SPECIFICATION

FOR

EUROPEAN POWER SUPPLY CORDSET (PB FR)

CORD : H05VV-F 3X0.75mm² PVC LEAD FREE

CUSTOMER	: VPE/FARNELL
CUSTOMER'S PART No.	: 2490173
VOLEX'S SPEC. REF. No.	: 152522/3
ISSUE No.	: 002
DATE	: 14TH JULY 2015

CUSTOMER APPROVED :

APPROVED BY :	
SIGNATURE :	
APPROVED DATE :	
No. OF PAGES :	

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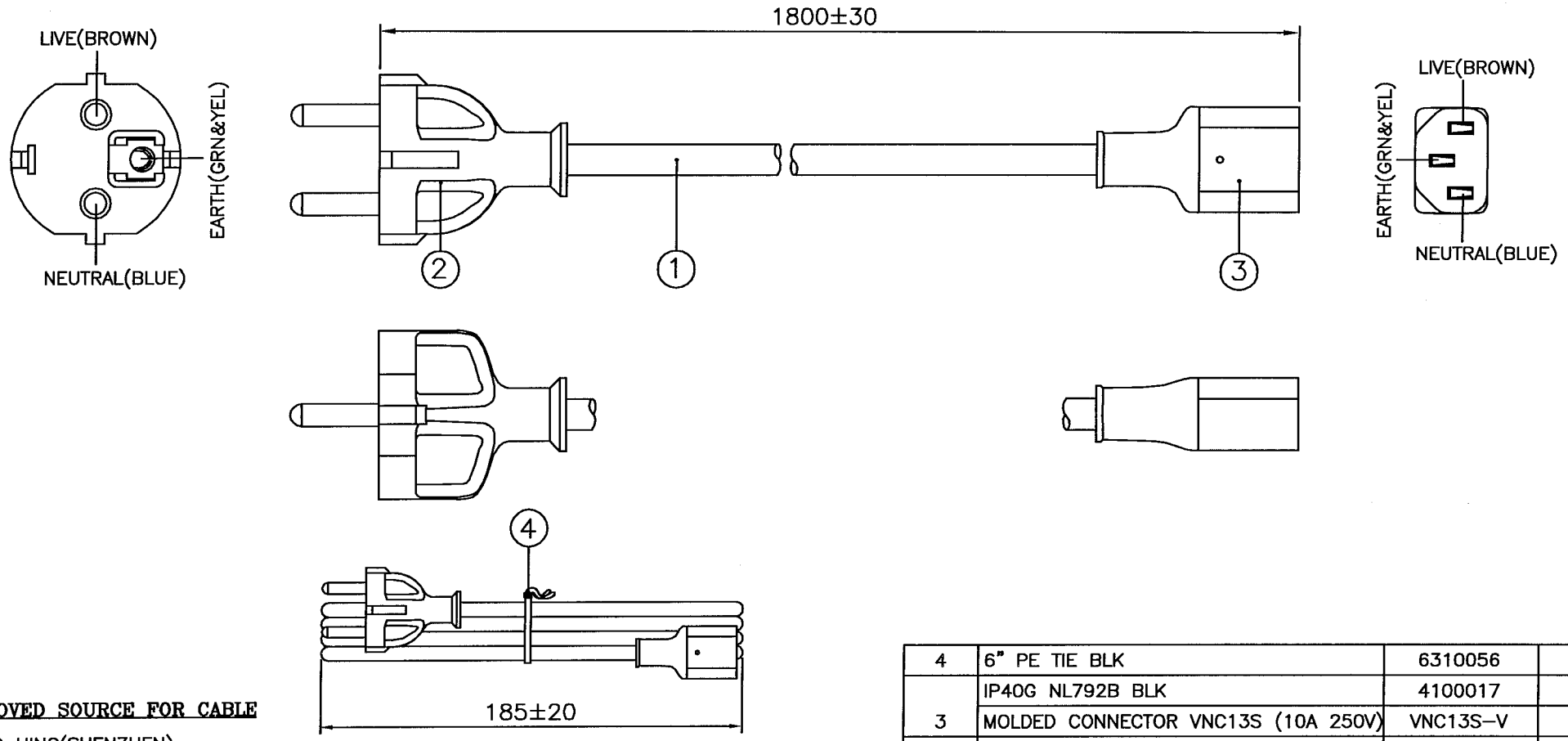
AMENDMENT RECORD

REF. No.	DESCRIPTION OF CHANGES	DATE
152522/3	(1) FIRST SUBMISSION.	23/05/15
(HG05-202-15)		
ISSUE : 001		
152522/3	(1) CHANGE CUSTOMER P/N FM. 'VNEU16S3-VNC13S' TO	14/07/15
(HG07-055-15)	'249Ø173' ON COVER PAGE & ASSEMBLY DWG. PAGE.	
ISSUE : 002	(2) UPDATE CONN. SPEC. PAGES.	



APPROVED SOURCE FOR CABLE

1. BAO HING(SHENZHEN).

S/N	DESCRIPTION	ITEM NUMBER	QTY
4	6" PE TIE BLK	6310056	1
3	IP40G NL792B BLK	4100017	–
	MOLDED CONNECTOR VNC13S (10A 250V)	VNC13S–V	1
2	IP60G NL7976B BLK	4100115	–
	MOLDED PLUG VNEU16S3 (16A 250V)	VNEU16S3–V	1
1	H05VV–F 3X0.75 BLK PVC LEAD FREE	1210334	1

TITLE :	EUROPEAN POWER SUPPLY CORDSET (PB FR)		SCALE : N.T.S.
CUSTOMER :	VPE/FARNELL		PAGE : 1/1
CUSTOMER PART NUMBER :	249Ø173		ISSUE
Reference Number :	152522/3 (HG07–055–15)		002

SALES :	QA :	ENGRG :	CHECKED BY :	DRAWN BY :	Volex (Asia) Pte Ltd
Date :	Date :	Date : 15/07/15	Date : 14/07/15	Date : 14/07/15	Confidential property of Volex. Information contained herein shall not be disclosed to others, reproduced or used for any other purposes except as authorized in writing by an authorized official of volex asia.

NOTE :

1. ALL DIMENSIONS IN mm.
2. THE CORD SHALL COMPLY WITH EN 50525–2–11.
3. THE MOLDED PLUG SHALL COMPLY WITH VARIOUS EUROPEAN COUNTRIES' CONFIGURATION (NATIONAL STANDARD) AND TESTED TO IEC 60884–1.
4. THE MOLDED CONNECTOR SHALL COMPLY WITH IEC 60320–1 OR EN 60320–1.
5. THIS PART CAN BE MANUFACTURED AT ANY LOCATION WHICH HAS SAFETY APPROVAL.

REV.	DESCRIPTION	DATE
E	UPDATE VALUES AS PER PRODUCT SAFETY.	28/07/04
F	CHANGE THE COMPLIANCE STANDARD PER SAFETY. UPDATE FORMAT AS SHOWN.	23/12/13

1. PVC FLEXIBLE CORD

1.1 SCOPE

This specification shall be in accordance with EN 50525-2-11. ⚠

1.2 CONSTRUCTION

CONDUCTOR	ANNEALED COPPER WIRE
INSULATION	PVC (BLUE, BROWN AND GREEN&YELLOW)
JACKET	PVC

ITEM		UNIT	SPEC. VALUE
TEMPERATURE RATING		°C	70
RATED VOLTAGE		V	300/500
NO. OF CORE		NO.	3
CONDUCTOR NOMINAL AREA		mm^2	0.75
MIN. AVE. THICKNESS OF INSULATION		mm	0.60
MIN. THICKNESS AT ANY POINT OF INSULATION		mm	0.44
MIN. AVE. THICKNESS OF JACKET		mm	0.80
MIN. THICKNESS AT ANY POINT OF JACKET		mm	0.58
OVERALL DIAMETER OF JACKET		mm	6.0~7.6
DIELECTRIC-STRENGTH TEST IMMERSED IN WATER 20±5°C FOR MINIMUM 1 HOUR	ON COMPLETED CABLE	—	2000V for 15 mins.(minimum)
	ON CORES	—	1500V for 5 mins.(minimum)
VOLTAGE TEST (D.C)		—	5000V d.c. for 5 mins.(minimum)
		—	2000V a.c. for 5 mins.(minimum)
INSULATION RESISTANCE TEST (70°C)		MΩ km	>0.011
CONDUCTOR RESISTANCE TEST (20°C)		Ω/km	<=26

TITLE : CABLE SPECIFICATION
EUROPEAN APPROVED POWER SUPPLY CABLE
H05VV-F 3X0.75mm²

SPEC NO. :	APPROVED BY :	CHECKED BY :	DRAWN BY :	REVISION :	⚠ Volex (Asia) Pte Ltd
CS-038EU			HONGYAN	F	
	DATE : 20/12/13	DATE : 27/12/13	DATE : 23/12/13	PAGE : 1/1	

REV.	DESCRIPTION	DATE
B	ADD IN BAO HING (SUZHOU).	22/10/02
	UPDATE THE FORMAT AS SHOWN.	
	ADD IN '(EU/SAA/SAB/IEC)' ON THE TITLE.	
	REMOVE BAO HING (SUZHOU) CABLE	
C	MARKING DETAILS.	18/01/05

CABLE MARKING

BAO HING (SHENZHEN)

H05VV-F 3G0.75mm² ◁VDE▷ KEMA-KEUR +ᔕ +ᔕ +ᔕ
◁ÖVE▷ CEBEC IEMMEQU SABS 1574 Ⓢ Ⓝ Ⓓ Ⓕⓘ
BAOHING GTSA-3 N14586 CE LF

C

DRAWN	CONGFANG	18/01/05	FILENAME :
CHECK	Wei	18/01/15	CABLE MARKING/ BH/H05/H05VV-F 3X0.75 LF- BH
APPR	[illegible]	18/01/15	
SCALE	N.T.S.	REV.	C

TITLE : CABLE MARKING (EU/SAA/SAB/IEC) C

REFERENCE :

H05VV-F 3X0.75mm² LF

Volex (Asia) Pte Ltd

2. PLUG

REV	DESCRIPTION	DATE
Z	ADD IN CATALOGUE 'LSEU16THA3'.	03/04/15
AA	ADD IN CATALOGUE 'VNEU16S3'.	11/04/15

2.1. SCOPE

The plug shall be in accordance with various European countries' configuration (national standard) and tested to IEC 60884-1 "Plugs and socket-outlets for household and similar. purposes - Part 1: General requirements.

2.2. CONSTRUCTION

The plug construction shall comply with our catalogue No: M3204, EUH16S2, MP2210 EUC6, M2511, M2511A, EU10SC3, EU16VS2 , EU16VJS2, EU16CS3, PH16CS3, *PH16HA3* , EU16CA3, EU16DS2, EU16DJS2, EU16JS2, VPEU16S3, GPEU16S3, VPEU16S2, DS16CS2, APEU16S3 , APEU16BS3G, DS16ES2, APEU16CS3, APEU16CS3G, DLEU16S3, LSEU16THA3 *& VNEU16S3* .

2.3. CHARACTERISTICS

NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
1.	Moisture resistance test	Samples are kept in a humidity cabinet containing air with a relative humidity between 91 to 95% and a temperature of 20°C-30°C for a duration of 48 hours.	No damage
2.	Electric strength test	A voltage of A.C 2000V with a trip current of min. 100mA is applied for 1 min after the moisture resistance test.	No flashover and breakdown
3.	Insulation resistance test	This test is measured after 1 min. application of D.C 500V after the moisture resistance test.	Min. 5 M Ohm
4	Pressure test	The plug is pressed with a force of 150N for 5 minutes.	The plug shall not have been deformed.
5.	Temperature rise test	An alternating current of 10A (0.75mm^2), 12A (1mm^2) or 16A (1.5mm^2) is passed through poles for 1 hour.	The temperature rise at any points shall not exceed 45°C.
6.	Bending test	The sample shall be loaded with a weight of 10N for 0.75mm^2 or 20N for 1.00mm^2 and bigger and the oscillating member shall be moved backward and forward through an angle of 90° (45° on either side of the vertical) the number of flexing being 10,000.A current of 10A (0.75mm^2) or 16A (1.0mm^2 and above) is passed through the conductors.	No damage and the voltage drop shall not exceed 10mV.
7	Pin pull test	A pull force of 50N is applied on the pins (in turn) after the plug has been aged for 1 hour at 70°C.	The displacement of the pin shall not be more than 1 mm.

DRAWN:	LI XIA	11/04/15	TITLE : EUROPEAN PLUG (IEC 60884-1)
CHECK:		11/04/15	
APPR:		12/4/15	
REV:	AA		
REFERENCE:			**Volex (Asia) Pte Ltd**

NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
8	Tumbling test	The samples are dropped from a height of 50cm onto a steel plate (3mm thick) for a total of 1000 times. A torque of 0.4Nm is applied in one direction for 1 min. first then follow by the other direction for another min. on the pins.	No damage and the pins shall not turn.
9	Cold impact test	The samples are kept in a refrigerator at a temperature of - 15±2°C for at least 16 hours. The samples are then allowed to fall by the hammer (1000g) from a height of 10cm.	No damage
10	Heat deformation test	The samples are kept for 1 hour in a heating cabinet at temperature of 100±5°C.	No damage
11	Heat pressure test	The samples are applied 20N (2.04kg) at a temperature of 80±2°C for 1 hour.	No damage
12	Ageing test	The samples are kept for 168 hours in a heating cabinet at temperature of 70±2°C.	No damage
13	Pressure test II	The samples are applied 300N (30.6kg) at a temperature of 20±2°C for 1 min.	No damage
14	Cord-anchorge test	The cord is subjected to pulls of 50N (2.5A) or 60N (10/16A) force 100 times without jerk each lasting 1 sec.Thereafter the cord is subjected to a torque of 0.15Nm (2 core 0.75mm^2) or 0.25Nm (others) for 1 min.	The cord shall not be damaged and shall not been displaced by more than 2mm.
15	Ball pressure test	A steel ball of 5mm in diameter is applied with 20N force on the sample at a temperature of 125±5°C for 1 hour on the insert.. The sample is than cooled by cold water.	The diameter of the impression shall not exceed 2mm.
16	Glow wire test	The tip of the glow wire heated electrically to 750±10°C shall be applied at the portion between the current-carrying pins and for a period of 30s. For all other parts, the wire is heated to 650±10°C.	Any flame and glowing shall extinguish within 30s after the removal of the glow-wire. There shall be no ignition of the tissue papernor sorching of the board.

DRAWN:	LI XIA	11/04/15	TITLE : EUROPEAN PLUG (IEC 60884-1)
CHECK:		11/04/15	
APPR:		12/4/15	
REV:	AA		
REFERENCE:			**Volex (Asia) Pte Ltd**

REV	DESCRIPTION	DATE
AT	ADD IN CATALOGUE NO. HWC13U.	29/04/15
AU	ADD IN CATALOGUE NO. VNC5S.	22/05/15

3. CONNECTOR

3.1. SCOPE

The connector shall be in accordance with IEC 60320-1 or EN 60320-1, Test specification - appliance couplers.

3.2. CONSTRUCTION

The connector construction shall comply with our catalogue No: VAC5S, APC5A, APC5S, APC5M, VAC5AR, APC5SM, DLC5A3, V1625, V1625A, VAC19, VAC17S, VSCC13, AVLC13, APC13, APC13S, VSC19, V1625LA, VAC19A, VSCC15, APC5SP, APC13F, V1625BS, APC13G, VAC13A, VAC13S, PIC17S, VIC13A, DLC5U3, VAC13KS,SOC5S, V1625H, VAC19KS, DLC5E3, HPC13A, V1625AT, VAC17A, APC5SF, VCC13, VCC5S, APC13H, VCC17S, VAC19H, APC13FH, APC13HC, VAC17KS, DLC5CS3, VNC13S, HWC13U & *VNC5S.*

"All connectors complying to Standard Sheet C5, C13, C15, C15A, C17 and C19"

3.3. CHARACTERISTICS

NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
1.	Moisture resistance test	Samples are kept in a humidity cabinet containing air with a relative humidity between 91 to 95% and a temperature of 20°C-30°C for a duration of 48 hours.	No damage
2.	Electric strength test	Voltages of 3000V±60V and 1500V±60V, with min. trip current of 100mA is applied for 60s±5s between current-carrying contacts and body and between each contacts respectively after the moisture resistance tests.	No flashover and breakdown
3.	Insulation resistance test	This test is measured with a D.C 500V after the moisture resistance test.Readings are taken after 60s ± 5s of application of voltage.	Min. 5 M Ohm
4.	Withdrawal force test	i) Min. 1.5N (2N for 16A) - A single pin made to the minimum dimension is inserted into the connector. The pin, together with the weight should exert a force of 1.5N (2N for 16A connector). Each individual pole of the connector is tested seperately. ii) Max. 50N (60N for 16A) - Insert and withdraw the connector from a socket having pin dimension to the maximum and shroud dimension to the minimum for 10 times.The connector is then inserted again into the socket hang with a total weight of 50N(60N for 16A).The weight consist of a principal weight which is 90% of the total weight and a supplementary weight of 10%. The test is repeated for hot connector with temperature of 120°C±2°C on the pins.	i) The pin with the weight should not be withdrawn from the connector for more than 3 seconds. ii) The connector shall be withdrawn from the socket. If not the supplementary weight is lifted from a height of 5cm and drop. The connector must be withdrawn. The test is repeated after temperature rise test.

DRAWN:	LI XIA	22/05/15
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APPR:	Feng	23/05/15
REV:	AU	
REFERENCE:		

TITLE: EUROPEAN & BRITISH APPLIANCE COUPLERS

Volex (Asia) Pte Ltd

NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
5.	Glow wire test	Glow wire is applied for 30s with temperature of 750°C on inserts and housings retaining contacts and 650°C on elsewhere.	Flame (if any) shall be self-extinguished within 30s . upon the removal of the glow wire and molten droplets shall not ignite paper.
6.	Bending test	The sample shall be loaded with a weight of 10N for 0.75mm^2 or 20N for 1.00mm^2 or bigger and the oscillating member shall be moved backward and forward through an angle of 90°(45° on either side of the vertical) the number of flexing being 20,000.A rated current is applied. For round cord, the sample is turned 90 degree around the axis of cable after 10,000 cycles. The flexing is further completed in this axis. Flat cable is flexed only along the bigger axis of the cable.	There shall be no complete breakage of any of the conductor. Broken conductor shall not have pierced the insulation.
7.	Tumbling test	The sample is dropped from a height of 50cm onto a steel plate(3mm thick) for a total of 500 times.	No damage to impair further use of connector.
8.	Breaking capacity test	The connector is connected and disconnected 50 times (100 strokes) with the inlet at a rate of 30 strokes per minute with 275V and 1.25 times of rated current.	No flashover or sustained arcing during the test and no damage to impair further use of connector.
9.	Normal operation test	Test is similar to breaking capacity except that the test voltage is 250V with the connector connnected and disconnected with the inlet for 1000 times (2000 strokes) with rated current and 3000 times (6000 strokes) without current.	Withstand electric strength at 1500V for 1 min, and show no damage.
10.	Temperature rise test	An alternating current at 1.25 times rated current is passed through the current carrying contacts for 1 hour.This is repeated for connector with earth contact passing current between earth and each of the current carrying contacts.	The temperature rise shall not exceed 45K.
11.	Cord-anchorage test	The cord is subjected to pulls of 50N(2.5A) or 60N(others) for 100 times each time for 1 sec. without jerk.Thereafter the cord is subjected for 1 min. to a torque of 0.15Nm(0.75mm^2) or 0.25Nm(others).	The cord shall not be damaged and shall not been displaced by more than 2mm.
12.	Heat deformation test	Samples are kept for 1 hour in a heating cabinet at temperature of 100±2°C.	No damage to impair further use of connector.
13.	Heat pressure test	A pressure of 20N is applied at a temperature of 100°C ± 2°C for 1 hour.	No damage to impair further use of connector.

DRAWN:	LI XIA	22/05/15	TITLE: EUROPEAN & BRITISH APPLIANCE COUPLERS
CHECK:	Li Xia	22/05/15	
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REV:	AU		
REFERENCE:			Volex (Asia) Pte Ltd

NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
14.	Aging test	The samples are kept for 168 hours in a heating cabinet at a temperature of 80±2°C.	No damage & marking shall be legible.
15.	Ball pressure test	A ball of 5mm in diameter is applied on the connector with the following temperature with 20N force for 1 hour. i) 125°C for hot connectors. ii) 125°C for parts retaining current carrying parts and earth circuit. iii) 75°C for other parts for cold connector. The connector is then cooled down to room temperature with cold water.	The diameter of the impression shall not exceed 2mm.

DRAWN:	LI XIA	22/05/15	TITLE: EUROPEAN & BRITISH APPLIANCE COUPLERS
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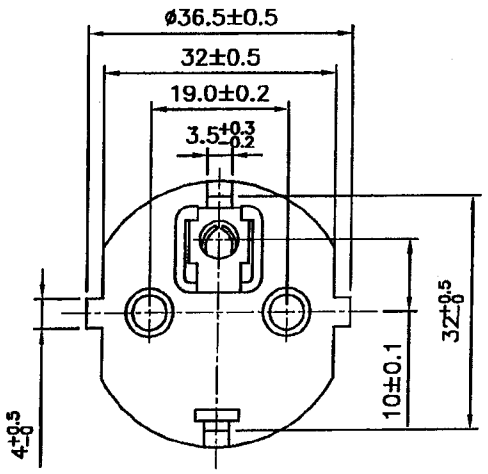
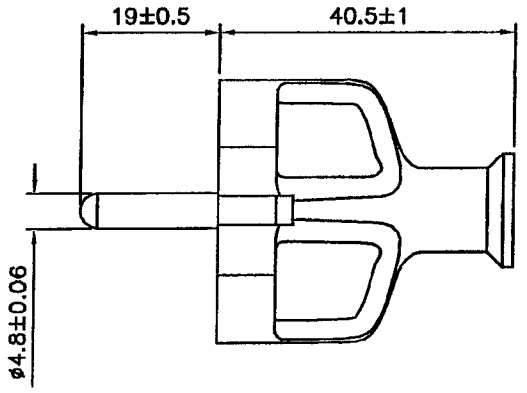
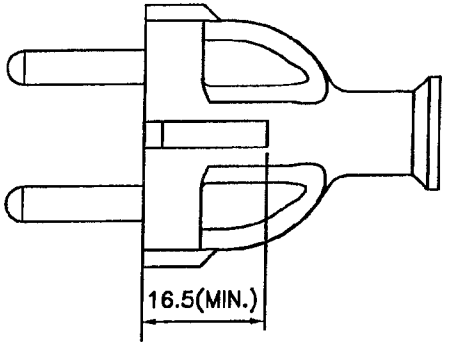
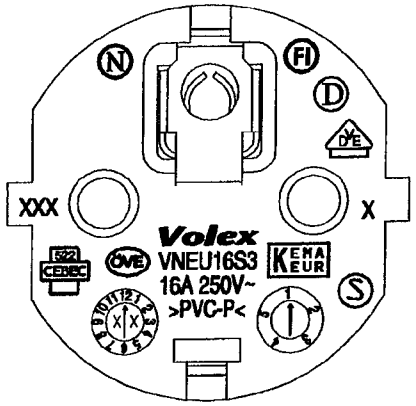
APPR:	Feng	23/05/15	
REV:	AU		
REFERENCE:			**Volex (Asia) Pte Ltd**

REV.	DESCRIPTION	DATE
A	INITIAL RELEASE.	20/05/15









MARKING DETAILS :

NOTE :

1.) ALL DIMENSIONS IN mm.

2.) X – CAVITY NO. (OPTIONAL)

3.) XXX – MANUFACTURING LOCATION.

HG	HENG GANG (CHINA)	
SM1/SMI	ZHONGSHAN (CHINA)	X
VH	HANOI (VIETNAM)	
B	BATAM (INDONESIA)	
VC	CHENNAI (INDIA)	

MANUFACTURE LOCATION MARK
(' X ' IS APPLICABLE ONLY)

DRAWN	TIAN SHUO	20/05/15	FILE NAME : A-PLUG/EURO/GENERAL/VNEU16S3-EURO
CHECK	TianShuo	20/05/15	
APPR	Feng	20/05/15	
REV.	A	SCALE	N.T.S.

REFERENCE :

EUROPEAN APPROVAL

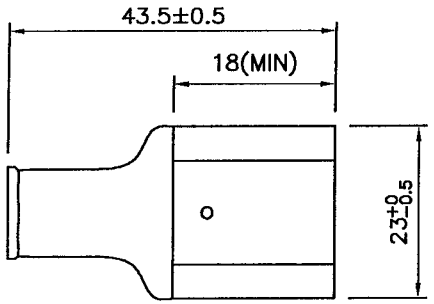
TITLE :

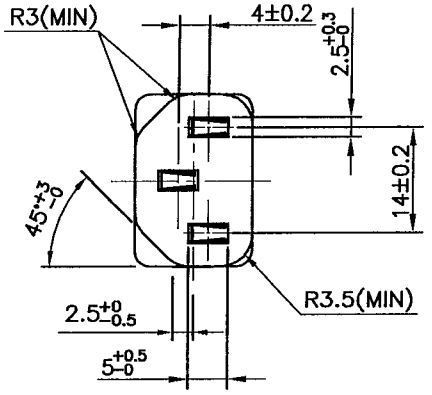
MOLDED PLUG

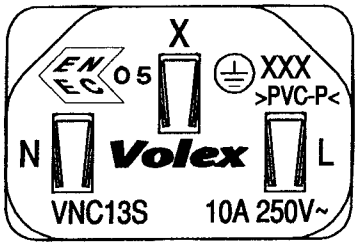
VNEU16S3

Volex (Asia) Pte Ltd

REV.	DESCRIPTION	DATE
A	INITIAL RELEASE.	13/04/15







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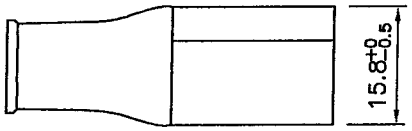

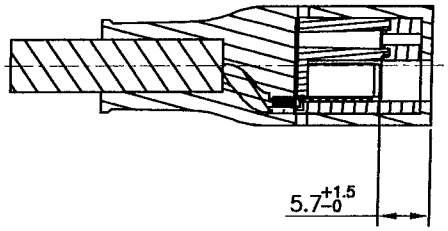

NOTES :

1.) ALL DIMENSIONS IN mm.
2.) X – CAVITY NO. (OPTIONAL)
3.) XXX – MANUFACTURING LOCATION

HG	HENG GANG (CHINA)	
SM1/SMI	ZHONGSHAN (CHINA)	X
VH	HANOI (VIETNAM)	
B	BATAM (INDONESIA)	
VC	CHENNAI (INDIA)	

MANUFACTURE LOCATION MARK
(' X ' IS APPLICABLE ONLY)

DRAWN	LI XIA	13/04/15	FILE NAME : A-CONN/EURO/GENERAL/VNC13S-ENEC
CHECK	[illegible]	13/04/15	
APPR	[illegible]	13/4/15	
REV.	A	SCALE	N.T.S.

REFERENCE :

EUROPEAN APPROVAL
(ENEC)

TITLE :

MOLDED CONNECTOR
VNC13S

Volex (Asia) Pte Ltd