



APPROVAL TEST RESULTS:

HSE U.K.
DIN Germany
DANTEST: Denmark

INTRODUCTION

Samples of SGE model 400 full face mask were submitted for testing to EN 136.

PROCEDURE

The tests were performed as specified in EN 136.

RESULT

4.1 MATERIAL

Exposed metallic parts comprise the machine screw and nut used to clamp the visor bezel. Stainless steel.

4.2 CLEANING AND DISINFECTING

1% TEGO MHG 103G solution used satisfactorily on all samples tested.

4.3 SPEECH DIAPHRAGM ASSEMBLY

Not applicable - speech diaphragm coincident with exhalation membrane.

4.4 REPLACEABLE COMPONENTS

The following component parts of the face-piece were replaceable: inner mask, head harness, visor, connector (*), inhalation valve,

exhalation valve (*), check valves. Those parts marked (*) required the use of the special tool supplied.

4.5 PRACTICAL PERFORMANCE TEST

2 samples, as received, were subjected to the practical performance test. There were no adverse comments on:

4.11.1 Donning/doffing

4.11.2 Adjustability/comfort/security

4.13.2 Distortion of vision

4.13.4 Reduction of misting - no misting

Speech transmission

Ambient temperature, 27°C, relative humidity, 57%.

4.6 RESISTANCE TO TEMPERATURE

Samples numbered 5 and 5 were subjected to 72 hours @ 70°C, 72 hours @ 70°C and 100% RH and 24 hours @ -30°C.

No visible deformation was evident on either sample following return to laboratory ambient conditions.

4.7 INWARD LEAKAGE

All the tested samples did not overcome the limit of 0,05%.

See annex 1 for detail.

4.8 COMPATIBILITY TO SKIN

No adverse reaction during wearer tests.

Material used: Platinum catalyzed silicone – FDA N° 1172600.

4.9 FLAMMABILITY

Prior to flammability tests all samples have been leak tested. All the samples have held a vacuum of 12.5 mbars for 60 seconds before and after the flame test.

4. 10 CARBON DIOXIDE CONTENT OF THE INHALED AIR

1 sample, as received, was tested. The value was found to be 0,44%. This satisfies the maximum permitted value of 1%.

4.11 HEAD HARNESS

4.11.1 Harness donning and doffing

Assessed as satisfactory during practical performance tests.

4.11.2 Harness adjustment and security

Assessed as satisfactory during practical performance tests.

4.11.3 Harness strap tensile test

All 6 straps on each of 3 as received samples were tested.

All passed.

4.11.4 Harness strap deformation

All 6 straps of each of 3 as received sample harnesses were tested.

The extensions were:

Mask	1	2	3	4	5	6
1	46	46	54	56	48	44%
2	48	48	54	54	48	46%
3	48	46	52	52	50	44%

All satisfy the 100% maximum extension permitted.

The permanent linear deformations were as follows:

Mask	1	2	3	4	5	6
1	1	2	2	2	2	1%
2	2	2	2	2	2	1%
3	1	1	2	2	2	1%

All satisfy the 5% maximum permitted.

4.12 FACE PIECE CONNECTOR

The face piece is fitted with 1 nominally standard female threaded connector.

4.12.1 Standard thread connection

When tested with the "GO" gauge specified in EN 148 Part 1, the gauge would not engage in any of the 5 samples assessed.

4.12.2 Centre thread connection

Not applicable

4.12.3 Connector tensile test

3 as received samples were subjected to the tensile test. All passed.

4.12.4 Demountable connections/sealing

Connection to face-piece is by standard female thread, screwed in by hand. Rubber sealing gasket retained in base of connector.

4.12.5 Connection to other parts of equipment

See 4.12.4 above.

4.13 EYEPIECE AND VISOR

4.13.1 Visor attachment

Visor attached to face seal by surrounding plastic bezel, secured by machine screw and nut. Visually satisfactory.

4.13.2 Distortion of vision

Practical performance test wearers reported no problem.

4.13.3 Field of vision

Total field of vision 87%

Overlapped field of vision 80%

4.13.4 Reduction of misting

Practical performance test wearers reported no misting.

4.13.5 Visor impact resistance

5 samples, as received, were subjected to the impact test. No damage to any visor resulted. The negative pressure of 10 mbar was maintained by each sample before and after the test with no leakage.

4.14.1 Inhalation valve

4.14.1.1 Number

The face mask was provided with one inhalation valve located at the bottom of the standard thread connector.

4.14.1.2 Function in all orientations

The correct functioning of the inhalation valve was checked by fitting the mask to a Sheffield dummy head connected to a breathing machine operated at 21 strokes and 25 strokes/min. The pressure at the mouth was recorded with the head upright, facing down, facing upwards and facing sideways.

The tests were performed before and after testing to 4.14.2.4.5 sample masks, 3 as received and 2 temperature pre-conditioned, were tested.

The chart records of the inhalation resistance were uniform, and the maximum values were within specification for all orientations.

Max before = 1.57 mbar, max after = 1.65 mbar.

4.14.2 Exhalation valve

4.14.2.1 Function in all orientation

The correct functioning of the exhalation valve was checked at the same time and by the same method as for the inhalation valve (4.14.1.2 above).

The chart records of the exhalation resistance were uniform, and the maximum values were within specification for all orientations.

Max before = 2.10 mbar, max after 2.18 mbar.

4.14.2.2 Number

The face mask was provided with one exhalation valve located within the face-piece connector.

4. 14.2.4 Flow and vacuum

The exhalation valves of all 5 samples tested operated correctly after a continuous flow of 300 l/min., and a vacuum of 80 mbar = see 4.14.2.1.

4.14.3 Exhalation valve housing tensile is test

Not applicable, as valve housing incorporated within face-piece connector.

4.15 BREATHING RESISTANCE

3 as received sample masks were tested.

Sample		1	2	3	Maximum
Inhalation	@30 l/min	0.18	0.16	0.30	0.50 mbar
	@95 l/min	0.85	0.61	0.87	1.50 mbar
	@160 l/min	1.70	1.62	1.72	2.50 mbar
Exhalation	@160 l/min	1.51	1.54	1.52	3.00 mbar

All values satisfy the maximum permitted.

GERMAN FIRE BRIGADE APPROVAL

HEAT RADIATION TEST

The samples have been tested to a temperature of 200°C provided by a heat radiant panel for 4 minutes. Subsequent leak test did not show any leakage.

Approval Test Results

% NaCl TOTAL INWARD LEAKAGE

SUBJECT	MASK	(a) WALK ONLY	(b) HEAD SIDE SIDE	(c) HEAD UP DOWN	(d) TALK	(e) WALK ONLY	MEAN
SJ	1	0.037	0.044	0.037	0.049	0.044	0.012
IM	2	0.024	0.045	0.020	0.030	0.023	0.028
NW	3	0.025	0.030	0.031	0.026	0.032	0.028
DB	4	0.003	0.008	0.013	0.016	0.019	0.012
GF	5	0.016	0.022	0.028	0.026	0.023	0.023
TO	1	0.008	0.018	0.024	0.031	0.023	0.021
NS	2	0.009	0.011	0.010	0.011	0.015	0.012
GC	3	0.011	0.027	0.048	0.027	0.025	0.027
SL	4	0.035	0.032	0.049	0.031	0.040	0.037
GW	5	0.025	0.035	0.011	0.024	0.034	0.032
MEAN		0.019	0.027	0.030	0.027	0.028	0.026

SUBJECT	FACE LENGTH	FACE WIDTH	FACE DEPTH	MOUTH WIDTH
	mm	mm	mm	mm
SJ	120	120	120	50
IM	110	110	125	50
NW	120	130	130	50
DB	120	120	120	50
GF	115	120	115	45
TO	125	125	135	50
NS	126	125	125	50
GO	120	115	135	50
SL	115	120	130	55
GW	110	125	125	55