
International Standard



461/2

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Aircraft — Connectors for ground electrical supplies — Part 2: Dimensions

Aéronefs — Prises de courant d'alimentation au sol — Partie 2: Dimensions

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UDC 629.7.064.5 : 621.316.541

Ref. No. ISO 461/2-1985 (E)

Descriptors : aircraft industry, aircraft equipment, airport equipment, electric connectors, socket connectors, plug connectors, dimensions.

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 461/2 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*.

Together with ISO 461/1, it cancels and replaces ISO Recommendation R 461-1965, of which it constitutes a technical revision.

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Aircraft — Connectors for ground electrical supplies — Part 2: Dimensions

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1 Scope and field of application

This part of ISO 461 specifies the dimensions for the following connectors used to supply electrical power from a ground source to an aircraft:

- Style 1A — 28 V d.c., aircraft fixed connector
- Style 1B — 28 V d.c., ground supply free connector
- Style 2A — 112 V d.c., aircraft fixed connector
- Style 2B — 112 V d.c., ground supply free connector
- Style 3A — 200 V a.c., 400 Hz, 3-phase aircraft fixed connector
- Style 3B — 200 V a.c., 400 Hz, 3-phase ground supply free connector

NOTE — ISO 461/1 specifies the design, performance and test requirements for the connectors.

2 Reference

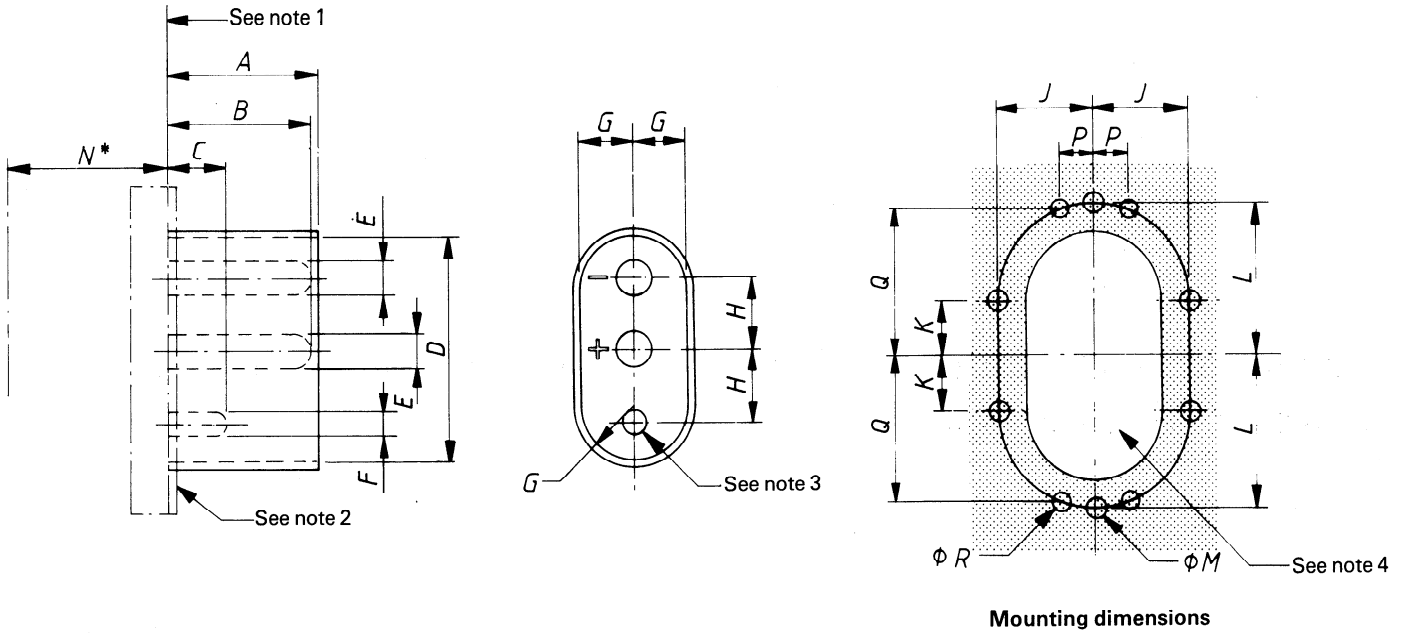
ISO 461/1, *Aircraft — Connectors for ground electrical supplies — Part 1: Design, performance and test requirements.*

3 Definitions

For the purposes of this part of ISO 461, the definitions given in ISO 461/1 apply.

4 Dimensions

The aircraft fixed connector and ground supply free connector shall comply with the dimensions and tolerances shown in figures 1 to 6, as appropriate.



* Maximum projection at rear of fixed connector.

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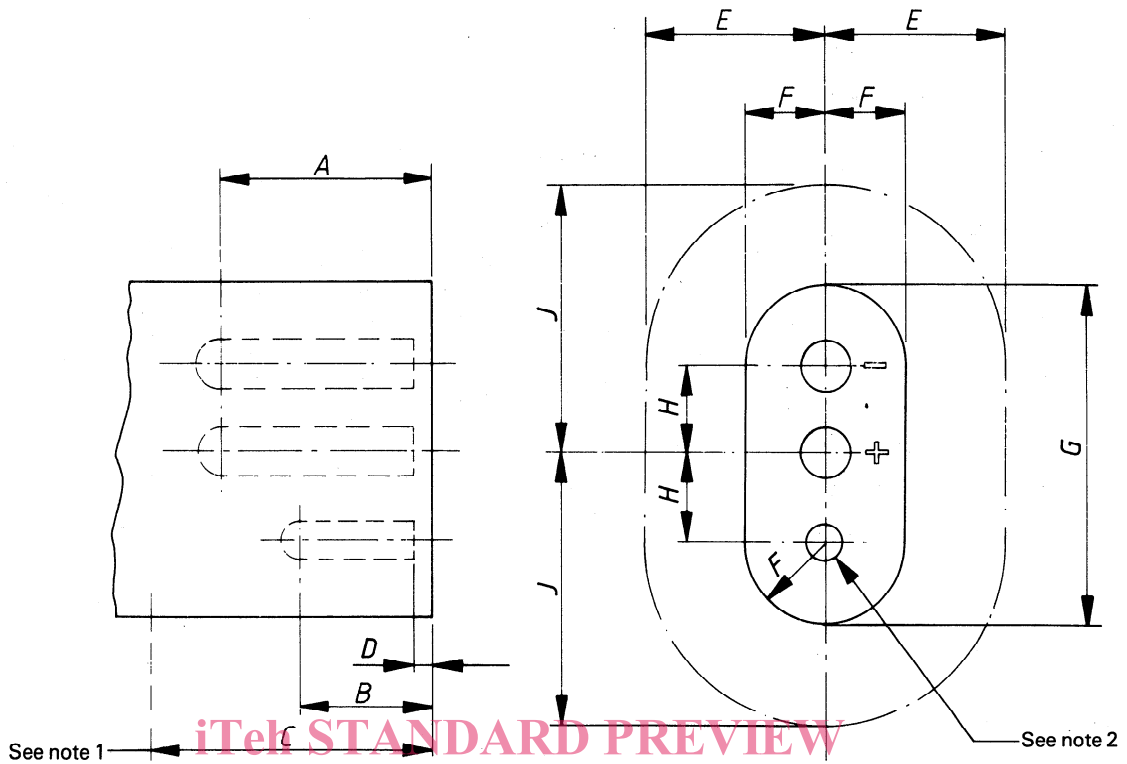
NOTES

- 1 The length of engagement of the male contacts in the female contacts shall not be affected by the method of mounting the aircraft fixed connector.
- 2 On pressurized mountings, this surface shall be suitable to enable a sealed joint to be made, when the shroud is passed through the aircraft structure.
- 3 The control male contact shall be used at positive polarity and at the voltage of the main positive male contact.
- 4 Hole dimensions shall be suitable for the particular fixed connector.
- 5 Dimensions P, Q and R refer to the alternative 4-hole fixing method.

Dimension	mm	in
A	54 ± 0,8	2.125 ± 0.03
B	50,8 ± 0,4	2.0 ± 0.015
C	19,1 ± 0,4	0.75 ± 0.015
D	77,77 ⁺¹ ₀	3.062 ^{+0.04} ₀
E	11,1 ⁰ _{-0,05}	0.437 ⁰ _{-0.002}
F	7,92 ⁰ _{-0,05}	0.312 ⁰ _{-0.002}
G	19,43 ± 0,5	0.765 ± 0.02
H	25,4 ± 0,25	1.0 ± 0.01
J	28,35	1.117
K	21,25	0.836
L	49	1.929
M	5,4	0.213
N max.	57,2	2.25
P*	9,53 ± 0,13	0.375 ± 0.005
Q*	47,63 ± 0,4	1.875 ± 0.015
R*	5,1	0.205

* See note 5.

Figure 1 — Basic dimensions for style 1A, 28 V d.c., aircraft fixed connector



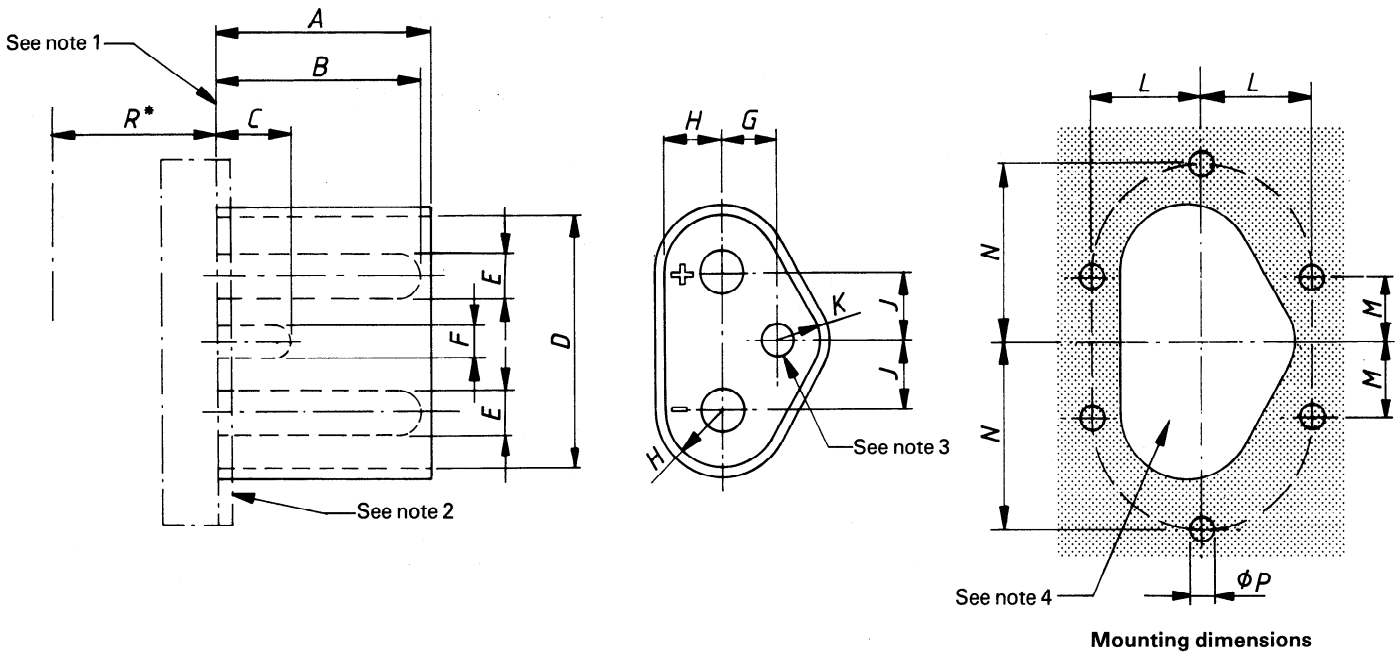
NOTES

- 1 Beyond this point, the overall dimensions shall not exceed the envelope shown by the chain line in the plan view.
- 2 The split female contact for the control male contact shall be used at positive polarity and at the voltage of the female contact for the main positive male contact.
- 3 Individual female contacts shall have a maximum radial movement of 0,5 mm (0.020 in). The fit of the male and female main contacts shall be such as to limit the voltage drop at each connection, excluding the cable terminations, to the requirements of ISO 461/1.

Dimension	mm	in
A	51,6 min.	2.031 min.
B	31,8 min.	1.25 min.
C*	63,5	2.5
D	4,45 max. 2,5 min.	0.175 max. 0.100 min.
E	41,9	1.65
F	16,64 ± 0,25	0.655 ± 0.01
G	76,2 ⁰ / _{-1,6}	3.0 ⁰ / _{-0.062}
H	25,4 ± 0,25	1.0 ± 0.01
J	63,5	2.5

* Minimum length before any increase in cross-section.

Figure 2 — Basic dimensions for style 1B, 28 V d.c., ground supply free connector



* Maximum projection at rear of fixed connector.

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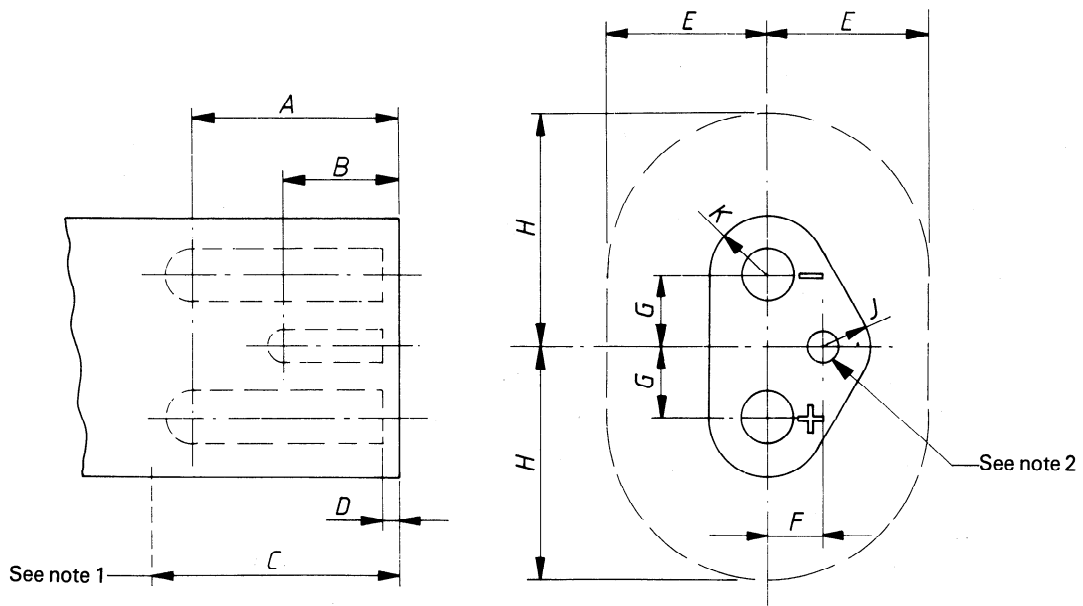
NOTES

- 1 The length of engagement of the male contacts in the female contacts shall not be affected by the method of mounting the aircraft fixed connector.
- 2 On pressurized mountings, this surface shall be suitable to enable a sealed joint to be made, when the shroud is passed through the aircraft structure.
- 3 The control male contact shall be used at positive polarity and at the voltage of the main positive male contact.
- 4 Hole dimensions shall be suitable for the particular fixed connector.

Dimension	mm	in
A	54 ± 0,8	2.125 ± 0.03
B	50,8 ± 0,4	2.0 ± 0.015
C	19,1 ± 0,4	0.75 ± 0.015
D	65,02 $\begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	2.56 $\begin{smallmatrix} +0.04 \\ 0 \end{smallmatrix}$
E	11,1 $\begin{smallmatrix} 0 \\ -0,05 \end{smallmatrix}$	0.437 $\begin{smallmatrix} 0 \\ -0.002 \end{smallmatrix}$
F	7,92 $\begin{smallmatrix} 0 \\ -0,05 \end{smallmatrix}$	0.312 $\begin{smallmatrix} 0 \\ -0.002 \end{smallmatrix}$
G	14,27 ± 0,5	0.562 ± 0.02
H*	15,06 ± 0,5	0.593 ± 0.02
J	17,45 ± 0,25	0.687 ± 0.01
K*	10,31 ± 0,5	0.406 ± 0.02
L	26,2	1.031
M	19,05	0.75
N	42,85	1.687 5
P	6,1	0.24
R	57,2	2.25

* Radius.

Figure 3 — Basic dimensions for style 2A, 112 V d.c., aircraft fixed connector



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NOTES

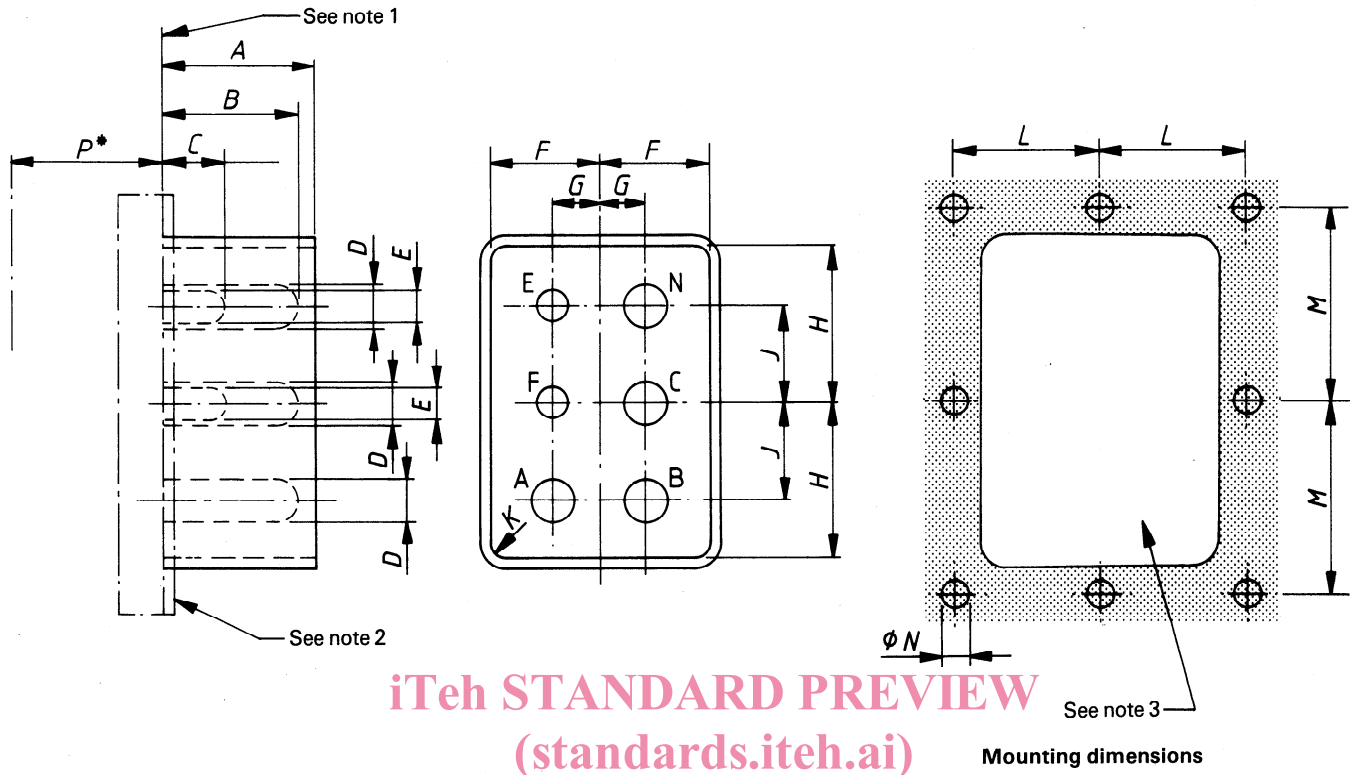
- 1 Beyond this point, the overall dimensions shall not exceed the envelope shown by the chain line in the plan view.
- 2 The split female contact for the control male contact shall be used at positive polarity and at the voltage of the female contact for the main positive male contact.
- 3 Individual female contacts shall have a maximum radial movement of 0,5 mm (0.020 in). The fit of the male and female main contacts shall be such as to limit the voltage drop at each connection, excluding the cable terminations, to the requirements of ISO 461/1.

Dimension	mm	in
A	51,6 min.	2.031 min.
B	31,8 min.	1.25 min.
C*	63,5	2.5
D	4,45 max. 2,5 min.	0.175 max. 0.100 min.
E	38,1	1.5
F	14,27 ± 0,25	0.562 ± 0.01
G	17,45 ± 0,25	0.687 ± 0.01
H	57,2	2.25
J**	9,53 ± 0,25	0.375 ± 0.01
K**	14,27 ± 0,25	0.562 ± 0.01

* Minimum length before any increase in cross-section.

** Radius.

Figure 4 — Basic dimensions for style 2B, 112 V d.c., ground supply free connector



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Mounting dimensions

* Maximum projection at rear of fixed connector.

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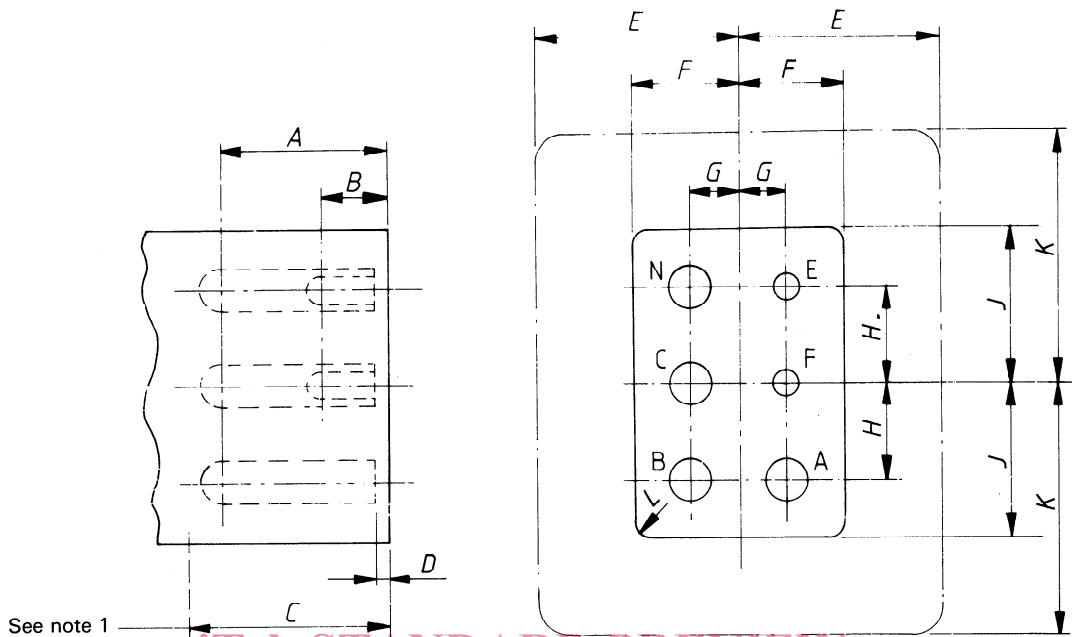
NOTES

- 1 The length of engagement of the male contacts in the female contacts shall not be affected by the method of mounting the aircraft fixed connector.
- 2 On pressurized mountings, this surface shall be suitable to enable a sealed joint to be made, when the shroud is passed through the aircraft structure.
- 3 Hole dimensions shall be suitable for the particular fixed connector.

Dimension	mm	in
A	41,7 ± 0,8	1.64 ± 0.03
B	38,1 ± 0,4	1.50 ± 0.015
C	19,1 ± 0,4	0.75 ± 0.015
D	11,1 $\begin{smallmatrix} 0 \\ -0,05 \end{smallmatrix}$	0.437 $\begin{smallmatrix} 0 \\ -0,002 \end{smallmatrix}$
E	7,92 $\begin{smallmatrix} 0 \\ -0,05 \end{smallmatrix}$	0.312 $\begin{smallmatrix} 0 \\ -0,002 \end{smallmatrix}$
F	29,2 $\begin{smallmatrix} +0,51 \\ 0 \end{smallmatrix}$	1.15 $\begin{smallmatrix} +0,02 \\ 0 \end{smallmatrix}$
G	12,7 ± 0,13	0.50 ± 0.005
H	41,9 $\begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}$	1.650 $\begin{smallmatrix} +0,02 \\ 0 \end{smallmatrix}$
J	25,4 ± 0,25	1.0 ± 0.01
K*	3,8 ± 0,25	0.15 ± 0.01
L	34,93	1.375
M	47,63	1.875
N	6,5	0.257
P max.	44,5	1.75

* Radius.

Figure 5 — Basic dimensions for style 3A, 200 V a.c., 400 Hz, 3-phase aircraft fixed connector



See note 1

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NOTES

- 1 Beyond this point, the overall dimensions shall not exceed the envelope shown by the chain line in the plan view.
- 2 Individual female contacts shall have a maximum radial movement of 0,5 mm (0.020 in). The fit of the male and female main contacts shall be such as to limit the voltage drop at each connection, excluding the cable terminations, to the requirements of ISO 461/1.

Dimension	mm	in
A	46,9 min.	1.846 min.
B	20,6 min.	0.812 min.
C*	54	2.125
D	4,45 max. 2,5 min.	0.175 max. 0.10 min.
E	54	2.125
F	28,58 ± 0,25	1.125 ± 0.01
G	12,7 ± 0,13	0.50 ± 0.005
H	25,4 ± 0,25	1.0 ± 0.01
J	41,3 ± 0,25	1.625 ± 0.01
K	66,7	2.625
L**	3,2 ± 0,4	0.125 ± 0.015

* Minimum length before any increase in cross-section.

** Radius.

Figure 6 — Basic dimensions for style 3B, 200 V a.c., 400 Hz, 3-phase ground supply free connector