Test Report No. 719194819-EEC11/02
dated 02 Nov 2011

PSB Singapore

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Subject

TYPE TESTING OF CONDUIT SYSTEM

Client

Megahock Pipes & Profile Mfg. Sdn. Bhd.
Lot 195, Jalan Seelong,
Mukim Senai Kulai,
81400 Johor,
Malaysia

Attn: Ms. Amanda Tan Cheng Fang

Sample Submission Date

21 Jan 2011
17 Jun 2011
10 Aug 2011
06 Oct 2011

Date(s) of Performance of Test

07 Feb 2011 to 21 Oct 2011

Description of Sample

Brand	:	PVCMAN
Model / Type reference	:	25 mm (Black)
Nominal size	:	25 mm
Quantity submitted	:	36 lengths of 1500 mm (conduits)
	:	12 pieces (Moulded slip type coupler, plain; One way circular conduit boxes; Through circular conduit boxes; Angle circular conduit boxes; 3 way circular conduit boxes & 4 way circular conduit boxes)
Classification	:	442112
Manufacturer	:	Megahock Pipes & Profile Mfg. Sdn. Bhd.
Country of origin	:	Malaysia

TEST REPORT
BS EN 61386-21:2004
Conduit systems for cable management
Part 21: Particular requirements - Rigid conduit systems

Report

Reference No.	:	719194819-EEC11/02
Tested by (+ signature)	:	Tan Wei Liang
Approved by (+ signature)	:	Tan Hiok Pheng
Date of issue	:	02 Nov 2011
Contents	:	33 pages

This report is based on a blank test report that was prepared by TÜV SÜD PSB Pte Ltd using information obtained from the TRF originator (see below).

Testing laboratory

Name	:	TÜV SÜD PSB Pte Ltd
Address	:	No. 1 Science Park Drive Singapore 118221
Testing location	:	As above

Client

Name	:	Megahock Pipes & Profile Mfg. Sdn. Bhd.
Address	:	Lot 195, Jalan Seelong, Mukim Senai Kulai,
	:	81400 Johor,
	:	Malaysia

Test specification

Standard	:	BS EN 61386-21:2004 Use in conjunction with BS EN 61386-1:2008 Reference to BS 4607-5:1982+A3:2010 for dimensions and requirements of conduit fitting and conduit boxes
Test procedure	:	N.A.
Procedure deviation	:	N.A.
Non-standard test method	:	N.A.

Test Report Form/blank test report

Test Report Form No.	:	PSBBSEN61386-21/V1CS
Master TRF	:	dated Aug 2011

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Test item	
Brand	PVCMAN
Model and/or type reference	25 mm (Black)
Nominal size	25 mm
Quantity	36 lengths of 1500 mm (conduit)
	12 pieces (Moulded slip type coupler, plain; One way circular conduit boxes; Through circular conduit boxes; Angle circular conduit boxes; 3 way circular conduit boxes & 4 way circular conduit boxes)
Manufacturer	Megahock Pipes & Profile Mfg. Sdn. Bhd.
Country of origin	Malaysia

Particulars: test item vs. test requirements	
Type of conduit (1)	Non-metallic
Type of conduit (2)	442112
Type of conduit (3)	Plain
Fittings - quantity	N
Fittings - type	N
Fittings - colour	N
Method of connection	Non-threadable
Resistance to compression	4 (Heavy)
Resistance to impact	4 (Heavy)
Resistance to bending	1 (Rigid)
Tensile strength	N
Suspended load capacity	N
Lower temperature range	2 (-5°C)
Upper temperature range	1 (60°C)
Electrical characteristics	2 (With electrical insulating characteristics)
Resistance to external influences	N
Resistance against corrosion	N
Resistance to flame propagation	N

Test case verdicts	
Test case does not apply to the test object	N(.A.)
Test item does meet the requirement	P(ass)
Test item does not meet the requirement	F(ail)

Testing

Date of receipt of test item .....: 21 Jan 2011, 17 Jun 2011, 10 Aug 2011 & 06 Oct 2011

Date(s) of performance of test.....: 07 Feb 2011 to 21 Oct 2011

General remarks

- This test report shall not be reproduced except in full without the written approval of the testing laboratory.
- The test results presented in this report relate only to the item tested.
- "(see remark #)" refers to a remark appended to the report.
- "(see appended table)" refers to a table appended to the report.
- Throughout this report a comma is used as the decimal separator.
- This report contains a total of 33 pages, including appendix (Page 27 to Page 32) which consists of:-

  Appendix I : General view and marking of the conduit
  General view & marking of the moulded slip type coupler, plain
  General view and marking of 1 way circular conduit boxes
  General view and marking of through circular conduit boxes
  General view and marking of angle circular conduit boxes
  General view and marking of 3 way circular conduit boxes
  General view and marking of 4 way circular conduit boxes
- The items tested are found to be in conformity with the specified standard.

Marking : Printed on the conduit
PVCMAN 25MM ELECTRICAL CONDUIT BS EN 61386-21:2004+A11:2010 442112 06-08-2011 08:32 <3>

Marking : Printed on the moulded slip type coupler, plain
25mm PVCMAN

Marking : Printed on the circular conduit boxes
1 way circular conduit boxes: PVCMAN 3/MGH/2 60°c / 3 KG
Through circular conduit boxes: PVCMAN 3/MGH/3 60°c / 3 KG
Angle circular conduit boxes: PVCMAN 3/MGH/4 60°c / 3 KG
3 way circular conduit boxes: PVCMAN 3/MGH/5 60°c / 3 KG
4 way circular conduit boxes: PVCMAN 3/MGH/6 60°c / 3 KG

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict
7	**MARKING AND DOCUMENTATION**		P
7.1	Conduit (conduit fitting) is marked on the product with a trade mark or a name identifying the manufacturer or responsible vendor .....:	PVCMAN	P
	Conduit (conduit fitting) is marked in addition in such a way that it can be identified in the manufacturer's, or responsible vendor's, literature .....:	PVCMAN	P
7.1.1	Conduit is also marked with the classification code, in accordance with annex A, and includes at least the first four digits (optional) .....:	442112	P
7.1.2	Manufacturer indicates the compatibility of parts within a conduit system		P
7.1.101	Conduit is marked in accordance with 7.1 along its entire length at regular intervals of preferably 1 m but not longer than 3 m (m) .....:	500mm	P
	Each length is marked at least once		P
7.1.102	Minimum inside diameter and the classification for the system in accordance with clause 6 are documented by the manufacturer .....:	See appended table 7.1.102	P
7.2	Conduit fitting is marked in accordance with 7.1, on		
	- the product .....:	PVCMAN	P
	- a label attached to the product, or on the box or carton containing the fittings (if the marking on the product is impractical) .....:	PVCMAN	P
7.3	Flame propagating material is orange in colour		N
	Flame propagating material is not coloured orange by painting or other superficial means		N
	Non-flame propagating material is of any colour except yellow, orange or red, unless is clearly marked on the product to be of non-flame propagating material .....:	Black	P
7.4	Earthing facilities are indicated by the symbol for protective earth in accordance with IEC 60417, symbol 60417-IEC-5019-a .....:		N
	This marking is not placed on easily removable parts, for example screws		N
7.5	Compliance with 7.1 to 7.4 checked by inspection		P

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict
7.6	Marking is durable and clearly legible		P
	Compliance checked by inspection and by rubbing the marking by hand for 15 s with a piece of cloth soaked with water, and again for 15 s with a piece of cloth soaked with petroleum spirit		P
8	**DIMENSIONS**		P
8.1	Outside diameters comply with IEC 60423	See appended table 8.1A	P
	Threads comply with IEC 60423	See appended table 8.1B	N
8.2	Threadable conduits and threadable conduit fittings comply with table 101 (except terminating conduit fittings)	See appended table 8.2A	N
	Non-threadable conduit fittings comply with table 102 (except fittings which are part of a conduit system declaring tensile strength)	See appended table 8.2B	P
	Minimum inside diameter of the conduit system is as declared by the manufacturer	See appended table 8.2C	P
9	**CONSTRUCTION**		P
9.1	There are no sharp edges, burrs or surface projections within the conduit system		P
	The manufacturer provides guidelines to assist the safe installation of the conduit system		P
9.2	Screws, if any, used for attaching components or covers to conduit fittings, or in joints to conduits, do not cause damage to cable insulation when correctly inserted		P
	Screws have ISO metric threads		P
	Thread-cutting screws are not used		P
	Fixing screws and small clips for use with non-metallic or composite conduit fittings, of non-metallic material, are isolated from insulated conductors or cables		P
9.3	Test for screw fixing using preformed threads	See appended table 9.3	P
	After the test: no damage sustained by the screw or nut, such as breakage of the screw or damage to the head or thread		P

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict
9.4	Test for screw fixing using thread-forming screws	See appended table 9.4	N
	After the test: no damage, such as breakage of the screw or damage to the head or thread		N
9.5	Any material within the joint have at least the same level of resistance to the external influence as either the conduit or the conduit fitting		N
9.6	Indications whether the conduit system that are assembled by means other than threads can be disassembled and if so, how this can be achieved, are provided by the manufacturer		P
10	**MECHANICAL PROPERTIES**		P
10.1	**Mechanical strength**		P
10.1.1	Conduit systems have adequate mechanical strength		P
10.1.2	Conduits do not crack and are not deformed when bent or compressed, or exposed to impact or extreme temperature, according to their classification		P
10.1.3	Conduit systems intended as a mounting for other equipment have adequate mechanical strength		P
10.1.4	Compliance of 10.1.1 to 10.1.3 checked by the tests specified in 10.2 to 10.8		P
10.2	**Compression test**		P
	3 samples of conduit, each (200 ± 5) mm long, subjected to a compression test at (23 ± 2) °C, using the apparatus shown in figure 1	See appended table 10.2	P
10.3	**Impact test**		P
	12 samples of conduit, each (200 ± 5) mm in length, or 12 samples of conduit fittings subjected to an impact test using the apparatus shown in figure 2	See appended table 10.3	P
10.3.3	At least 9 of the 12 samples passed the test		P
10.4	**Bending test**		P
	Conduits declared by the manufacturer as being bendable tested in accordance with 10.4.101, 10.4.102 or 10.4.103		P

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict
10.4.101	Metallic conduits		N
	Conduit sizes 16, 20 and 25, having a length equal to 30 times the nominal diameter, subjected to a bending test using the apparatus shown in figure 101	See appended table 10.4.101	N
	Other sizes tested in accordance with the manufacturer's instructions		N
10.4.102	Non-metallic conduits		P
	Conduit sizes 16, 20 and 25, having a length of approximately 500 mm, subjected to a bending test using the apparatus shown in figure 103	See appended table 10.4.102	P
	Other sizes tested in accordance with the manufacturer's instructions		N
10.4.103	Composite conduits		N
	Composite conduits declared by the manufacturer as being bendable tested both in accordance with 10.4.101 and 10.4.102, using new samples for each test	See appended tables 10.4.101 and 10.4.102	N
	Other sizes tested in accordance with the manufacturer's instructions		N
10.5	**Flexing test**		N
	Sub-clause of part 1 not applicable		—
10.6	**Collapse test**		P
10.6.101	Metallic conduits		N
	Metallic conduits not subjected to a collapse test		N
10.6.102	Non-metallic and composite conduits		P
10.6.102.1	Conduits declared by the manufacturer as being bendable tested in accordance with 10.4.102 with the exception of 10.4.102.3		P
	Conduit sizes 16, 20 and 25, having a length of approximately 500 mm, subjected to a bending test using the apparatus shown in figure 103	See appended table 10.6.102	P
	Other sizes tested in accordance with the manufacturer's instructions		N
10.6.102.2	Samples tested after fixing to a rigid support by means of four straps as shown in figure 104	See appended table 10.6.102	P

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict
10.7	**Tensile test**		N
	Conduit systems declaring tensile strength: test carried out on an assembly prepared in accordance with the manufacturer's instructions so that the overall length is approximately 200 mm	See appended table 10.7	N
10.8	**Suspended load test**		N
	Conduit fitting declared by the manufacturer to be suitable for suspended loads: test carried out with a load suspended by the means provided and installed in accordance with the manufacturer's instructions for a time duration given in table 7	See appended table 10.8	N
11	**ELECTRICAL PROPERTIES**		P
11.1	**Electrical requirements**		P
11.1.1	Conduit systems declaring electrical continuity characteristics are checked by the tests in 11.2 immediately after the tests in 14.2		N
11.1.2	Conduit systems of metal or composite materials are so constructed that accessible metal parts can be bonded to earth		N
11.1.3	Accessible conductive parts of the metal or composite conduit system, which may become live in the event of a fault, are be effectively earthed		N
11.1.4	Conduit systems of non-metallic or composite materials, where declared, have an adequate electrical insulating strength and insulating resistance		P
11.2	**Bonding test**		N
	Test carried out on an arrangement of conduits and conduit fittings prepared in accordance with the manufacturer's instructions and figure 3: resistance not exceed 0,1 Ω	See appended table 11.2	N

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict
11.3	**Electrical insulating strength and resistance**		P
11.3.1	Conduits		P
	3 samples of conduit tested in a salt water solution at (23 ± 2) °C, in accordance with figure 4, and submitted after 24 h ± 15 min to a voltage of 2000 V maintained for a period of 15 min +5/0 s: trip device incorporated into the circuit not trip during the test	See appended table 11.3.1	P
	Same samples then subjected to an electrical insulation resistance test with a direct voltage of 500 V applied for (60 ± 2)s: measured insulation resistance greater than 100 MΩ	See appended table 11.3.1	P
11.3.2	Conduit fittings		P
	3 samples of conduit fittings immersed for 24 h ± 15 min in water at (23 ± 2) °C and then submitted by means of lead spheres to a voltage of 2000 V maintained for a period of 15 min +5/0 s: trip device incorporated into the circuit not trip during the test	See appended table 11.3.2	P
	Same samples then subjected to an electrical insulation resistance test with a direct voltage of 500 V applied for (60 ± 2)s: measured insulation resistance greater than 100 MΩ	See appended table 11.3.2	P
12	**THERMAL PROPERTIES**		P
12.1	Non-metallic and composite conduits have adequate resistance to heat		P
12.2	Samples of conduit, each (100 ± 5) mm long, together with the test apparatus as shown in figure 8, kept for 4 h ± 5 min in a heating cabinet at the declared temperature given in table 2, with a tolerance of ±2 °C	See appended table 12	P
	Each sample then loaded for 24 h ± 15 min in the apparatus of figure 8 with a total mass as shown in table 9	See appended table 12	P
12.3	It is possible to pass the appropriate gauge of figure 102 immediately after the removal of the load	See appended table 12	P

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict
13	**FIRE HAZARD**		P
13.1	Reaction to fire		P
13.1.1	Initiation of fire (not applicable)		—
13.1.2	Contribution to fire (under consideration)		—
13.1.3	Spread of fire		P
	Non-flame propagating conduit systems have adequate resistance to flame propagation		P
13.1.3.1	Non-metallic and composite conduit fittings subjected to glow-wire test of IEC 60695-2-1/1 (IEC 60695-2-11) at 750 °C		P
	No visible flame or sustained glowing,	See appended table 13.1.3.1	P
	Flames and glowing extinguished within 30 s of the removal of the glow-wire (s)	See appended table 13.1.3.1	P
13.1.3.2	Non-metallic and composite conduits subjected to 1 kW flame of IEC 60695-2-4/1 (IEC 60695-11-2), according to the arrangement of figure 7, applied for the period given in table 11		P
	▪ Sample does not ignite, or	See appended table 13.1.3.2	N
	▪ In case of ignition:		
	a) Flame extinguishes within 30 s	See appended table 13.1.3.2	P
	b) No ignition of the tissue paper	See appended table 13.1.3.2	P
	c) No evidence of burning or charring within 50 mm of the lower extremity of the upper clamp	See appended table 13.1.3.2	P
13.1.4	Additional reaction to fire characteristics (under consideration)		—
13.2	Resistance to fire (not applicable)		—

14	**EXTERNAL INFLUENCES**		N
14.1	Degree of protection provided by enclosure		N
	Conduit systems, when assembled in accordance with the manufacturer's instructions, have adequate resistance to external influences according to the classification declared by the manufacturer, with a minimum requirement of IP30.....	IP	N

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict
14.1.1	Degree of protection – Ingress of foreign solid objects	See appended table 14.1.1	N
14.1.2	Degree of protection – Ingress of water	See appended table 14.1.2	N
14.2	Resistance against corrosion		N
14.2.1	Resistance to corrosion classification for painted and zinc coated steel and steel composite conduits and conduit fittings (table 10)	1/2/3/4	—
	For non-ferrous metallic and composite conduit systems, the manufacturer provided information about its protection against corrosion		N
14.2.2	Tests for resistance to corrosion for painted and zinc coated steel and steel composite conduits systems		N
14.2.2.1	Low protection conduit and conduit fittings inspected for completeness of covering by the protective coating, both inside and outside		N
14.2.2.2	Test for medium protection conduit and conduit fittings: after completion of the test, the samples showed no more than two blue coloured spots on each square centimetre of the surface, and no blue spot had a dimension larger than 1,5 mm		N
14.2.2.3	Test for high protection conduit and conduit fittings: after the test, the sample showed no precipitation of copper which cannot be scrubbed off in running water, if necessary after immersion for 15 s in a 10% solution of hydrochloric acid in water		N

15	**ELECTROMAGNETIC COMPATIBILITY**		N
	Products covered by this standards are, in normal use, passive in respect of electromagnetic influences (emission and immunity)		N

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

7.1.102	**TABLE: Minimum inside diameter declared by manufacturer for the system**		P
Size		Minimum inside diameter declared by manufacturer for the system (mm)	Verdict
6			
8			
10			
12			
16			
20			
25		20,70	P
32			
40			
50			
63			
75			
Supplementary information: N			

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

8.1A	**TABLE: Checking of dimensions of conduits**						P
Size		Maximum outside diameter (all type of conduits)		Minimum outside diameter (metallic conduits)		Minimum outside diameter (non-metallic conduits)	
Outside diameters (mm)	Metric threads	Gauge fig.2 d_g (mm)	Comply (P-F-N/A)	Gauge fig.3A c (mm)	Comply (P-F-N/A)	Gauge fig.3b d_g (mm)	Comply (P-F-N/A)
6 +0/-0,1	M6	6,04		5,900		5,90	
8 +0/-0,2	M8	8,04		7,800		7,80	
10 +0/-0,2	M10	10,04		9,800		9,80	
12 +0/-0,2	M12	12,04		11,800		11,70	
16 +0/-0,3	M16	16,04		15,700		15,70	
20 +0/-0,3	M20	20,04		19,700		19,70	
25 +0/-0,4	M25	25,04	P	24,600	N	24,60	P
32 +0/-0,4	M32	32,04		31,600		31,60	
40 +0/-0,4	M40	40,04		39,600		39,60	
50 +0/-0,5	M50	50,04		49,500		49,50	
63 +0/-0,6	M63	63,04		62,400		62,40	
75 +0/-0,6	M75	75,04		74,400		74,40	
Supplementary information: N							

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

8.1B	**TABLE: Checking of dimensions of threads**					N
Size		External threads of conduits and fittings		Internal threads of fittings		
Outside diameters (mm)	Metric threads	Go gauge fig. 4 (threaded) Comply (P-F-N/A)	No go gauge fig. 4 (plain) Comply (P-F-N/A)	Go gauge fig. 5 (threaded) Comply (P-F-N/A)	No go gauge fig. 5 (plain) Comply (P-F-N/A)	
6 +0/-0,1	M6					
8 +0/-0,2	M8					
10 +0/-0,2	M10					
12 +0/-0,2	M12					
16 +0/-0,3	M16					
20 +0/-0,3	M20					
25 +0/-0,4	M25					
32 +0/-0,4	M32					
40 +0/-0,4	M40					
50 +0/-0,5	M50					
63 +0/-0,6	M63					
75 +0/-0,6	M75					
Supplementary information: N						

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

8.2A	**TABLE: Checking of thread lengths according to table 101 (threadable conduits and threadable conduit fittings)**						N
Size	External thread			Internal thread			
	Minimum length allowed (mm)	Length measured (mm)	Comply (P-F-N/A)	Minimum length allowed (mm)	Length measured (mm)	Comply (P-F-N/A)	
6	5,5			6,5			
8	6,5			7,5			
10	8,5			9,5			
12	10,5			11,5			
16	12,5			13,5			
20	14,0			15,0			
25	17,0			18,0			
32	19,0			20,0			
40	19,0			20,0			
50	19,0			20,0			
63	19,0			20,0			
75	19,0			20,0			
Supplementary information: N							

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

8.2B	**TABLE: Checking of maximum entry diameter and minimum entry length details according to table 102 (non-threadable conduits and non-threadable conduit fittings)**					P
Size	Maximum entry diameter allowed (mm)	Entry diameter measured (mm)	Comply (P-F-N/A)	Minimum entry length allowed (mm)	Entry length measured (mm)	Comply (P-F-N/A)
6	6,5			6,0		
8	8,5			8,0		
10	10,5			10,0		
12	12,5			12,0		
16	16,5			16,0		
20	20,5			20,0		
25	25,5	-	N	25,0	Refer to supplementary information	P
32	32,6			30,0		
40	40,7			32,0		
50	50,8			42,0		
63	63,9			50,0		
75	75,9			50,0		

Supplementary information:

1 way circular conduit boxes: 25,24 mm
Through circular conduit boxes: 25,24 mm
Angle circular conduit boxes: 25,13 mm
3 way circular conduit boxes: 25,19 mm

4 way circular conduit boxes: 25,19 mm

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

8.2C	**TABLE: Checking of minimum inside diameter of the conduit system**		P
Size	Minimum inside diameter of the conduit system declared by manufacturer (mm)	Inside diameter of the conduit system measured (mm)	Comply (P-F-N/A)
6			
8			
10			
12			
16			
20			
25	20,70	21,55	P
32			
40			
50			
63			
75			
Supplementary information: N			

9.3	**TABLE: Screw test (screw fixing using preformed threads)**				P
Threaded part identification	Nominal diameter of thread (mm)	Column number of table 3 (I or II)	Applied torque (Nm)	Times (5/10)	Verdict
Retention of cover	3,8	II	1,2	5	P
Supplementary information: N					

9.4	**TABLE: Screw test (screw fixing using thread-forming screws)**				N
Threaded part identification	Nominal diameter of thread (mm)	Column number of table 3 (I or II)	Applied torque (Nm)	Times (5/10)	Verdict
Supplementary information: N					

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

10.2	**TABLE: Compression test**								P
	Classification (first digit) ..... :					~~2~~/~~3~~/4/~~5~~			—
Size	N° of sample	$Ø_{bt}$ (mm)	F (N)	$Ø_{at1}$ (mm)	$[Ø_{bt} - Ø_{at1}/Ø_{bt}]100 \leq$ 25 % (%)	$Ø_{at2}$ (mm)	$[Ø_{bt} - Ø_{at2}/Ø_{bt}]100 \leq$ 10 % (%)	No visible cracks (P/F)	Verdict
25 mm	1	25,05	1250	23,54	6	24,96	0	P	P
25 mm	2	25,02	1250	23,52	6	24,93	0	P	P
25 mm	3	25,02	1250	23,53	6	24,93	0	P	P

Supplementary information:

F = Compression force, reaching the value shown in table 4 within (30 ± 3) s

$Ø_{bt}$ = Outside diameter measured before the test

$Ø_{at1}$ = Outside diameter measured after the force given in table 4 has been applied for (60 ± 2) s where flattening has taken place, without removing the force

$Ø_{at2}$ = Outside diameter measured after the test where flattening has taken place, (60 ± 2) s after removal of the force given in table 4 and the intermediate piece

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

10.3	**TABLE: Impact test**							P
	Classification (second digit) ..... :				~~2/3~~/4/~~5~~			—
	Test temperature (table 1) (°C) ..... :				-5			—
	Mass of hammer (table 5) (kg) ..... :				2			—
	Fall height (table 5) (mm) ..... :				300			—
Size	N° of sample	Check of possibility to pass the gauge of figure 102 through the sample		No sign of disintegration / No visible cracks		Total n° of samples which passed the test	Verdict
		N° of samples which passed the test	N° of samples which failed the test	N° of samples which passed the test	N° of samples which failed the test		
25 mm	1-12	12	0	12	0	12	P
Supplementary information: N							

10.4.101	**TABLE: Bending test (metallic or composite conduits)**							N
Size	N° of sample	Length of sample (mm)	Inside bending radius R (mm)	Welded seam, if any (outside of the bend/on the side)	No visible cracks (P/F)	Seam not opened, if any (P/F)	Section not distorted unduly: test with gauge of figure 102 (P/F)	Verdict
16	1							
20	1							
25	1							
Supplementary information: N								

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

10.4.102	**TABLE: Bending test (non-metallic or composite conduits)**				P
	Type of bending aid ..... :	Coiled spring / ~~Other~~			—
	Classification (third digit) ..... :	~~1~~/2/~~3/4/5~~			—
	Samples conditioned at least 2 h at test temperature (table 1) (°C) ..... :	-5			—
Size	N° of sample	Possibility to remove the bending aid without damage (P/F)	No visible cracks (P/F)	Possibility to pass the gauge of figure 102 (P/F)	Verdict
20 mm	1	P	P	P	P
20 mm	2	P	P	P	P
20 mm	3	P	P	P	P
Supplementary information:					

10.6.102	**TABLE: Collapse test (non-metallic and composite conduits)**					P
	Type of bending aid ..... :	Coiled spring / ~~Other~~				—
	Classification (fourth digit) ..... :	1/~~2/3/4/5/6/7~~				—
	Test temperature of the heating cabinet at which the support with the sample in position was kept for 24 h ± 15 min (table 2) (°C) ..... :	60				—
Size	N° of sample	Possibility to remove the bending aid without damage (P/F)	No visible cracks (P/F)	Possibility to pass the gauge of figure 102 (P/F)	Possibility to pass the gauge of figure 102 after the heating period of 24 h (P/F)	Verdict
25 mm	1	P	P	P	P	P
25 mm	2	P	P	P	P	P
25 mm	3	P	P	P	P	P
Supplementary information: N						

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

10.7	**TABLE: Tensile test**						N
	Classification (tenth digit) ..... :			2/3/4/5			—
	Increasing tensile force value reached in (30 ± 3)s and then applied for (120 ± 10)s (table 6) (N) ..... :						—
Size	N° of assembly sample	Art./Type Ref. of the conduit fittings assembled to the conduit	Elongation occurred (Y/N)	After the test the conduit fittings or terminating conduit fittings remained properly assembled (P/F)		No visible cracks (P/F)	Verdict
Supplementary information: N							

10.8	**TABLE: Suspended load test (conduit fittings)**						N
	Classification (twelfth digit) ..... :			2/3/4/5			—
	Test temperature of the heating cabinet at which the non-metallic and composite conduit fitting was kept during the test (table 2) (°C) ..... :						—
Size	N° of sample	Art./Type Ref. of the conduit fitting	Load (N)	Duration (h)	No visible cracks (P/F)	No deformation (P/F)	Verdict
	1						
	2						
	3						
Supplementary information: N							

11.2	**TABLE: Bonding test**				N
	Classification (sixth digit) ..... :		1/3		—
Size	N° of arrangement sample	Number and Art./Type Ref. of the conduit fittings coupled together the 10 pieces of conduit	Voltage drop measured (V)	Resistance (Ω)	Verdict
Supplementary information: N					

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Clause	Test - Requirement	Result - Remark	Verdict

11.3.1	**TABLE: Electrical insulating strength and resistance test (conduits)**			P
Size	N° of sample	Device incorporated into the circuit not trip during the insulating strength test (P/F)	Insulation resistance measured (MΩ)	Verdict
25 mm	1	P	$9,3 \times 10^6$	P
25 mm	2	P	$1,0 \times 10^6$	P
25 mm	3	P	$1,0 \times 10^6$	P
Supplementary information: N				

11.3.2	**TABLE: Electrical insulating strength and resistance test (conduit fittings)**				P
Size	N° of sample	Art./Type Ref. of the conduit fitting	Device incorporated into the circuit not trip during the insulating strength test (P/F)	Insulation resistance measured (MΩ)	Verdict
25 mm	3	1 way circular conduit boxes	P	$5,6 \times 10^6$ $4,1 \times 10^6$ $3,4 \times 10^6$	P
25 mm	3	Through circular conduit boxes	P	$2,5 \times 10^6$ $3,9 \times 10^6$ $3,2 \times 10^6$	P
25 mm	3	Angle circular conduit boxes	P	$5,3 \times 10^6$ $3,6 \times 10^6$ $2,9 \times 10^6$	P
25 mm	3	3 way circular conduit boxes	P	$4,1 \times 10^6$ $6,7 \times 10^6$ $3,8 \times 10^6$	P
25 mm	3	4 way circular conduit boxes	P	$2,4 \times 10^6$ $2,6 \times 10^6$ $4,7 \times 10^6$	P
Supplementary information: N					

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

12	**TABLE: Heating test (conduits)**				P
	Classification (fourth digit) ..... :		1/~~2/3/4/5/6/7~~		—
	Test temperature of the heating cabinet at which the non-metallic and composite conduit fitting was kept for 4 h ± 5 min (table 2) (°C) ..... :		60		—
	Classification (first digit) ..... :		~~2/3~~/4/~~5~~		—
	Total mass applied for 24 h ± 5 min in an apparatus as shown in figure 8 (table 9) (kg) ..... :		4		—
Size	N° of sample	Sample after the period of 24 h ± 5 min and then cool to room temperature under load: no visible cracks (P/F)	Possibility to pass the gauge of figure 102 immediately after the removal of the load (P/F)		Verdict
25 mm	1	P	P		P
25 mm	2	P	P		P
25 mm	3	P	P		P
Supplementary information: N					

13.1.3.1	**TABLE: Glow-wire test (non-metallic and composite conduit fittings)**				P
	Material designation ..... :		Non metallic		—
	Test temperature (°C) ..... :		750		—
Size	N° of sample	Art./Type Ref. of the conduit fitting	Visible flame or sustained glowing (Y/N)	Time of extinguishment of flames and glowing, if any, after removal of the glow-wire (s)	Verdict
25 mm	3	Moulded slip type coupler, plain	Y	0	P
25 mm	3	One way	Y	0	P
25 mm	3	Through	Y	0	P
25 mm	3	Angle	Y	0	P
25 mm	3	3 way	Y	0	P
25 mm	3	4 way	Y	0	P
Supplementary information: N					

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

13.1.3.2	**TABLE: Flame-propagation resistance test (non-metallic and composite conduits)**							P
	Material designation .....:			PVC				—
Size	N° of sample	Highest mean material thickness (mm)	Flame application time (+1/0) (s)	Sample did not ignite (P/F)	Time of extinguishment of flaming or glowing, if any, after removal of the test flame (s)	No ignition of the tissue paper (P/F)	No evidence of burning or charring (P/F)	Verdict
25 mm	1	1,67	35	P	0	P	P	P
25 mm	2	1,66	35	P	0	P	P	P
25 mm	3	1,67	35	P	0	P	P	P
Supplementary information: N								

14.1.1	**TABLE: Verification of protection against ingress of solid objects**				N
	Classification - Protection against ingress of solid objects (seventh digit) .....:			3/4/5/6	—
	For IP5X, category 2 applied				
Size	N° of assembly sample	Art./Type Ref. of the conduit fitting with a short length of conduit assembled in each conduit entry	Assembly tested in accordance with the appropriate test of IEC 60529 (P/F)	No ingress of dust visible to normal or corrected vision without magnification in the assembly tested for IP5X or IP6X (P/F/NA)	Verdict
Supplementary information: N					

BS EN 61386-21			
Clause	Test - Requirement	Result - Remark	Verdict

14.1.2	**TABLE: Verification of protection against ingress of water**				N
	Classification - Protection against ingress of water (eighth digit) ..... :			0/1/2/3/4/5/6/7	—
	Oscillating tube used for IPX3 and IPX4				
Size	N° of assembly sample	Art./Type Ref. of the conduit fitting with a short length of conduit assembled in each conduit entry	Assembly tested in accordance with the appropriate test of IEC 60529 (P/F)	No sufficient ingress of water to form a drop visible to normal or corrected vision without magnification in the assembly tested for IPX1 and above (P/F/NA)	Verdict
Supplementary information: N					

Appendix I
General view of the conduit

General view & marking of the moulded slip type coupler, plain

Appendix I (con't)
General view of the 1 way circular conduit boxes

Marking of the 1 way circular conduit boxes

Appendix I (con't)
General view of the through circular conduit boxes

Marking of the through circular conduit boxes

Appendix I (con't)
General view of the angle circular conduit boxes

Marking of the angle circular conduit boxes

Appendix I (con't)
General view of the 3 way circular conduit boxes

Marking of the 3 way circular conduit boxes

Appendix I (con't)
General view of the 4 way circular conduit boxes

Marking of the 4 way circular conduit boxes

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