

**Test Report No. S08MEC04708-4-CLC**  
dated 31 OCT 2008



PSB Singapore

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**SUBJECT:**

Testing of conduit pipe.

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**TESTED FOR:**

Wanco Electric & Machinery Pte Ltd  
11 Kian Teck Crescent  
Singapore 628877

Attn: Mr. Anthony Loh

**SAMPLE SUBMISSION DATE**

30 Oct 2008

**TEST METHOD:**

BS 4568 : PART 1 : 1970  
Steel conduits and fittings with metric threads of ISO form for electrical fittings  
Pat 1. Steel conduit, bents and couplers

**CLASSIFICATION:**

Class 4 – Heavy protection both inside and outside

**SPRAYED MARKING ON THE STEEL CONDUITS:**

1. Ø.20mm BS4568 Class 4
2. Ø.25mm BS4568 Class 4

**SAMPLE DESCRIPTION:**

Two sizes of conduit pipe with "Wanco" brand (refer to Appendix) were submitted for the following tests.

1. Dimensional measurements
2. Durability & legality of marking
3. Construction check Bend test
4. Bend test
5. Resistance to corrosion (refer to report S08MEC04708-04-EKH)



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**TEST RESULTS:**

**(1a) Dimensional Measurements**

Sample Reference	"WANCO" Brand				BS 4568 : Part 1 : 1970 Requirements (Standard Sheet 2)							
	A (mm)	B (mm)	C (mm)	Class 4	A		B	C		Class 4		
				Weight (g/m)	Min	Max	Nominal	Min	Max	Min	Max	
Nominal size (Ø20mm)											Weight (g/m)	
											Min	Max
Sample 1	19.8	1.60	14.0	686	19.7	20.0	1.6 ± 0.15	13.0	15.0	682	1862	
Sample 2	19.8	1.61	15.0	697	19.7	20.0	1.6 ± 0.15	13.0	15.0	682	1862	
Sample 3	20.0	1.61	13.3	7.03	19.7	20.0	1.6 ± 0.15	13.0	15.0	682	1862	

Sample Reference	"WANCO" Brand				BS 4568 : Part 1 : 1970 Requirements (Standard Sheet 2)							
	A (mm)	B (mm)	C (mm)	Class 4	A		B	C		Class 4		
				Weight (g/m)	Min	Max	Nominal	Min	Max	Min	Max	
Nominal size (Ø25mm)											Weight (g/m)	
											Min	Max
Sample 1	24.7	1.51	18.0	860	24.6	25.0	1.6 ± 0.15	16.0	18.0	860	1095	
Sample 2	24.8	1.52	18.0	868	24.6	25.0	1.6 ± 0.15	16.0	18.0	860	1095	
Sample 3	24.7	1.50	18.0	868	24.6	25.0	1.6 ± 0.15	16.0	18.0	860	1095	

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TEST RESULTS: Cont'd

(1b) Dimensional Measurements – Screw Threads

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements Clause 6.1.1 (Refer to figure 2)
Nominal size (Ø20mm)	Results of observation	
Sample 1	Passed	Snap "Not Go" Gauge-It shall not be possible, without undue force, to pass the gauge over the conduit at any point.  Thread Ring "Go" Gauge-It shall be possible, without undue force, to screw the thread gauge on to the conduit.
Sample 2	Passed	
Sample 3	Passed	

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements Clause 6.1.1 (Refer to figure 2)
Nominal size (Ø25mm)	Results of observation	
Sample 1	Passed	Snap "Not Go" Gauge-It shall not be possible, without undue force, to pass the gauge over the conduit at any point.  Thread Ring "Go" Gauge-It shall be possible, without undue force, to screw the thread gauge on to the conduit.
Sample 2	Passed	
Sample 3	Passed	

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TEST RESULTS: Cont'd

(1c) Dimensional Measurements – Ovality

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements Clause 6.1.1 (Refer to figure 5)
Nominal size (Ø20mm)	Results of observation	
Sample 1	Passed	Snap "Not Go" Gauge-It shall not be possible, without undue force, to pass the gauge over the conduit at any point.
Sample 2	Passed	
Sample 3	Passed	

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements Clause 6.1.1 (Refer to figure 5)
Nominal size (Ø25mm)	Results of observation	
Sample 1	Passed	Snap "Not Go" Gauge-It shall not be possible, without undue force, to pass the gauge over the conduit at any point.
Sample 2	Passed	
Sample 3	Passed	

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TEST RESULTS: Cont'd

(2) Test for Durability & Legibility of Marking

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements (Appendix A-A.1)
Nominal size (Ø20mm)	Results of observation	
Sample 1	Passed	Durability shall be checked by rubbing the marking by hand for 15 seconds with a piece of cloth soaked with water and again for 15 seconds with a piece of cloth soaked with petroleum spirit. After the test the marking shall remain legible.
Sample 2	Passed	
Sample 3	Passed	

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements (Appendix A-A.1)
Nominal size (Ø25mm)	Results of observation	
Sample 1	Passed	Durability shall be checked by rubbing the marking by hand for 15 seconds with a piece of cloth soaked with water and again for 15 seconds with a piece of cloth soaked with petroleum spirit. After the test the marking shall remain legible.
Sample 2	Passed	
Sample 3	Passed	

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**TEST RESULTS: Cont'd**

**(3) Visual inspection On Construction**

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements (Appendix 7.2)
Nominal size (Ø20mm)	Results of observation	
Sample 1	Passed	Conduits shall show no appreciable unevenness and their interior and ends shall be free from burrs and fins and the like which may cause damage to cable.
Sample 2	Passed	
Sample 3	Passed	

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements (Appendix 7.2)
Nominal size (Ø25mm)	Results of observation	
Sample 1	Passed	Conduits shall show no appreciable unevenness and their interior and ends shall be free from burrs and fins and the like which may cause damage to cable.
Sample 2	Passed	
Sample 3	Passed	

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**TEST RESULTS: Cont'd**


**(4) Bend Test**


Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements (AppendixA-A.2)
Nominal size (Ø20mm)	Results of observation	
Sample 1	Passed	The conduit with welded seam, six samples shall be tested, three with the seam on the outside of the bend, and three with the seam on the flank. After the test, neither the basic material of the conduits, nor the coating of conduits with medium or heavy protection, shall show any cracks visible to the naked eyes.
Sample 2	Passed	
Sample 3	Passed	

Sample Reference	"WANCO" Brand	BS 4568: Pt. 1: 1970 Requirements (AppendixA-A.2)
Nominal size (Ø25mm)	Results of observation	
Sample 1	Passed	The conduit with welded seam, six samples shall be tested, three with the seam on the outside of the bend, and three with the seam on the flank. After the test, neither the basic material of the conduits, nor the coating of conduits with medium or heavy protection, shall show any cracks visible to the naked eyes.
Sample 2	Passed	
Sample 3	Passed	

Note:

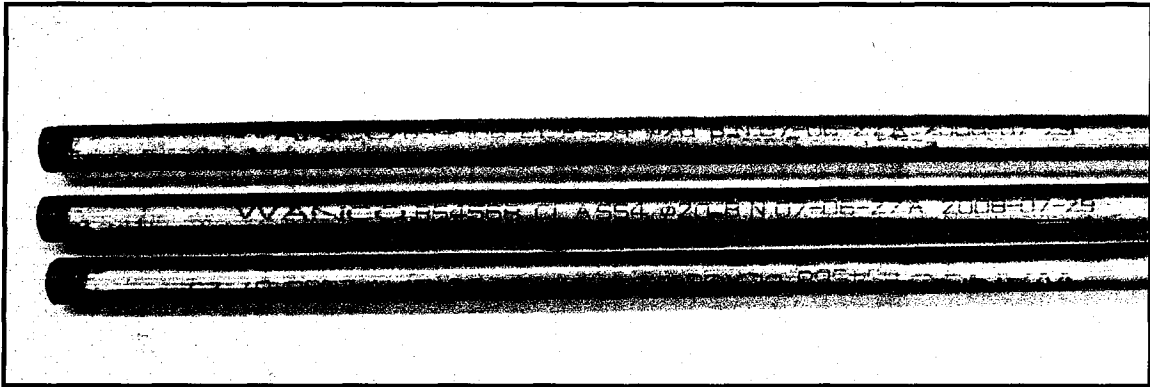
1. The conduit samples were bend by the company.
2. The above tests meet the requirements of BS 4568 Part 1: 1970 specification.

  
Chua Lee Choong  
Associate Engineer

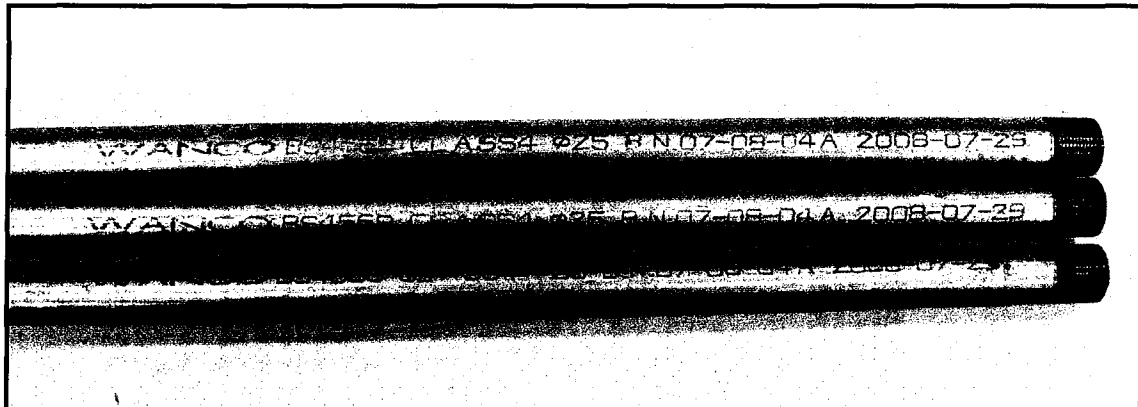
  
Chua Peck Cheong  
Product Manager  
Building & Industrial Products  
Testing Services



Appendix:



Ø.20mm BS4568 Class 4 Steel conduit pipes



Ø.25mm BS4568 Class 4 Steel conduit pipes

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*Q. P. Ching*



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January 2008