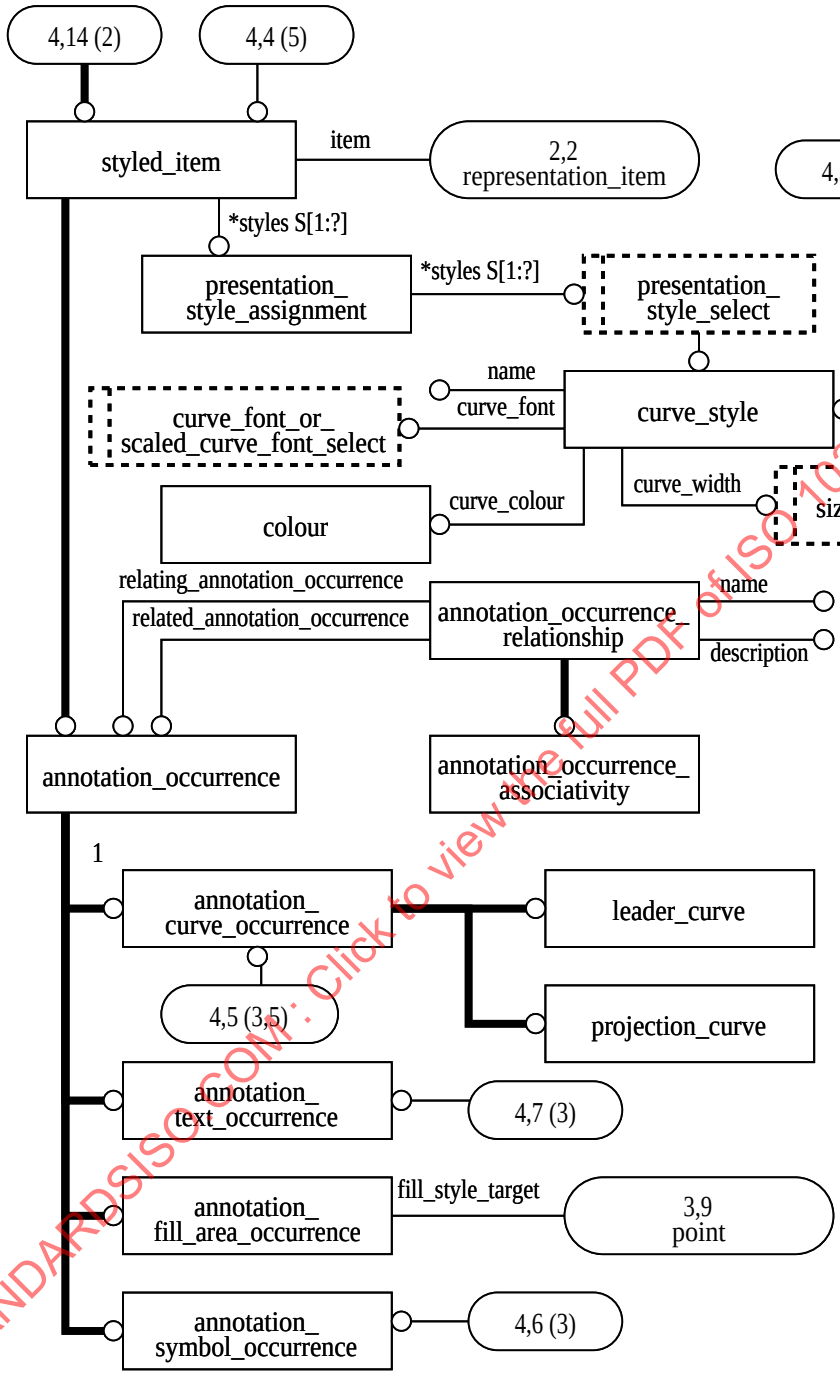

Figure C.4 – AIC expanded listing diagram in EXPRESS–G: 4 of 6

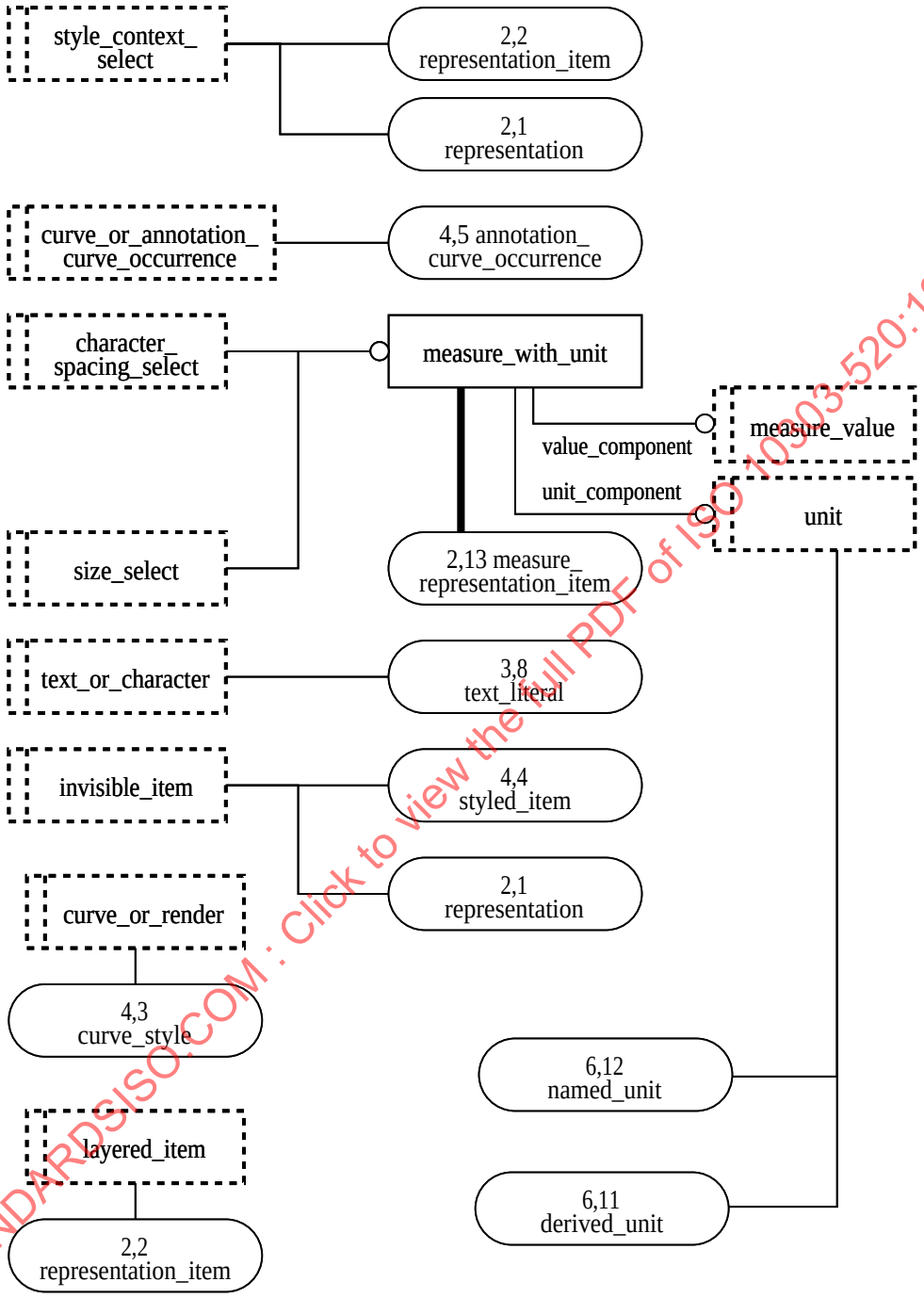

Figure C.5 – AIC expanded listing diagram in EXPRESS–G: 5 of 6

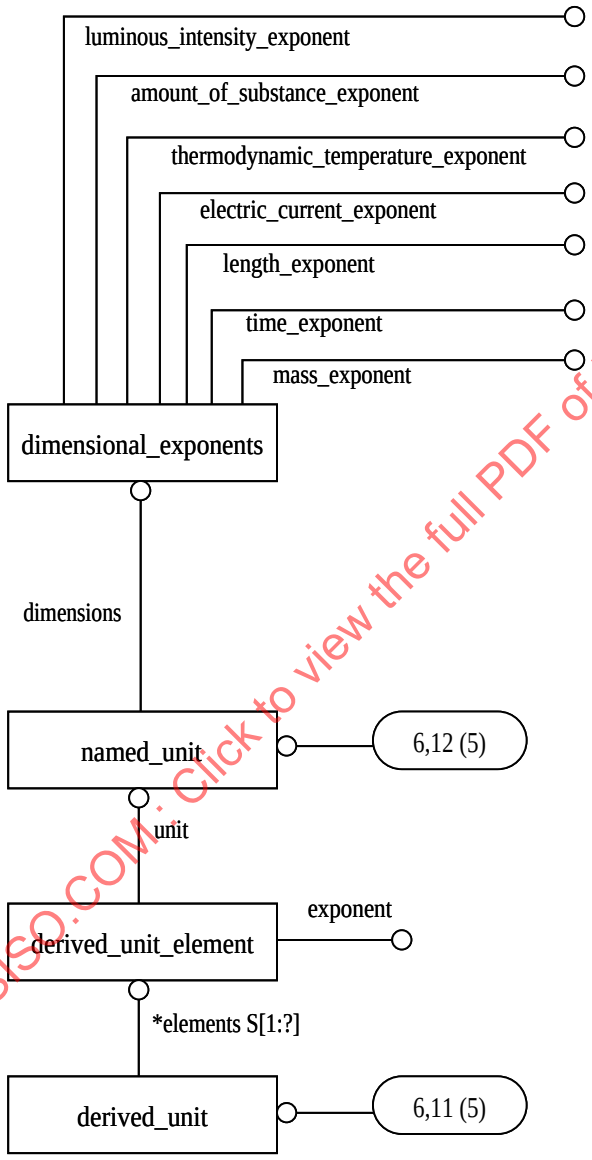

Figure C.6 – AIC expanded listing diagram in EXPRESS–G: 6 of 6