

Test Report

On Behalf of

Hangzhou HaiKuo Rubber & Plastic Products Co.,Ltd

Propane single welding rubber hose

Model: Hose I.D 8.5MM, O.D 15MM

Prepared For : Hangzhou HaiKuo Rubber & Plastic Products Co.,Ltd

No.206 Zhenghua Road, Hangzhou, China

Prepared By : Beide (UK) Product Service Limited

U.K.: Flat 107, 25 Indecon Square, London, United Kingdom

China: 6F, Bldg E, Hourui 3rd Ind Zone, Xixiang, Bao'an Dist, Shenzhen, China

Date of Test : Aug.26-Sep.03,2016

Date of Report : Sep.05,2016

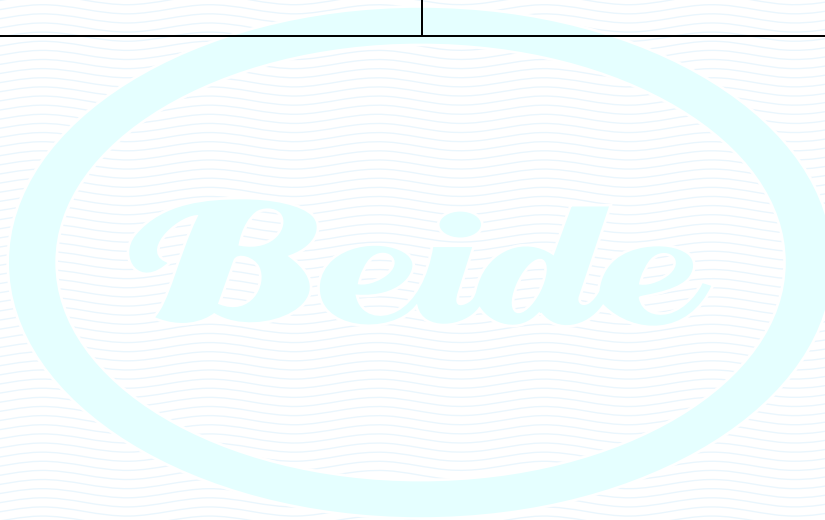
Report Number : B-S160810885

Test Report EN ISO 3821 Gas welding equipment — Rubber hoses for welding, cutting and allied processes	
Testing laboratory	Beide (UK) Product Service Limited
Address	6F, Bldg E, Hourui 3rd Ind Zone, Xixiang, Bao'an Dist, Shenzhen, China
Report body.....	Beide (UK) Product Service Limited
Address (U.K.)	Flat 107, 25 Indecon Square, London, United Kingdom
Address (China)	6F, Bldg E, Hourui 3rd Ind Zone, Xixiang, Bao'an Dist, Shenzhen, China
Applicant	Hangzhou HaiKuo Rubber & Plastic Products Co.,Ltd
Address	No.206 Zhenghua Road, Hangzhou, China
Client No.....	05714525
Standard	EN ISO 3821: 2010
Test Result	Compliance with EN ISO 3821: 2010
Procedure deviation	N.A.
Non-standard test method	N.A.
Type of test object	Propane single welding rubber hose
Trademark	N.A.
Model/type reference	Hose I.D 8.5MM, O.D 15MM
Rating	N.A.
Manufacturer	Hangzhou HaiKuo Rubber & Plastic Products Co.,Ltd
Address	No.206 Zhenghua Road, Hangzhou, China

Possible test case verdicts :	
test case does not apply to the test object	: N(.A.)
test object does meet the requirement	: P(ass)
test object does not meet the requirement	: F(ail)
Name and address of the testing laboratory :	
<p><u>Beide (UK) Product Service Limited</u> <u>6F, Bldg E, Hourui 3rd Ind Zone, Xixiang,</u> <u>Bao'an Dist, Shenzhen, China</u></p>	
Reported by :	<p><i>Rocky</i> _____ Signature / Rocky</p> <p>_____ Date Sep.05,2016</p>
Checked by :	<p><i>Apollo</i> _____ Signature / Apollo</p> <p>_____ Date Sep.05,2016</p>
Approved by :	<p><i>Bruce</i> _____ Signature / Bruce</p> <p>_____ Date Sep.06,2016</p>



General remarks:	
<p>"(see remark #)" refers to a remark appended to the report.</p> <p>"(refer to table X)" refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>Until otherwise specified, all tests are done under normal ambient condition $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$, RH: $65\% \pm 20\%$ and air pressure of 860 mbar to 1060mbar.</p>	<p>Attached with:</p> <p>A. photograph</p>



Marking Label:

Propane single welding rubber hose

Model: Hose I.D 8.5MM, O.D 15MM
EN ISO 3821

Hangzhou HaiKuo Rubber & Plastic Products
Co.,Ltd
No.206 Zhenghua Road, Hangzhou, China

Made In China



EN ISO 3821

Clause	Requirement – Test	Result - Remark	Verdict
5	Application		P
	Hoses shall only be used for the gas service for which they are identified		P
6	Hose designation		P
	The hoses covered by this International Standard are designated using the following information		P
	a) nominal bore, see Table 1		P
	b) light or normal duty (pressure rating), see Table 3;		P
	c) colour and marking (gas service), see Table 4.		P
7	Materials		P
7.1	Construction		P
7.1.1	General		P
	The hose shall consist of:		P
	a) a rubber lining of minimum thickness 1,5 mm;		P
	b) reinforcement applied by any suitable technique;		P
	c) a rubber cover of a minimum thickness of 1,0 mm		P
7.1.2	Flux fuel gas hose		P
	The flux fuel gas hose shall consist of:		P
	a) a rubber lining with an additional inner plastic layer, which shall be of maximum thickness 0,5 mm, to give a minimum total thickness of 1,5 mm;		P
	b) reinforcement applied by any suitable technique;		P
	c) a rubber cover of minimum thickness 1,0 mm		P
7.1.3	Twin hose		P
	Each hose used for twin hose construction shall be as specified in 7.1.1 or 7.1.2. The two hoses shall be joined longitudinally during the extrusion and/or vulcanization process. They shall be capable of being separated free of damage to enable end fittings to be fitted. See 9.3.7		P
7.2	Manufacture		P
	The lining and cover shall be of uniform thickness and free from holes, porosity and other defects		P
8	Dimensions and tolerances		P
8.1	Internal diameter		
	The internal diameter of the hoses shall be in accordance with the dimensions and tolerances	internal diameter*outside diameter: 8.5*15mm	P

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Clause	Requirement – Test	Result - Remark	Verdict
	shown in Table 1		
8.2	Concentricity (total indicator reading)		P
	The concentricity of the hose, measured in accordance with ISO 4671, shall be in accordance with the values given in Table 1.	accordance with ISO 4671	P
8.3	Cut lengths and tolerances		P
	The tolerances for cut lengths shall be in accordance with ISO 1307.		P
9	Requirements and type tests		P
9.1	A summary of requirements and type tests with the corresponding number of samples is given in Annex D.		P
9.2	Basic requirements		P
	Measurements shall be made on test specimens cut from the hoses. The materials used in the lining and cover, when tested in accordance with ISO 37, shall have a tensile strength and elongation at break not less than the values given in Table 2		P
9.2.2	Accelerating ageing		P
	Measurements shall be made on test specimens cut from the hoses. After ageing for 7 days at a temperature of 70 °C as specified in ISO 188 (air oven), the tensile strength and elongation at break respectively of the lining and cover shall not decrease from the original values obtained by more than 25 % for the tensile strength and 50 % for elongation at break		P
9.2.3	Adhesion		P
	When tested in accordance with ISO 8033:2006 using the type 2 or type 4 test piece, the minimum adhesion between adjacent components shall be 1,5 kN/m. For flux fuel gas hoses, see 9.3.4. For flux fuel gas hoses, the inner plastic lining should be removed prior to the test.		P
9.2.4	Hydrostatic requirements		P
9.2.5	Flexibility, general		P
	When tested in accordance with ISO 1746 at standard laboratory temperature as defined in ISO 23529 using a diameter of curvature, D_c , of $10d_i$, where d_i is the internal diameter (with a minimum of 80 mm), the coefficient of deformation, K , shall not be less than 0,8. There shall be no kink in the curved portion of the hose.		P
9.2.6	Low-temperature flexibility		P
	When tested in accordance with ISO 4672:1997, method B, at $(-25 \pm 3) ^\circ\text{C}$, using a D_c of $10d_i$ (with		P

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Clause	Requirement – Test	Result - Remark	Verdict
	a minimum of 80 mm), the hose shall show no signs of leakage when subjected to the proof pressure (carried out at ambient temperature) stated in Table 3.		
9.2.7	Resistance to incandescent particles and hot surfaces		P
	The cover of the hose shall have sufficient resistance to contact with incandescent particles and hot surfaces. To meet this requirement, the test piece shall resist for 60 s the test conditions given in Annex C without leaking.		P
9.2.8	Ozone resistance		P
	Hoses up to 25 mm internal diameter shall be tested in accordance with ISO 7326:2006, method 1, using a <i>D_c</i> as specified in 9.2.5. Hoses above 25 mm internal diameter shall be tested in accordance with ISO 7326:2006 method 3. For both methods the cover shall show no evidence of cracking when viewed under two times magnification.		P
9.3	Special requirements		P
9.3.1	Non-ignition requirement for oxygen hoses		P
	When tested according to ISO 11114-3 the initial conditions shall be set at 2 MPa (20 bar) (ambient temperature) and the autogenous ignition temperature shall be higher than 150 °C.		P
	When tested by the method described in Annex A, three samples of the lining shall remain in the apparatus at a constant temperature of 360 °C to 365 °C for 2 min without ignition.		P
	If more than one of the samples show evidence of ignition in less than 2 min, the hose shall be considered not to comply. If only one sample shows evidence of ignition in less than 2 min, three further samples shall be prepared and tested. If any of the three samples in this second series shows evidence of ignition in less than 2 min, the hose shall be deemed not to comply.		P
9.3.2	Resistance to acetone and dimethylformamide		P
	A sample of the lining, when immersed in the acetone or dimethylformamide at standard laboratory temperature as defined in ISO 23529 for 70 h, shall not increase in mass by more than 8 % when calculated in accordance with the method specified in ISO 1817		P
9.3.3	Resistance to <i>n</i>-pentane		P
	A sample of the hose lining, when tested as described in Annex B, shall show absorbed		P

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Clause	Requirement – Test	Result - Remark	Verdict
	<i>n</i> -pentane not exceeding 15 % mass fraction and <i>n</i> -pentane extractable matter not exceeding 10 % mass fraction.		
9.3.4	Resistance to azeotrope of trimethylborate with methanol for flux fuel gas hoses		P
9.3.4.1	Adhesion after conditioning in trimethylborate-methanol azeotrope		P
	The hose when tested in accordance with the following method shall have a minimum adhesion between the rubber lining and the reinforcement of 1,5 kN/m. The inner plastic layer should be removed for this test		P
	Seal one end of the test hose and fill the hose with the test fluid and condition for (70 ± 2) h at (23 ± 2) °C. After this period empty the test fluid from the hose and leave for 24 h.		P
	An adhesion test in accordance with ISO 8033:2006 using the type 2 or type 4 test piece shall be carried out on three test specimens taken from the hose after the fluid has been removed		P
9.3.4.2	Tensile strength and elongation at break after conditioning in trimethylborate-methanol azeotrope		P
	The hose when tested in accordance with the following method, shall have a variation in the tensile strength and elongation at break of less than 30 % from the original values obtained under 9.2.1		P
	Seal one end of the test hose and fill the hose with the test fluid and condition for (70 ± 2) h at (23 ± 2) °C. After this period empty the test fluid from the hose and leave for 24 h.		P
	Tensile strength and elongation at break tests in accordance with ISO 37 shall be carried out on five test specimens of plastic lining cut from a hose after the fluid has been emptied. The measurement shall be carried out 24 h after the emptying of the hose		P
9.3.4.3	Change in mass and volume after immersion in trimethylborate-methanol azeotrope		P
	A mass and volume variation test in accordance with ISO 1817 shall be carried out on three test specimens of plastic lining, cut from a hose and immersed in the test liquid for (70 ± 2) h at (23 ± 2) °C.		P
	The mass and volume variation of the plastic lining shall not exceed 8 %. The measurement shall be carried out within 30 min after taking the test pieces out of the test liquid		P
9.3.5	Flexibility of flux fuel gas hoses		P

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Clause	Requirement – Test	Result - Remark	Verdict
	One sample of hose shall be filled with trimethylborate-methanol azeotrope for 70 h at 23 °C. The flux fuel gas hoses shall then be submitted to the same test as specified in 9.2.5. The test shall be carried out within 30 min after the emptying of the hose. In addition to the requirements of 9.2.5, the hose shall show no signs of leaks when subjected to the proof pressure (carried out at ambient temperature) specified in Table 3.		P
9.3.6	Permeability to LPG, MPS, and natural gas of methane hoses, universal fuel gas hoses, and flux fuel gas hoses		N
9.3.7	Requirements for twin hoses		P
9.3.7.1	General		P
	Both of the hoses from the twin hose construction shall after separation by the following test method, conform to this International Standard. Each individual hose shall meet all the requirements when subjected to the relevant tests for the specific hose type		P
9.3.7.2	Separation test for twin hose		P
	It shall be possible to separate twin hose into two single hoses with a force between 25 N to 100 N. The test shall be carried out using a tensile test machine. Initially separate using a knife, a sufficient length of the twin hose to enable each individual hose to be secured in the jaws. Mark 200 mm of unseparated hose. Start the test with a jaw separation speed of 100 mm/min. The value of the force to be taken into account is the mean value measured during the propagation phase of the notch, excluding the beginning of the curve.		P
9.3.8	Requirements for universal fuel gas hose		P
	Hoses shall comply with the requirements of 9.3.2, 9.3.3 and 9.3.6		P
10	Hose colour and gas identification		P
10.2	Gas identification		P
	In order to identify the gas for which the hose is to be used, the hose cover shall be coloured and marked as specified in Table 4. In some countries, national requirements on colour identification have been standardized. In these cases, the colour identification detailed in Annex E shall apply. For countries that have no such standards or regulations, the colour identification specified in Table 4 shall apply.	Red and blue	P
10.3	Marking		P

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Clause	Requirement – Test	Result - Remark	Verdict
	The hose cover shall be durably marked at least every 1 000 mm with the following information		P
	the number of this International Standard: ISO 3821;		P
	"FLUX" (for flux fuel gas hoses only);		P
	the maximum working pressure in megapascals and between parentheses in bar		P
	the nominal bore;		P
	the manufacturer's and/or supplier's mark (in the examples given as XYZ);		P
	the year of manufacture.		P



ANNEX A:
Photo-documentation

Photo 1

View:

