DOCUMENT CHANGE REQUEST

DCR number 425	Changes required for: General	Originator: Steve Thacker - ESCC
Date: 2008/07/28	Date sent: 2008/07/28	Organisation: ESA/ESTEC
Status: IMPLEMENTED		

Title:	Contacts Power Crimp-Type and Solder Type for 3401/001 and 3401/002 Connectors		
Number:	3401/040	Issue:	3

Other documents affected:

Page:

see below & attached

Paragraph:

see below & attached

Original wording:

Proposed wording:

The following amendments were identified by Manufacturer C&K:

1 - Para 1.1 amend 1st para to also refer to "PCB-type".

2 - Para 1.1 & 2 delete reference to 3401/002 connectors.

3 - Table 1(a) Add weights for Variants 13 to 16
Variant 13 = 2.15g
Variant 14 = 1.75g
Variant 15 = 2.65g
Variant 16 = 2.45g

4 - Figure 2(c) (straight & 90deg PCB) amend drawings as shown in the attachment.

5 - Para 4.3.5 add Variants 14, 16 to title.
Amend Maximum Diameter test Pin dimension to be: 3.632 (+0 -0.0025)mm [was 3.532 (+0 -0.0025)mm]

6 - Par 4.3.6 add Variants 14, 16 to title.

Justification:

Corrections of editorial errors plus changes as identified by Manufacturer C&K

Attachments:

dcr425att_markup3401040_08_09_19.pdf, null

Modifications:

The following change wording is based on the original DCR425 plus discussions, reviews and conclusions made by the ESCC Executive Secretariat and Manufacturer C&K since December 2007.

The following items detail all the changes proposed and replace the original contents of this DCR. The changes also take into account the changes contained in approved, but not yet implemented, DCR316.

1 - Specification title on page 1 and in para 1.1 amended to also refer to 'PCB-type'.

2 - Spec Title & Para 1.1 & 2,
Delete reference to 3401/002 connectors.
Correct the titles for ESCC 3401 & 3401/001 as shown in the attachment.

3 - Table 1(a)
Add new Variants 13 to 16 details as shown in the attachment.
Amend Column 'Bucket Type' to be 'Rear End' and amend descriptions 'Solder' to be 'Solder Bucket' and 'Crimp' to be 'Crimp Barrel'.

4 - Figure 1, add '0' label to y axis.

5 - Figure 2(a), 2(b) & 2(c), In note 1 amend 'gold-plating' to be 'plating''

6 - Figure 2, Add new Figure 2(c) for new variants 13 to 16 added as shown in the attachment.

7 - Figure 2(c) Maximum protrusion figure (becomes Fig 2(d)) amended as shown in the attachment.

8 - Para 2, Delete items e & f and renumber remaining paras accordingly.

9 - Para 4.2.3, Replace 'None' by 'Not applicable'.

10 - Para 4.2.4,
Correct the para references in items a & b per ESCC 3401 as shown in the attachment.
Item c amended to read: 'Para 9.31 Solderability: Not applicable to Variants 07 to 12.' (the bit size requirement is transferred to new Para 4.3.12).
Delete item d.
Add new item:
'(d) Para 9.15, Joint Strength: The test shall be performed as specified in Para. 4.3.13.'

11 - Para 4.3.1,
Correct para reference in 1st sentence to be 'Para. 9.6'
Add new sentence:
'Overall dimensions are specified with compatible inserts in ESCC Detail Specification No. 3401/001.'

12 - Para 4.3.3,
Amend title to be '4.3.13 Joint Strength (Variants 07 to 12)' and delete title for Para 4.3.3.1.
Tensile Strength value & units converted from deca-Newtons to Newtons.
Para 4.3.3.2, Delete para in its entirety.

13 - Para 4.3.4, Delete para and move requirements to be part of Para 4.4.1. (see also Figures 2(a), 2(b), 2(c) notes 1)

14 - Para 4.3.5, Correct the title to be 'Engagement and Separation Forces' (new para 4.3.9) and amend the paras as shown in the attachment.
New Variants 14 & 16 are added to the title.
Maximum test pin Diameter is changed to be 3.632mm
'Insertion' & 'Withdrawal' are changed to be 'Engagement' & 'Separation' respectively.
Force units and values are converted from grams-force to Newtons.

15 - Para 4.3.6, Correct the title to be 'Contact Capability' (new para 4.3.3) and add new Variants 14 & 16 to the title.
Amend the table as shown in the attachment.
Column headings are swapped (e.g. 'Pick-up Weight' becomes 'Drop Weight').
Max & min pin diameters are amended to be 3.632mm and 3.581mm respectively.

16 - Para 4.3.7, Amend to be new para 4.3.10

17 - Para 4.3.8, Delete 'Test' from title and amend to be new para 4.3.11

18 - Para 4.3, Add new para '4.3.4 Contact Retention (In Insert)' with text:
'Contact retention within the insert shall be 40.86N. There shall be no displacement of the contact in excess of 0.3mm.'

19 - Para 4.3, Add new para '4.3.8 Contact Insertion and Withdrawal Forces' with text:
'The contact insertion and withdrawal forces shall be 65N maximum.'

20 - Para 4.3, Add new para '4.3.12 Solderability' with text:
'Not applicable to Variants 07 to 12. For all other Variants soldering iron bit size 7.5mm shall be used.'

21 - Para 4.3, Add new paras 4.3.5, 4.3.6, 4.3.7 as shown in the attachment.

22 - Para 4.4.1, Delete 2nd sentence 'The contacts shall .... MIL-C-14500.' and replace with:
'Gold plating thickness shall be 1.27um minimum over 1um minimum of copper.'

23 - Para 4.4, Add new para '4.4.2 Magnetism Level' as shown in the attachment.

24 - TABLE 2, Correct the para references from ESCC 3401 as shown in the attachment.

25 - Para 4.8.6, Amend the 2nd sentence as shown in the attachment.

26 - TABLE 6, Replace the table in its entirety by the new table 6 shown in the attachment.
Changes include:
- Delete item 'Female Contact Capability'
- Delete item 'Gold Plate Porosity'
- 'Contact Insertion and Withdrawal Forces' becomes part of new item 'Maintenance Aging'
- 'Crimp Visual Inspection' becomes part of new item 'Wiring'
- 'Contact Resistance' becomes part of each applicable environmental/endurance test
- 'Crimp Tensile Strength' is replaced by 'Joint Strength'
- 'Pull Test' is deleted
- 'Contact Retention (In Insert)' is added to 'High Temperature Storage'
- New items are added as shown in the attachment: 'Wiring', 'Vibration, 'Shock or Bump', 'Climatic Sequence', 'Seal Test', Joint Strength', 'Rapid Change of Temperature', 'Contact Retention (In Insert)', 'Permanence of Marking', 'Mating/Unmating Forces', 'Corrosion', 'Insert Retention (In Shell)', 'Jackscrew Retention', 'High Temperature Measurements', 'Overload Test', 'Maintenance Aging', Engagement and Separation Forces'.

Justification:
After a full, detailed technical and editorial review of 3401/040 issue 3 many amendments have been identified as being necessary in order to be able to logically implement the changes in the original DCR425 & DCR316. The justification for all changes is as follows.

Note - The changes do not include any resulting from the generation of new ESCC spec No.80 (for D*BM savers); A new round of changes to the range of 3401/*** specs will be necessary once ESCC spec No.80 is published, in due course.

Editorial changes, proposed for the purposes of clarity, consistency and completeness, are based on the requirements specified in ESCC Generic specification No.3401 issue 1 plus the format and contents of other ESCC Detail specifications for contacts (e.g. 3401/005 issue 4). Editorial changes include the following items above:
Items 2 3 4 5 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Specific technical changes are justified as follows:

Items 1, 3, 6, 7, 14, 15 - Introduction of the new variants 13 to 16 per DCR316

Item 8, 22 - Definition of the plating materials & thickness' is considered sufficient without reference to the MIL specs; It is considered unnecessary to prescribe the actual material specifications to be applied by the Manufacturer (which will be controlled by their PID).

Item 10, 12, 26 - Pull test is no longer applicable to ESCC 3401.

Item 14 - Both engagement and separation forces need to be specified (related to the Contact Capability limits). Maximum test pin diameter is corrected due to a typographic error.

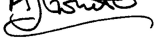
Item 15 - Table columns are swapped in order to correct a typographic error. Pin diameters are amended to reflect the corrected values given in old para 4.3.5 (new para 4.3.9).

Item 18, 26 - Contact Retention (In Insert) needs to be specified. The value proposed (40.86N with 0.3mm max displacement) is the standard used by Manufacturer C&K (see also 3401/004).

Items 19, 26 - The contact insertion and withdrawal forces are not currently specified. The value proposed is the standard used by Manufacturer C&K.

Justification:
as above

Approval signature:



Date signed:

2008-07-28

CONCLUSION MARK-UP FOR DCR425 3/9/8.

(Also includes DCR316)

FINAL VERSION 19/9/08

Pages 1 to 16

CONTACTS, POWER, CRIMP-TYPE, AND PCB-TYPE ~~AND~~ SOLDER-TYPE FOR 3401/001 ~~AND~~ 3401/002 CONNECTORS

ESCC Detail Specification No. 3401/040

ISSUE ~~3~~ 4

~~May 2005~~ August 2008.

Document Custodian: European Space Agency - see https://escies.org

1. GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for Contacts, Power, Crimp-type and Solder-type, for 3401/001 and 3401/002 Connectors.

It shall be read in conjunction with:

- ESCC Generic Specification No. 3401, Connectors, Electrical, Circular and Rectangular.
- ESCC Detail Specification No. 3401/001, Connectors, Electrical, Rectangular, Miniature, Non-removable Solder and Wire-wrap Contacts and Removable Coaxial and Power, Crimp-type and Solder-type Contacts, Based on Type D*M.
- ESCC Detail Specification No. 3401/002, Connectors, Electrical, Rectangular, Miniature, Removable Crimp-type Contacts and Removable Coaxial and Power Crimp-type and Solder-type Contacts, Based on Type D*MA.

the requirements of which are supplemented herein.

These contacts are not mounted in the connectors and are therefore delivered separately.

1.2 TYPE VARIANTS

Variants of the basic type contacts specified herein, which are also covered by this specification, together with their mechanical characteristics, are given in Table 1(a).

1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the contacts specified herein, are scheduled in Table 1(b).

1.4 PARAMETER DERATING INFORMATION

The derating information applicable to the contacts specified herein is shown in Figure 1.

1.5 PHYSICAL DIMENSION

The physical dimensions of the contacts specified herein are shown in Figure 2.

1.6 CONTACT ARRANGEMENTS

Not applicable.

TABLE 1(a) - TYPE VARIANTS

Variant	Type	Max. Weight (gr)	Accepted Cable (AWG)	~~Bucket~~ ~~Type~~ Rear End
01	Male	2.2	8	Solder
02	Female	1.9	8	Solder
03	Male	2.15	12	Solder
04	Female	1.9	12	Solder
05	Male	2.05	16	Solder
06	Female	1.75	16	Solder
07	Male	2.8	8	Crimp
08	Female	2.45	8	Crimp
09	Male	2.25	10	Crimp
10	Female	2.0	10	Crimp
11	Male	2.0	12 - 14	Crimp
12	Female	1.65	12 - 14	Crimp

Bucket

Barrel

Add 13 to 16 →

TABLE 1(b) - MAXIMUM RATINGS

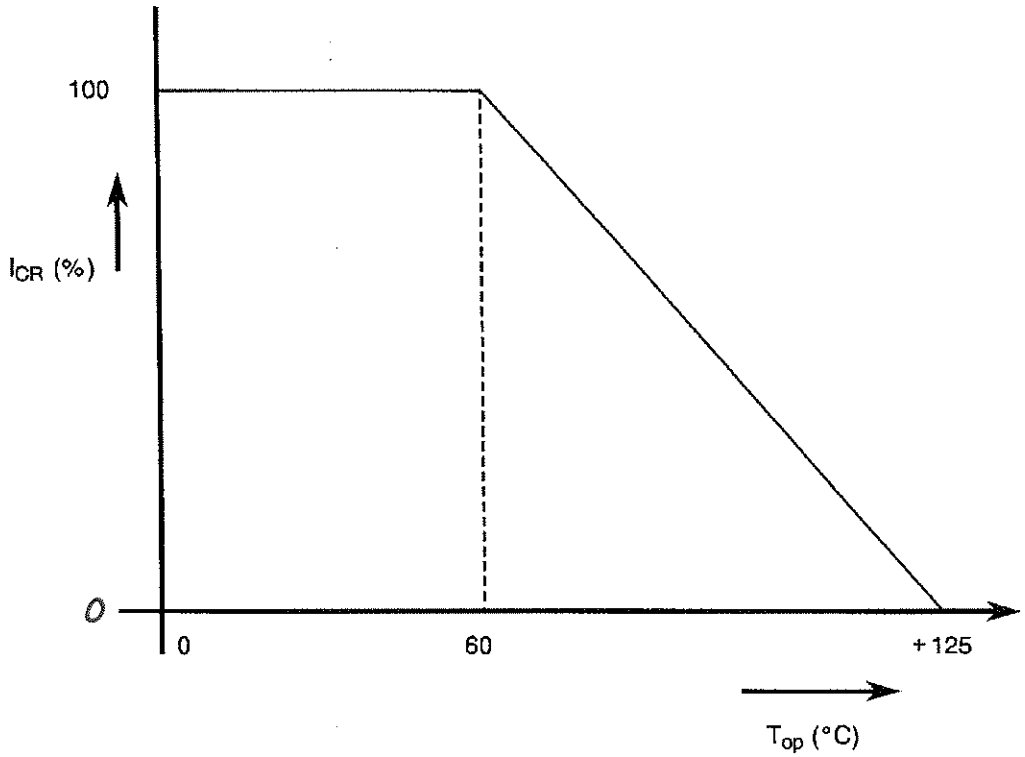
No.	Characteristic	Symbol	Maximum Rating	Unit	Remarks
1	Rated Current	I_{CR}	40	A	Note 1 Note 2
2	Operating Temperature Range	T_{op}	-55 to +125	°C	T_{amb}
3	Storage Temperature Range	T_{stg}	-55 to +125	°C	
4	Soldering Temperature	T_{sol}	+260	°C	Note 3

NOTES

1. This is limited either by the current carrying capability of the cable to which the contact is fitted or the derating.
2. At $T_{amb} \leq +60°C$. For derating at $T_{amb} > +60°C$, see Figure 1.
3. 10 seconds maximum.

13	Male	2.15	N.A.	Straight PCB
14	Female	1.75	N.A.	Straight PCB
15	Male	2.65	N.A.	90° PCB
16	Female	2.45	N.A.	90° PCB

FIGURE 1 - PARAMETER DERATING INFORMATION

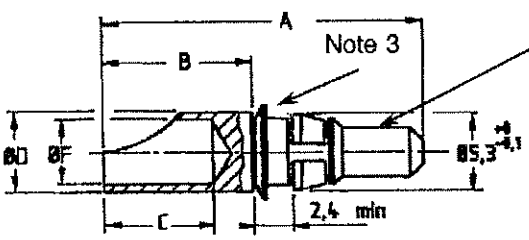


Rated Contact Current versus Temperature

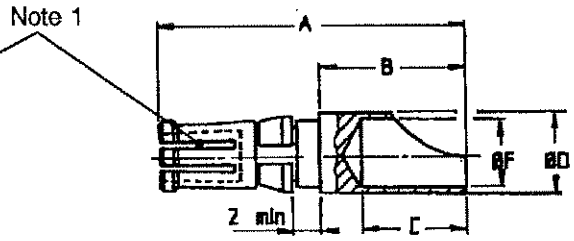
FIGURE 2 - PHYSICAL DIMENSIONS

FIGURE 2(a) - SOLDER TYPE

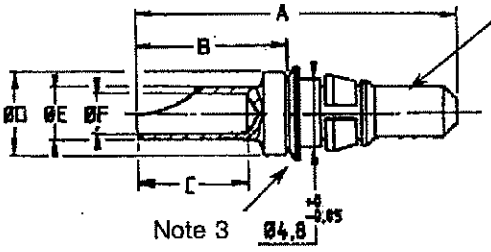
Variant 01



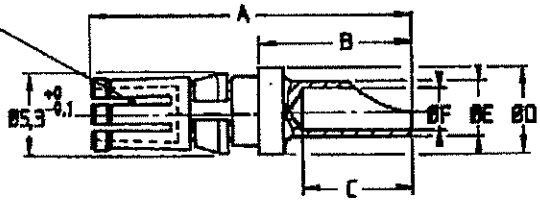
Variant 02



Variants 03 and 05



Variants 04 and 06



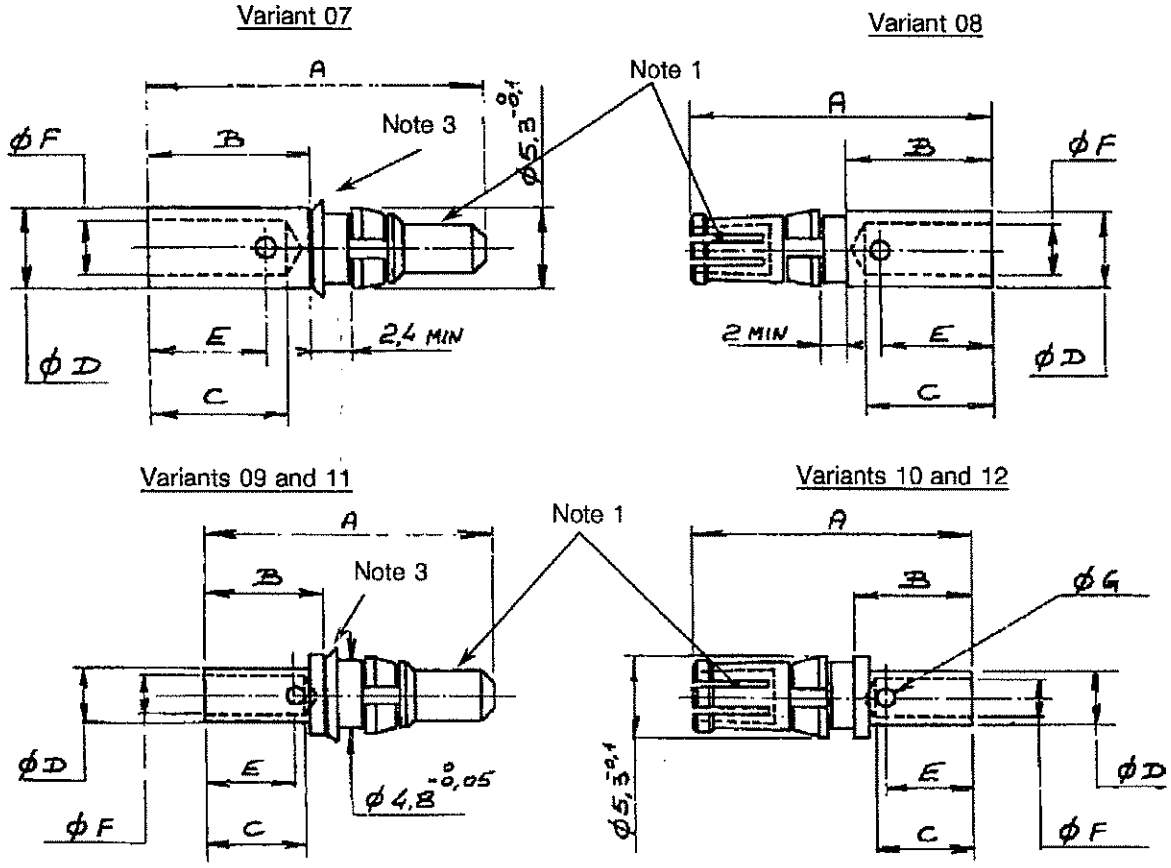
Variant (Note 2)	Type	AWG	A Max.	B Max.	C Max.	⊘D Max.	⊘E Max.	⊘F Max.
01	Male	8	22.1	10.8	8.13	5.66	-	4.90
02	Female	8	21.8	10.8	8.13	5.66	-	4.90
03	Male	12	22.1	10.8	8.13	5.66	3.76	3.00
04	Female	12	21.8	10.8	8.13	5.66	3.76	3.00
05	Male	16	22.1	10.8	8.13	5.66	2.67	1.90
06	Female	16	21.8	10.8	8.13	5.66	2.67	1.90

NOTES

1. Measurement point for gold plating thickness.
2. All dimensions are in millimetres.
3. Washer is optional.

FIGURE 2 - PHYSICAL DIMENSIONS (Continued)

FIGURE 2(b) - CRIMP TYPE



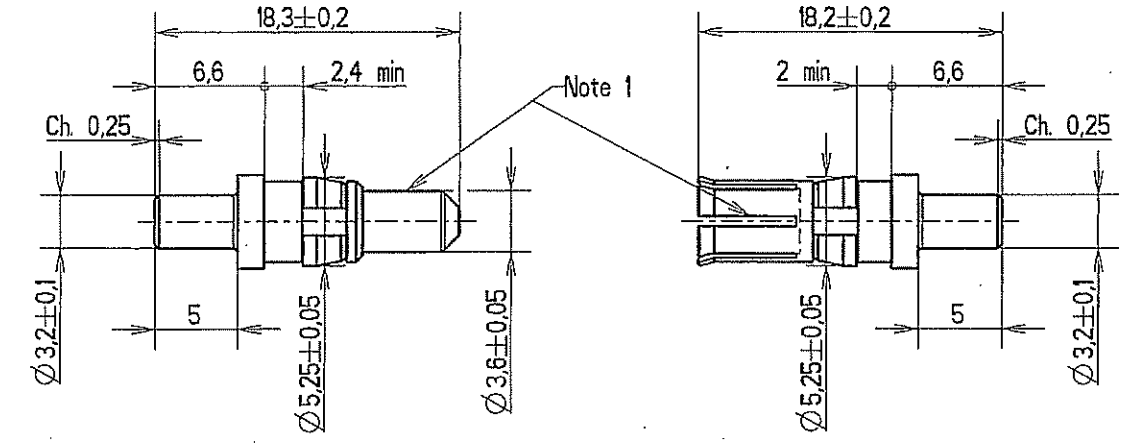
Variant (Note 2)	Type	AWG	A Max.	B Max.	C Min.	⌀D Max.	E Ref.	⌀F Min.	⌀G Ref.
07	Male	8	24.7	12.9	11.1	5.8	10	4.2	1.7
08	Female	8	24.6	12.9	11.1	5.8	10	4.2	1.7
09	Male	10	21.6	10	8.4	4.7	7.5	3.25	1.3
10	Female	10	21.5	10	8.4	4.7	7.5	3.25	1.3
11	Male	12/14	19.3	7.7	6.35	3.8	6	2.5	1
12	Female	12/14	19.2	7.7	6.35	3.8	6	2.5	1

NOTES
1. Measurement point for gold plating thickness.
2. All dimensions are in millimetres.
3. Washer is optional.

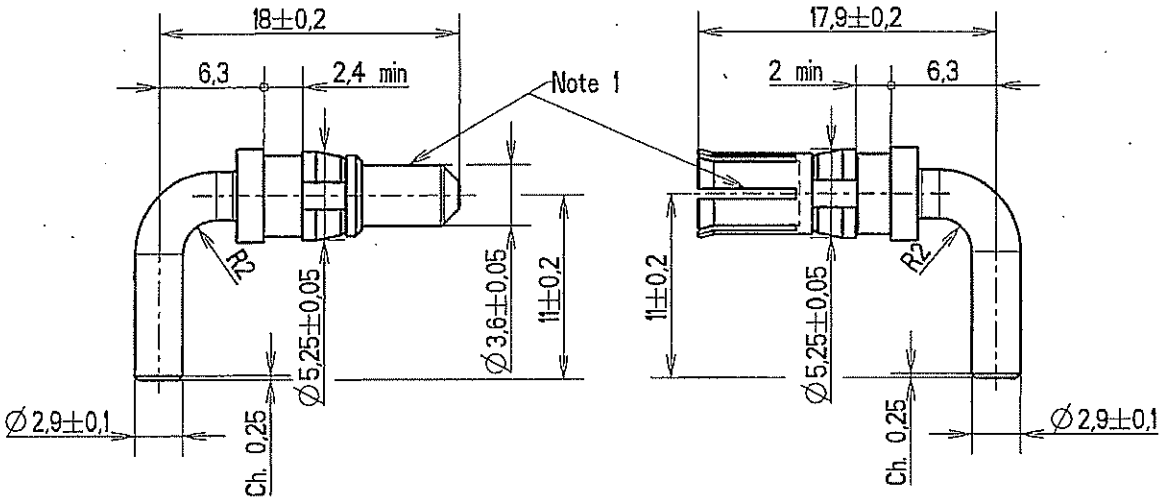
New page

FIGURE 2 – PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(c) – STRAIGHT AND 90° PCB TYPES



Variant 13 Variant 14



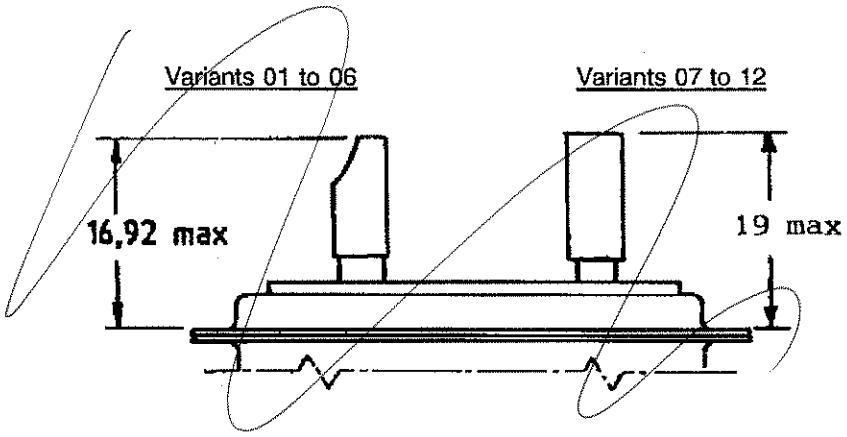
Variant 15 Variant 16

NOTES:
1. Measurement point for gold plating thickness.
2. All dimensions are in millimetres.

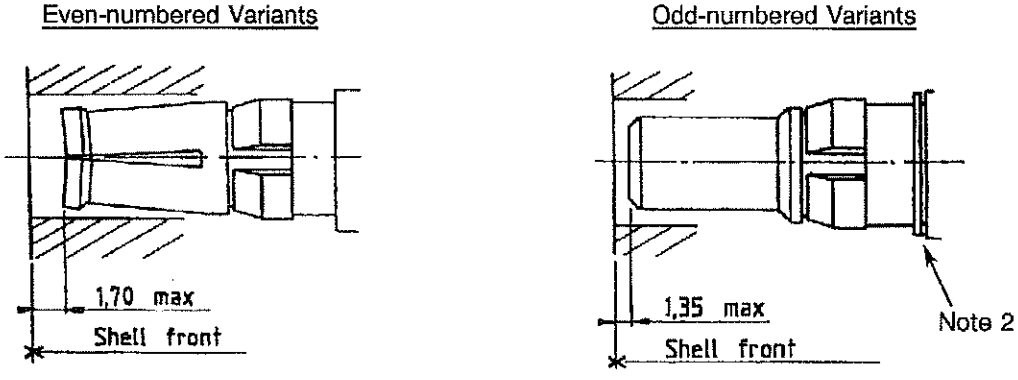
FIGURE 2 - PHYSICAL DIMENSIONS (Continued)

FIGURE 2(d) - PROTRUSION AND RECESS

MAXIMUM PROTRUSION OF CONTACTS RELATIVE TO REAR OF SHELL FLANGE



MAXIMUM RECESS OF CONTACTS RELATIVE TO FRONT OF SHELL



NOTES

1.All dimensions are in millimetres.

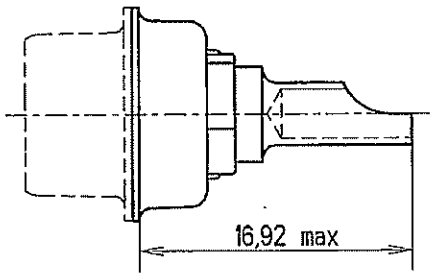
2.The washer is optional (no change of the insert: the assembling dimension is compensated on the contact).

FIGURE 2 – PHYSICAL DIMENSIONS (CONTINUED)

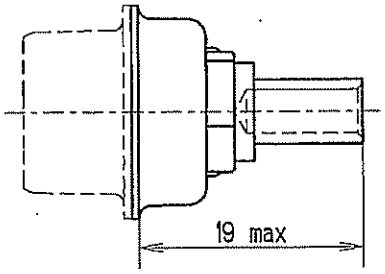
FIGURE 2(d) - PROTRUSION AND RECESS

MAXIMUM PROTRUSION OF CONTACTS RELATIVE TO REAR OF SHELL FLANGE

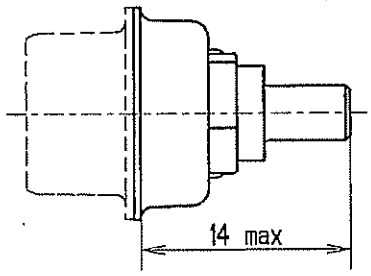
Variants 01 to 06



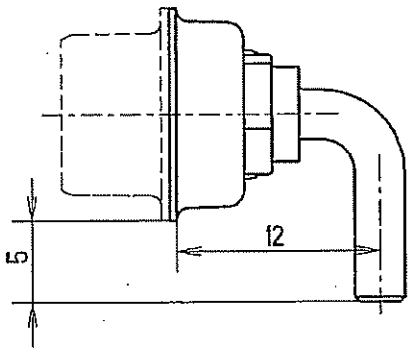
Variants 07 to 12



Variants 13 & 14

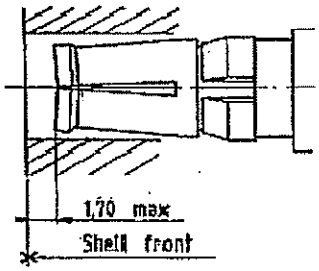


Variants 15 & 16

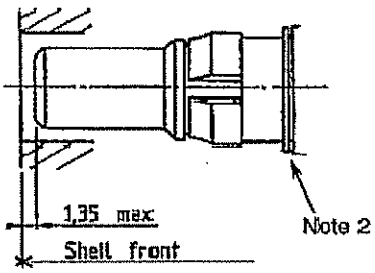


MAXIMUM RECESS OF CONTACTS RELATIVE TO FRONT OF SHELL

Even-numbered Variants



Odd-numbered Variants



NOTES

1. All dimensions are in millimetres.
2. The washer is optional (no change of the insert: the assembling dimension is compensated on the contact).

2. APPLICABLE DOCUMENTS

The following documents form part of this Specification and shall be read in conjunction with it:-

(a) ESCC Generic Specification No. 3401, Connectors, Electrical, Non-Filtered Circular and Rectangular.

(b) ESCC Detail Specification No. 3401/001, Connectors, Electrical, Rectangular, ~~Miniature~~, Non-removable Solder, Bucket, PCB and Wire-wrap ~~type~~ Contacts and Removable Coaxial and Power, ~~Crimp-type and Solder-type~~ Contacts, Based on Type D*M.

(c) ~~ESCC Detail Specification No. 3401/002, Connectors, Electrical, Miniature, Removable Crimp-type Contacts and Removable Coaxial and Power Crimp-type and Solder-type Contacts, based on Type D*MA.~~

(C) (d) ESCC Basic Specification No. 20534, External Visual Inspection of Electrical Connectors.

~~(e) MIL-C-14550, Copper Plating, Electro-deposited.~~

~~(f) MIL-G-45204, Gold Plating, Electro-deposited.~~

3. TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESCC Basic Specification No. 21300 shall apply.

4. REQUIREMENTS

4.1 GENERAL

new para

The complete requirements for procurement of the contacts specified herein are stated in this specification and ESCC Generic Specification No. 3401 for Connectors, Electrical, Circular and Rectangular. Deviations from the Generic Specification, applicable to this Detail Specification only, are listed in Para. 4.2. Deviations from the applicable Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirements and do not affect the components' reliability, are listed in the Appendices attached to this specification.

4.2 DEVIATIONS FROM GENERIC SPECIFICATION

4.2.1 Deviations from Special In-process Controls

None.

4.2.2 Deviations from Final Production Tests (Chart II)

None.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

~~None~~ Not applicable

(c) Para. 9.31 Solderability: Not applicable to variants 07 to 12.

4.2.4 Deviations from Qualification Tests (Chart IV)

(a) Para. 9.~~21~~ 29, Oversize Pin Exclusion: Not applicable.

(b) Para. 9.~~24~~ 30, Probe Damage ~~Test~~: Not applicable.

(d) Para. 9.15 Joint Strength: The test shall be performed as specified in Para. 4.3.13.

(c) ~~(d) Para. 9.~~ 31, Solderability, Bit size 7.5mm.

(d) ~~Para. 9.28, Pull Test: The direction of pull shall be in the contact axis.~~

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

The deviations as listed in Para. 4.2.4 shall apply.

4.3 MECHANICAL REQUIREMENTS

4.3.1 Dimension Check 9.6

The dimensions of the contacts specified herein shall be verified in accordance with the requirements set out in Para. ~~9.11~~ of ESCC Generic Specification No. 3401 and shall conform to those shown in Figure 2. Overall dimensions are specified with compatible inserts in ESCC Detail Specification No. 3401/001.

4.3.2 Weight

The maximum weight of the contacts specified herein shall be as specified in Table 1(a).

4.3.~~3~~ 13 ~~Crimp Tensile Strength or Pull Test~~ Joint Strength (Variants 07 to 12)

~~4.3.3.1~~ ~~Crimp Tensile Strength (Variants 07 to 12)~~

The contacts shall be crimped to stranded wire of the appropriate size as shown below. The contact and the wire shall be separated from each other, using a tensile strength machine. The values of the force at separation of the contact and wire and the method of failure shall be recorded and shall be in accordance with the following values:

Variant	Wire Size (AWG)	Minimum Value of Tensile Strength ~~(daN)~~ (N)
07/08	8	~~>50~~ 500
09/10	10	~~>50~~ 500
11/12	12 - 14	~~>30~~ 500

i.e. "pull-out", "break in crimp", "break in wire".

~~4.3.3.2~~ ~~Pull Test (Variants 01 to 06)~~

~~The contacts shall be soldered to stranded wire of the appropriate size shown in Table 1(a) of this specification. The wire shall break before the solder. If the solder breaks before the wire, examine the solder pot for incomplete covering.~~

~~4.3.4~~ Gold Plate Thickness

The thickness of the gold plate deposited on the contacts specified herein shall be checked and meet the requirements of Subpara. 4.4.1. Measurements shall be performed on active parts as specified in Figure 2.

Engagement and separation forces

4.3.~~5~~ 9 ~~Contact Insertion and Withdrawal Forces~~ (Variants 02, 04, 06, 08, 10, 12, 14, 16)

The ~~contact insertion and withdrawal~~ forces of the female contacts shall be as specified hereunder.

Engagement and separation

	Maximum Diameter Test Pin ~~3.532~~ 3.632 (+0-0.0025) mm	Minimum Diameter Test Pin 3.581 (+0.0025-0) mm
Engagement (N) ~~Insertion~~	6.87 ~~700gr~~ max	0.83 ~~85gr~~ min
Separation (N) ~~Withdrawal~~	5.56 ~~567gr~~ max	0.83 ~~85gr~~ min

4.3.6 ~~Female~~ Contact Capability (Variants 02, 04, 06, 08, 10, 12 14, 16)

move column to left.

For the purposes of this test, the pick-up and drop weights shall be as follows.

	Drop ~~Pick-up~~ Weight	Pick-up ~~Drop~~ Weight
Weight (g)	~~597~~ 567	85 ~~85~~
Pin Diameter (mm)	~~3.83~~ 3.632 (+0-0.0025)	~~3.58~~ 3.581 (+0.0025-0)
Insertion Depth (mm)	3.17	3.17

4.3.7 Oversize Pin Exclusion

Not applicable.

4.3.8 Probe Damage ~~Test~~

Not applicable.

Add →

4.4 MATERIAL AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the contacts specified herein to meet the performace requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Contact Body

The contacts shall be made of copper base alloy selected from raw materials with a minimum of impurities. ~~The contacts shall be plated as specified in MIL-G-45204, Type II, Grade 'C', gold over copper in accordance with MIL-C-14550.~~ Gold plating thickness shall be 1.27µm minimum over 1µm minimum of copper.

4.5 MARKING

4.5.1 General

The marking of all components delivered to this specification shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and the following subparagraphs. These components being the too small to accommodate the marking as specified hereafter, the marking requirements in full shall accompany each lot of components in its primary package. Such marking shall comprise:-

(a) The ESCC Component Number.

(b) Traceability Information.

(c) Quantity of Components.

4.5.2 The ESCC Component Number

Each component shall bear the ESCC Component Number which shall be constituted and marked as follows:-

340104001B

Detail Specification Number
Type Variant (see Table 1(a))
Testing Level

4.4.2 Magnetism Level

As specified in ESCC Detail Specification No. 3401/001.

Para 4.3 additional Paras.

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4.3.4 Contact Retention (In Insert)
Contact retention within the insert shall be 40.86N. There shall be no displacement of the contact in excess of 0.3mm.

4.3.5 Mating and Unmating Forces
As specified in ESCC Detail Specification No. 3401/001.

4.3.6 Insert Retention (In Shell)
As specified in ESCC Detail Specification No. 3401/001.

4.3.7 Jackscrew Retention
Not applicable.

4.3.8 Contact Insertion and Withdrawal Forces
The contact insertion and withdrawal forces shall be ~~TBDN~~ 65N maximum.

4.3.12 Solderability
Not applicable to Variants 07 to 12. For all other Variants
Soldering iron bit size ~~shall be~~ 7.5mm. shall be used

4.5.3 Traceability Information

Traceability information shall be marked in accordance with the requirements of ESCC Basic Specification No. 21700.

4.6 ELECTRICAL MEASUREMENTS

4.6.1 Electrical Measurements at Room Temperature

The parameters to be measured in respect of electrical characteristics are scheduled in Table 2. Unless otherwise specified these measurements shall be performed at T_{amb} = +22 ± 3°C.

4.6.2 Electrical Measurements at High and Low Temperatures (Table 3)

Not applicable.

4.6.3 Circuits for Electrical Measurements (Figure 4)

Not applicable.

4.7 Screening Tests (Tables 4 and 5)

Not applicable.

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE

No.	Characteristics	Symbol	ESCC Gen. Spec. 3401	Test Condition	Limits		Unit
					Min.	Max.	
1	Contact Resistance (Low Level Current)	R_C	Para. ~~9.28~~ 9.1.1.3	Para. ~~9.28~~.2 9.1.1.3	-	2.5	mΩ
2	Contact Resistance (Rated current)	R_C	Para. ~~9.28~~ 9.1.1.3	Para. ~~9.28~~.2 9.1.1.3	-	2	mΩ

TABLES 3, 4 AND 5

Not applicable.

4.8 ENVIRONMENTAL AND ENDURANCE TESTS

4.8.1 Measurements and Inspections on Completion of Environmental Tests

The parameters to be measured and inspections to be performed on completion of environmental testing shall be those specified in Table 6. Unless otherwise specified, these measurements shall be performed at T_{amb} = +22 ± 3°C.

4.8.2 Measurements and Inspections at Intermediate Points during Endurance Tests

Not applicable.

4.8.3 Measurement and Inspections on Completion of Endurance Tests

The parameters to be measured and inspections to be performed on completion of endurance testing shall be those specified in Table 6. Unless otherwise specified, these measurements shall be performed at T_{amb} = +22 ±3°C.

4.8.4 Conditions for Operating Life Test (Part of Endurance Testing)

Not applicable.

4.8.5 Electrical Circuits for Operating Life Test

Not applicable.

4.8.6 Conditions for High Temperature Storage Test (Part of Endurance Testing)

The requirements for the high temperature storage test are specified in Section 9 of ESCC Generic Specification No. 3401. ~~The temperature to be applied~~ shall be the maximum storage temperature specified in Table 1(b) of this specification.

The conditions ~~for~~ high temperature storage testing

TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTS

No.	ESCC Gen. Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min.	Max.	
01	Female Contact Capability	Para. 9.6	Pick Up Weight Drop Weight	Para. 4.3.6 Para. 4.3.6		Pick Up Drop		
02	Oversize Pin Exclusion	Para. 9.21	Not applicable	-		-	-	
03	Gold Plate Thickness	Para. 9.22	Gold Plate Thickness	Para. 4.3.4		Para. 4.3.4		
04	Gold Plate Porosity	Para. 9.23	Not applicable	-		-	-	
05	Probe Damage Test	Para. 9.24	Not applicable	-		-	-	
06	Contact Insertion and Withdrawal Forces	Para. 9.25	Forces	Para. 4.3.5		Para. 4.3.5		
07	Crimp Visual Inspection	Para. 9.26	Visual Examination	-		-	-	
08	Solderability	Para. 9.27 and Para. 4.2.4 of this Spec.	-	-		-	-	
09	Contact Resistance	Para. 9.28	Contact Resistance	Low Level Table 2 Item 1 Rated Level Table 2 Item 2	R_C R_C	Table 2 Item 1 Table 2 Item 2		
10	Crimp Tensile Strength	Para. 9.29	-	Para. 4.3.3.1		-	-	
11	Pull Test	Para. 9.29 and Para. 4.2.4 of this Spec.	-	Para. 4.3.3.2		-	-	
12	Endurance	Para. 9.15	Contact Resistance Drift Contact Resistance	Low Level Table 2 Item 1 Low Level Table 2 Item 1	ΔR_C R_C	- -	0.5 2.5	mΩ mΩ
13	High Temperature Storage	Para. 9.19 +125°C	Contact Resistance Drift Contact Resistance	Low Level Table 2 Item 1 Low Level Table 2 Item 1	ΔR_C R_C	- -	0.5 2.5	mΩ mΩ

replace * see attached.

NOTES 1. The tests in this Table refer to either Chart IV or V and shall be used as applicable.

× 3401/040 Table 6

No.	ESCC Gen. Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min.	Max.	
1	Wiring	Para. 9.10	Visual Examination	-	-	-	-	-
			Contact Resistance	Low Level, Table 2 Item 1	R_C	-	2.5	mΩ
2	Vibration	Para. 9.11	ESCC 3401/001	-	-	-	-	-
3	Shock or Bump	Para. 9.12	ESCC 3401/001	-	-	-	-	-
4	Climatic Sequence	Para. 9.13	ESCC 3401/001	-	-	-	-	-
5	Seal Test	Para. 9.9	Not Applicable	-	-	-	-	-
6	Plating Thickness	Para. 9.14 and Para. 4.4.1 of this Spec.	Thickness	Para. 4.4.1	-	Para. 4.4.1		-
7	Joint Strength	Para. 9.15 and Para. 4.3.13 of this Spec.	Visual Examination	-	-	-	-	-
			Contact Resistance	Low Level, Table 2 Item 1	R_C	-	2.5	mΩ
8	Rapid Change of Temperature	Para. 9.16	ESCC 3401/001	-	-	-	-	-
9	Contact Retention (In Insert)	Para. 9.17 and Para. 4.3.4 of this Spec. Force: 40.86N	Contact Displacement	Para. 4.3.4	-	Para. 4.3.4		-
10	Endurance	Para. 9.18	**Initial Measurement:** Contact Resistance	Low Level, Table 2 Item 1	R_C	-	2.5	mΩ
			Final Inspection: Visual Examination	-	-	-	-	-
			Final Measurement: Contact Resistance Drift	Low Level, Table 2 Item 1	ΔR_C	-	0.5	mΩ
11	Permanence of Marking	Para. 9.19	As Applicable	-	-	-	-	-
12	Mating/Unmating Forces	Para. 9.20	ESCC 3401/001	-	-	-	-	-
13	High Temperature Storage	Para. 9.21	**Initial Measurement:** Contact Resistance	Low Level, Table 2 Item 1	R_C	-	2.5	mΩ
			Final Inspection: Visual Examination	-	-	-	-	-
			Final Measurement: Contact Resistance Drift	Low Level, Table 2 Item 1	ΔR_C	-	0.5	mΩ
			Final Measurement: Contact Resistance	Rated, Table 2 Item 2	R_C	-	2	mΩ
			Final Measurement: Contact Retention (In Insert)	Para. 4.3.4	-	Para. 4.3.4		-

14	Corrosion	Para. 9.22	ESCC 3401/001	-	-	-	-	-
15	Insert Retention (In Shell)	Para. 9.23	ESCC 3401/001	-	-	-	-	-
16	Jackscrew Retention	Para. 9.24	Not Applicable	-	-	-	-	-
17	High Temperature Measurements	Para. 9.25	ESCC 3401/001	-	-	-	-	-
18	Overload Test	Para. 9.26	**Final Measurement:** Contact Resistance	Rated, Table 2 Item 2	R_C	-	2	mΩ
19	Maintenance Aging	Para. 9.27	**Final Measurement:** Contact Retention (In Insert)	Para. 4.3.4	-	Para. 4.3.4		-
			Final Measurement: Contact Insertion & Withdrawal Forces	Para. 4.3.8	-	Para. 4.3.8		-
20	Engagement and Seperation Forces	Para. 9.28 and Para. 4.3.9 of this Spec.	Engagement and Seperation Forces	Para. 4.3.9	-	Para. 4.3.9		-
21	Oversize Pin Exclusion	Para. 9.29	Not Applicable	-	-	-	-	-
22	Probe Damage	Para. 9.30	Not Applicable	-	-	-	-	-
23	Solderability	Para. 9.31 and Para. 4.3.12 of this Spec.	Visual Examination	-	-	-	-	-