

INTERNATIONAL
STANDARD

ISO
8668-6

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1994-08-15

Aircraft — Terminal junction systems —

Part 6:

Detail specification for type 4 system

*Aéronefs — Systèmes de raccordement à modules amovibles —
Partie 6: Spécification détaillée pour le système du type 4*



Reference number
ISO 8668-6:1994(E)

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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 8668-6 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 1, *Aerospace electrical requirements*.

ISO 8668 consists of the following parts, under the general title *Aircraft* — *Terminal junction systems*:

- Part 1: *Characteristics*
- Part 2: *Tests*
- Part 3: *Detail specification for type 1 system*
- Part 4: *Detail specification for type 2 system*
- Part 5: *Detail specification for type 3 system*
- Part 6: *Detail specification for type 4 system*

Annexes A, B and C form an integral part of this part of ISO 8668.

Aircraft — Terminal junction systems —

Part 6:

Detail specification for type 4 system

1 Scope

This part of ISO 8668 specifies the specific characteristics of a Terminal Junction System (TJS), designated as type 4 and particularly designed for aircraft applications. It shall be read in conjunction with ISO 8668-1 and ISO 8668-2.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8668. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8668 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1966:1973, *Crimped joints for aircraft electrical cables*.

ISO 7137:1992, *Aircraft — Environmental conditions and test procedures for airborne equipment*.

ISO 8668-1:1986, *Aircraft — Terminal junction systems — Part 1: Characteristics*.

ISO 8668-2:1986, *Aircraft — Terminal junction systems — Part 2: Tests*.

MIL-I-81969:1982, *Connector and electrical contact — General specification for installing and removing tools*¹⁾.

3 Requirements

3.1 Description

This part of ISO 8668 defines a range of multicontact connecting devices, comprising terminal junctions with their associated rails, electronic modules, grounding junctions and studs, wire in-line junctions and electronic in-line junctions, for d.c. and a.c. low-frequency use in aircraft and airframe applications. These devices form part of a common interconnecting wiring system. The devices are environmentally sealed and the removable single wire crimp-type contacts are of female form. The contacts are inserted and removed by use of the appropriate tools. Each group of contacts within a device is clearly marked and, when used with its appropriate rail, terminal and distribution junctions, has individual markings for each contact.

1) May be obtained from:

Naval Publications and Forms Center
5801 Tabor Avenue
Philadelphia, PA 19120
USA

A range of terminal junction frames is provided for housing the modules. The frames are of aluminium alloy with anodised finish and are marked in such a way that when modules are mounted, every individual contact is uniquely identified. Individual terminal junction modules are removable and insertable from their frames using the appropriate removal tool. Grounding junctions (a device in which individual wires may be terminated to a common bus, which is in turn attached to a grounding plate or stud, and then attached to the airframe or equipment) also have unique contact marking. In-line junctions may form part of a cable loom or be separately mounted. Contacts for the above devices are available in four sizes, 22, 20, 16 and 12, and use insertion/removal tools and crimping

tools as used for a common interconnecting wiring system.

The devices are designed to operate over a temperature range of $-65\text{ }^{\circ}\text{C}$ to $+200\text{ }^{\circ}\text{C}$, to be light in weight, and are capable of satisfactory performance during or after subjection to the defined environmental conditions.

Electronic modules and special individual modules have a reduced performance and reference should be made to the individual specification sheet.

The terminal junction system shall comprise the components given in table 1 and design details shall be in accordance with figures A.1 to A.23.

Table 1 — Terminal junction system components

Specification sheet No. (see annex A)	Component
8668-6AA	Bussing modules, feed-back
8668-6BB	Distribution modules
8668-6CC	Electronic modules
8668-6DD	Grounding modules
8668-6EE	Grounding studs
8668-6FF	Wire in-line junctions
8668-6GG	In-line electronic junctions
8668-6HH	Rack assembly, rail, feed-back type
8668-6JJ	Module mounting brackets
8668-6KK	Module extraction tools
8668-6LL	Contacts, female, crimp-removable
8668-6MM	Sealing plugs
8668-6NN	Insertion and extraction tools
8668-6PP	Crimping tools

3.2 Ratings

3.2.1 Electrical

3.2.1.1 Current

Table 2 gives the current rating.

Table 2 — Current rating

Contact size	Maximum test current at 25 °C ¹⁾
	A
22	5
20	7,5
16	13
12	13

1) For largest size of conductor accommodated by contact.

The continuous current rating of any contact or group of contacts is governed by the heating effects of the electric loading and ambient temperature.

Devices may have any combination of electric loading and ambient temperature, provided the housing insert or contact temperature does not exceed + 200 °C.

3.2.1.2 Voltage

Table 3 gives the voltage rating.

Table 3 — Voltage rating

Voltage rating	Sea level	Altitude
	101,1 kPa	3 kPa (24 000 m)
	V	V
Working voltage, nominal, d.c. or a.c. peak	600	300
Proof voltage, d.c. or a.c. peak	1 500	600

NOTE — The establishment of an electrical safety factor is the responsibility of the user.

3.2.2 Environmental

- a) Temperature range: – 65 °C to + 200 °C
- b) Altitude: 24 km

- c) Low air pressure: ISO 8668-2:1986, test No. 14 (immersion at 1 kPa)
- d) Vibration: ISO 8668-2:1986, test No. 10 (10 Hz to 2 000 Hz, 10g, duration 12 h)
- e) Mechanical shock: ISO 8668-2:1986, test No. 9 [981 m/s² (100g), duration 6 ms]
- f) Climatic test: ISO 8668-2:1986, test No. 11
- g) Salt spray: ISO 8668-2:1986, test No. 16
- h) Flammability: test under consideration
- i) Magnetic effect: to satisfy the test procedure given in ISO 7137-3.1
- j) Resistance to fluids: ISO 8668-2:1986, test No. 18

The wired specimens shall be subjected to immersion in the fluids specified for fluid susceptibility test procedure ISO 7137-1.6, for the time and temperature conditions stated therein.

- k) Endurance

temperature: 1 000 h at 200 °C

mechanical: complies with ISO 8668-2:1986, test No. 7, except that the number of insertions and extractions shall be 100.

3.3 Characteristics

- a) Module frames: see annex A, Sections HH and JJ of this part of ISO 8668.
- b) Accessories: contacts and sealing plugs: see annex A, Section LL of this part of ISO 8668. Contacts must comply with annex C.
- c) Tools: crimping, insertion and extraction: see annex A, Sections PP and NN.
- d) Electrical
 - 1) Maximum contact resistance: ISO 8668-2:1986, test No. 5 (see table 4)
 - 2) Minimum insulation resistance: ISO 8668-2:1986, test No. 3
 - initially, 5 000 MΩ
 - after conditioning, 100 MΩ

e) Mechanical

- 1) Contact retention force: ISO 8668-2:1986, test No. 8 (see table 5)
- 2) Contact insertion force: ISO 8668-2:1986, test No. 1 (see table 6)
- 3) Contact resistance stability: ISO 8668-2:1986, test No. 17 (see table 7)

f) Conductor accommodation and wire seal (see table 8)

4 Test methods

4.1 Type approval

This shall be in accordance with ISO 8668-1:1986, Section 2.

4.1.1 Measurement group

The range of samples chosen to represent terminal junction systems is shown in annex B.

Each different component of the samples chosen shall be measured to verify that it complies with the manufacturing drawings.

Each sample shall consist of a complete assembly from the verified components.

The interchangeability characteristics of each sample shall be verified.

4.1.2 Test group

4.1.2.1 Bussing modules

A specimen shall consist of four fully wired modules, one of each contact size, mounted in their associated rail. See annex B.

4.1.2.2 Grounding junctions

A specimen shall consist of four fully wired modules, one of each contact size, mounted in a mounting plate representing aircraft practice. See annex B.

4.1.2.3 Wire in-line junctions

A specimen shall consist of four fully wired in-line junctions, one of each contact size, mounted in the form of a loom representing aircraft practice. See annex B.

Table 4 — Contact resistance

Contact size	Resistance
	mΩ
22	5
20	4
16	3
12	2

Table 5 — Contact retention force

Contact size	Maximum retention force
	N
22	44
20	67
16	111
12	111

Table 6 — Contact insertion force

Contact size	Maximum insertion force
	N
22	45
20	68
16	68
12	68

Table 7 — Contact resistance stability

Contact size	Maximum variation
	mΩ
22	2,5
20	1,75
16	1,25
12	1

Table 8 — Wire size

Contact size	Wire size AWG	Finished wire outside diameter mm	
		min.	max.
		22	26, 24, 22
20	24, 22, 20	1,01	2,10
16	20, 18, 16	1,65	2,76
12	14, 12	2,46	3,60

4.1.2.4 Electronic junctions and blocks

Qualification of dimensional and material requirements may be by similarity to a qualified bussed component. Electronic junctions shall be rated at the electronic component level or the bussed junction level whichever has the lesser requirement.

4.1.3 Wiring of specimens

Annex B shows the components to be used to make up a specimen.

Specimens 1, 2, 3, 7, 9 and 11 shall be wired with extruded sheath PTFE wire of maximum external diameter.

Specimens 4, 5, 6, 8, 10, 12, 13, 14, 15, 16, 17 and 18 shall be wired with extruded sheath PTFE wire of minimum external diameter for 75 % of the cavities, and sealing plugs shall be fitted to the remaining 25 % of cavities.

Specimens with wired contacts, the contact resistance of which are to be measured, shall be submitted to the special preparations defined, in ISO 8668-2:1986, annex A.

4.1.4 Contacts

The contacts used for testing shall be taken from batches tested to and complying with annex C.

4.1.5 Sealing plugs

Sealing plugs shall be in accordance with annex A, Section MM.

4.1.6 Crimping

The tools used for crimping the wires to the contacts shall produce crimped joints complying with ISO 1966.

4.1.7 Test conditions

These shall be in accordance with ISO 8668-1:1986, clause 10.

4.1.8 Measurements

When measurements are necessary, the precise figures obtained shall be noted in the type approval test report.

4.1.9 Test details

Subject the test specimens to their tests concurrently. Specimens 1 to 12 shall be subjected to the tests stated and in the order shown in the table of type approval tests of ISO 8668-1:1986. Specimens 13 to 18 shall be used for immersion in fluids and shall be subjected to tests 1, 3, 4, 5a, 18, 4 and 3, in that order, of the same table.

Fluids and temperatures of immersion are as stated in 3.2.2.

4.2 Production tests

Production control tests comprise the production acceptance 100 % test and batch sampling tests.

4.2.1 Acceptance tests, 100 % inspection

Each component shall be examined visually without magnification. Construction, workmanship, finish and marking shall comply with the requirements of the manufacturing drawings.

- a) Internal electrical continuity: ISO 8668-2:1986, test No. 2
- b) Withstanding voltage: ISO 8668-2:1986, test No. 4

4.2.2 Batch sampling tests

To be applied on a sampling basis lot by lot.

- a) Insulation resistance: ISO 8668-2:1986, test No. 3
- b) Contact resistance: ISO 8668-2:1986, test No. 5a
- c) Contact retention: ISO 8668-2:1986, test No. 8

4.3 Quality control tests

Quality control tests consist of repeated qualification approval tests, omitting those tests which are for initial approval only, namely, ozone, resistance to fluids, and flammability.

a) Group 1

To be applied not later than 18 months after type approval testing and thereafter at intervals of 3 years. Carry out the tests described for specimen numbers 1 and 2 of the table of type approval tests of ISO 8668-1:1986.

Prepare a certified test report.

b) **Group 2**

To be applied 6 months after the commencement of Group 1 tests and thereafter at intervals of 3 years. Carry out the tests described for specimens 7 and 8 of the table of type approval testing of ISO 8668-1:1986.

Prepare a certified test report.

c) **Group 3**

To be applied 6 months after the commencement of Group 2 tests and thereafter at intervals of 3 years. Carry out the tests described for specimens 3 and 4 of the table of type approval tests of ISO 8668-1:1986.

Prepare a certified test report.

d) **Group 4**

To be applied 6 months after the commencement of Group 3 tests and thereafter at intervals of 3 years. Carry out the tests described for specimens 9 and 10 of the table of type approval tests of ISO 8668-1:1986, but exclude test No. 15 (ozone).

Prepare a certified test report.

e) **Group 5**

To be applied 6 months after the commencement of Group 4 tests and thereafter at intervals of 3 years. Carry out tests described for specimens 5 and 6 of the table of type approval tests of ISO 8668-1:1986, but exclude test No. 19 (flammability).

Prepare a certified test report.

f) **Group 6**

To be applied 6 months after the commencement of Group 5 tests and thereafter at intervals of 3 years. Carry out tests described for specimens 11 and 12 of the table of type approval tests of ISO 8668-1:1986.

Prepare a certified test report.

g) **Measurement group**

After the completion of Group 6 tests, repeat the tests described in 4.1. Use one sample of each contact size of bussing module, grounding junction, in-line junction and one rail size.

4.4 Certified test records

Certified test records shall be prepared.

4.5 Declaration of performance

A declaration of performance and restrictions of use shall be prepared by the manufacturer for the whole range of devices on completion of type approval testing.

5 Designation

This terminal junction system shall be known as ISO 8668 for type 4 systems.

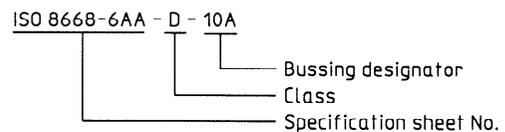
6 Marking, packaging and ordering

6.1 Marking

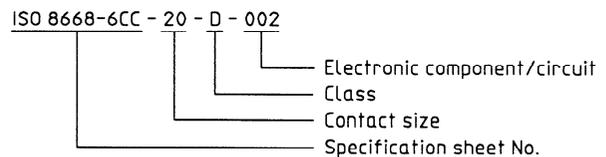
Each component of the terminal junction system shall be legibly and permanently marked with the appropriate part number.

Terminal junction system reference numbers shall be as follows:

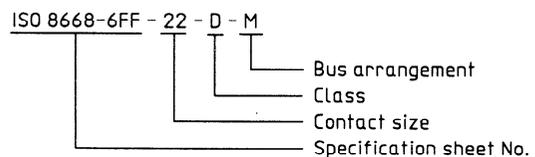
a) Bussing blocks



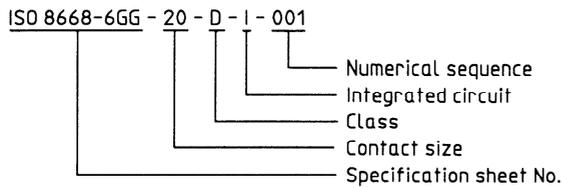
b) Electronic blocks



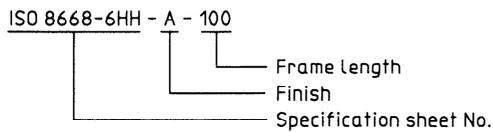
c) Wire in-line junctions



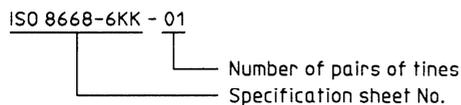
d) In-line electronic junctions



e) Rail assemblies



f) Block extraction tools



6.2 Packaging

Each individual device shall be enclosed and sealed in a transparent thermoplastic bag with characteristics equal to or better than those of 350 gauge polyethylene.

Insertion/extraction tools, contacts and sealing plugs shall be protected with a semi-rigid container that prevents bending or other damage, such as plating abrasion during shipment or storage.

Rail assemblies shall be packed as separate items to the same standard as terminal junction modules.

The following information shall be permanently marked or readable through the package:

- type of component;
- part number;
- manufacturer's name.

Assembly instructions, including wire preparation, crimping and contact replacement, shall be included in the packaging if requested. Alternatively, modules, rails and accessories may be marked and packaged as specified in the contract or purchase order.

6.3 Ordering information

The following information shall be given when ordering parts in accordance with this part of ISO 8668:

- the individual reference numbers described in 6.1;
- details of marking which may be required in addition to that specified;
- requirements for the provision of assembly instructions.

Annex A

(normative)

Specification sheets

This annex consists of the following sections:

- AA Bussing modules, feed-back
- BB Distribution modules
- CC Electronic modules
- DD Grounding modules
- EE Grounding studs
- FF Wire in-line junctions
- GG In-line electronic junctions
- HH Rack assembly, rail, feed-back type
- JJ Module mounting brackets
- KK Module extraction tools
- LL Contacts, female, crimp-removable
- MM Sealing plugs
- NN Insertion and extraction tools
- PP Crimping tools

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A.1 Section AA: Bussing modules, feed-back

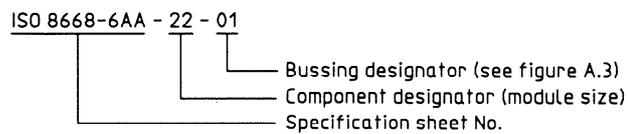
A.1.1 Requirements

This specification sheet No. ISO 8668-6AA gives the complete requirements for acquiring the module described in figures A.1 to A.3 and tables A.1 and A.2.

A.1.2 Designation

A bussing module that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No., component designator and bussing designator.

EXAMPLE



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Dimensions in millimetres

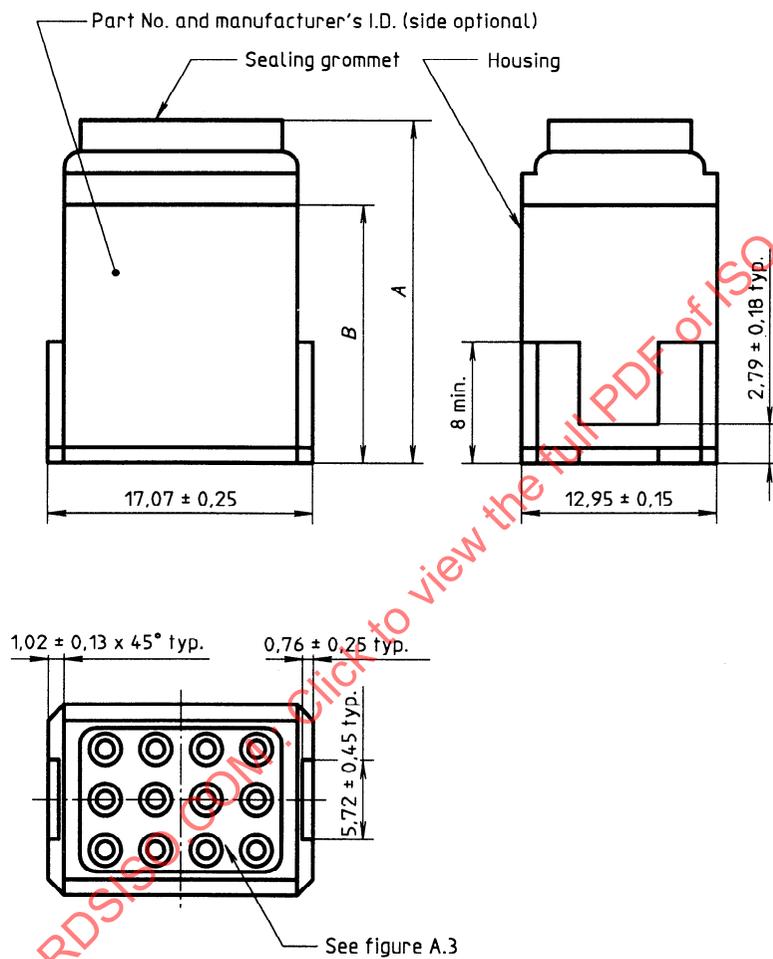
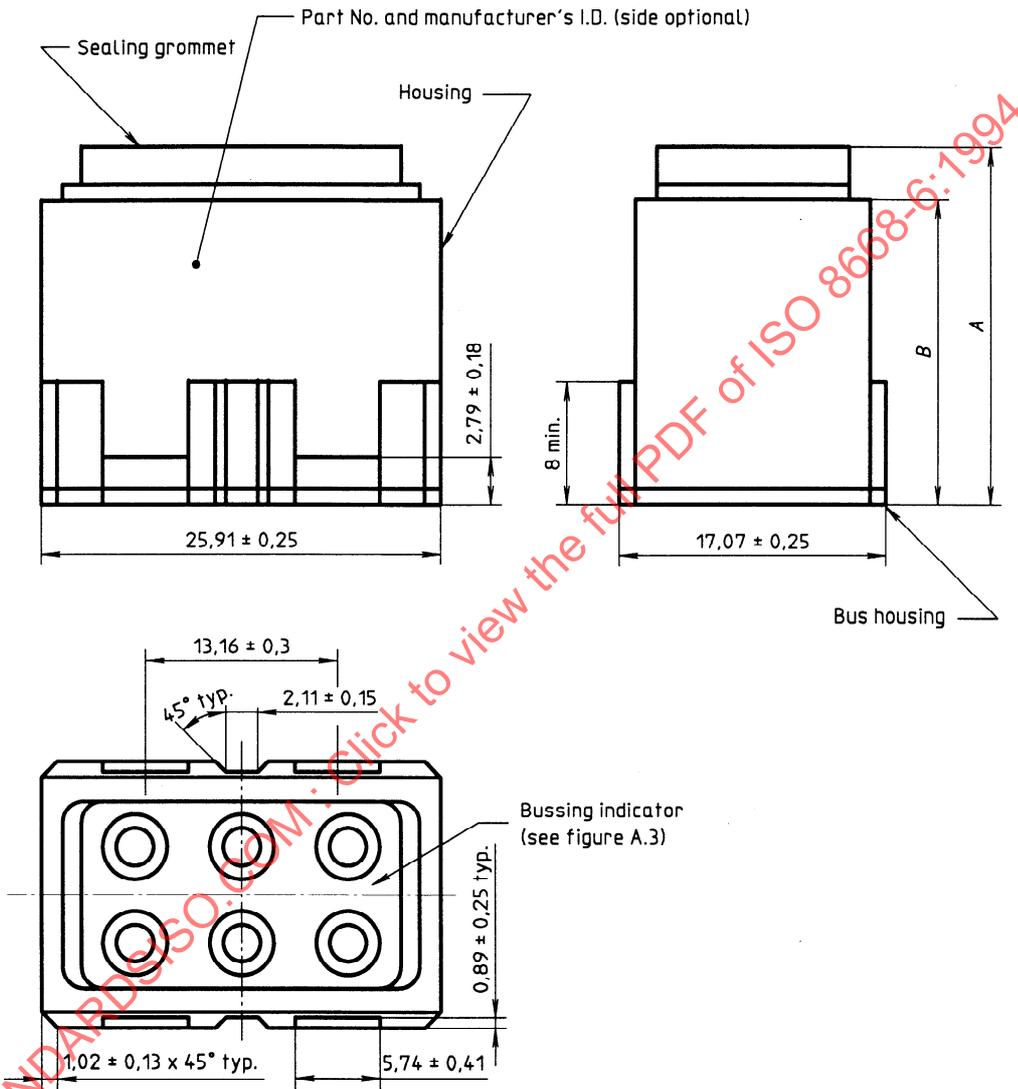
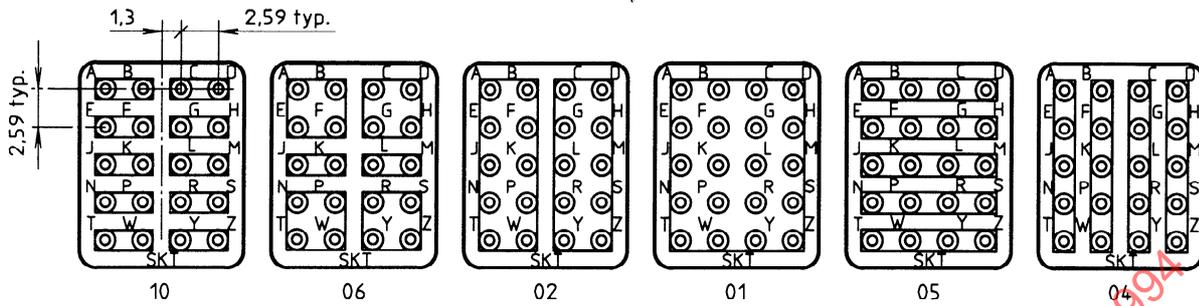


Figure A.1 — Module sizes 22, 20 and 16

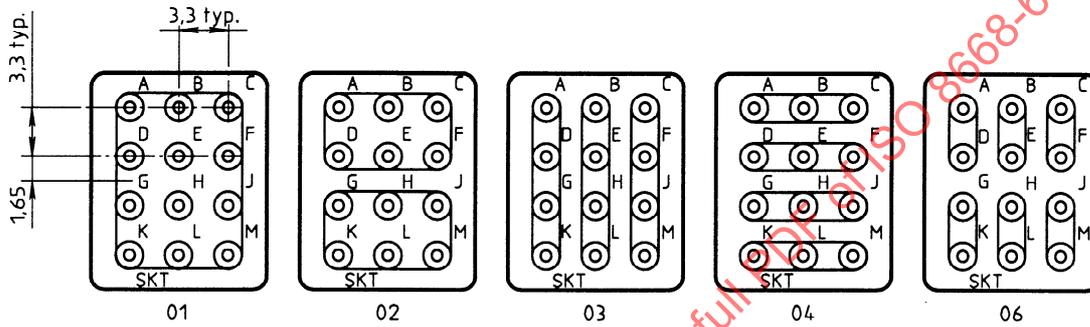
Dimensions in millimetres



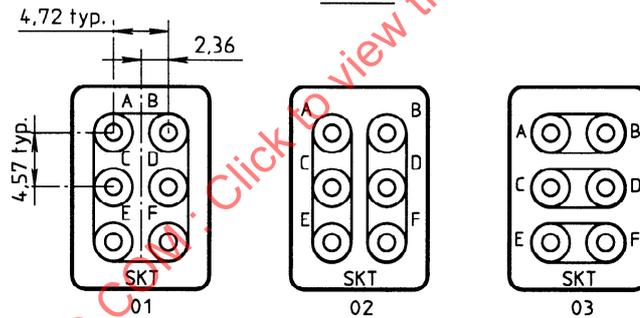
Dimensions in millimetres



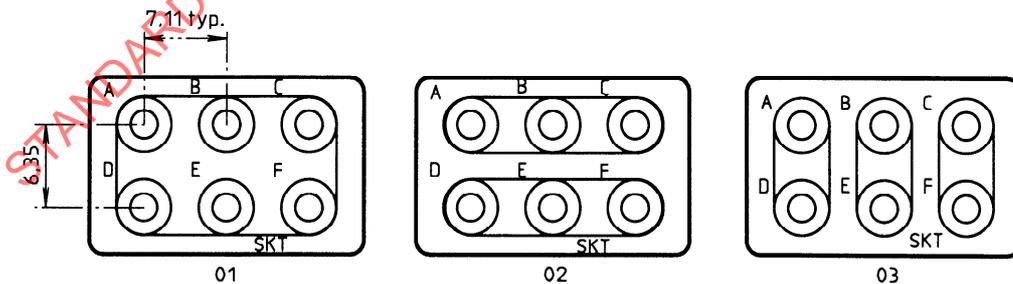
Size 22



Size 20



Size 16



Size 12

NOTE — All dimensions on this figure are reference dimensions.

Figure A.3 — Bussing arrangements

Table A.1 — Bussing details and dimensions

Dimensions in millimetres

Component designator	Bussing designator	Bus/contact description	Dimensions	
			A max.	B max.
22	01	One 20-pin bus	19,3	18,54
22	02	Two 10-pin buses	19,3	18,54
22	04	Four 5-pin buses	19,3	18,54
22	05	Five 4-pin buses	19,3	18,54
22	06	Two 2-pin buses Four 4-pin buses	19,3	18,54
22	10	Ten 2-pin buses	19,3	18,54
20	01	One 12-pin bus	23,37	22,61
20	02	Two 6-pin buses	23,37	22,61
20	03	Three 4-pin buses	23,37	22,61
20	04	Four 3-pin buses	23,37	22,61
20	06	Six 2-pin buses	23,37	22,61
16	01	One 6-pin bus	23,37	22,61
16	02	Two 3-pin buses	23,37	22,61
16	03	Three 2-pin buses	23,37	22,61
12	01	One 6-pin bus	26,59	25,83
12	02	Two 3-pin buses	26,59	25,83
12	03	Three 2-pin buses	26,59	25,83

Table A.2 — Accessories

Component designator	Contact part Nos.	Insertion/extraction tool	End sealing plug	Block extraction tool
22	8668-6LL-22-22	8668-6NN-04	8668-6MM-22	8668-6KK-01
20	8668-6LL-20-20	8668-6NN-01	8668-6MM-20	8668-6KK-01
16	8668-6LL-16-16	8668-6NN-02	8668-6MM-16	8668-6KK-01
12	8668-6LL-12-12	8668-6NN-03	8668-6MM-12	8668-6KK-02

NOTE — The module is designed for installation in ISO 8668-6HH racks or ISO 8668-6JJ brackets.

A.2 Section BB: Distribution modules

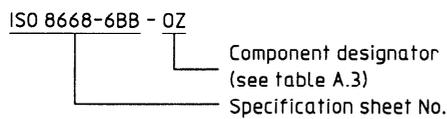
A.2.1 Requirements

This specification sheet No. ISO 8668-6BB gives the complete requirements for acquiring the module described in figures A.4 to A.6 and tables A.3 and A.4.

A.2.2 Designation

A distribution module that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No. and component designator.

EXAMPLE



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Dimensions in millimetres

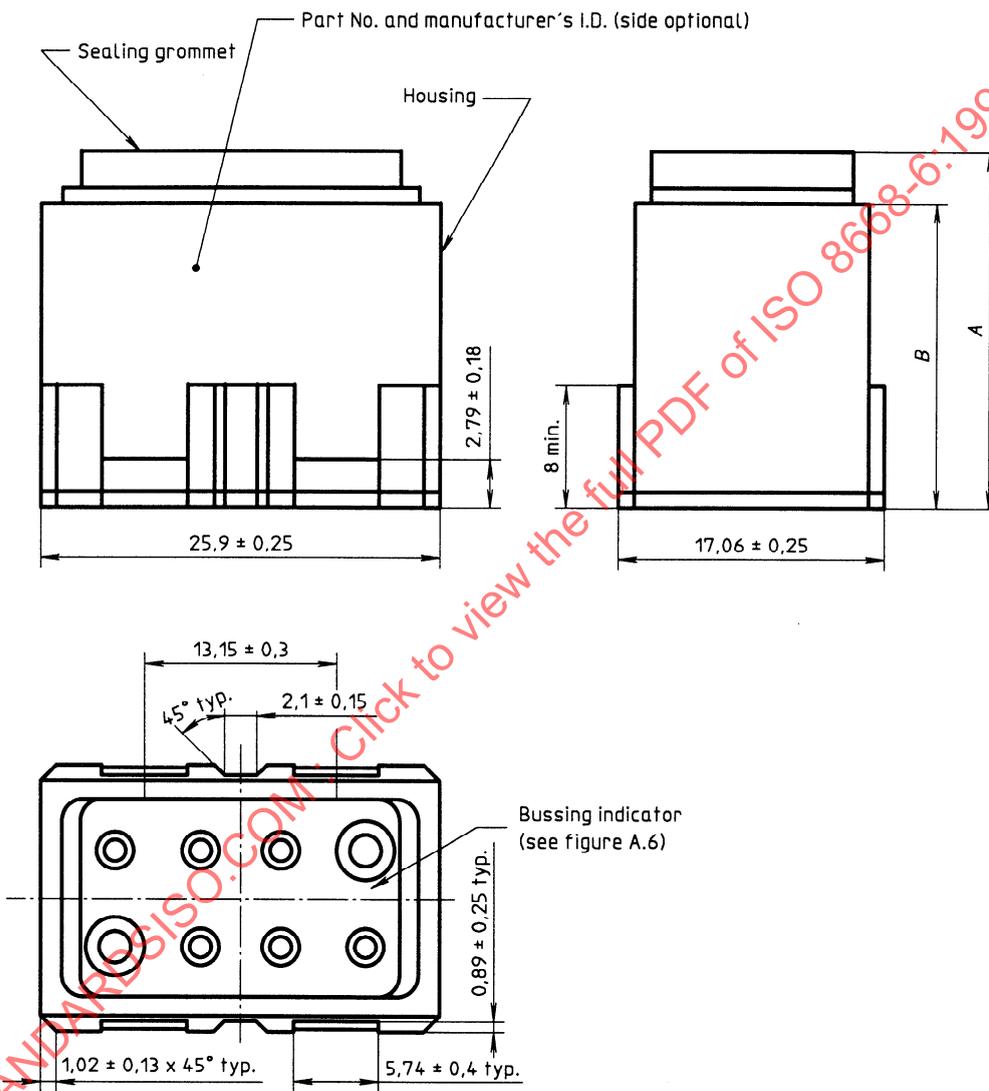


Figure A.4 — Module sizes OW, OX and OZ

Dimensions in millimetres

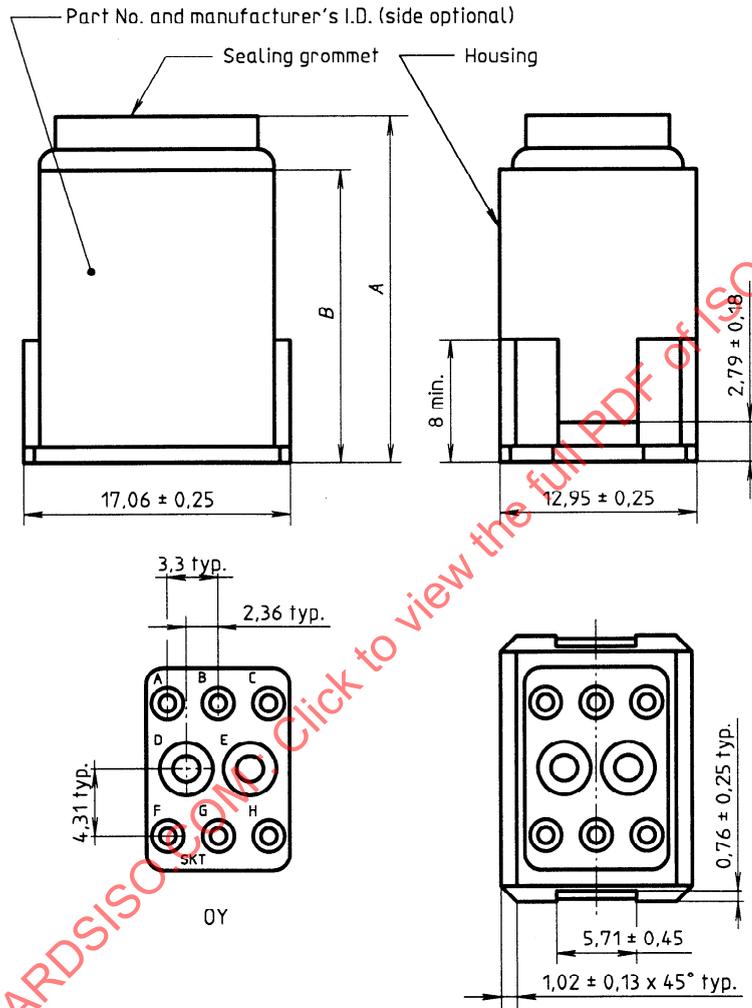


Figure A.5 — Size OY module

Dimensions in millimetres

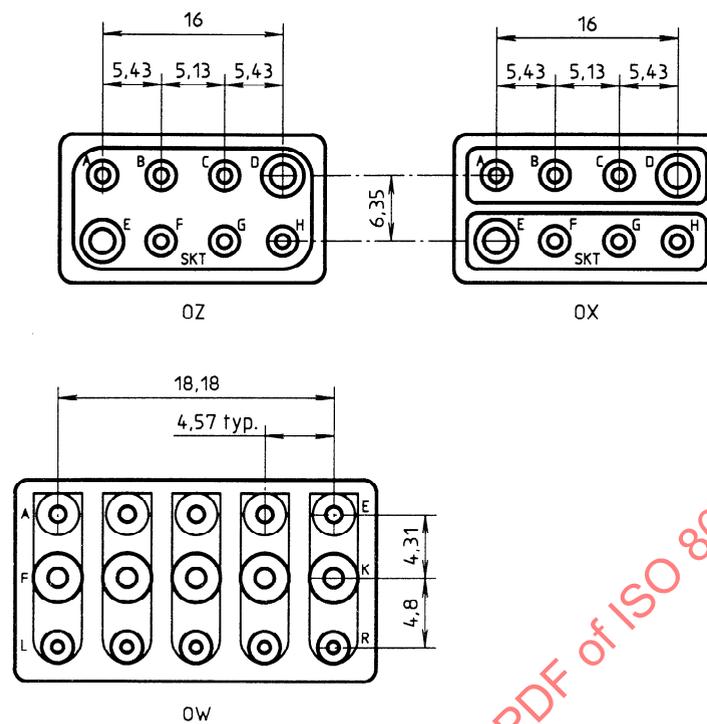


Figure A.6 — Component designator

Table A.3 — Bussing details and dimensions

Dimensions in millimetres

Component designator	Contact part Nos.	Bus (contact) description	A max.	B max.
OZ	12/16	One bus (two size 12 and six size 16)	26,59	24,82
OY	16/20	One bus (two size 16 and six size 20)	23,37	22,35
OX	12/16	Two buses (one size 12 and three size 16 per bus)	26,59	24,82
OW	12/16	Five buses (one size 22, one size 20 and one size 16 per bus)	23,37	22,61

Table A.4 — Accessories

Component designator	Contact part Nos.	Insertion/extraction tool	Sealing plug	Block extraction tool
OW	12/16	8668-6NN-04 8668-6NN-01 8668-6NN-02	8668-6MM-22 8668-6MM-20 8668-6MM-16	8668-6KK-02
OY	16/20	8668-6NN-01 8668-6NN-02	8668-6MM-20 8668-6MM-16	8668-6KK-01
OZ	12/16	8668-6NN-02 8668-6NN-03	8668-6MM-16 8668-6MM-12	8668-6KK-02
OX	12/16	8668-6NN-02 8668-6NN-03	8668-6MM-16 8668-6MM-12	8668-6KK-02

NOTE — Block is designed for installation in ISO 8668-6HH racks or ISO 8668-6JJ brackets.

A.3 Section CC: Electronic modules

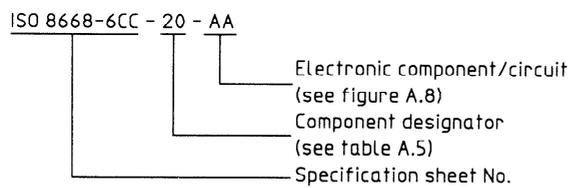
A.3.1 Requirements

This specification sheet No. ISO 8668-6CC gives the complete requirements for acquiring the module described in figures A.7 and A.8 and table A.5.

A.3.2 Designation

An electronic module that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No., component designator and electronic component/circuit.

EXAMPLE



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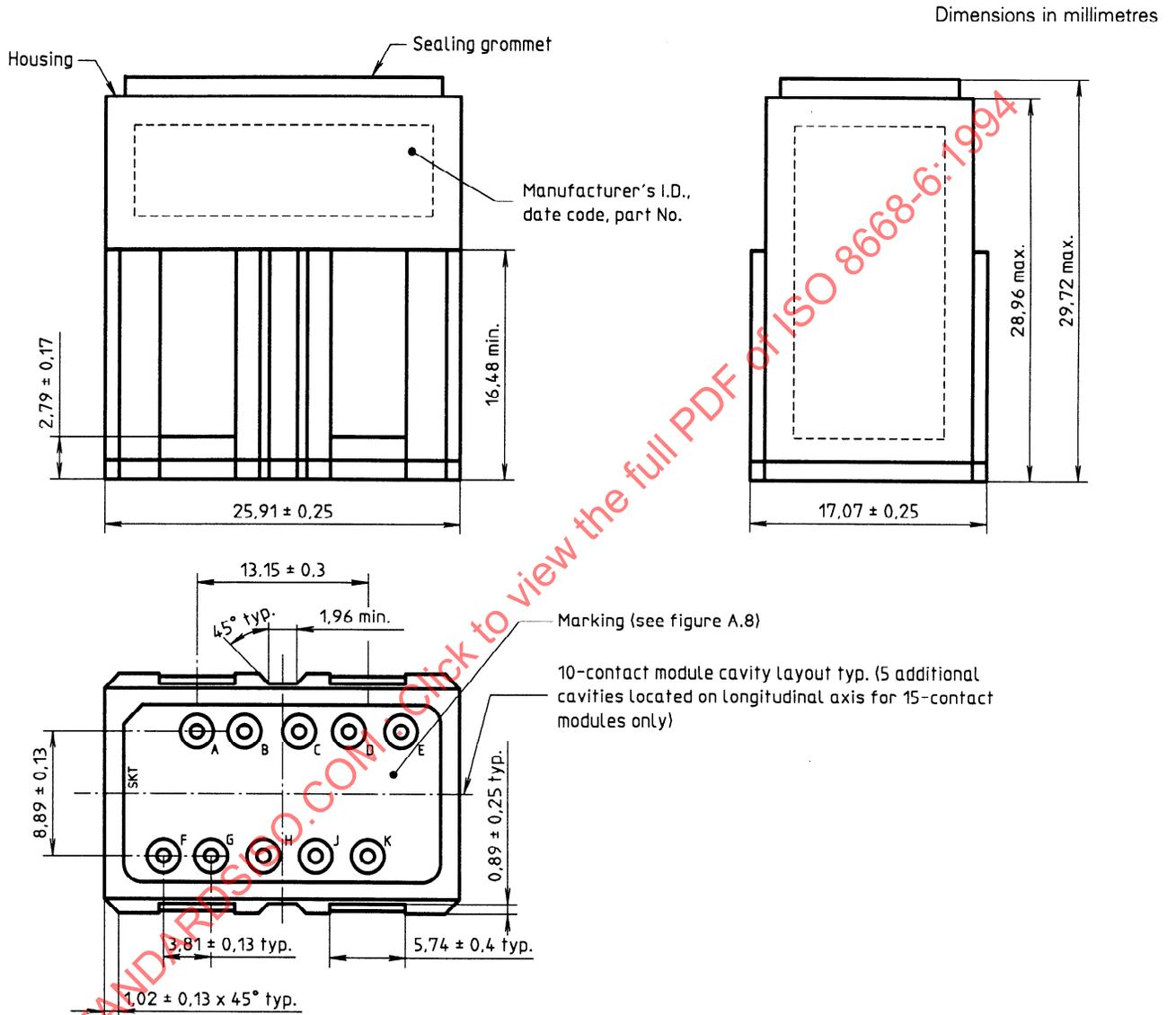


Figure A.7 — Module

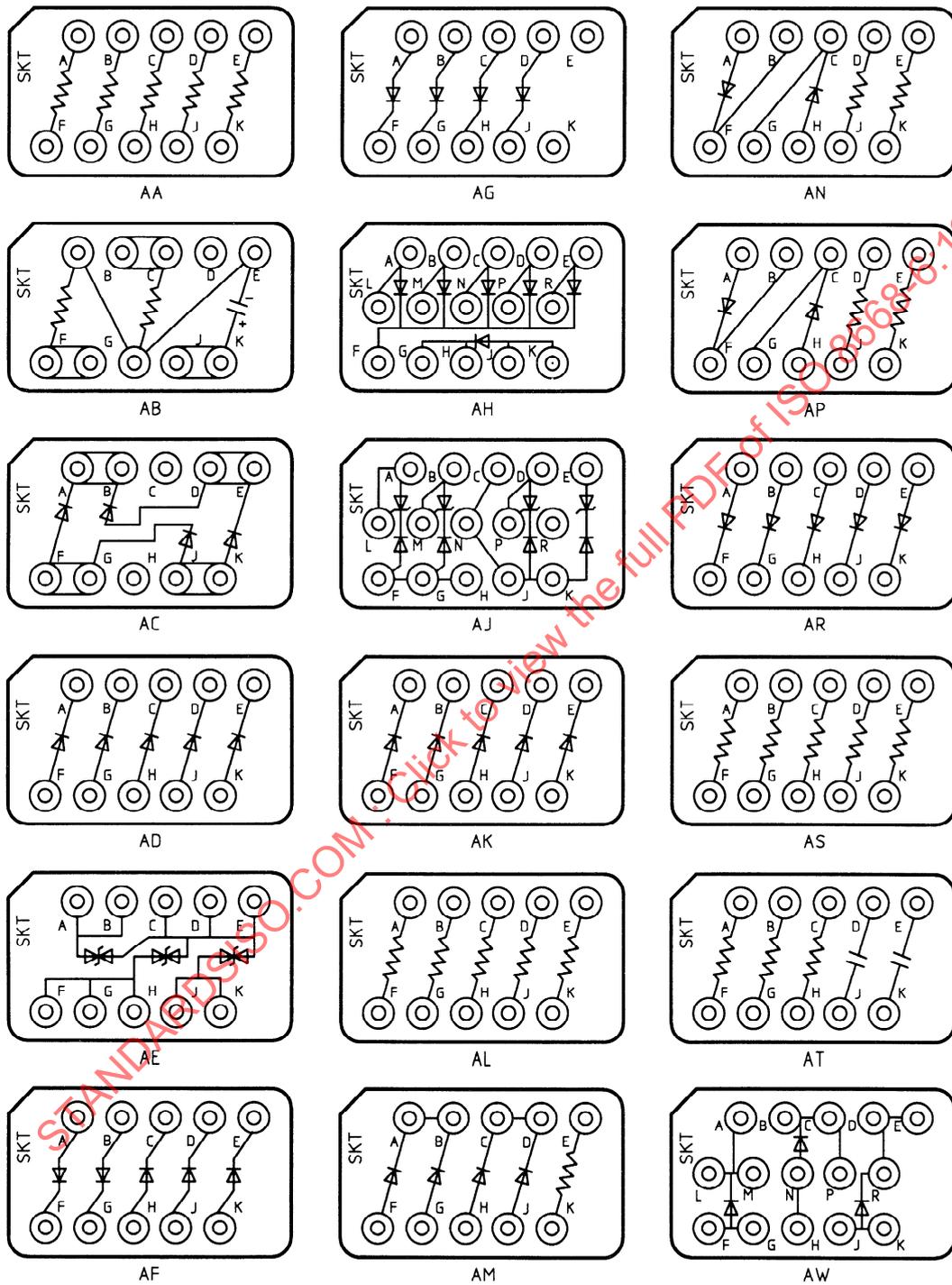


Figure A.8 — Grommet cavity identification marking (see table A.5)

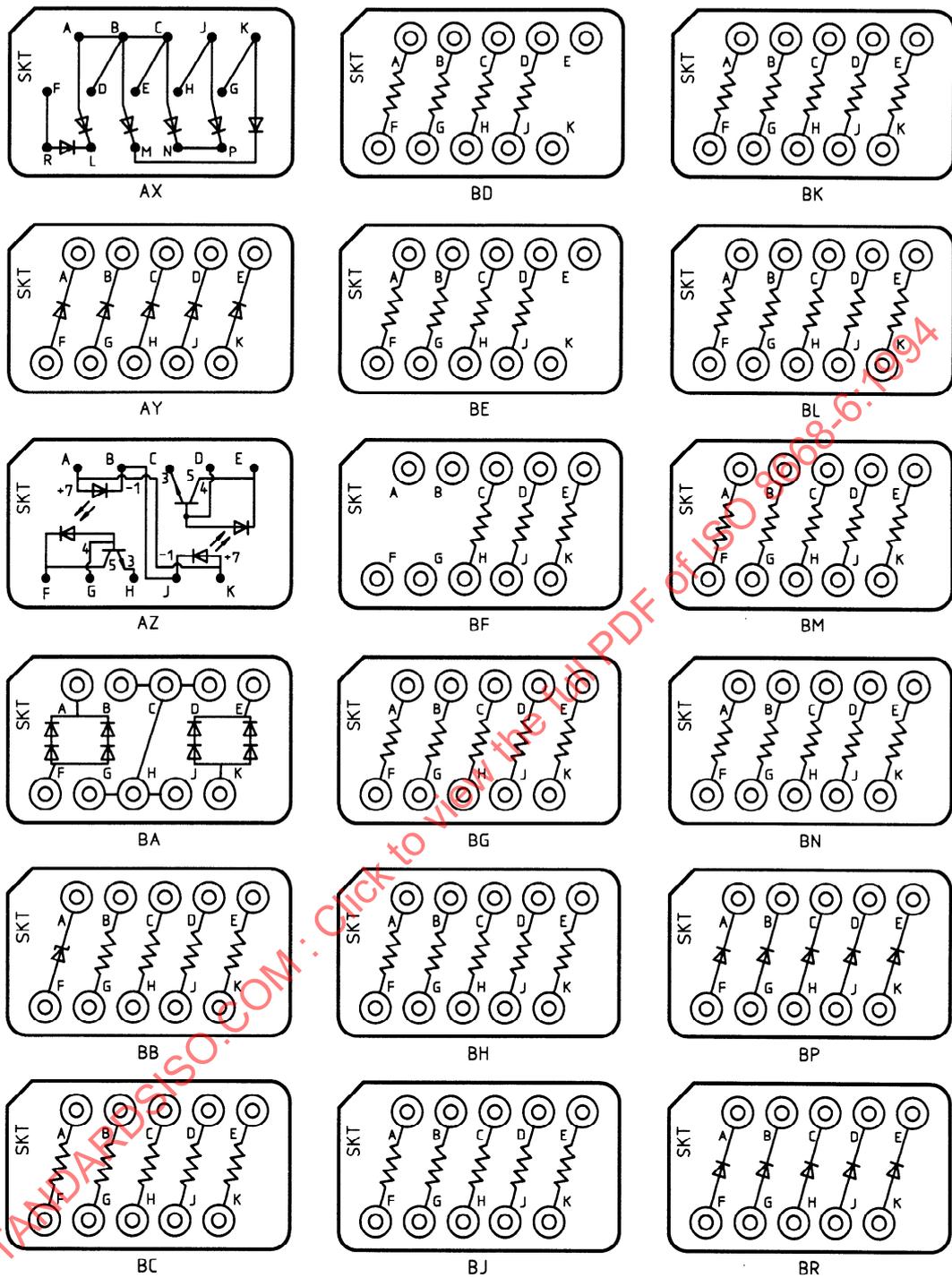


Figure A.8 — Grommet cavity identification marking (continued) (see table A.5)

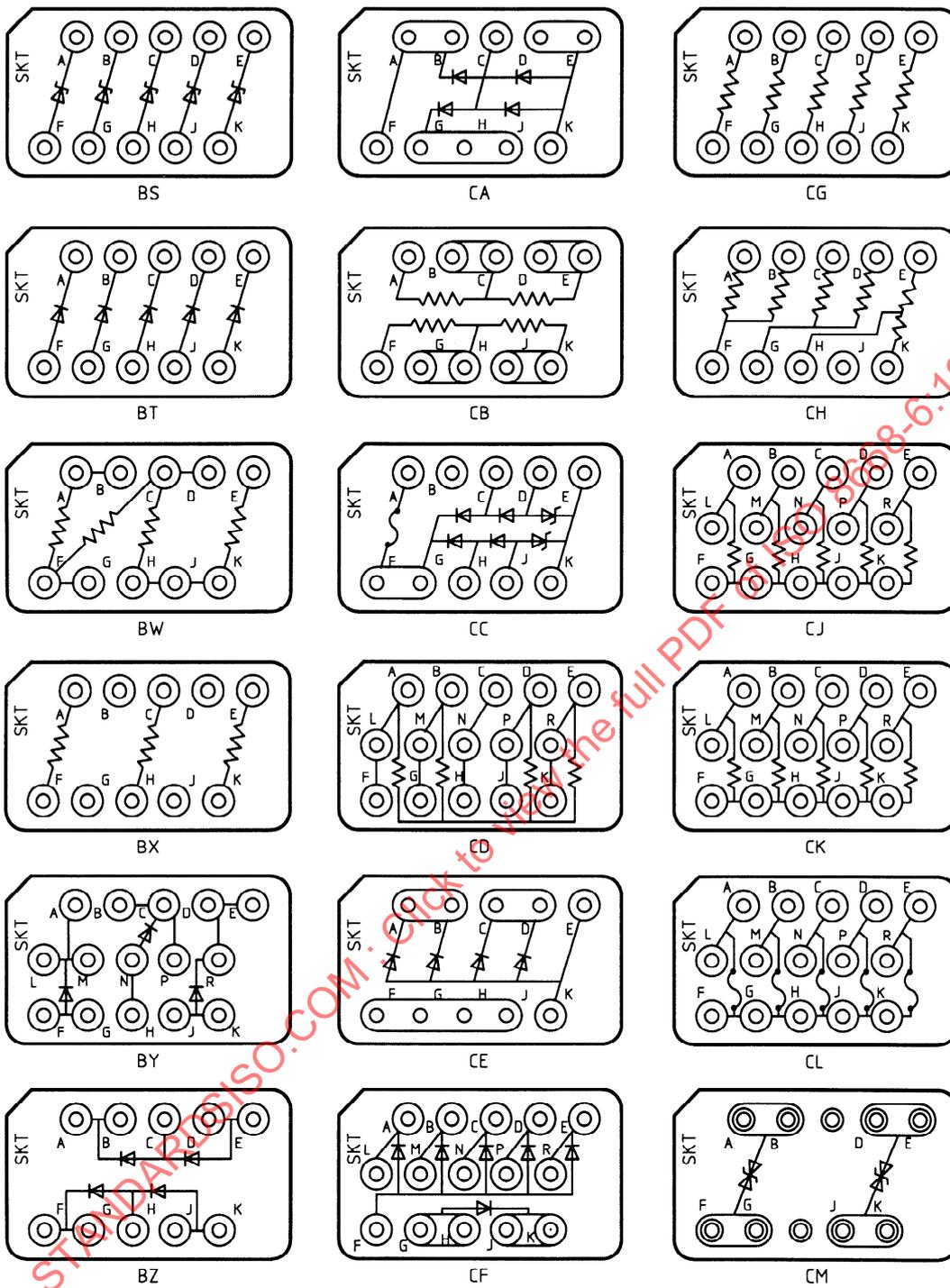


Figure A.8 — Grommet cavity identification marking (continued) (see table A.5)

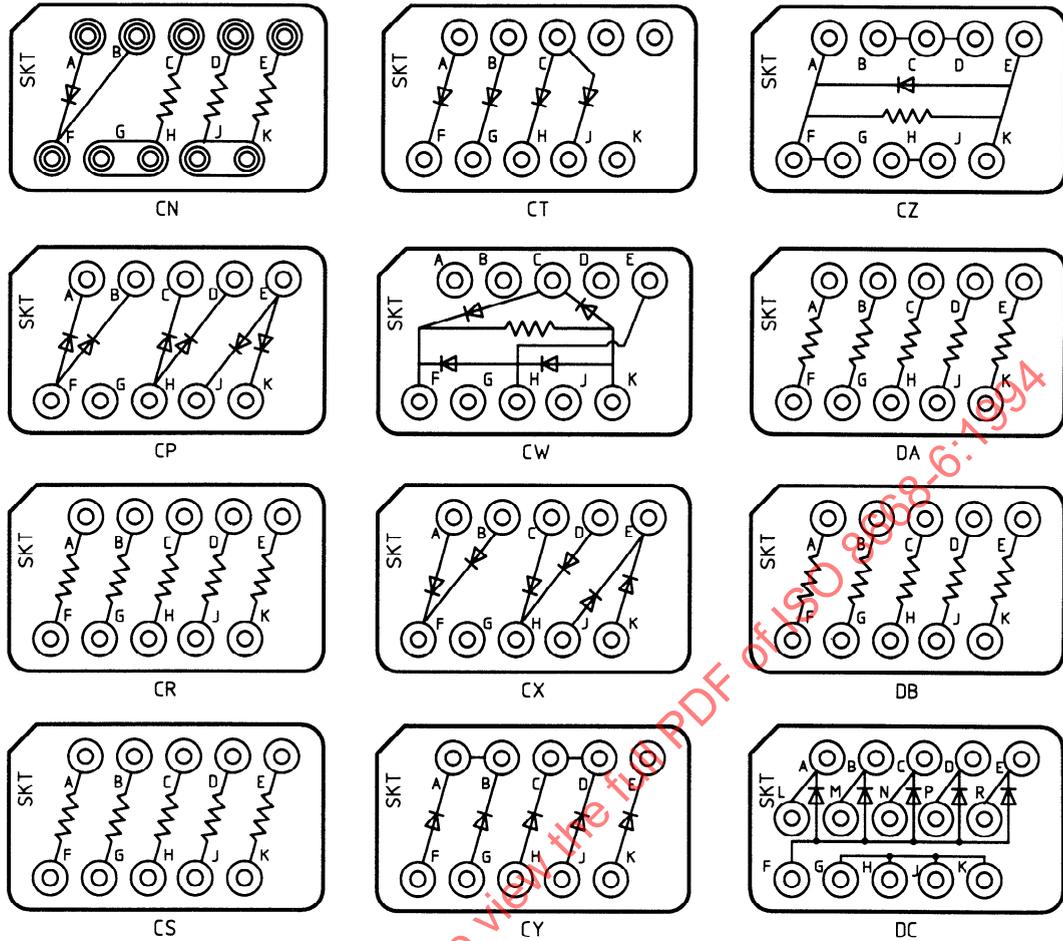


Figure A.8 — Grommet cavity identification marking (concluded) (see table A.5)

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Table A.5 — Module electronic component description

Part No.	Component	
	Quantity	Description
ISO 8668-6CC-20-AA	5	150 Ω , 1/4 W resistors
ISO 8668-6CC-20-AB	2	150 Ω , 1/4 W resistors
	1	10 μ F, 35 WVDC capacitor
ISO 8668-6CC-20-AC	1	W110 Varo rectifier
ISO 8668-6CC-20-AD	5	JANTX 1N5616 rectifiers
ISO 8668-6CC-20-AE	3	JANTX 1N6054A Zener diodes
ISO 8668-6CC-20-AF	2	JANTX 1N645
	3	JANTX 1N3613 diodes
ISO 8668-6CC-20-AG	4	JANTX 1N5618 rectifiers
ISO 8668-6CC-20-AH	6	JANTX 1N3613 rectifiers
ISO 8668-6CC-20-AJ	4	JANTX 1N4478A Zener diodes (alternate 1N4753)
	4	JANTX 1N3613 rectifiers
ISO 8668-6CC-20-AK	5	JANTX 1N5618 rectifiers
ISO 8668-6CC-20-AL	5	10 k Ω , 1/10 W resistors
ISO 8668-6CC-20-AM	4	JANTX 1N5618 rectifiers
	1	200 Ω , 1/8 W resistor
ISO 8668-6CC-20-AN	2	JANTX 1N5618 rectifier diodes
	2	10 k Ω , 1/10 W resistors
ISO 8668-6CC-20-AP	2	JANTX 1N5618 diodes
	1	110 Ω , 1/10 W
	1	10 k Ω , 1/10 W resistors
ISO 8668-6CC-20-AR	5	JANTX 1N3613 rectifiers

Part No.	Component	
	Quantity	Description
ISO 8668-6CC-20-AS	2	10 k Ω , 1/10 W
	1	1 400 Ω , 1/18 W
	1	1 100 Ω , 1/10 W
	1	20 k Ω , 1/10 W resistors
ISO 8668-6CC-20-AT	2	1 μ F, 50 WVDC capacitors
	1	3 610 Ω , 1/10 W
	1	100 k Ω , 1/10 W resistors
ISO 8668-6CC-20-AW	3	JANTX 1N5550 rectifiers
ISO 8668-6CC-20-AX	6	JANTX 1N5809 diodes
ISO 8668-6CC-20-AY	5	JANTX 1N5620 diodes
ISO 8668-6CC-20-AZ	2	Teledyne relays, opto-isolator Model 4N50
ISO 8668-6CC-20-BA	8	JANTX 1N5550 rectifiers
ISO 8668-6CC-20-BB	1	JANTX 1N4954 Zener diode
	2	10 k Ω , 1/10 W
	2	1 430 Ω , 1/10 W resistors
ISO 8668-6CC-20-BC	4	20 k Ω , 1/10 W
	1	10 k Ω , 1/10 W resistors
ISO 8668-6CC-20-BD	2	20 k Ω , 1/10 W
	2	10 k Ω , 1/10 W resistors
ISO 8668-6CC-20-BE	2	10 k Ω , 1/10 W
	1	1 430 Ω , 1/10 W
	1	1 110 Ω , 1/10 W resistors
ISO 8668-6CC-20-BF	1	196 k Ω , 1/10 W
	1	357 k Ω , 1/10 W
	1	2 k Ω , 1/10 W resistors
ISO 8668-6CC-20-BG	5	150 Ω , 1/10 W resistors
ISO 8668-6CC-20-BH	5	10,2 k Ω , 1/10 W resistors
ISO 8668-6CC-20-BJ	5	2,8 k Ω , 1/10 W resistors
ISO 8668-6CC-20-BK	5	23,2 k Ω , 1/20 W resistors
ISO 8668-6CC-20-BL	5	24,9 k Ω , 1/20 W resistors

Part No.	Component	
	Quantity	Description
ISO 8668-6CC-20-BM	5	41,2 k Ω , 1/20 W resistors
ISO 8668-6CC-20-BN	5	49,9 k Ω , 1/20 W resistors
ISO 8668-6CC-20-BP	5	JTXY 1N5550 diodes
ISO 8668-6CC-20-BR	5	JTXV 1N5418 rectifiers
ISO 8668-6CC-20-BS	5	JTXY 1N827 Zener diodes
ISO 8668-6CC-20-BT	5	JANTX 1N5552 diodes
ISO 8668-6CC-20-BW	1 1 1 1	A to F: 40 k Ω , 1/10 W C to F: 50 k Ω , 1/10 W C to H: 50 k Ω , 1/10 W E to K: 40 k Ω , 1/10 W resistors
ISO 8668-6CC-20-BX	3	60,4 Ω , 2 W resistors
ISO 8668-6CC-20-BY	3	JANTX 1N5618 diodes 600 PIV, 1 A forward current medium-recovery rectifier
ISO 8668-6CC-20-BZ	4	JANTX 1N5416 diodes 100 PIV, 3 A forward current fast-recovery rectifier
ISO 8668-6CC-20-CA	4	JANTX 1N5416 diodes 100 PIV, 3 A forward current fast-recovery rectifier
ISO 8668-6CC-20-CB	1 1 1 1	A to C: 3,3 k Ω , 1/4 W C to D: 4,5 k Ω , 1/4 W F to G: 3,3 k Ω , 1/4 W G to K: 5,1 k Ω , 1/4 W resistors
ISO 8668-6CC-20-CC	4 2 1	JANTX 1N4965 diodes JANTX 1N4965 Zener diodes 2 A fuse
ISO 8668-6CC-20-CD	4	150 Ω , 1/4 W resistors
ISO 8668-6CC-20-CE	4	JANTX 1N5416 diodes 100 PIV, 3 A forward current fast-recovery rectifier
ISO 8668-6CC-20-CF	6	JANTX 1N5618 diodes 600 PIV, 1 A forward current general-purpose rectifier

Part No.	Component	
	Quantity	Description
ISO 8668-6CC-20-CG	5	150 Ω , 1/4 W resistors
ISO 8668-6CC-20-CH	6	4,7 k Ω , 1/4 W resistors
ISO 8668-6CC-20-CJ	5	6,2 k Ω , 1/4 W resistors
ISO 8668-6CC-20-CK	5	3 k Ω , 1/4 W resistors
ISO 8668-6CC-20-CL	5	5 A, 125 V fuses
ISO 8668-6CC-20-CM	2	JANTX 1N6052A diodes
ISO 8668-6CC-20-CN	1	JANTX 1N4618 diode
	3	RNC60H1002BP resistors
ISO 8668-6CC-20-CP	6	JANTX 1N649-1 diodes
ISO 8668-6CC-20-CR	5	150 Ω resistors
ISO 8668-6CC-20-CS	1 3 7	820 Ω (E to K) 150 Ω (A to F, B to G, C to H) 51 Ω (D to J) resistors
ISO 8668-6CC-20-CT	4	JANTX 1N5551 diodes
ISO 8668-6CC-20-CW	4	JANTX 1N5619 diodes
	1	RLR20C2003FP resistor
ISO 8668-6CC-20-CX	6	JANTX 1N649-1 diodes
ISO 8668-6CC-20-CY	5	JANTX 1N5618 diodes
ISO 8668-6CC-20-CZ	1	JANTX 1N5550 diode
	1	RWR81S100FR resistor
ISO 8668-6CC-20-DA	5	5,1 k Ω , 1/10 W resistors
ISO 8668-6CC-20-DB	5	600 Ω , 1/4 W resistors
ISO 8668-6CC-20-DC	5	JANTX 1N5618 silicon rectifier diodes
NOTE — Module is designed for installation in ISO 8668-6HH racks or ISO 8668-6JJ brackets.		

A.4 Section DD: Grounding modules, stud and flange types

A.4.1 Requirements

This specification sheet No. ISO 8668-6DD gives the complete requirements for acquiring the module described in figures A.9 to A.12 and table A.6.

A.4.1.1 The shell shall be tin plated to a minimum thickness of 6 μm (0,000 25 in) over a suitable nickel underplate.

A.4.1.2 The stud shall be gold plated over a suitable nickel underplate.

A.4.1.3 Type S (only) blocks shall be supplied with the appropriate mounting hardware:

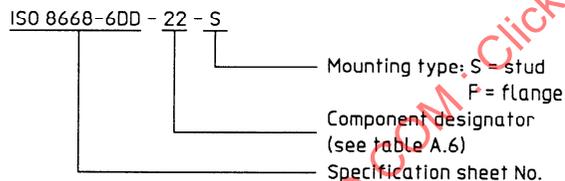
- a) hexagonal nut;
- b) flat washer;
- c) lock washer.

A.4.1.4 The anti-rotation tab shall enter into the mounting hole.

A.4.2 Designation

A grounding module that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No., component designator and letter code for the mounting type (S or F).

EXAMPLE



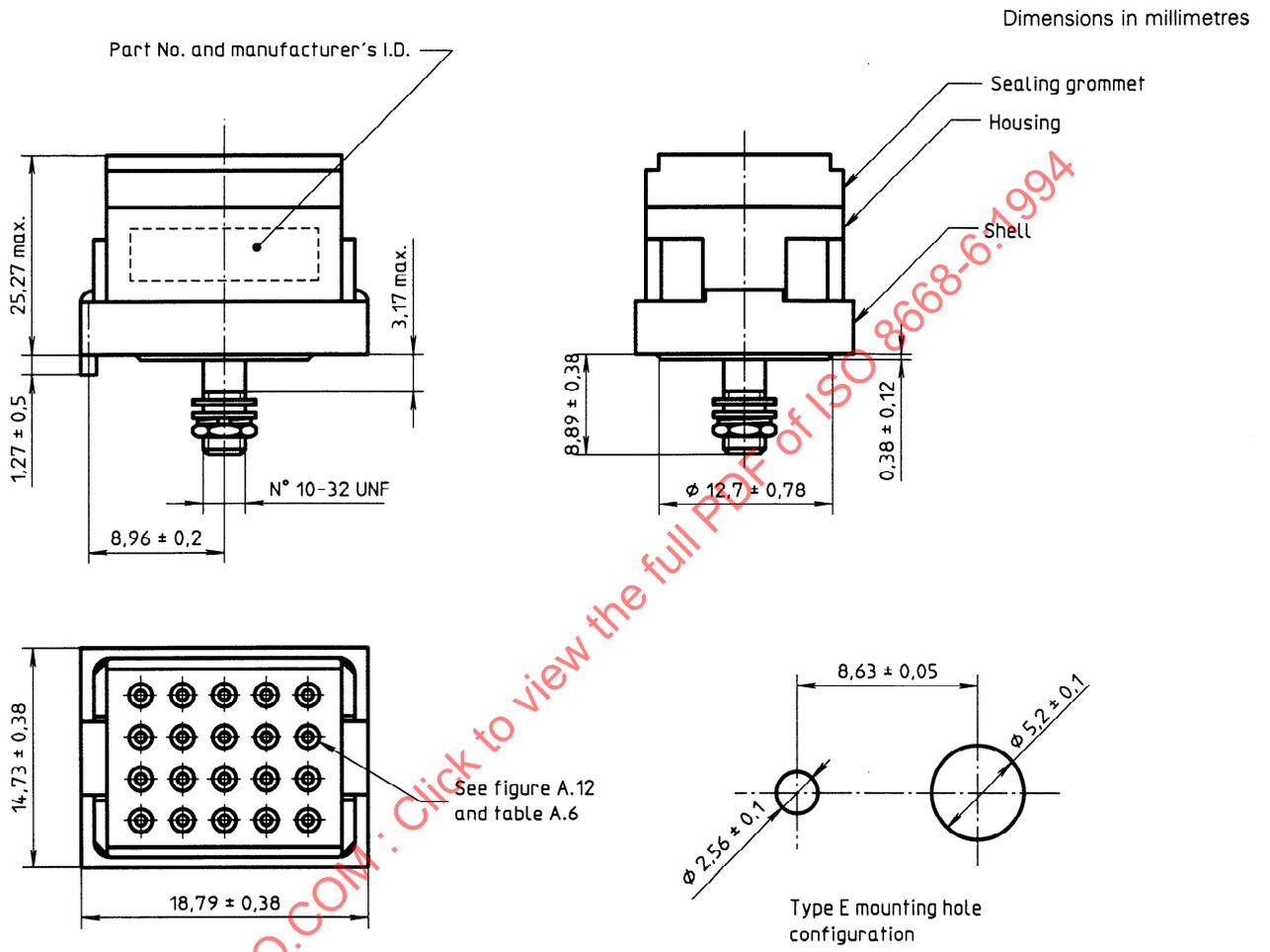


Figure A.9 — Stud-mounted grounding module, type S

Dimensions in millimetres

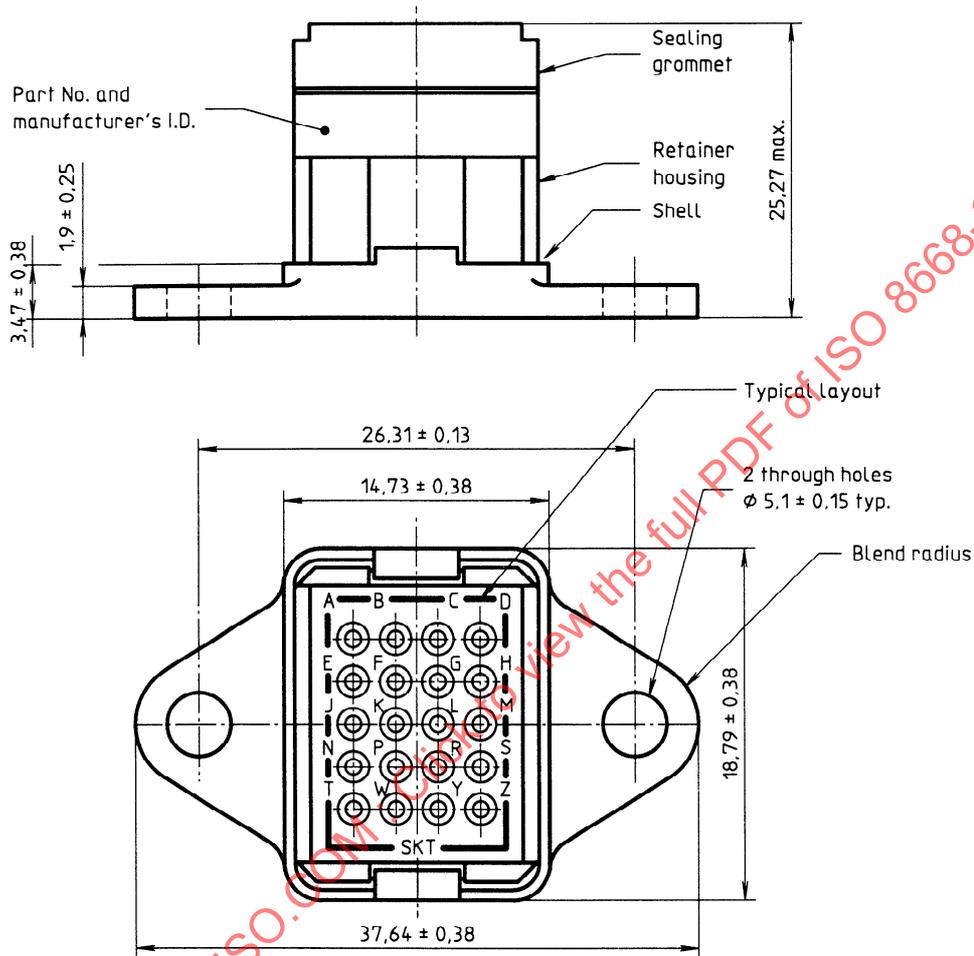


Figure A.10 — Flange-mounted grounding module, type F (All except block size 12)

Dimensions in millimetres

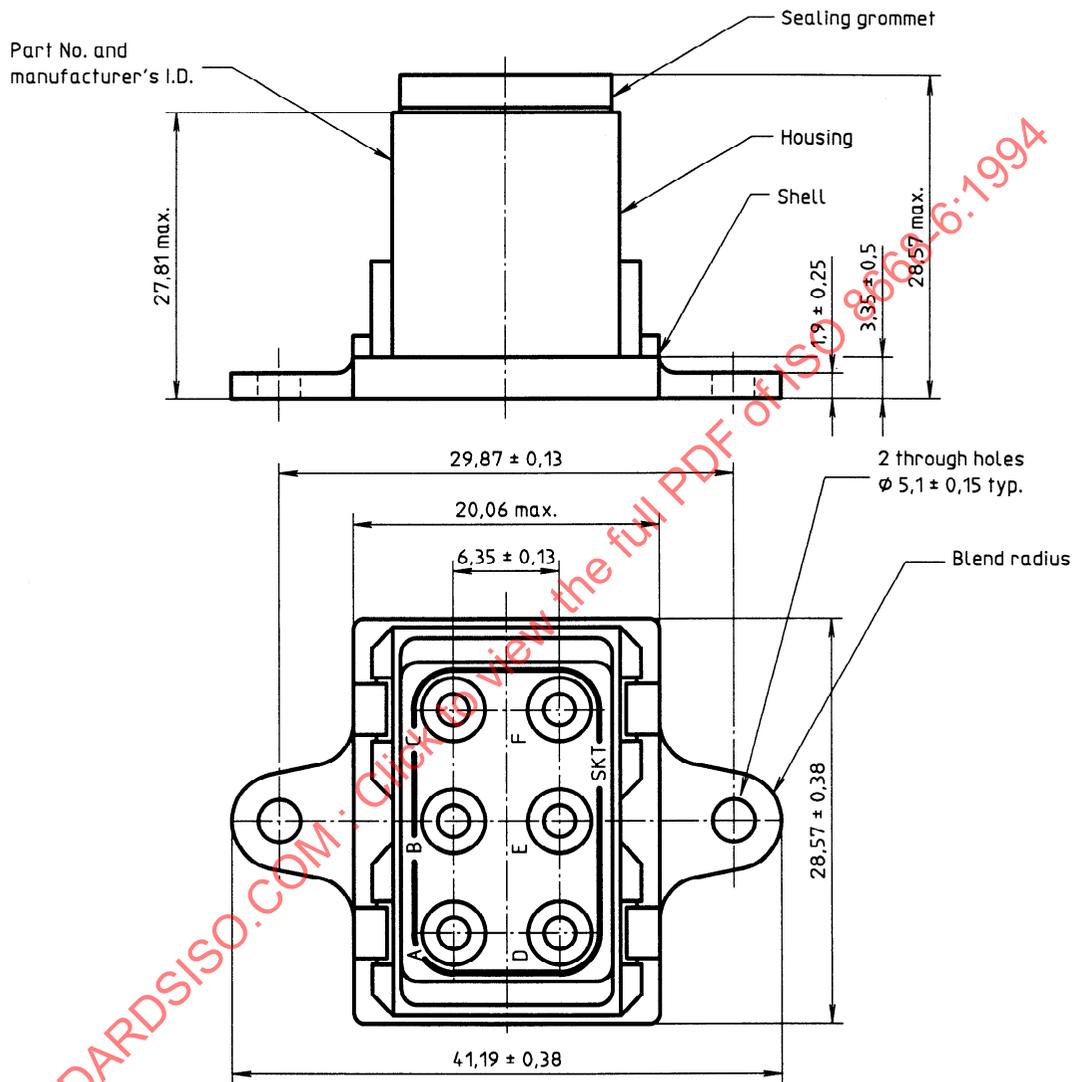
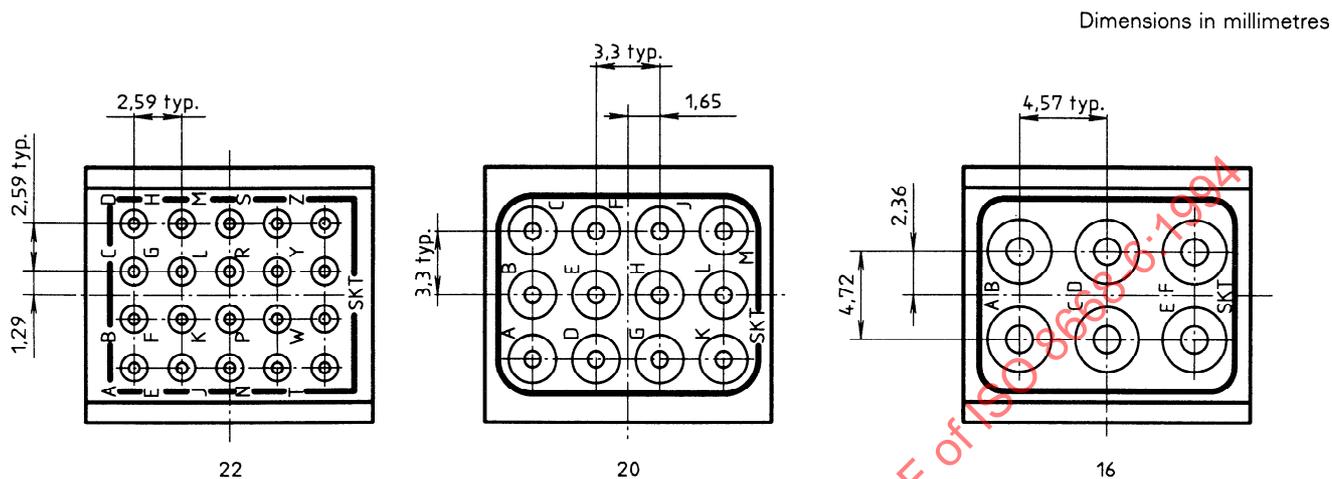


Figure A.11 — Flange-mounted grounding module, type F, block size 12



NOTE — All dimensions on this figure are reference dimensions.

Figure A.12 — Type 4 S and F

Table A.6 — Module types and accessories

Component designator	Bussing arrangement	Type	Contact insertion/extraction tool	End sealing plug	Figure
22	22	S or F	8668-6NN-04	8668-6MM-22	A.12
20	20	S or F	8668-6NN-01	8668-6MM-20	A.12
16	16	S or F	8668-6NN-02	8668-6MM-16	A.12
12	12	F only	8668-6NN-03	8668-6MM-12	A.11

A.5 Section EE: Grounding studs

A.5.1 Requirements

This specification sheet No. ISO 8668-6EE gives the complete requirements for acquiring the module described in figures A.13 and A.14 and table A.7.

A.5.1.1 The following performance and test requirements of ISO 8668-1 and ISO 8668-2 do not apply to this device: altitude immersion, insulation resistance, dielectric withstanding voltage and humidity.

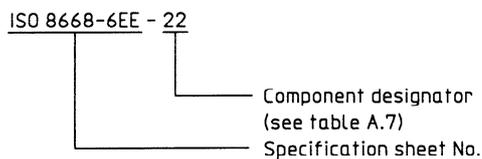
A.5.1.2 The stud shall be gold plated over a suitable nickel underplate.

NOTE 1 The grounding stud is supplied with two contacts but without sealing plug and contact insertion/extraction tool.

A.5.2 Designation

A grounding stud that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No. and component designator.

EXAMPLE



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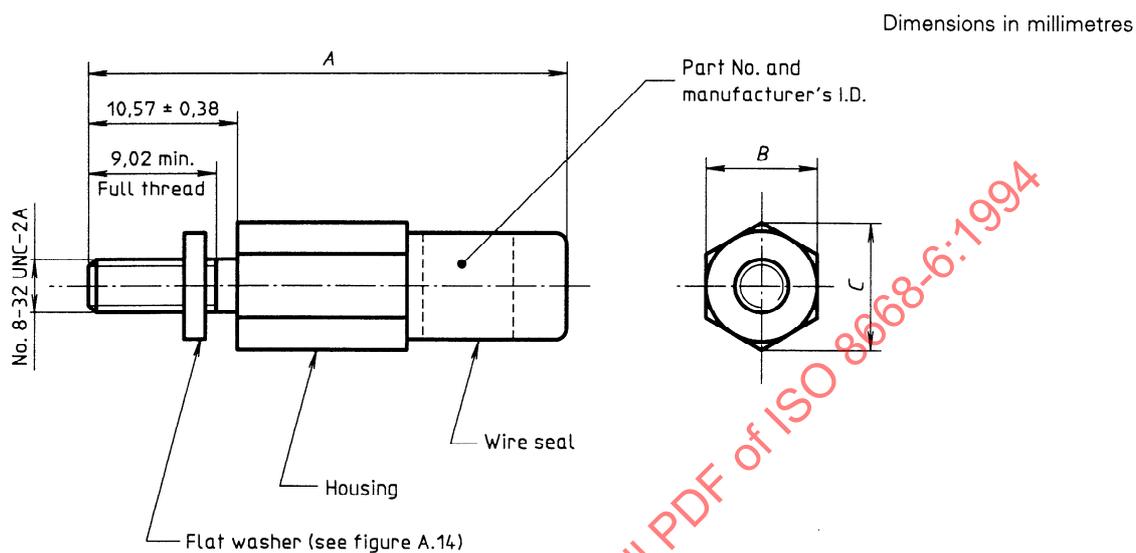


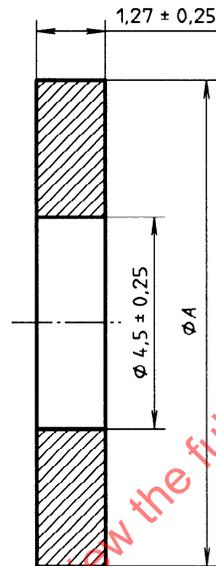
Figure A.13 — Grounding stud

Table A.7 — Dimensions

Dimensions in millimetres

Part No.	Component designator	A ± 0,76	B ± 0,25	C ± 0,25
ISO 8668-6EE-22	22	33,30	4,78	5,51
ISO 8668-6EE-20	20	31,45	4,78	5,51
ISO 8668-6EE-16	16	31,57	6,35	7,32
ISO 8668-6EE-12	12	34,75	7,95	9,14

Dimensions in millimetres



Size	$A \pm 0,25$
22, 20, 16	6,15
12	7,87

Figure A.14 — Flat washer

A.6 Section FF: Wire in-line junctions

A.6.1 Requirements

This specification sheet No. ISO 8668-6FF gives the complete requirements for acquiring the junctions described in figures A.15 and A.16 and tables A.8 and A.9.

NOTES

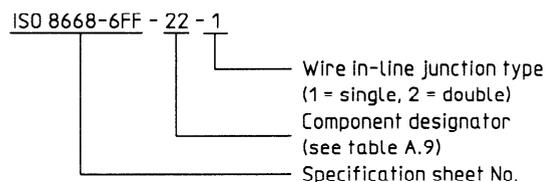
2 Housing may be metal.

3 Each wire in-line junction (type 1) is supplied with two contacts and no sealing plug. Each wire in-line junction (type 2) is supplied with five contacts and one sealing plug. Contact insertion/extraction tools are to be ordered separately, as required. No end sealing plugs are required with type 1.

A.6.2 Designation

A wire in-line junction that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No., component designator and wire in-line junction type (1 = single, 2 = double).

EXAMPLE



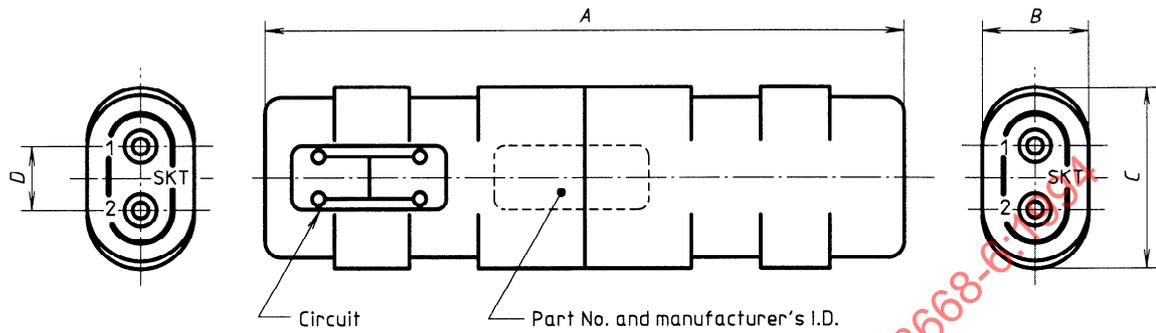


Figure A.15 — Wire in-line junction, type 2

Table A.8 — Dimensions

Dimensions in millimetres

Part No.	Component designator	A max.	B max.	C max.	D max. ref.
ISO 8668-6FF-22-2	22	33,58	6,05	9,75	3,05
ISO 8668-6FF-20-2	20	36,27	6,88	12,22	3,81
ISO 8668-6FF-16-2	16	36,27	7,72	13,92	4,67
ISO 8668-6FF-12-2	12	43,28	9,32	17,12	6,27

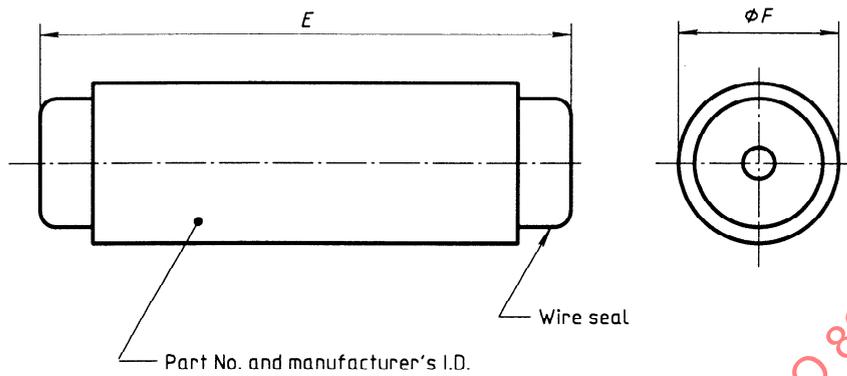


Figure A.16 — Wire in-line junction splice, type 1

Table A.9 — Dimensions

Dimensions in millimetres

Part No.	Component designator	<i>E</i>	<i>F</i>
		max.	max.
ISO 8668-6FF-22-1	22	33,27	5,84
ISO 8668-6FF-20-1	20	36,42	7,37
ISO 8668-6FF-16-1	16	36,88	8,23
ISO 8668-6FF-12-1	12	43,43	9,83

A.7 Section GG: In-line electronic junctions

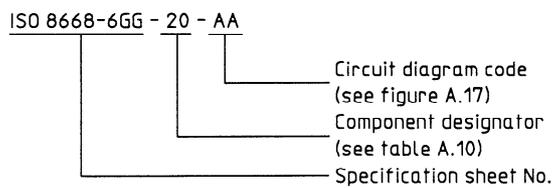
A.7.1 Requirements

This specification sheet No. ISO 8668-6GG gives the complete requirements for acquiring the junctions described in figure A.17 and table A.10

A.7.2 Designation

An in-line electronic junction that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No., component designator and circuit diagram code.

EXAMPLE



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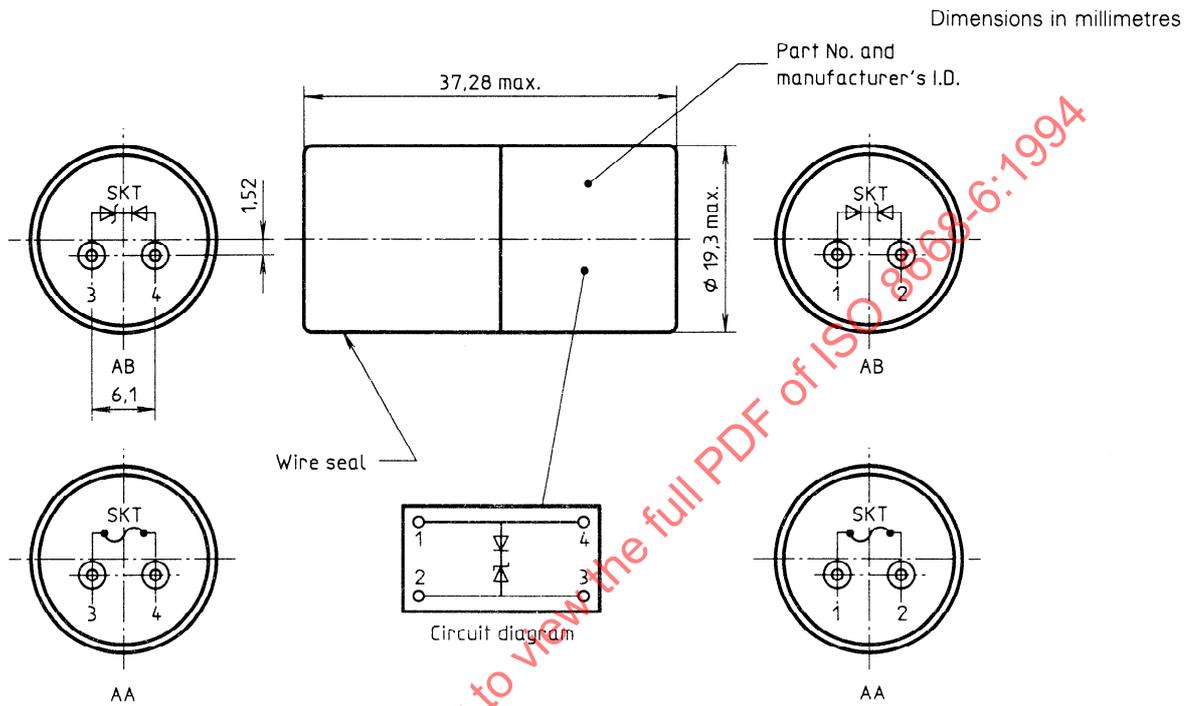


Figure A.17 — In-line electronic junctions

Table A.10 — Electronic junction components description

Part No.	Component designator	Circuit description		Circuit diagram code
		5 A, 125 V		
ISO 8668-6GG-20-AA	22	Fuse	5 s max. at 200 %	AA
ISO 8668-6GG-20-AB	20	Arc suppressor	JANTX 1N4478 Zener diode JANTX 1N5618 rectifier diode	AB

A.8 Section HH: Rack assembly, rail, feed-back type

A.8.1 Requirements

This specification sheet No. ISO 8668-6HH gives the complete requirements for acquiring the rail described in figure A.18 and table A.11.

A.8.1.1 Material

Rack: aluminium alloy.

Clip and rivet: corrosion-resistant steel.

A.8.1.2 Finish

Black anodized.

A.8.1.3 Rack maintenance ageing

The applicable block shall be installed and extracted from the same position in the rack for 100 cycles. Extraction shall be accomplished by use of the ISO 8668-6KK tool.

Any damage to the block or rack, such as broken clips, shall be cause for rejection.

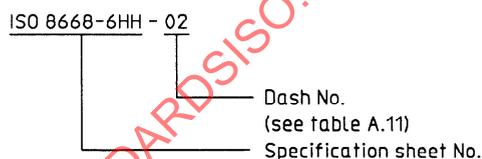
This test shall be performed prior to salt spray testing.

NOTE 4 For applicable blocks, see A.1, A.2 and A.3. For applicable block extraction tools, see A.10. Blocks and tools are not part of this rack assembly and should be ordered separately.

A.8.2 Designation

A rack assembly rail that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No. and dash No.

EXAMPLE



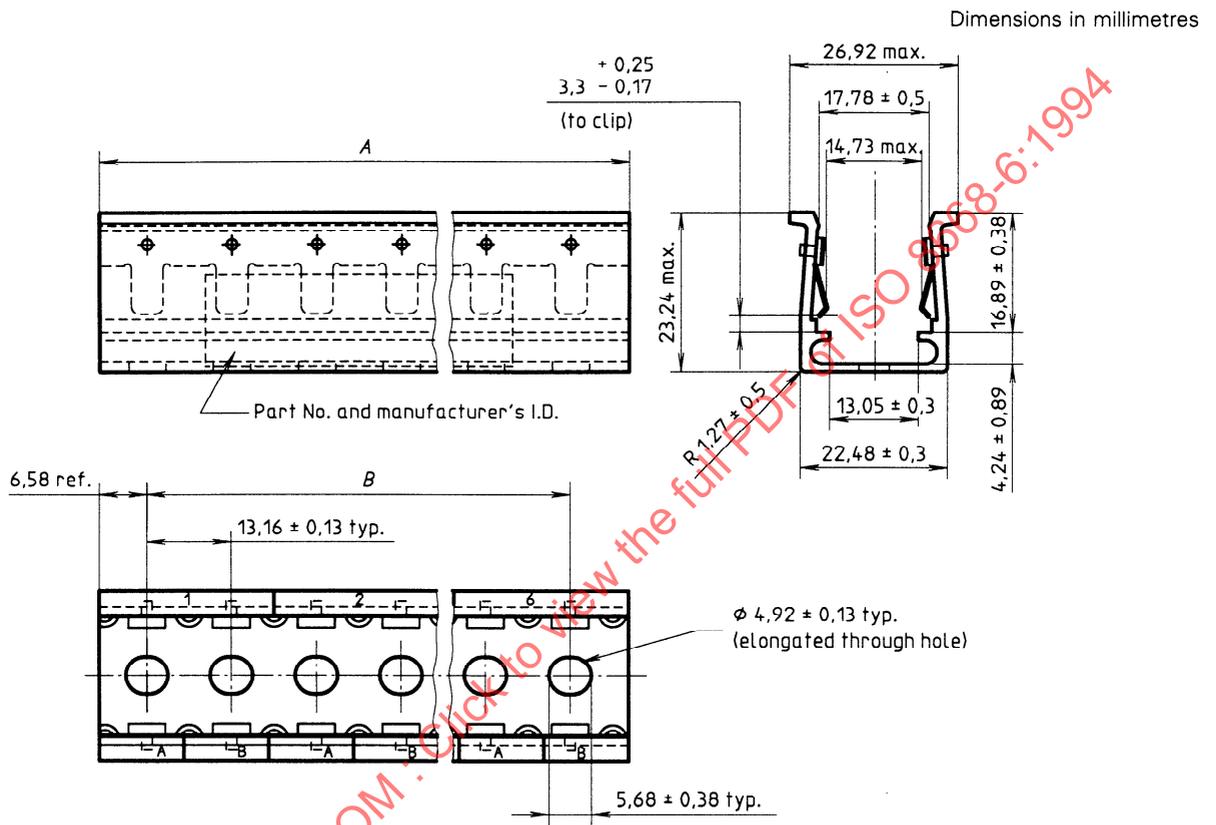


Figure A.18 — Feed-back rail

Table A.11 — Dimensions

Dimensions in millimetres

Part No.	Quantity of blocks per rack	A	B
		± 0,38	± 0,38
ISO 8668-6HH-02	2	26,31	13,16
ISO 8668-6HH-03	3	39,47	26,31
ISO 8668-6HH-04	4	52,63	39,47
ISO 8668-6HH-05	5	65,79	52,63
ISO 8668-6HH-06	6	78,94	65,79
ISO 8668-6HH-07	7	92,1	78,94
ISO 8668-6HH-08	8	105,26	92,1
ISO 8668-6HH-09	9	118,41	105,26
ISO 8668-6HH-10	10	131,57	118,41
ISO 8668-6HH-12	12	157,89	144,73
ISO 8668-6HH-13	13	171,04	157,89
ISO 8668-6HH-14	14	184,2	171,04
ISO 8668-6HH-15	15	197,36	184,2
ISO 8668-6HH-16	16	210,52	197,36
ISO 8668-6HH-18	18	236,83	223,67
ISO 8668-6HH-19	19	249,99	236,83
ISO 8668-6HH-20	20	263,14	249,99
ISO 8668-6HH-21	21	276,3	263,14
ISO 8668-6HH-25	25	328,93	315,77
ISO 8668-6HH-30	30	394,72	381,56
ISO 8668-6HH-32	32	421,03	407,87
ISO 8668-6HH-40	40	526,29	513,13

A.9 Section JJ: Module mounting brackets

A.9.1 Requirements

This specification sheet No. ISO 8668-6JJ gives the complete requirements for acquiring the bracket described in figure A.19.

A.9.1.1 Brackets shall be constructed of aluminium alloy. The finish shall be black anodized.

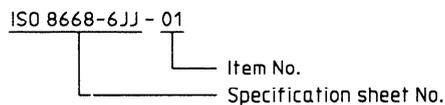
A.9.1.2 Brackets with a clear cadmium finish shall be limited to an ambient temperature of + 125 °C.

NOTE 5 Brackets are designed for mounting of ISO 8668-6AA, ISO 8668-6BB or ISO 8668-6CC modules. (Single size 12 module or double size 22, 20 or 16 module.)

A.9.2 Designation

A module mounting bracket that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No. and item No.

EXAMPLE



Dimensions in millimetres

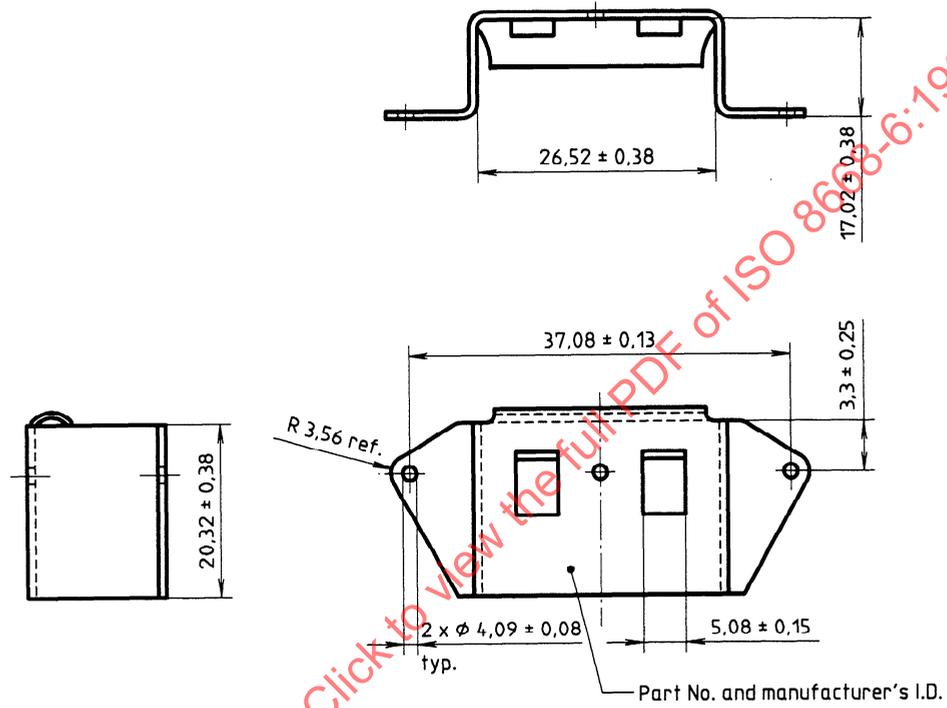


Figure A.19 — Module mounting bracket

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A.10 Section KK: Module extraction tools

A.10.1 Requirements

This specification sheet No. ISO 8668-6KK gives the complete requirements for acquiring the tools described in figures A.20 and A.21.

A.10.1.1 Materials and finish

Corrosion-resistant steel, full hard, passivated.

A.10.1.2 Tool durability

Durability testing of each module removal tool shall consist of a minimum of 100 cycles of removal of modules from a rack assembly. The last removal shall be from an unused position in the rack assembly. The tool shall not be damaged and shall not damage the rack assembly during durability testing.

NOTES

- 6 Dimension 30,48 applies when a 31,75 gauge is installed.
- 7 Dimensions not specified are at the manufacturer's option.
- 8 Inside surfaces of tool are coated with elastomeric coating.
- 9 The ISO 8668-6KK-1 tool is designed to remove ISO 8668-6AA size 22, 20 or 16 modules, or ISO 8668-6BB size 16 or 20 modules from ISO 8668-6HH rack assemblies.
- 10 The ISO 8668-6KK-2 tool is designed to remove ISO 8668-6AA size 12 modules, ISO 8668-6BB size 12 or 16 modules, or ISO 8668-6CC modules from ISO 8668-6HH rack assemblies.

A.10.2 Designation

A module extraction tool that meets the requirements of this part of ISO 8668 shall be designated by this specification sheet No. and number of tine pairs.

EXAMPLE



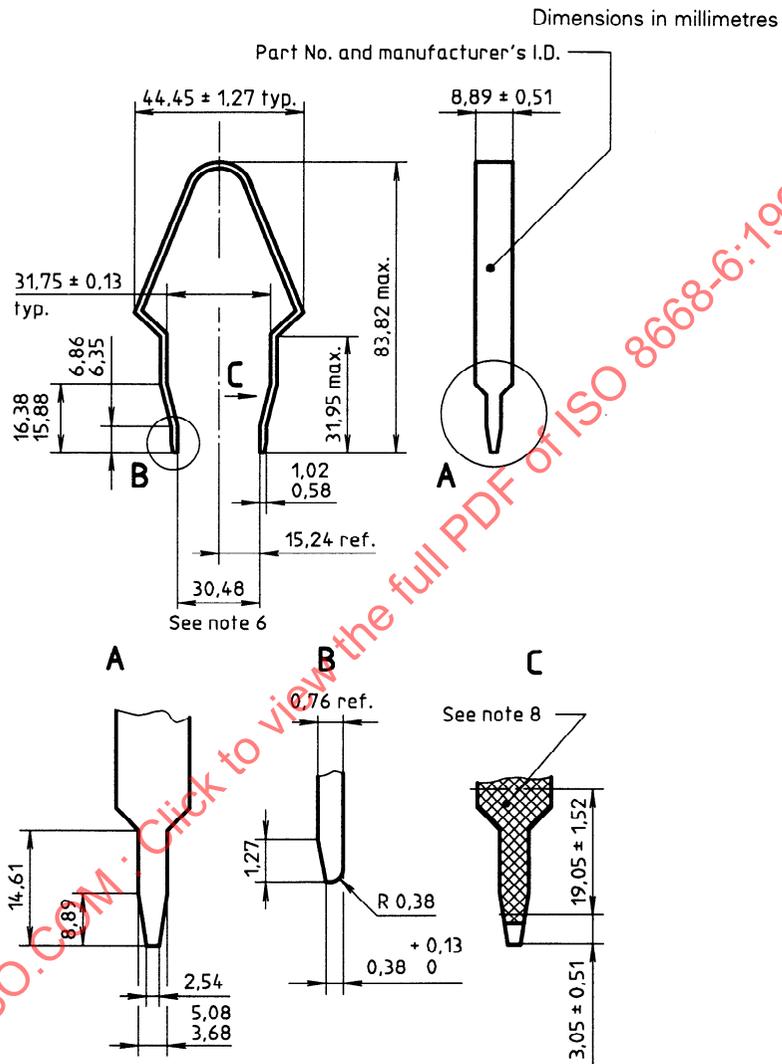


Figure A.20 — Module extraction tool, type 1