




# Test Report

Report No	255/7007591	This Report consists of 15 pages
Licence/Cert. No	CE 70730	
Client	Handan Hengyong Protective and Clean Products Company Limited 1-1-1201455 Gongnong Road Shijiazhuang Hebei Republic of China 050051	
Authority & date	BSI Product Services: Service Management Order No 4939311 Dated 11 January 2007 Equipment Record No 10086295	
Items tested	Model: Fifty (50) off Handan Hengyong HY8932 FFP3 Foldable Masks with Exhalation Valve	
Specification	Audit testing to BS EN 149:2001 Respiratory protective devices – Filtering half masks to protect against particles & Limited testing to EN 143:2000/prA1:2005 (E) Respiratory protective devices – Particle filters	
Results	See Assessment Summary	
Prepared by	L J Carrington  Test Engineer	
	A Harding  Test Engineer	
Authorized by	D Mackie  Senior Engineer	
Issue Date	10 April 2007	
Conditions of issue	This Test Report is issued subject to the conditions stated in current issue of <i>PS082</i> 'General conditions relating to acceptance of testing'. The results contained herein apply only to the particular sample/s tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of the Managing Director, BSI Product Services, who reserves the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.	



0135

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

SPECIFICATION:- Audit testing to BS EN 149:2001 Respiratory protective devices -  
Filtering half masks to protect against particles &  
Limited testing to EN 143:2000/prA1:2005 (E) Respiratory protective  
devices – Particle filters

(See Assessment Summary for details)

CLIENT/MANUFACTURER: Handan Hengyong Protective and Clean Products Company Limited

MODEL: HY8932 FFP3 Foldable Masks with Exhalation Valve

NUMBER OF SAMPLES & SIZES: 50 samples submitted, 40 samples selected for test

ER NO:10086295

DATE RECEIVED: 15 February 2007

DATE STARTED: 16 February 2007

MANUFACTURER'S CLAIMED EQUIPMENT PERFORMANCE:-

Filter classification: FFP3

**INTRODUCTION**

The samples detailed above were a certified model submitted by the Client for an Audit test programme to assess the product when manufactured at a new location.

EN 149 specifies that the penetration of filter material assessment is to be conducted in accordance with EN 143. The EC Presumption of Conformity of EN 143 has been withdrawn due to concerns regarding the validity of the specified filter penetration tests and an amendment, referenced above, has been drafted to resolve the issue. As the product had not previously been assessed to this amendment additional penetration tests to the requirements of the draft have been included in the test programme in order to demonstrate the products compliance with the Basic Health and Safety Requirements of the EC Personal Protective Equipment Directive in respect of filter penetration.

This Report should be read in conjunction with the Specification and draft Specification Amendment referenced above.

Unless specified all testing was performed in accordance with BS EN 149:2001.

**ASSESSMENT SUMMARY**

An Assessment Summary is presented on page 3.

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**ASSESSMENT SUMMARY**

CLAUSE NO AND TITLE		ASSESSMENT	LOCATION
<b>7</b>	<b>REQUIREMENTS</b>		
7.1	General	Pass	Page 4
7.2	Nominal values and tolerances	-	Page 4
7.3	Visual inspection	N/As (1)	-
7.4	Packaging	Pass	Page 4
7.5	Material	N/As (1)	-
7.6	Cleaning and disinfecting	N/Ap (2)	-
7.7	Practical performance	Pass	Page 5
7.8	Finish of parts	Pass	Page 5
7.9	Leakage		
7.9.1	Total inward leakage	Pass	Page 6
7.9.2	Penetration of filter material	Pass	Pages 7 & 9
(4)	Penetration of filter material in accordance with BS EN 143:2000/ prA1:2005 (E)	Pass	Pages 8 & 10
7.10	Compatibility with skin	N/As (1)	-
7.11	Flammability	Pass	Page 11
7.12	Carbon dioxide content of inhalation air	(5)	Page 11
7.13	Head harness	N/As (1)	-
7.14	Field of vision	N/As (1)	-
7.15	Exhalation valve(s)	Pass	Page 12
7.16	Breathing resistance	Pass	Pages 12 to 14
7.17	Clogging	N/Ap (3)	-
7.18	Demountable parts	N/Ap (2)	-
9	Marking	N/As (1)	-
10	Information to be supplied by the manufacturer	N/As (1)	-
<b>APPENDIX A: Test Panel Data</b>		-	Page 15

N/Ap: Not Applicable

N/As: Not Assessed

- (1) Not required by BSI Product Certification.
- (2) Not applicable to this product.
- (3) Option not claimed
- (4) See Introduction
- (5) See Page 11

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT	ASSESSMENT
<b>7</b>	<b>REQUIREMENTS</b>	
<b>7.1</b>	<b>General</b> In all tests all samples shall meet the requirements.	Pass
<b>7.2</b>	<b>Nominal values and tolerances</b> Unless otherwise specified, the values stated in this European Standard are expressed as nominal values. Except for temperature limits, values, which are not stated as maxima or minima, shall be subject to a tolerance of $\pm 5\%$ . Unless otherwise specified, the ambient temperature for testing shall be $(16 - 32) ^\circ\text{C}$ , and the temperature limits shall be subject to an accuracy of $\pm 1^\circ\text{C}$ .	-
<b>7.3</b>	<b>Visual Inspection</b> The visual inspection shall also include the marking and the information supplied by the manufacturer.	N/As (1)
<b>7.4</b>	<b>Packaging</b> Particle filtering half masks shall be offered for sale packaged in such a way that they are protected against mechanical damage and contamination before use. Test in accordance with clause 8.2 of the standard.	Pass
<b>7.5</b>	<b>Material</b> Materials used are suitable to withstand handling and wear over the period for which the particle filtering half mask is designed to be used.  After undergoing the conditioning described in clause 8.3.1 of the standard none of the particle filtering half masks shall have suffered mechanical failure of the facepiece or straps.  When conditioned in accordance with clauses 8.3.1 and 8.3.2 the particle filtering half mask shall not collapse.  Any material from the filter media released by the air flow through the filter shall not constitute a hazard or nuisance for the wearer. Test in accordance with clause 8.2 of the standard.	N/As (1)  N/As (1)  N/As (1)  N/As (1)

N/As: Not Applicable

N/As: Not Assessed

(1) Not required by BSI Product Certification.

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**  
**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT	ASSESSMENT
7.6	<p><b>Cleaning and disinfecting</b></p> <p>If the particle filtering half mask is designed for more than a single shift (i.e. not designed for single use only) the materials used shall withstand the cleaning and disinfecting agents recommended by the manufacturer. Test in accordance with clauses 8.4 and 8.5 of the standard.</p>	N/Ap (1)
7.7	<p><b>Practical performance</b></p> <p>The particle filtering half mask shall undergo practical performance tests under realistic conditions. These general tests serve the purpose of checking the equipment for imperfections that cannot be determined by the tests described elsewhere in this standard.</p> <p>Where practical performance tests show the apparatus has imperfections related to wearer's acceptance, the test house shall provide full details of those parts of the practical performance tests which revealed these imperfections. Test in accordance with clause 8.4 of the standard.</p>	<p>Pass</p> <p>User ID: AT1 &amp; LC1</p>
7.8	<p><b>Finish of parts</b></p> <p>Parts of the device likely to come into contact with the wearer shall have no sharp edges or burrs. Test in accordance with clause 8.2 of the standard.</p>	Pass

N/Ap: Not Applicable

N/As: Not Assessed

(1) Not applicable to this product.

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT	ASSESSMENT
7.9 7.9.1	<p><b>Leakage</b></p> <p>Total inward leakage</p> <p>The laboratory tests shall indicate that the particle filtering half mask can be used by the wearer to protect, with high probability, against the potential hazard to be expected.</p> <p>The total inward leakage consists of three components: face seal leakage, exhalation valve leakage (if exhalation valve is fitted) and filter penetration.</p> <p>For particle filtering half masks fitted in accordance with the manufacturer's information, at least 46 out of the 50 individual exercise results (i.e. 10 subjects x 5 exercises) for total inward leakage shall be not greater than 25% for FFP1, 11% for FFP2, 5% for FFP3 and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than 22% for FFP1, 8% for FFP2, 2% for FFP3. Test in accordance with clause 8.5 of the standard.</p>	<p>Pass</p> <p>See Table A (and Appendix A for Test Panel Data)</p>

Table A: Total Inward Leakage Results

Test Panel Member	Pre-test condition	Sample No.	A	B	C	D	E	Average (%)
			Walking (%)	Walking with head side to side (%)	Walking with head up & down (%)	Walking and talking (%)	Walking (%)	
RH1	AR	3	0.2066	0.2976	0.1623	0.1399	0.2906	0.2194
JN1	AR	4	0.4703	0.6091	0.5203	0.3529	0.6455	0.5196
SB1	AR	5	0.0666	0.0642	0.0502	0.0503	0.0253	0.0513
MT2	AR	6	0.0884	0.1022	0.0926	0.0608	0.0713	0.0830
JV1	AR	7	0.1042	0.1583	0.0647	0.1150	0.1875	0.1259
GB1	TC	8	0.0660	0.0837	0.0320	0.0086	0.0325	0.0446
SH1	TC	9	0.0825	0.1010	0.0536	0.1009	0.0437	0.0764
KM1	TC	10	0.1515	0.1739	0.2237	0.1045	0.2804	0.1868
AT1	TC	11	0.1840	0.1413	0.0928	0.0451	0.1338	0.1194
DT1	TC	12	0.0366	0.0041	0.0206	0.0623	0.1033	0.0454

AR: As Received

TC: Temperature Conditioned

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT	ASSESSMENT																																																																														
7.9	<b>Leakage (continued)</b>	See Table B																																																																														
7.9.2	Penetration of filter material (Continued next page) The penetration of the filter of the particle filtering half mask shall meet the requirements of Table 1 of the standard. A total of 12 particle filtering half masks shall be tested for each aerosol: 3 as received, 3 after temperature conditioning in accordance with clause 8.3.2, 3 after the simulated wearing treatment described in clause 8.3.1, and 3 after the test for mechanical strength in accordance with clause 8.3.3. Test in accordance with clause 8.11 of the standard.  Table B. Maximum sodium chloride penetration @ 95 l/min																																																																															
	<table border="1"> <thead> <tr> <th>Sample No</th> <th>Pre-test condition</th> <th>Flow through filter (l/min)</th> <th>Max Specified Penetration (%)</th> <th>Actual Penetration (%)</th> <th></th> </tr> </thead> <tbody> <tr><td>13</td><td>AR</td><td>95</td><td>1.0</td><td>0.726969</td><td>Pass</td></tr> <tr><td>14</td><td>AR</td><td>95</td><td>1.0</td><td>0.851812</td><td>Pass</td></tr> <tr><td>15</td><td>AR</td><td>95</td><td>1.0</td><td>0.884101</td><td>Pass</td></tr> <tr><td>16</td><td>TC</td><td>95</td><td>1.0</td><td>0.866749</td><td>Pass</td></tr> <tr><td>17</td><td>TC</td><td>95</td><td>1.0</td><td>0.798693</td><td>Pass</td></tr> <tr><td>18</td><td>TC</td><td>95</td><td>1.0</td><td>0.820952</td><td>Pass</td></tr> <tr><td>19</td><td>SW</td><td>95</td><td>1.0</td><td>0.864731</td><td>Pass</td></tr> <tr><td>20</td><td>SW</td><td>95</td><td>1.0</td><td>0.890857</td><td>Pass</td></tr> <tr><td>21</td><td>SW</td><td>95</td><td>1.0</td><td>0.873149</td><td>Pass</td></tr> <tr><td>22</td><td>MS</td><td>95</td><td>1.0</td><td>0.503832</td><td>Pass</td></tr> <tr><td>23</td><td>MS</td><td>95</td><td>1.0</td><td>0.550577</td><td>Pass</td></tr> <tr><td>24</td><td>MS</td><td>95</td><td>1.0</td><td>0.626882</td><td>Pass</td></tr> </tbody> </table>		Sample No	Pre-test condition	Flow through filter (l/min)	Max Specified Penetration (%)	Actual Penetration (%)		13	AR	95	1.0	0.726969	Pass	14	AR	95	1.0	0.851812	Pass	15	AR	95	1.0	0.884101	Pass	16	TC	95	1.0	0.866749	Pass	17	TC	95	1.0	0.798693	Pass	18	TC	95	1.0	0.820952	Pass	19	SW	95	1.0	0.864731	Pass	20	SW	95	1.0	0.890857	Pass	21	SW	95	1.0	0.873149	Pass	22	MS	95	1.0	0.503832	Pass	23	MS	95	1.0	0.550577	Pass	24	MS	95	1.0	0.626882	Pass
Sample No	Pre-test condition		Flow through filter (l/min)	Max Specified Penetration (%)	Actual Penetration (%)																																																																											
13	AR		95	1.0	0.726969	Pass																																																																										
14	AR		95	1.0	0.851812	Pass																																																																										
15	AR		95	1.0	0.884101	Pass																																																																										
16	TC		95	1.0	0.866749	Pass																																																																										
17	TC		95	1.0	0.798693	Pass																																																																										
18	TC		95	1.0	0.820952	Pass																																																																										
19	SW		95	1.0	0.864731	Pass																																																																										
20	SW		95	1.0	0.890857	Pass																																																																										
21	SW		95	1.0	0.873149	Pass																																																																										
22	MS		95	1.0	0.503832	Pass																																																																										
23	MS	95	1.0	0.550577	Pass																																																																											
24	MS	95	1.0	0.626882	Pass																																																																											

AR: As Received  
 SW: Simulated Wear

TC: Temperature Conditioned  
 MS: Mechanical strength

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

Additional testing to EN 143:2000/prA1:2005(E), Clause 8.7, filter penetration - sodium chloride.

**EN 143:2000/prA1:2005 (E)**

CLAUSE	REQUIREMENT/TEST PROCEDURE (paraphrased)	ASSESSMENT
8.7.2	<p><b>For single shift use filters</b></p> <p>Test the filter until it has been exposed to 120 mg of Sodium Chloride unless the penetration shows a continued decline over a 5 minute period or over 5 sampling intervals, whichever is the greater.</p> <p>Maximum permitted penetration 1.0 %.</p>	See Table

	Sample 38	Sample 39	Sample 40
Pre-test condition	Mechanical strength and Temperature Conditioning		
Flow through filter	95 l/min		
Elapsed Time in Minutes	Actual Penetration % (Maximum permitted penetration 1.0%)		
5	0.448328	0.525911	0.621751
10	0.421853	0.488746	0.690339
15	0.383322	0.462847	0.688437
20	0.377889	0.464969	0.684559
25	0.336218	0.452971	0.669196
30	0.317972	0.438975	0.648199
35		0.460751	0.594536
40		0.455312	
45		0.437607	
50		0.404392	
55		0.388626	
60		0.389907	
65		0.381676	
70		0.368141	
75		0.356107	
80		0.331854	
85		0.320058	
90			
95			
100			
105			
110			
115			
120			
<b>Assessment:</b>	Pass	Pass	Pass



**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT	ASSESSMENT																																																																														
7.9 7.9.2	<p><b>Leakage (continued)</b></p> <p>Penetration of filter material (Continued)</p> <p>The penetration of the filter of the particle filtering half mask shall meet the requirements of Table 1 of the standard. A total of 12 particle filtering half masks shall be tested for each aerosol: 3 as received, 3 after temperature conditioning in accordance with clause 8.3.2, 3 after the simulated wearing treatment described in clause 8.3.1, and 3 after the test for mechanical strength in accordance with clause 8.3.3. Test in accordance with clause 8.11 of the standard.</p> <p>Table C. Maximum paraffin oil penetration @ 95 l/min</p> <table border="1"> <thead> <tr> <th>Sample No</th> <th>Pre-test condition</th> <th>Flow through filter (l/min)</th> <th>Max Specified Penetration (%)</th> <th>Actual Penetration (%)</th> <th></th> </tr> </thead> <tbody> <tr><td>13</td><td>AR</td><td>95</td><td>1.0</td><td>0.75</td><td>Pass</td></tr> <tr><td>14</td><td>AR</td><td>95</td><td>1.0</td><td>0.75</td><td>Pass</td></tr> <tr><td>15</td><td>AR</td><td>95</td><td>1.0</td><td>0.62</td><td>Pass</td></tr> <tr><td>16</td><td>TC</td><td>95</td><td>1.0</td><td>0.65</td><td>Pass</td></tr> <tr><td>17</td><td>TC</td><td>95</td><td>1.0</td><td>0.71</td><td>Pass</td></tr> <tr><td>18</td><td>TC</td><td>95</td><td>1.0</td><td>0.62</td><td>Pass</td></tr> <tr><td>19</td><td>SW</td><td>95</td><td>1.0</td><td>0.63</td><td>Pass</td></tr> <tr><td>20</td><td>SW</td><td>95</td><td>1.0</td><td>0.66</td><td>Pass</td></tr> <tr><td>21</td><td>SW</td><td>95</td><td>1.0</td><td>0.86</td><td>Pass</td></tr> <tr><td>22</td><td>MS</td><td>95</td><td>1.0</td><td>0.66</td><td>Pass</td></tr> <tr><td>23</td><td>MS</td><td>95</td><td>1.0</td><td>0.63</td><td>Pass</td></tr> <tr><td>24</td><td>MS</td><td>95</td><td>1.0</td><td>0.72</td><td>Pass</td></tr> </tbody> </table>	Sample No	Pre-test condition	Flow through filter (l/min)	Max Specified Penetration (%)	Actual Penetration (%)		13	AR	95	1.0	0.75	Pass	14	AR	95	1.0	0.75	Pass	15	AR	95	1.0	0.62	Pass	16	TC	95	1.0	0.65	Pass	17	TC	95	1.0	0.71	Pass	18	TC	95	1.0	0.62	Pass	19	SW	95	1.0	0.63	Pass	20	SW	95	1.0	0.66	Pass	21	SW	95	1.0	0.86	Pass	22	MS	95	1.0	0.66	Pass	23	MS	95	1.0	0.63	Pass	24	MS	95	1.0	0.72	Pass	See Table C
Sample No	Pre-test condition	Flow through filter (l/min)	Max Specified Penetration (%)	Actual Penetration (%)																																																																												
13	AR	95	1.0	0.75	Pass																																																																											
14	AR	95	1.0	0.75	Pass																																																																											
15	AR	95	1.0	0.62	Pass																																																																											
16	TC	95	1.0	0.65	Pass																																																																											
17	TC	95	1.0	0.71	Pass																																																																											
18	TC	95	1.0	0.62	Pass																																																																											
19	SW	95	1.0	0.63	Pass																																																																											
20	SW	95	1.0	0.66	Pass																																																																											
21	SW	95	1.0	0.86	Pass																																																																											
22	MS	95	1.0	0.66	Pass																																																																											
23	MS	95	1.0	0.63	Pass																																																																											
24	MS	95	1.0	0.72	Pass																																																																											

AR: As Received  
 SW: Simulated Wear

TC: Temperature Conditioned  
 MS: Mechanical strength

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

Additional testing was performed to EN 143:2000/prA1:2005(E), Clause 8.7, Paraffin Oil penetration.

**EN 143:2000/prA1:2005 (E)**

CLAUSE	REQUIREMENT/TEST PROCEDURE (paraphrased)	ASSESSMENT
8.7.2	<p><b>For single shift use filters</b>            Test the filter until it has been exposed to 120 mg of Paraffin Oil.             Maximum permitted penetration 1.0%.</p>	See Table

	Sample 38	Sample 39	Sample 40
Pre-test condition	Mechanical strength and Temperature Conditioning		
Flow through filter	95 l/min		
Elapsed Time in Minutes	Actual Penetration % (Maximum permitted penetration 1.0%)		
3	0.41	0.15	0.20
5	0.42	0.15	0.20
10	0.44	0.15	0.20
15	0.55	0.15	0.21
20	0.60	0.18	0.21
25	0.60	0.18	0.21
30	0.60	0.18	0.21
35	0.60	0.17	0.21
40	0.65	0.18	0.21
45	0.65	0.18	0.22
50	0.65	0.18	0.22
55	0.70	0.18	0.22
60	0.70	0.18	0.22
63(1)	0.70	0.18	0.23
<b>Assessment:</b>	Pass	Pass	Pass

(1) A loading of 120 mg was achieved after a period of 63 minutes had elapsed.

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT	ASSESSMENT																
7.11	<p><b>Flammability</b></p> <p>The material used shall not present a danger for the wearer and shall not be of a highly flammable nature.</p> <p>When tested, the particle filtering half mask shall not burn or not to continue to burn for more than 5 seconds after removal from the flame.</p> <p>The particle filtering half mask does not have to be usable after the test. Test in accordance with clause 8.6.</p>	Pass																
7.12	<p><b>Carbon dioxide content of inhalation air</b></p> <p>The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1.0% (by volume). Test in accordance with clause 8.7 of the standard.</p> <p>Table D: Carbon dioxide content of the inhalation air</p> <table border="1"> <thead> <tr> <th>Sample No</th> <th>Pre-test condition</th> <th>Maximum Specified CO<sub>2</sub> (%)</th> <th>Actual CO<sub>2</sub> (%)</th> </tr> </thead> <tbody> <tr> <td>29</td> <td>AR</td> <td>1.0</td> <td>0.90*(2)</td> </tr> <tr> <td>30</td> <td>AR</td> <td>1.0</td> <td>0.85</td> </tr> <tr> <td>31</td> <td>AR</td> <td>1.0</td> <td>0.90*(2)</td> </tr> </tbody> </table>	Sample No	Pre-test condition	Maximum Specified CO <sub>2</sub> (%)	Actual CO <sub>2</sub> (%)	29	AR	1.0	0.90*(2)	30	AR	1.0	0.85	31	AR	1.0	0.90*(2)	See Table D
Sample No	Pre-test condition	Maximum Specified CO <sub>2</sub> (%)	Actual CO <sub>2</sub> (%)															
29	AR	1.0	0.90*(2)															
30	AR	1.0	0.85															
31	AR	1.0	0.90*(2)															
7.13	<p><b>Head harness</b></p> <p>The head harness shall be designed so that the particle filtering half mask can be donned and removed easily. The head harness shall be adjustable or self-adjusting and shall be sufficiently robust to hold the particle filtering half mask firmly in position and be capable of maintaining total inward leakage requirements for the device. Test in accordance with clauses 8.4 and 8.5 of the standard.</p>	N/As (3)																

N/As: Not Assessed

- (1) The measured results indicated with an \* are below the specification limit by a margin less than the measured uncertainty, it is therefore not possible to state compliance/non-compliance with the specification. For this reason this report is issued as a results only report. All other results are unaffected by this.
- (2) Uncertainty of measurement is +/- 0.13% CO<sub>2</sub> penetration.
- (3) Not requested by BSI Product Certification

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT	ASSESSMENT
7.14	<p><b>Field of vision</b></p> <p>The field of vision is acceptable if determined so in practical performance tests. Test in accordance with clause 8.4.</p>	N/As (1)
7.15	<p><b>Exhalation valves</b></p> <p>A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations. Test in accordance with clauses 8.2 and 8.9.1</p> <p>If an exhalation valve is provided it shall be protected against, or be resistant to, dirt and mechanical damage and may be shrouded or may include any other device that may be necessary for the particle filtering half mask to comply with 7.9. Test in accordance with clause 8.2 of the standard.</p> <p>Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min over a period of 30 s. Test in accordance with clause 8.3.4.</p> <p>When the exhalation valve housing is attached to the faceblank, it shall withstand axially a tensile force of 10 N applied for 10 seconds. Test in accordance with clause 8.8.</p>	<p>(See Tables E, F and G)</p> <p>Pass</p> <p>Pass</p> <p>Pass</p>
7.16	<p><b>Breathing resistance</b></p> <p>The breathing resistances apply to valved and valveless particle filtering half masks and shall meet the requirements of Table 2 of the standard.</p> <p>A total of 9 valveless filtering half masks shall be tested: 3 as received, 3 after temperature conditioning in accordance with clause 8.3.2, and 3 after the test for simulated wearing in accordance with clause 8.3.1. Test in accordance with clause 8.9 of the standard.</p>	<p>Pass</p> <p>(See Tables E, F and G)</p>

N/As: Not Assessed

(1) Not required by BSI Product Certification.

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT					ASSESSMENT	
7.16	<b>Breathing resistance (continued)</b>						
	Table E: Inhalation resistance @ 30 l/min						
	Sample No	Pre-test condition	Continuous flow (l/min)	Maximum specified inhalation resistance (mbar)	Actual inhalation resistance (mbar)		
	13	AR	30	1.0	0.46		Pass
	14	AR	30	1.0	0.43		Pass
	15	AR	30	1.0	0.44		Pass
	16	TC	30	1.0	0.40		Pass
	17	TC	30	1.0	0.41		Pass
	18	TC	30	1.0	0.43		Pass
	19	SW	30	1.0	0.47		Pass
	20	SW	30	1.0	0.43		Pass
	21	SW	30	1.0	0.41		Pass
	32	AR(FT)	30	1.0	0.44		Pass
	33	TC(FT)	30	1.0	0.41		Pass
	34	TC(FT)	30	1.0	0.41		Pass
	Table F: Inhalation resistance @ 95 l/min						
	Sample No	Pre-test condition	Continuous flow (l/min)	Maximum specified inhalation resistance (mbar)	Actual inhalation resistance (mbar)		
	13	AR	95	3.0	1.61		Pass
	14	AR	95	3.0	1.53		Pass
	15	AR	95	3.0	1.52		Pass
	16	TC	95	3.0	1.37		Pass
	17	TC	95	3.0	1.46		Pass
	18	TC	95	3.0	1.55		Pass
	19	SW	95	3.0	1.54		Pass
	20	SW	95	3.0	1.44		Pass
	21	SW	95	3.0	1.37		Pass
	32	AR(FT)	30	3.0	1.48		Pass
33	TC(FT)	30	3.0	1.50	Pass		
34	TC(FT)	30	3.0	1.42	Pass		

AR: As Received  
 SW: Simulated Wear

TC: Temperature Conditioned  
 FT: Flow tested at 300 l/min for 30 seconds

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**EXAMINATION AND TEST (CONTINUED)**

**Model Type :- HY8932 FFP3 Foldable Masks with Exhalation Valve**

CLAUSE	REQUIREMENT					ASSESSMENT
7.16	<b>Breathing resistance (continued)</b>					
	Table G: Exhalation resistance @ 160 l/min measured in five orientations - worst case recorded.					
	Sample No	Pre-test condition	Continuous flow (l/min)	Maximum specified exhalation resistance (mbar)	Actual exhalation resistance (mbar)	
	13	AR	160	3.0	1.80	
	14	AR	160	3.0	1.73	
	15	AR	160	3.0	1.71	
	16	TC	160	3.0	1.67	
	17	TC	160	3.0	1.64	
	18	TC	160	3.0	1.75	
	19	SW	160	3.0	1.76	
	20	SW	160	3.0	1.51	
	21	SW	160	3.0	1.59	
	32	AR(FT)	30	3.0	1.76	
33	TC(FT)	30	3.0	1.71		
34	TC(FT)	30	3.0	1.60		

AR: As Received  
 SW: Simulated Wear

TC: Temperature Conditioned  
 FT: Flow tested at 300 l/min for 30 seconds

Sample No.	Upwards	Downwards	Left	Right	Fore	Highest Value
13	1.78	1.66	1.77	1.73	1.80	1.80
14	1.69	1.62	1.68	1.67	1.73	1.73
15	1.64	1.67	1.66	1.67	1.71	1.71
16	1.66	1.55	1.66	1.55	1.67	1.67
17	1.64	1.62	1.63	1.63	1.63	1.64
18	1.75	1.73	1.74	1.70	1.74	1.75
19	1.73	1.72	1.69	1.76	1.74	1.76
20	1.44	1.49	1.42	1.49	1.51	1.51
21	1.53	1.52	1.47	1.56	1.59	1.59
32	1.64	1.73	1.70	1.72	1.76	1.76
33	1.63	1.69	1.69	1.64	1.71	1.71
34	1.60	1.44	1.44	1.46	1.60	1.60

**BSI PRODUCT SERVICES**  
**BS EN 149:2001 & EN 143:2000/prA1:2005 (E)**

**APPENDIX A - TEST PANEL DATA**

<b>FACIAL DIMENSIONS (mm)</b>					
<b>Initials</b>	<b>Length of face</b>	<b>Width of face</b>	<b>Face depth</b>	<b>Width of mouth</b>	<b>Sex</b>
JV1	125	145	140	55	M
LC1	106	128	116	60	F
MT2	119	150	130	51	M
AT1	120	152	100	50	M
GB1	125	160	120	55	M
JN1	130	150	135	55	M
SH1	125	150	125	50	M
DT1	120	150	130	60	M
KM1	120	122	130	48	F
RH1	129	138	138	50	M

Note: All persons were clean shaven.