Vehicle Certification Agency

THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL GRANTED (1) / ~~APPROVAL EXTENDED~~ (1)/ ~~APPROVAL REFUSED~~ (1) / ~~APPROVAL WITHDRAWN~~ (1) / ~~PRODUCTION DEFINITIVELY DISCONTINUED~~ (1) OF A TYPE OF PROTECTIVE HELMET ~~WITHOUT~~ / WITH (1) ONE~~-~~/ ~~MORE~~ (1) VISOR TYPE(S) WITHOUT / ~~WITH~~ (1) ~~ONE~~ / ~~MORE~~ (1) SPECIFIC ACCESSORY TYPE(S) PURSUANT TO UN REGULATION NO. 22.06

E11 Approval No: E11*22R06/00*0982*00

Reason(s) for Extension: Not applicable

1. Trade mark: SMK

2. Type: GULLWING-S01

3. Sizes: 4XL (65), 3XL (64), 2XL (62), XL (61), L(59), M (57), S (55), XS (54)

4. Manufacturer's name: STUDDS ACCESSORIES LIMITED

5. Address:

Plant I - 23/7, Mathura Road
Ballabgarh
Faridabad
121004
Haryana
India

6. If applicable, name of manufacturer's representative: Not applicable

7. Address: Not applicable

8. Brief description of helmet: See manufacturer’s application document

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9. Helmet ~~without lower face cover (J)~~ / ~~with protective lower face cover (P)~~ / ~~with non protective lower face cover (NP)~~ / with detachable or movable lower face cover (P/J) (1)

10. Type of visor or visors:
GULLWING – S01 Visor, Certificate Number E11*22R06/00*0948*00

11. Brief description of visor or visors: See Manufacturer Application Document

12. Helmet ready for specific accessory (SA) / ready for universal accessories (UA) (1)
Not applicable

13. Accessories included in the helmet homologation and functionality: Not applicable

14. If UA helmet, speakers (S or S45) / Microphone (M) / Front mounting (F) / Side mounting (L), Rear mounting (R) (1) : Not applicable

12. Submitted for approval on: 04 June 2023

13. Technical service responsible for conducting approval tests: Vehicle Certification Agency

14. Date of report issued by that service: 01 August 2023

15. Number of report issued by that service: ISB602965

16. Comments: None

17. Approval GRANTED / ~~EXTENDED~~ / ~~REFUSED~~ / ~~WITHDRAWN~~ (1)

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18. Place: BRISTOL

19. Date: 07 AUGUST 2023

20. Signature:



C MCCABE
Chief Technical and Statutory Operations Officer

21. The following documents, bearing the approval number shown above, are available on request

(1) Strike out what does not apply

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APPROVAL NUMBER: E11*22R06/00*0982*00

INFORMATION PACKAGE CONTENTS

INDEX REVISION NUMBER: 00

Conformity of Production (COP) Declaration	**COP Confirmed**	
Assessment Method	**VCA Audit & Control Plans**	
Date of Initial Clearance	**July**	**2016**
Date of Last Clearance	**July**	**2022**

Total number of sheets: 39 (Thirty-nine)

Reasons for Revision: Not applicable

Revision Date
&
Office Stamp

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3	RETENTION SYSTEM / PROTECTIVE PADDING
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24	TORSION SPRING DRAWING
25	VISOR MECHANISM SPRING DRAWING
26	ADJUSTER DRAWING
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28	BUCKLE PART DRAWING
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31 MICROMETRIC BUCKLE RIVET DRAWING

32 CHIN STRAP ASSLY DRAWING

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1. GENERAL INFORMATION

1.1 Make:

SMK

1.2. Type:

GULLWING – S01

1.3. Variants / Versions:

N.A.

1.4. Name and address of manufacturer:

STUDDS ACCESSORIES LIMITED
Plant I - 23/7, MATHURA ROAD, BALLABGARH
FARIDABAD 121004
HARYANA (India)

1.5. Name and address of Manufacturing Plant :

STUDDS ACCESSORIES LIMITED
Plant I - 23/7, MATHURA ROAD, BALLABGARH
FARIDABAD 121004
HARYANA (India)

STUDDS ACCESSORIES LIMITED
Plant 3 – Plot No. 918, Sector 68
Faridabad – 121005
Haryana, India

1.6. If any,- name and address of manufacturer's authorized representative :
Not Applicable

1.7. Location and method of affixing of the international approval mark:

Marked in a label sewn to the retention system.

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2. DESCRIPTION OF THE HELMET

2.1. Type of helmet: **Integral** / **Jet** / ~~Modular~~

2.2. Type of lower face cover: "P" protective / ~~"NP" non protective~~ /"J"none (P/J Type)

2.3. Sizes:

SIZES (Centimeters)	WEIGHT (Grams)
XS (54)	1730
S (55)	1725
M (57)	1720
L (59)	1740
XL (61)	1750
2XL (62)	1870
3XL (64)	1860
4XL (65)	1850

3. SHELL

3.1. Material:

ABS

3.2. Visor Beading:

TPE

3.3. Ventilations: mention in drawing

3.3.1. Number of holes: **4 No.'s**

3.3.2. Positioning on the shell:

Indicated in the images of this Application Document

4. RETENTION SYSTEM

4.1. Chin strap:

4.1.1. Material:
Polyester

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4.1.2. Width:

21 mm

4.2. Retention system: **Quick release mechanism**/~~Double D ring~~/~~other~~

4.3. Comfort padding of the retention system:

4.3.1. Composition:

Polyester cloth backed with polyurethene foam and PU leather

4.3.2. Thickness:

3 mm

4.4. Fixing system to the shell:

By rivets

5. PROTECTIVE PADDING

5.1. Number of pieces:

5

5.2. Composition:

Expanded Polystyrene

5.3. Density:

(1) 60 kg/m³ (Main part) For 2XL (62), 3XL (64), 4XL (65)

(2) 60 kg/m³ (Main part) For L (59), XL (61)

(3) 50 kg/m³ (Main part) For XS (54), S (55), M (57)

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(4) 18 kg/m³ (Top part) For XS(54),S(55),M (57), L (59), XL (61), 2XL(62), 3XL (64), 4XL (65)

(5) 90 kg/m³ (Side part) For XS(54),S(55),M (57), L (59), XL (61), 2XL(62), 3XL (64), 4XL (65)

(6) 90 kg/m³ (Chin Part) For XS(54),S(55),M (57), L (59), XL (61), 2XL(62), 3XL (64), 4XL (65)

6. COMFORT PADDING

6.1. Composition of:

Comfort padding: **Polyurethene foam**
Comfort tissue: **Polyester cloth**
Protection of the back of the neck: **Polyester cloth backed with polyurethene foam/PU Synthetic Leather**

7. OTHER CHARACTERISTICS

7.1. Indelible marking:

Location of:	Make	:	**Back and front of the shell**
	Size	:	**Sewn onto comfort padding**
	Approval mark	:	**Sewn into the retention system**

8. ACCESSORIES

8.1. Antifog Film

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8.2. User's instructions

8.2.1. Text:

- FOR ADEQUATE PROTECTION, THE HELMET SHALL FIT CLOSELY AND THE CHIN STRAP SHALL BE UNDER TENSION AT ALL TIMES OF VEHICULAR USE.

- THE HELMET IS MADE TO ABSORB SOME OF THE ENERGY OF BLOW BY PARTIAL DESTRUCTION OF ITS COMPONENT PARTS EVEN THOUGH DAMAGE MAY NOT BE READILY APPARENT. ANY HELMET SUBJECTED TO SEVERE IMPACT SHOULD BE DISCARDED.

- TO MAINTAIN THE FULL EFFICIENCY OF THE HELMET, THERE SHALL BE NO ALTERATION TO THE STRUCTURE OF THE HELMET OR ITS COMPONENT PARTS.

8.2.2. Location:

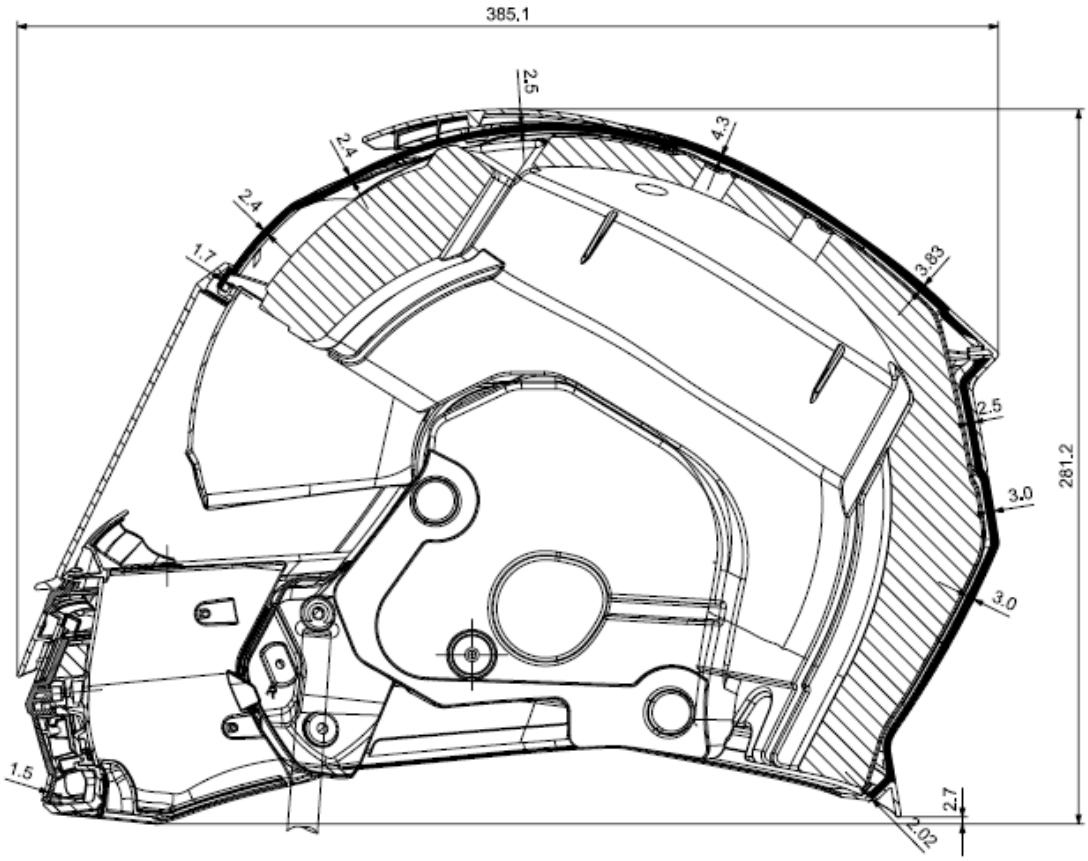
On the tag attached to the helmet

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SIDE SECTION VIEW

(For 4XL, 3XL & 2XL HELMETS)

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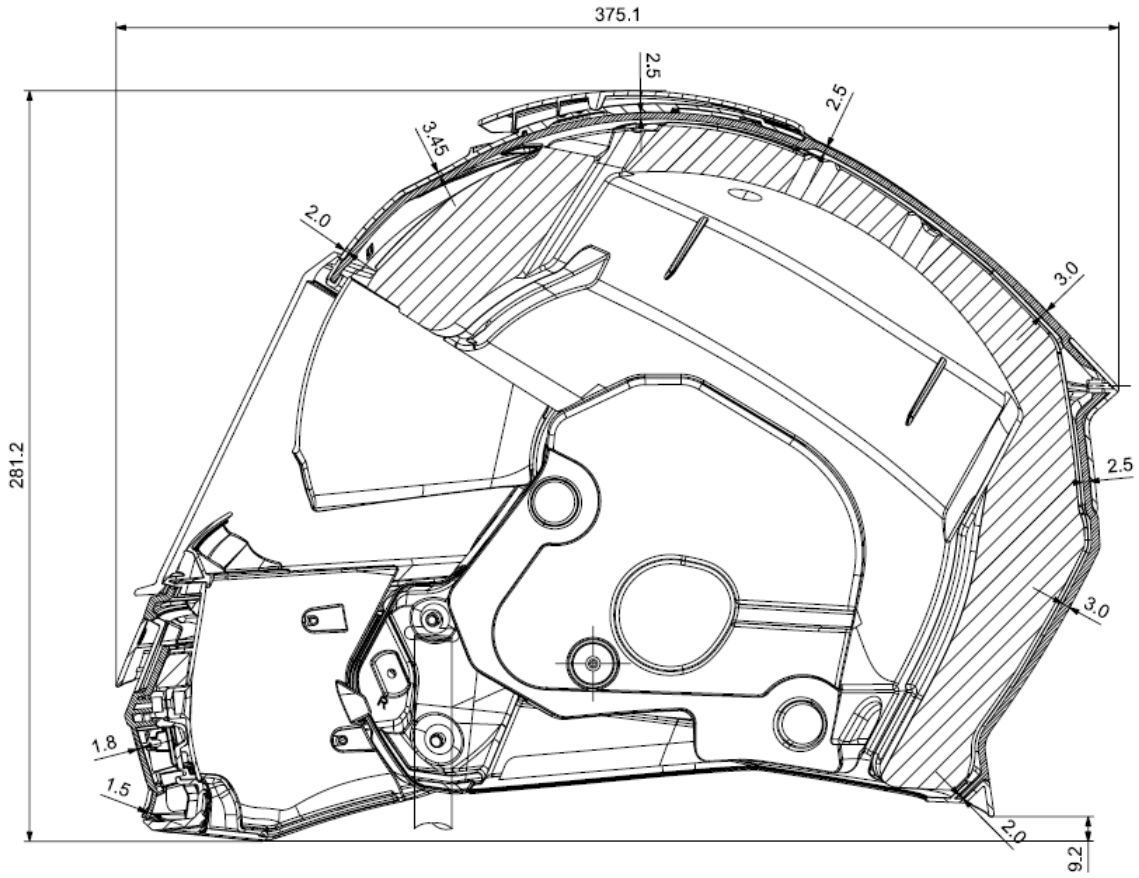


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SIDE SECTION VIEW

(FOR XL, L, M, S & XS HELMETS)

PART NO : SAL-GUL-002

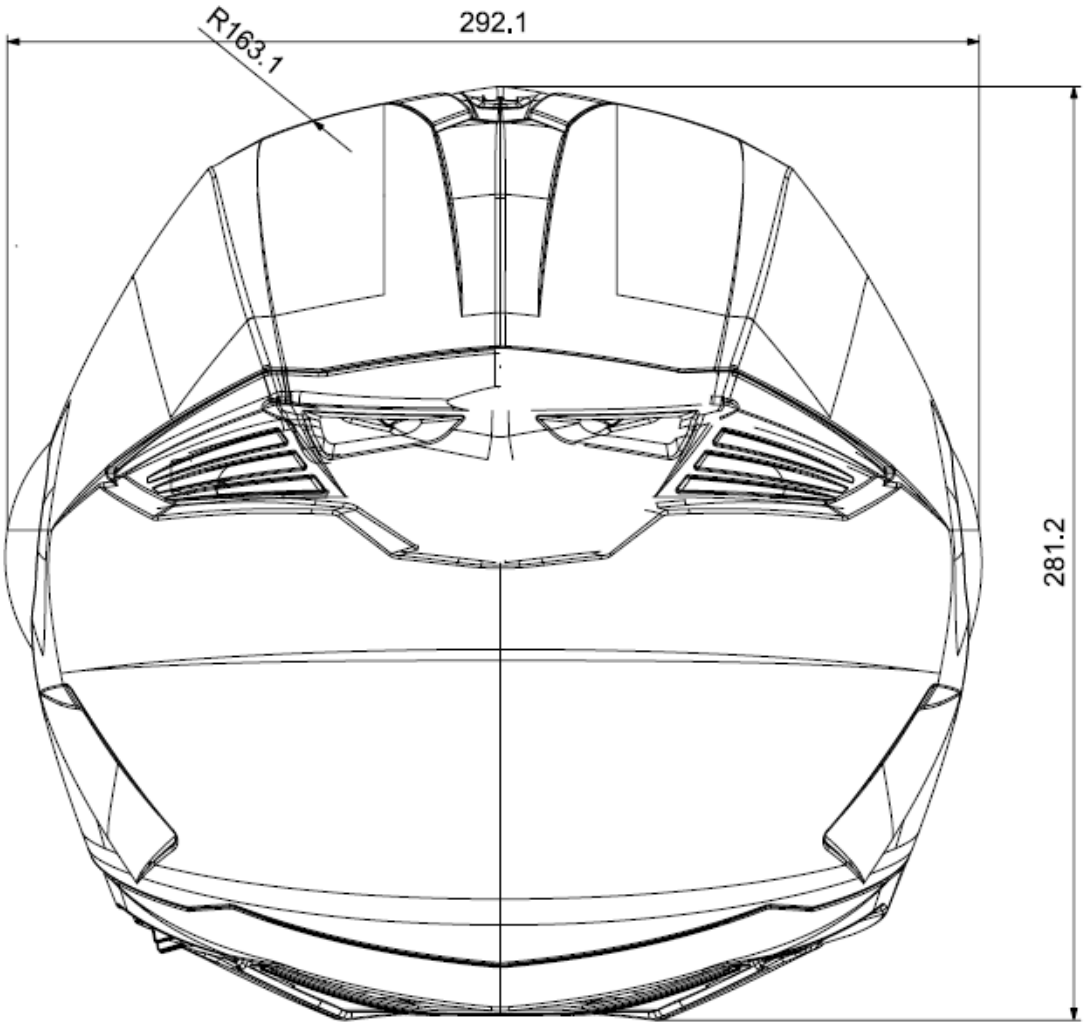


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REAR VIEW

(For 4XL, 3XL & 2XL HELMETS)

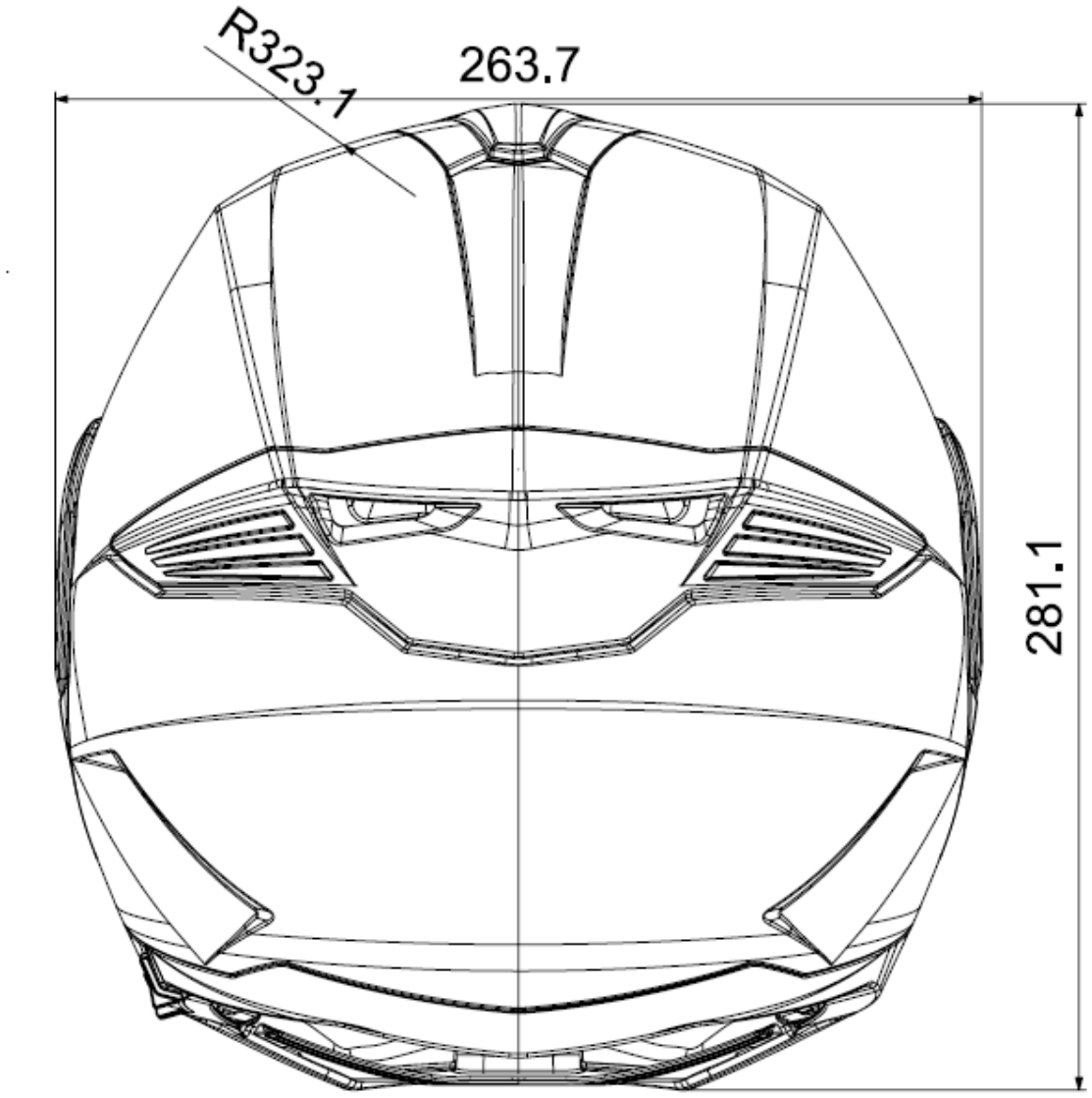
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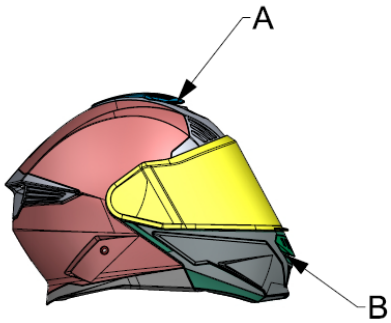
REAR VIEW
(FOR XL, L, M, S & XS HELMETS)

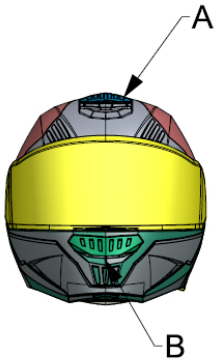
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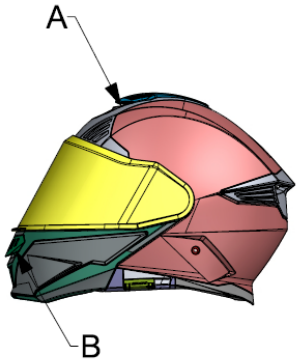


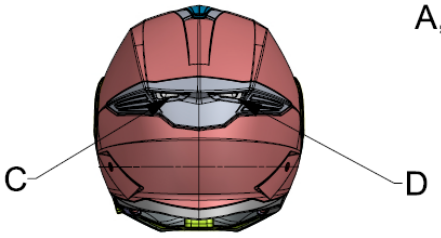
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GULLWING POSITON OF VENTILATION







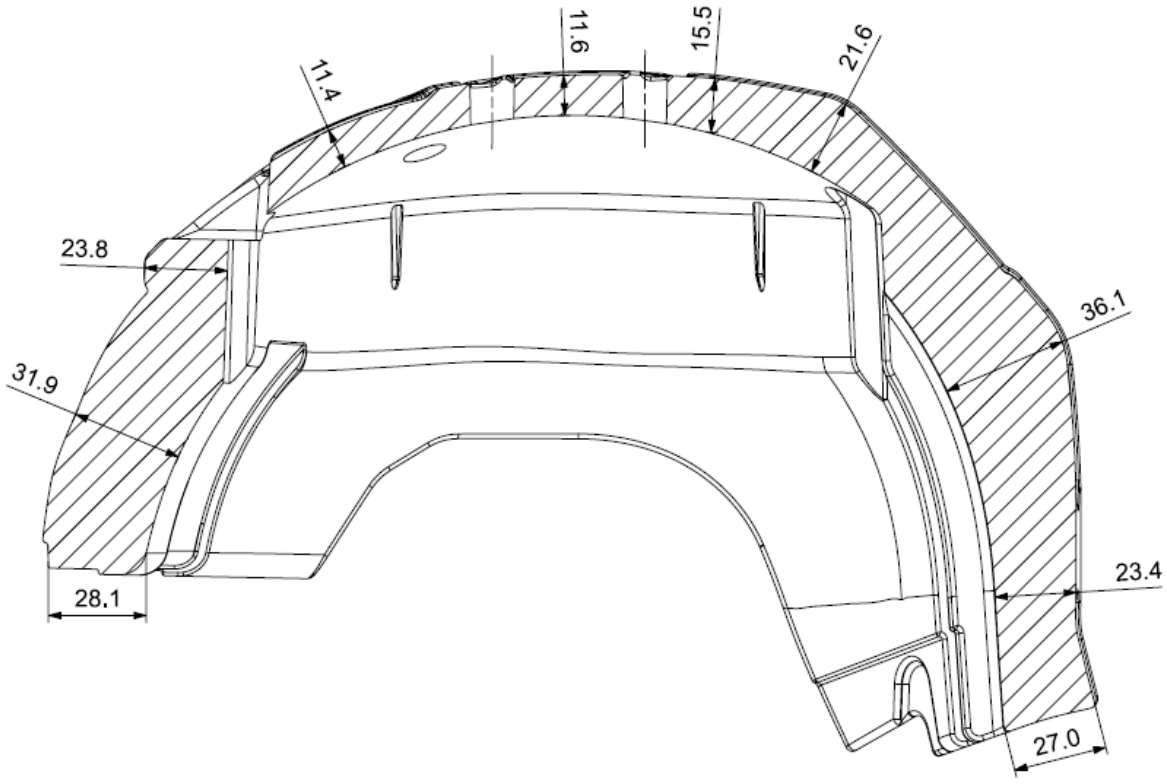


A,B,C,D ARE VENTILATION

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EXPANDED POLYSTYRENE LINER DRAWING
(For 4XL, 3XL & 2XL HELMETS)

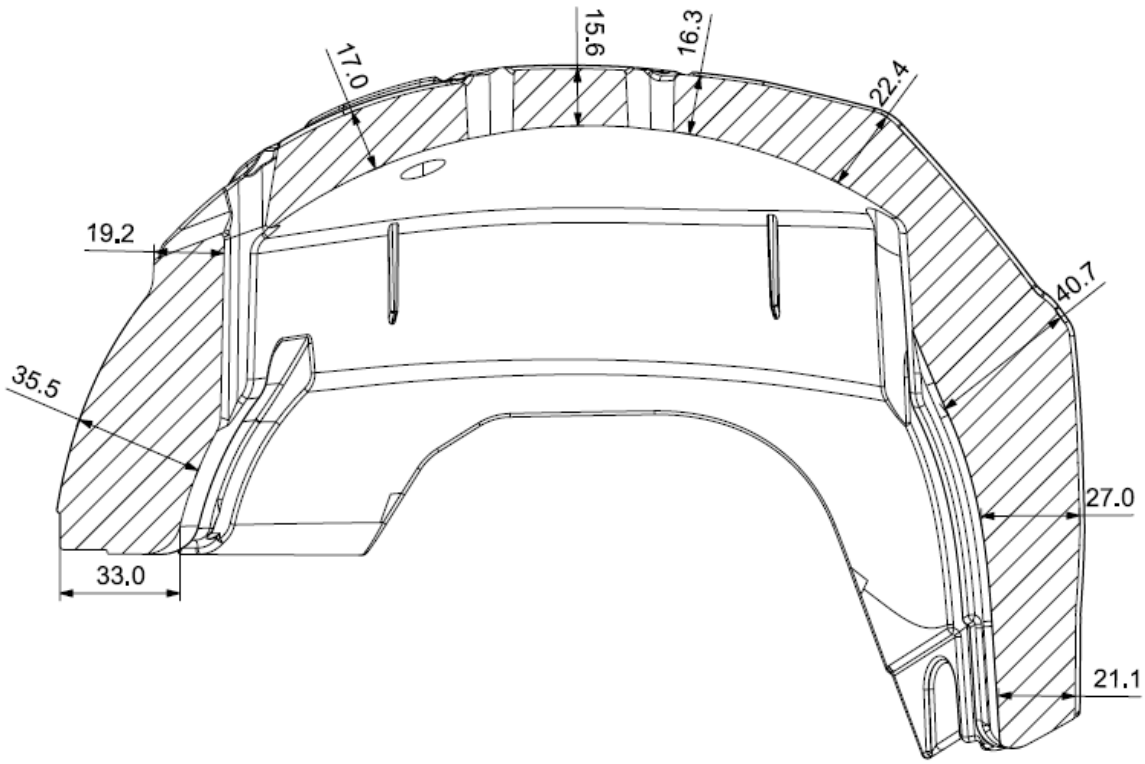
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EXPANDED POLYSTYRENE LINER DRAWING (FOR XL & L HELMETS)

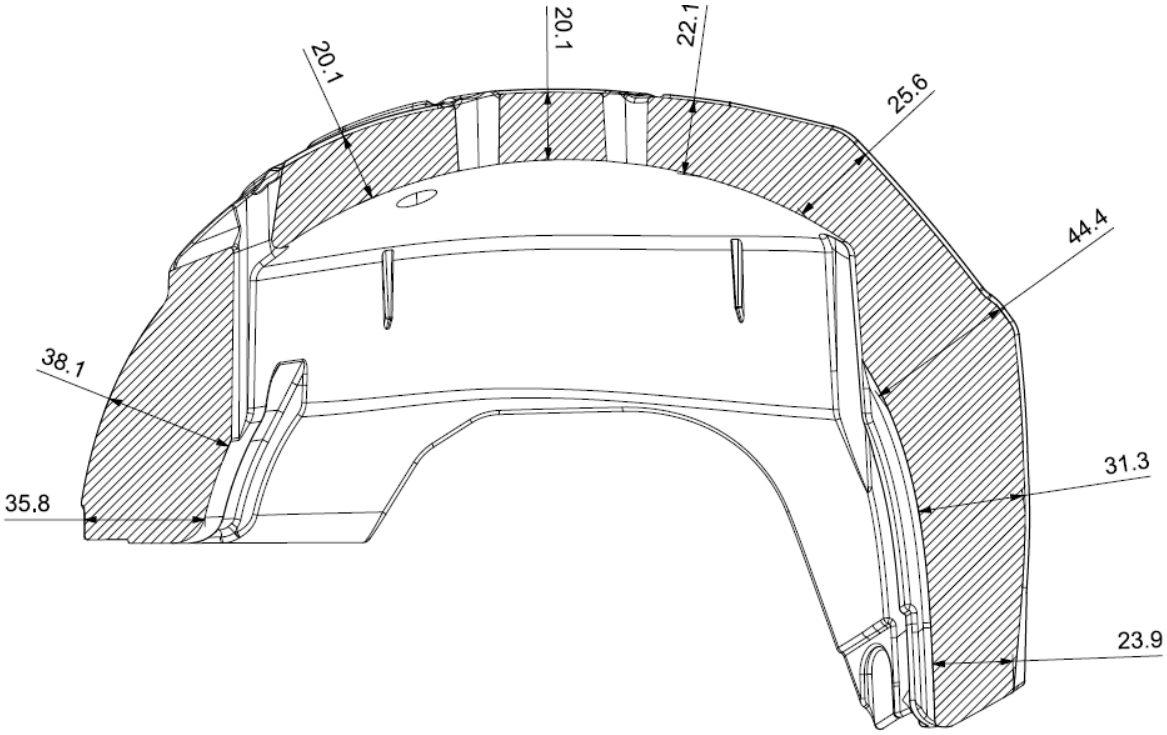
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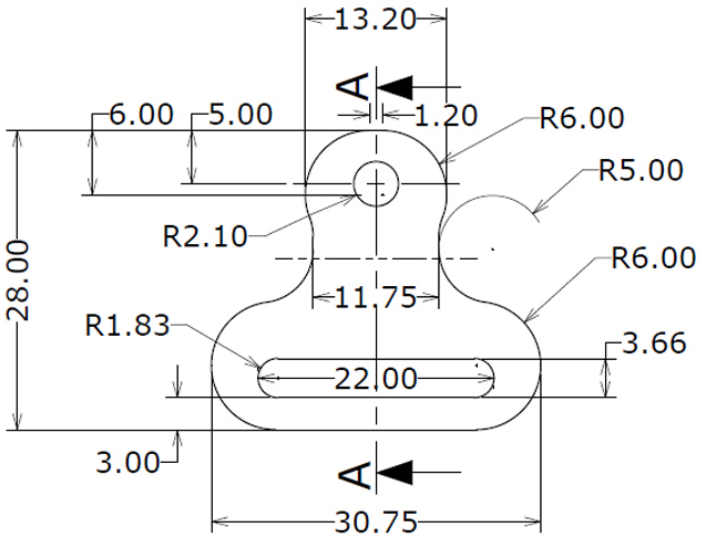
EXPANDED POLYSTYRENE LINER DRAWING (FOR M, S & XS HELMETS)

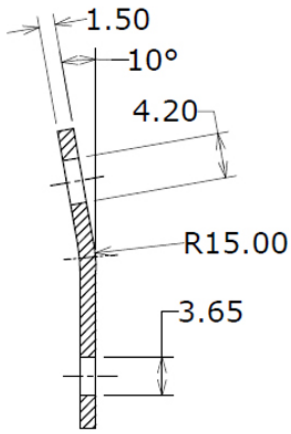
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HANGER BRACKET DRAWING
PART NO : - 17080013

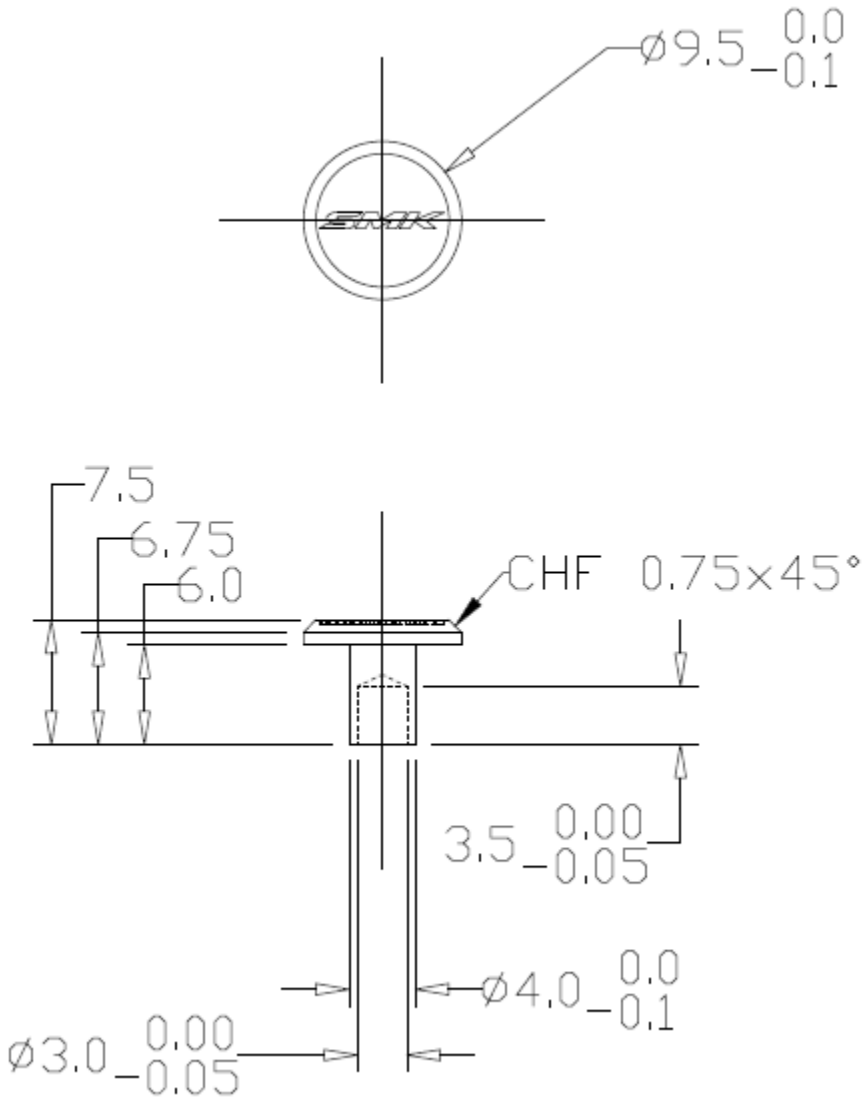




SECTION A-A

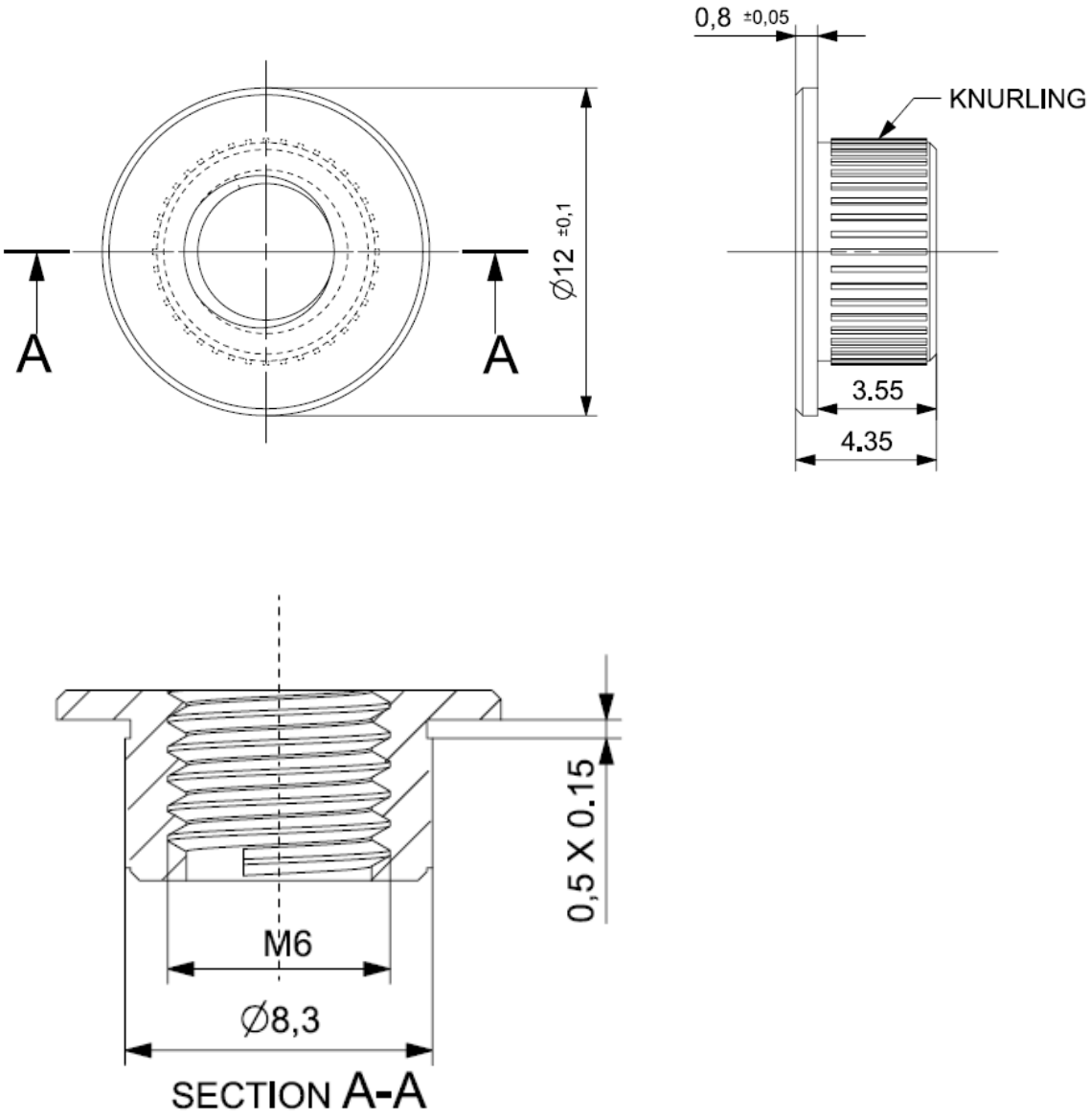
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SMK RIVET DRAWING



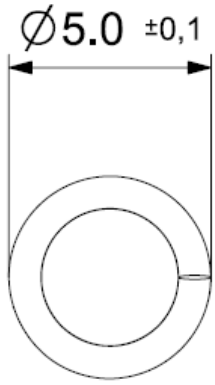
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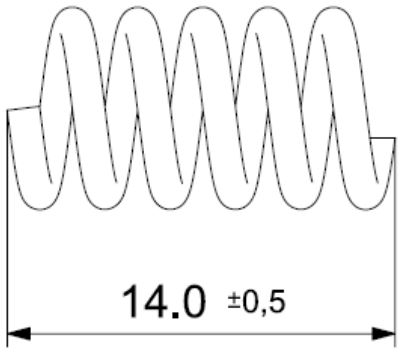
BUSH DRAWING



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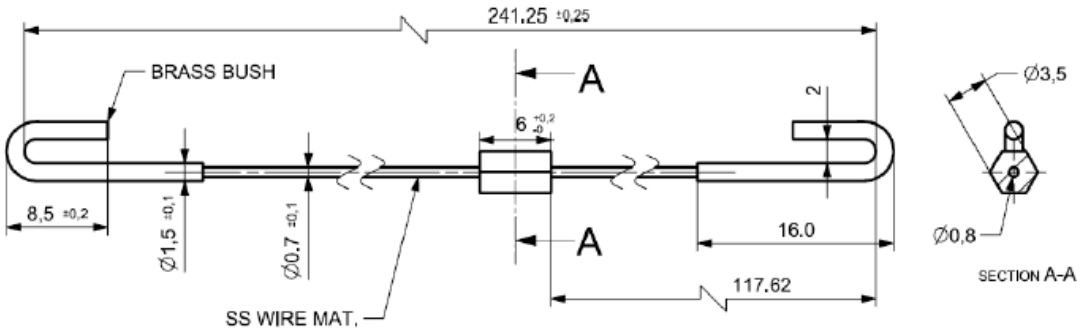
COMPRESSION SPRING BOTTOM OPEN CHIN BAR





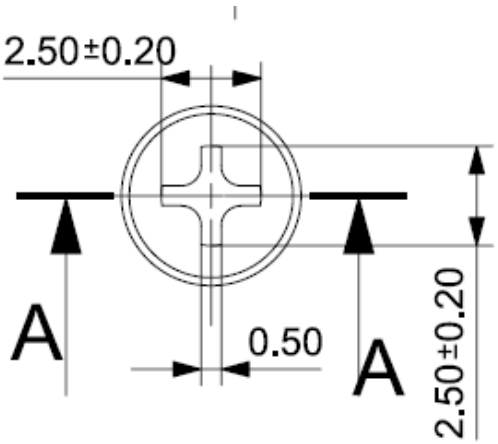
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CONTROL WIRE CHIN BAR

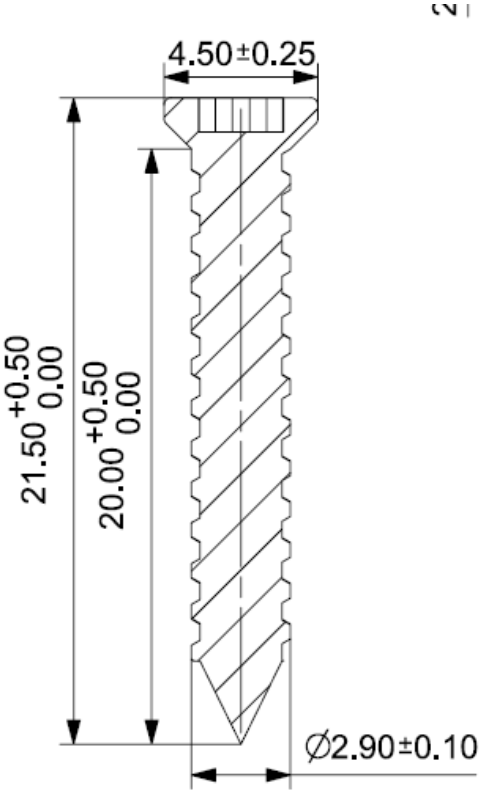


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CROSS RECESSED COUNTER SUNK



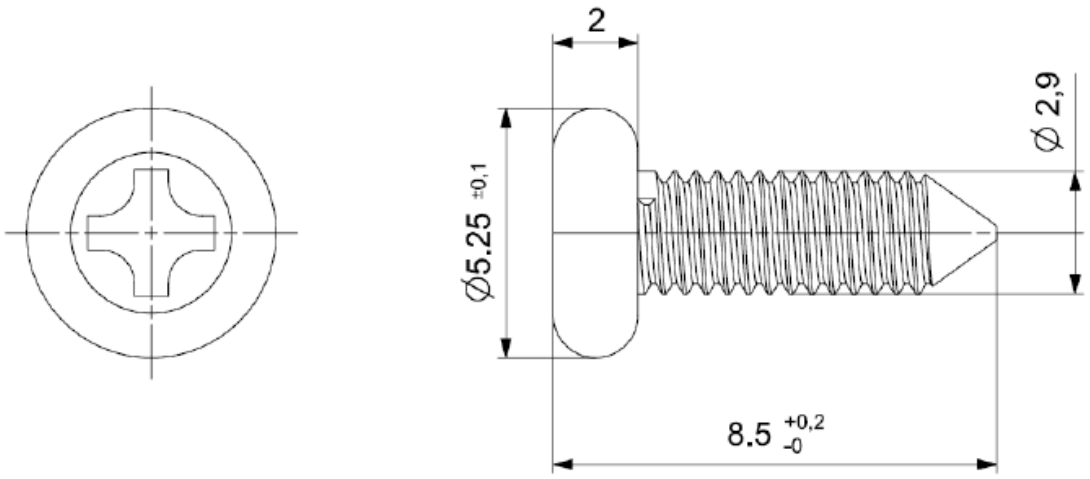
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SECTION A-A

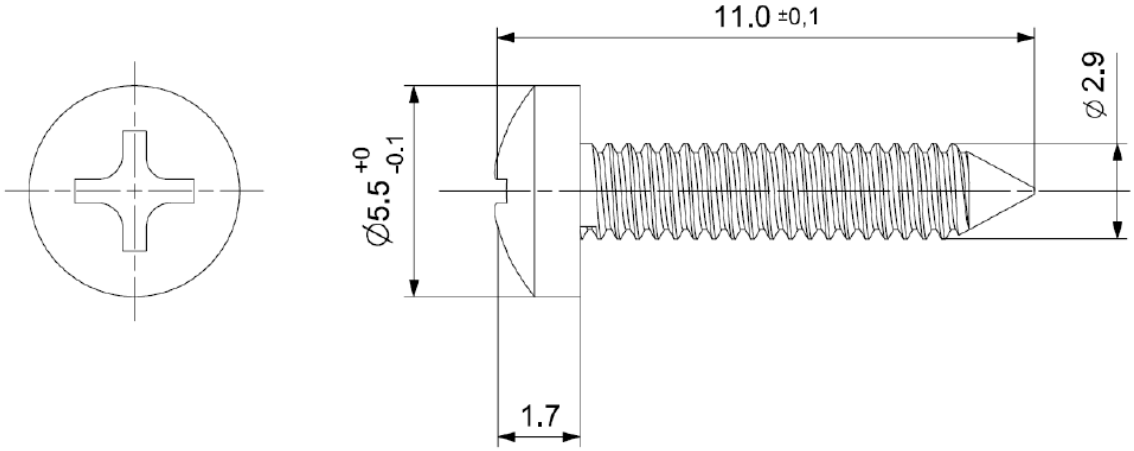
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SCREW WITH COLLER



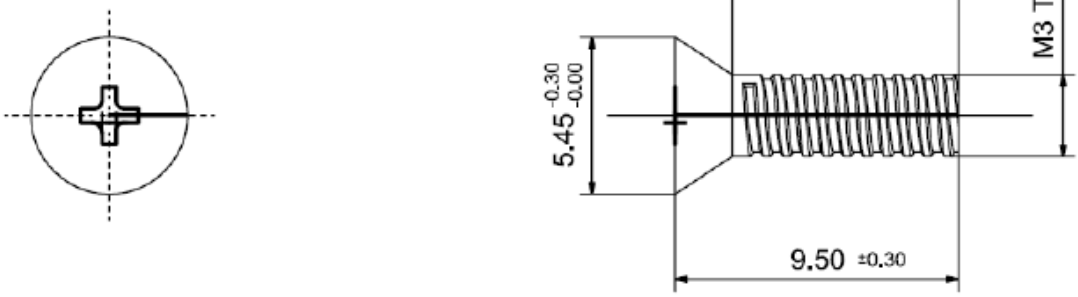
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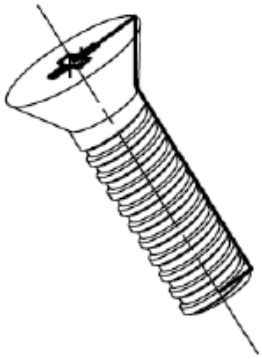
HEAD TAPPING SCREW



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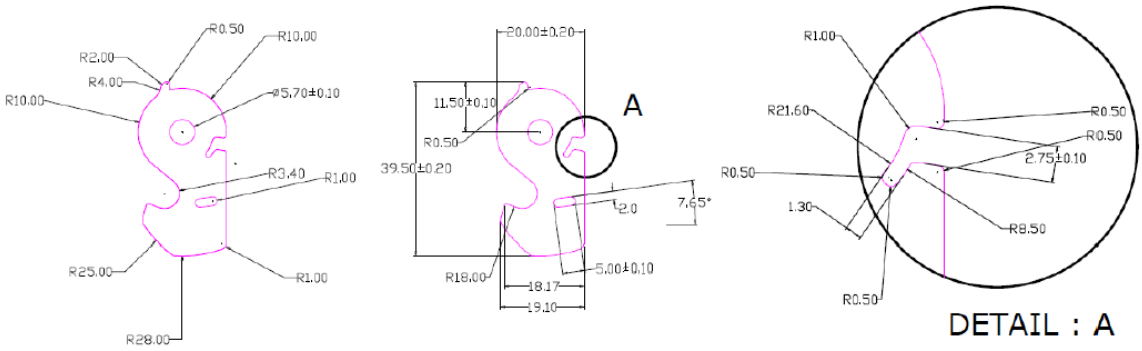
MACHINE SCREW





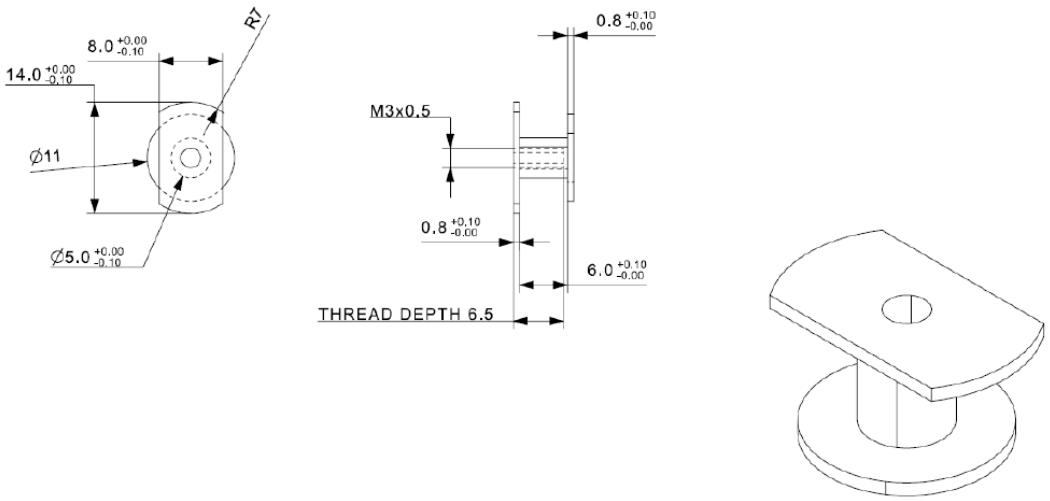
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METAL HOOK



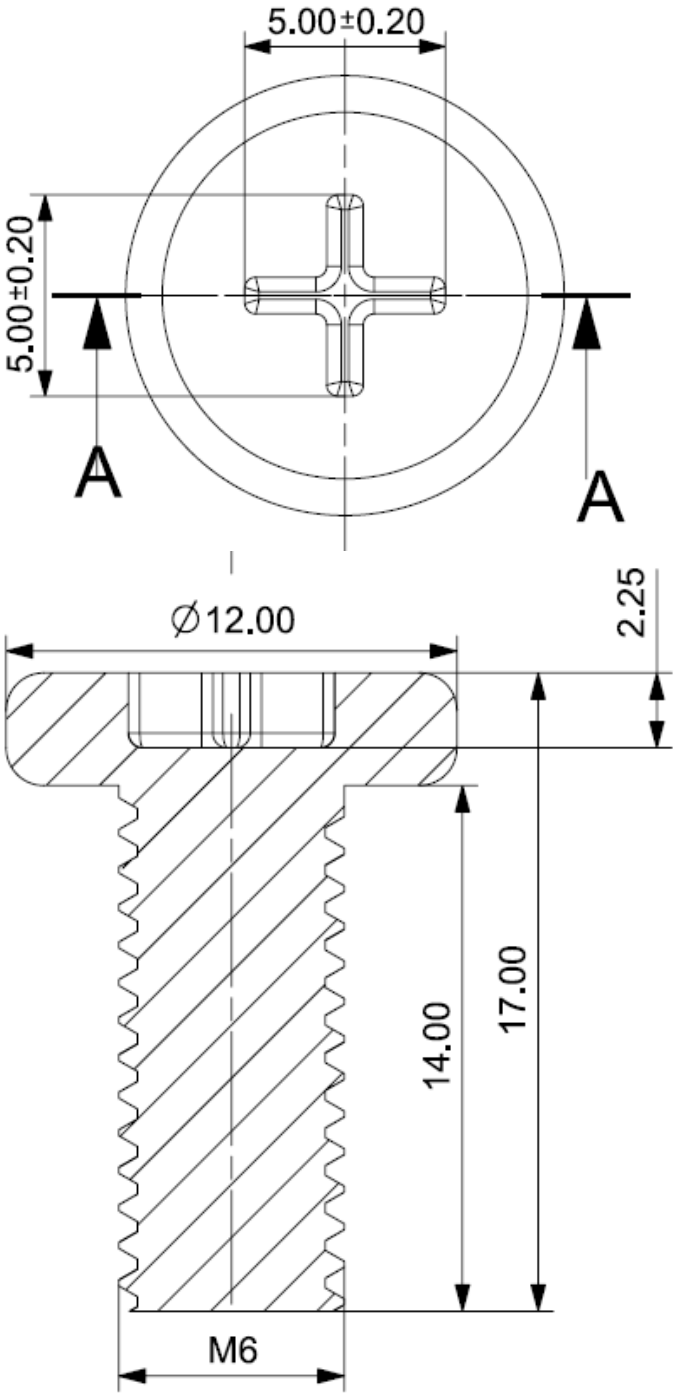
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METAL PIN



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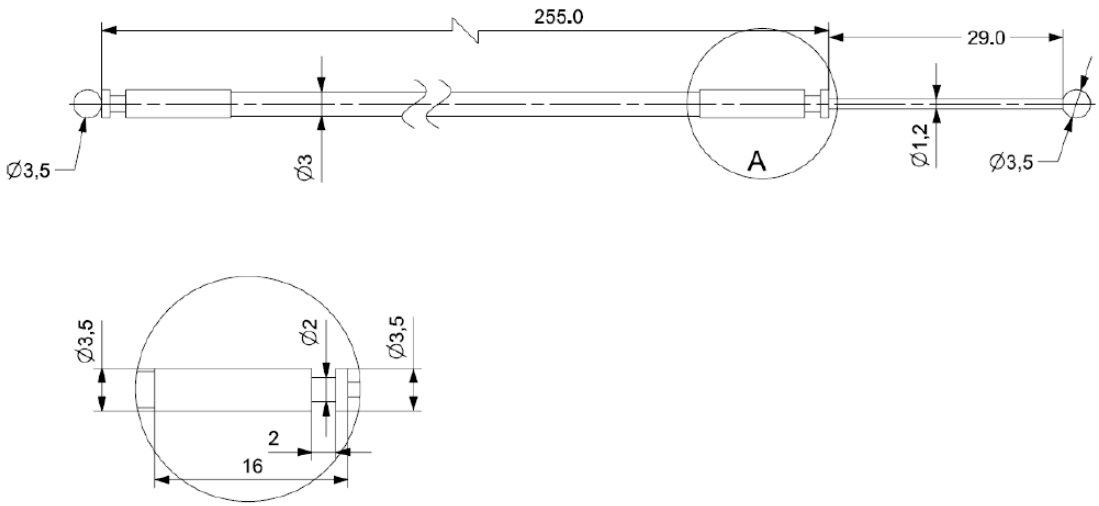
SCREW FOR VISOR



SECTION A-A

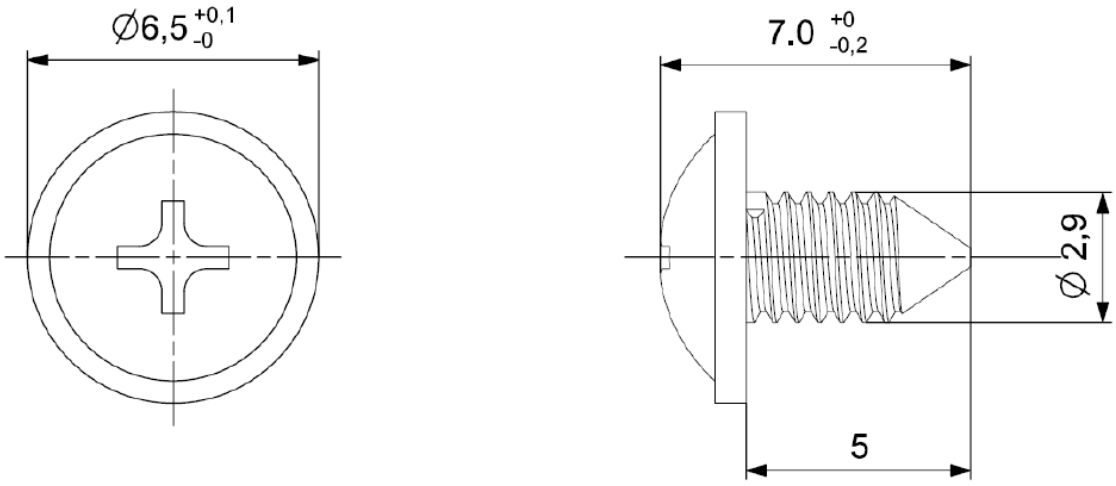
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SUN VISOR CABLE



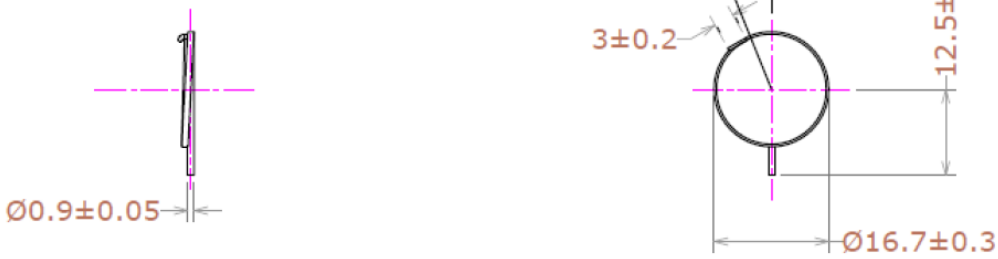
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TAPPING SCREW



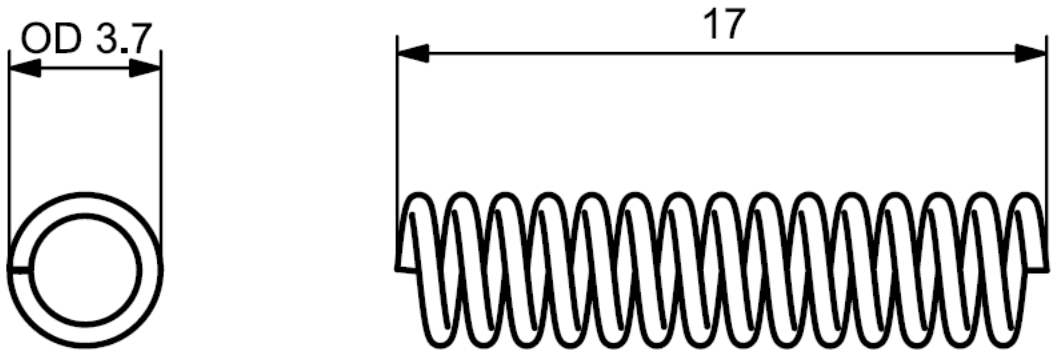
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TORSION SPRING



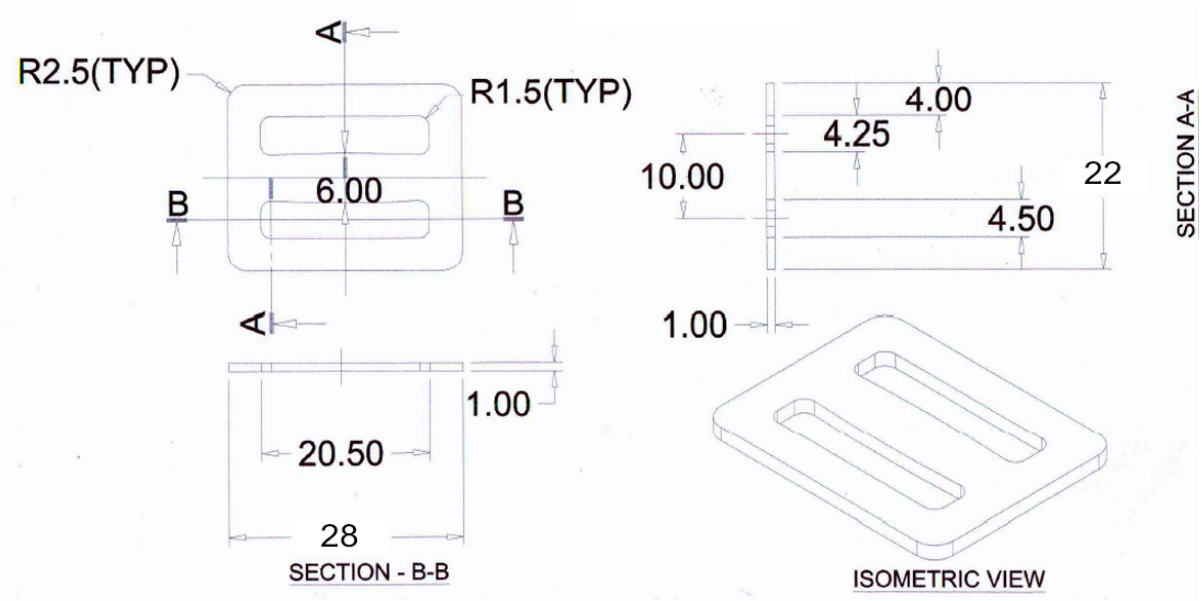
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VISOR MECHANISM SPRING



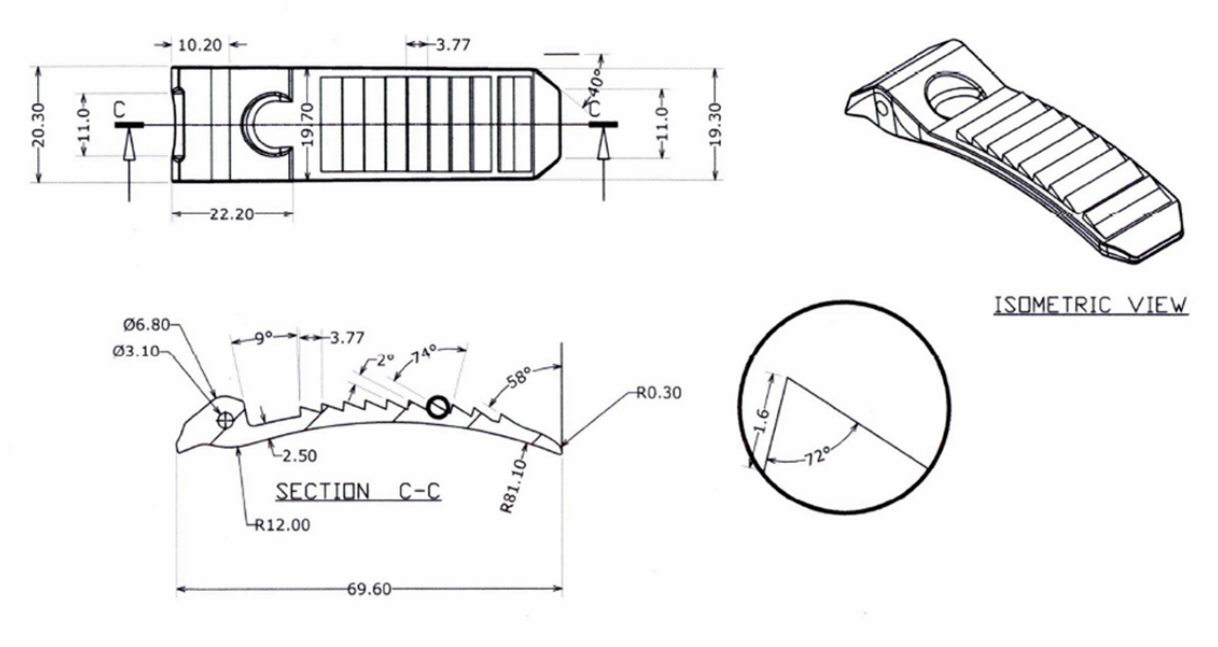
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ADJUSTER DRAWING
PART NO : - 14110006



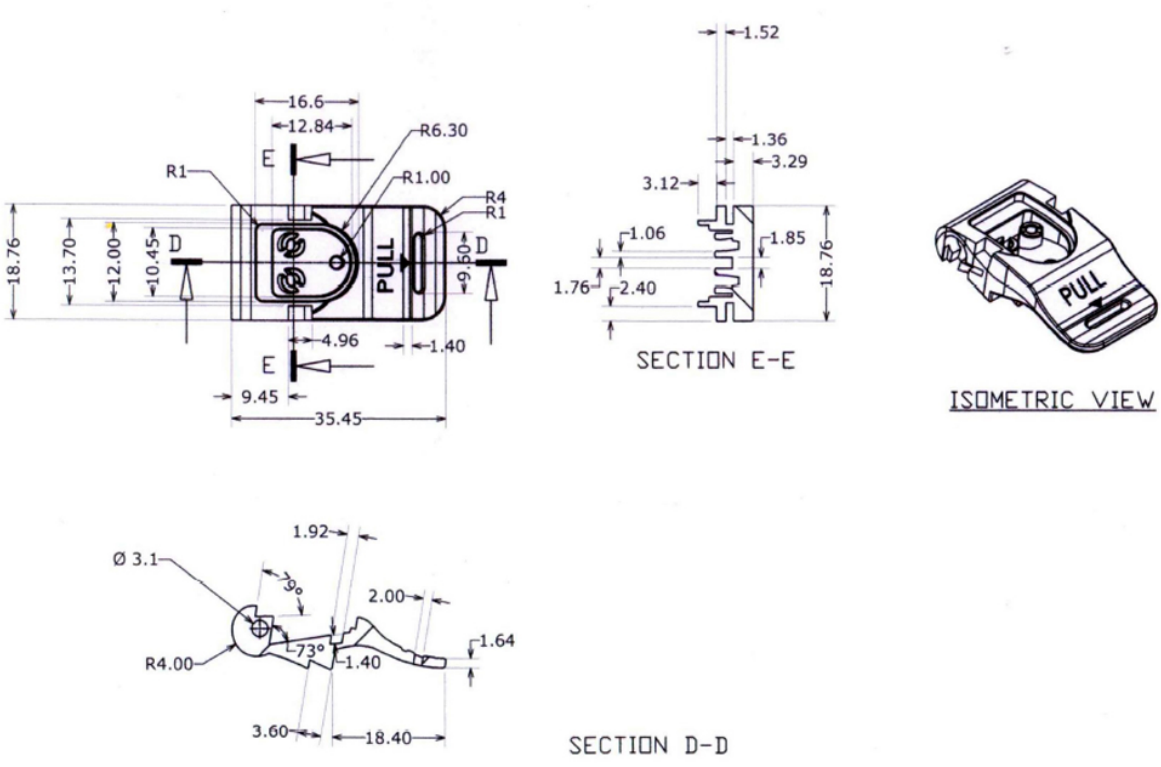
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BUCKLE LATCH PART DRAWING
PART NO : - SAL/MMB/01



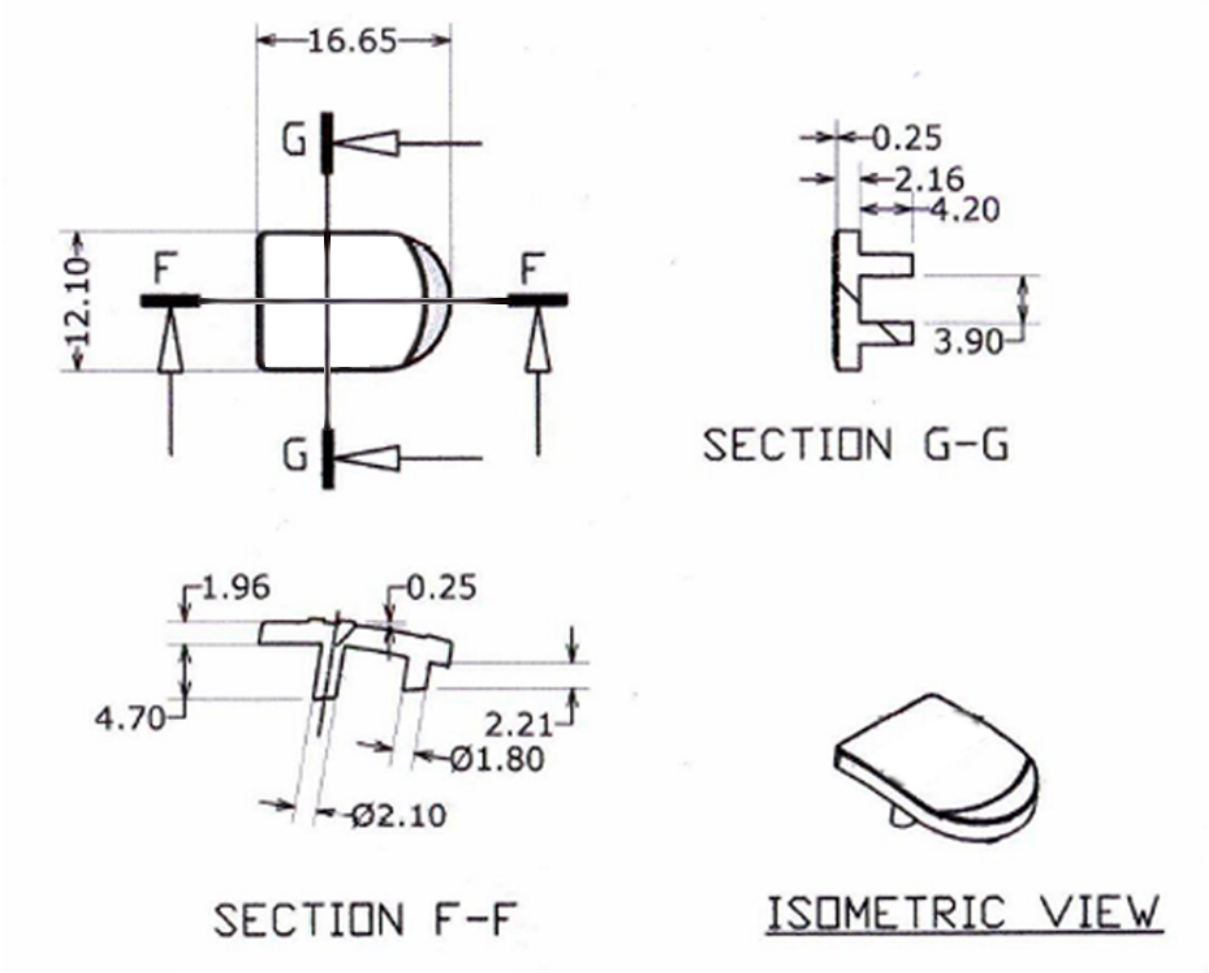
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BUCKLE PART DRAWING
PART NO : - SAL/MMB/02



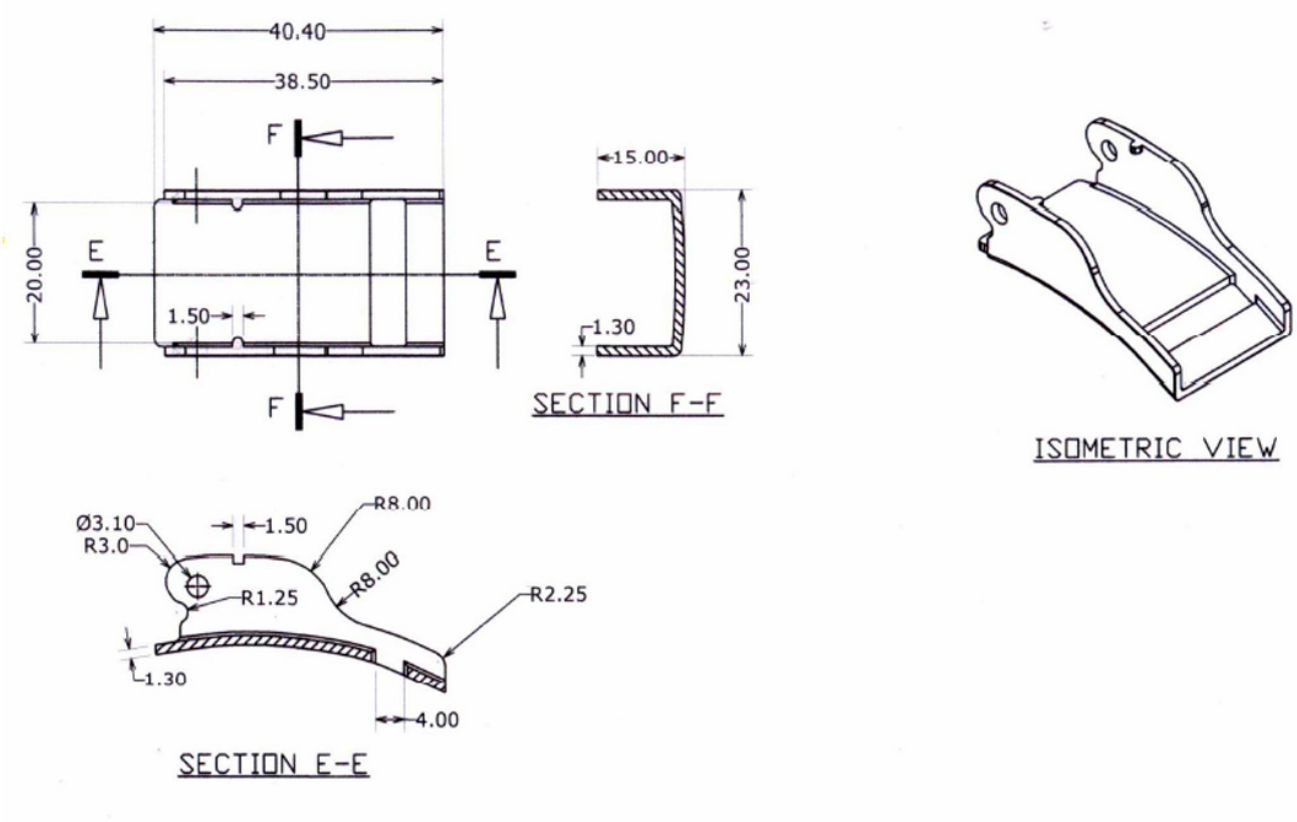
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BUCKLE CAP DRAWING
PART NO : - SAL/MMB/03



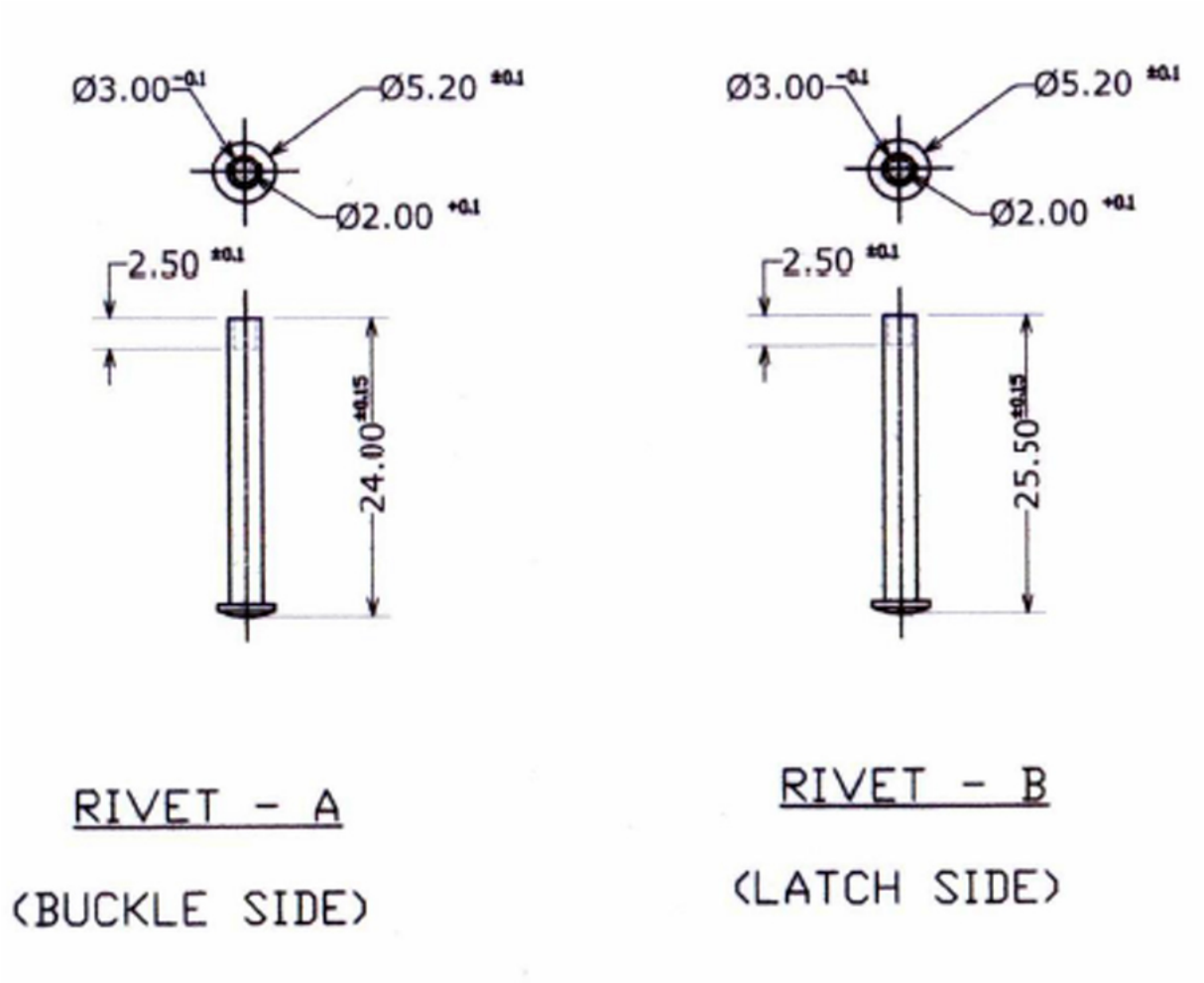
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BUCKLE HOUSING METAL PART DRAWING
PART NO : - SAL/MMB/04



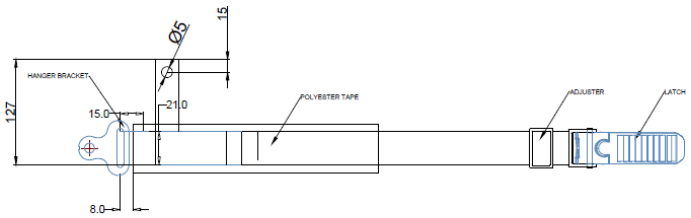
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MICROMETRIC BUCKLE RIVET DRAWING
PART NO : - SAL/MMB/06

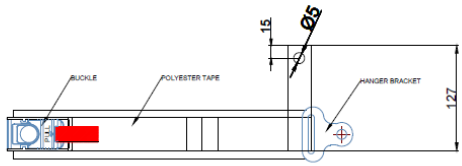


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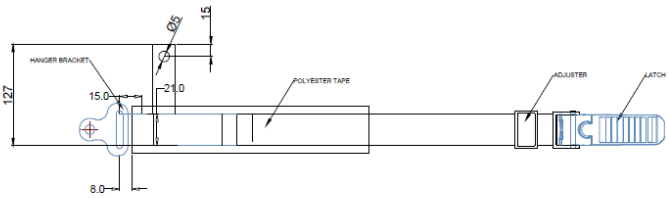
CHIN STRIP ASSEMBLY



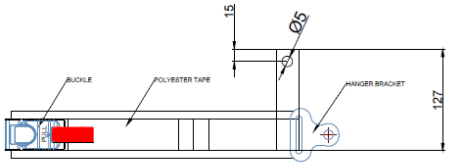
DEV. LENGTH OF POLYESTER TAPE FOR 2XL = 292.1 mm



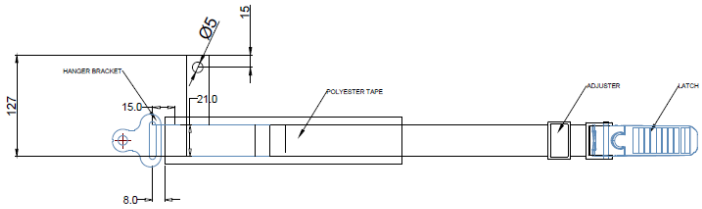
DEV. LENGTH OF POLYESTER TAPE FOR 2XL = 254.0 mm



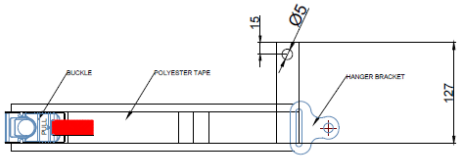
DEV. LENGTH OF POLYESTER TAPE FOR M/L/XL = 266.7 mm



DEV. LENGTH OF POLYESTER TAPE FOR M/L/XL = 254.0 mm



DEV. LENGTH OF POLYESTER TAPE FOR S/XS = 241.3 mm



DEV. LENGTH OF POLYESTER TAPE FOR S/XS = 215.9 mm



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Vehicle Certification Agency

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Eastgate Road, Bristol, BS5 6XX, United Kingdom
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www.vehicle-certification-agency.gov.uk |
+44(0) 300 330 5797

Report Number: ISB602965 Issue: 0

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Inspection/Test Report: Protective Helmets and their Visors for Drivers and Passengers of Motorcycles and Mopeds

Legislation

UNECE Regulation 22.06 (Revision 4 Amendment 3)

Inspection/Test Details

Location of Inspection/Test:	Studds in-house Test Laboratory - Faridabad
Date of Inspection/Test:	04 June 2023 to 22 June 2023
VCA Representative(s):	Aekansh Saxena
Inspectors Home Office Location:	VCA India
Manufacturer's Representative(s):	Ram V Kumar
Reason for Test Report:	New approval / ~~Extension of approval~~ / ~~Report only~~

Manufacturer Details

Name and Address:	STUDDS ACCESSORIES LIMITED Plant I – 23/7 Mathura Road, Ballabgarh , Faridabad -121004 Haryana, India
Type:	GULLWING-S01
Commercial Description:	Protective helmet equipped with a movable or detachable protective lower face cover 'P/J Type' fitted with Visor
Category:	Not Applicable

Conclusion

The above mentioned component was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested

Witness Engineer/Test Engineer Signature:



Name:	Aekansh Saxena
Position:	Sr. Type Approval Engineer
Date:	01 August 2023

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List of Annexes

Annex	No of Pages	Subject
I	09	Helmet Production Qualification Test Report – ISB602965A

Issue Record

Issue 0 is original report

Worst Case Rationale

Representative Protective Helmet Tested as submitted by Manufacturer

GULLWING- S01 Type Helmet is provided with Visor Type GULLWING-S01
Certificate Number ***E11*22R06/00*0948*00***

Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report

Significant Interpretations, Alternative Test Methods, New Technologies

None

Inspection/Tests Required

	Yes, NA, See Report … / Approval … / Annex …
Markings:	Yes
General Specifications:	Yes
Impact Absorption:	Yes
Projection and Surface Friction:	Yes
Rigidity:	Yes
Retention System (Dynamic):	Yes
Retention (Detaching):	Yes
Micro-slip of the Chin Strap:	Yes
Resistance to Abrasion of the Chin Strap:	Yes
Retention Systems Relying on Quick Release Mechanism:	Yes
Tests for Oblique impact and measurement of rotational acceleration:	Yes

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Helmet Specification

Style of Helmet:	Protective helmet equipped with a movable or detachable protective lower face cover 'P/J Type' fitted with Visor		
Size			
Shell Size:	XXL Shell With XXL EPS	Large Shell With Large EPS	Large Shell With Small EPS
Consumer Size:	4XL (65), 3XL (64), 2XL (62)	XL (61), L (59)	M (57), S (55), XS (54)
Weight:	4XL (1850), 3XL (1860), 2XL (1870) gm	XL (1750), L (1740) gm	M (1720), S (1725), XS (1730) gm
Materials			
Shell:	ABS		
Padding:	Expanded Polystyrene		
Liner:	Polyurethane Foam, Polyester Cloth		
Chin Strap:	Polyester		
Retention System			
Type:	Quick Release Mechanism		
Buckle:	Micro Metric Buckle		
Strap Retainer:	Refer attach drawing		
Anchorages:	Riveting		
Ventilation System:	4 nos (Chin, Top & Rear area of Helmet)		
Type of Shell Edging:	TPE material beading		
Accessories:	NA		
Reflecting Band:	NA		
Conspicuity marking:	NA		
Additional Features:	NA		

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component tested, and covers all variants and versions agreed in the worst case rationale. Information document uploaded to job folder and identified by job number.	Yes

Facility and Equipment Checks

Facility Appraisal reference and date *(Reference and date if formal; state if ad-hoc appraisal).*	FAIND118 and 13 July 2022
Calibration certificates checked and valid, recorded in the following table:	Yes

Equipment

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Description	Make	Model	Serial number	Calibration due date*
Head Forms	AD Engg	NA	SAL/LAB/HF/60	27/01/2024
Impact Test Set-up	AD Engg	MAU1006/CF/AL	SAL/LAB/PG/01	03/01/2024
Ultraviolet-Radiation Conditioning Chamber	AD Engg	NA	SAL/LAB/DT/02	03/01/2024
Low Temperature Conditioning Chamber	Cellforst	IKG301	SAL/LAB/CCC/01	15/08/2023
Heat Conditioning Chamber	Bellstone	NA	SAL/LAB/HC/01	23/02/2024
Hygrometer	Bellstone	NA	SAL/LAB/HUM/CH	15/08/2023
Retention Testing Machine	AD Engg	ROL1103/ECE	SAL/LAB/WG/06	27/01/2024
Rigidity Test Machine	MYQ Engg	NA	RTM-01	05/03/2024
Digital Tensile Machine	Bagga	BSI – 500	BSI – 500	05/03/2024

**Specify calibrated date + (interval) or calibration due date.*

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Vehicle Certification Agency

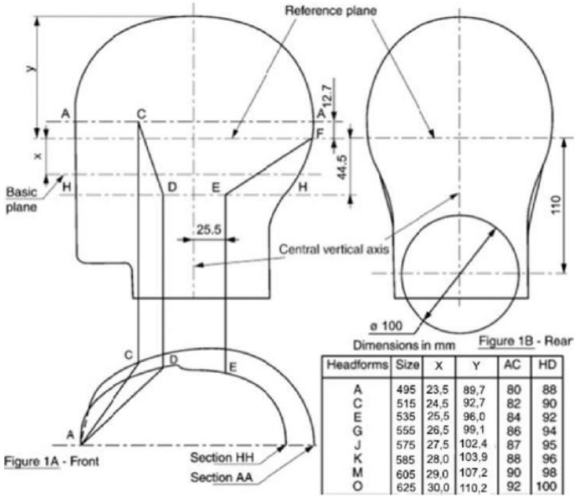
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	Inspection/Test Requirements	Complies Yes / NA
Markings		
4.1.1.	On the helmet, it bears the applicant's trade name or mark, and an indication of the size and, if appropriate, an indication of the unsuitability of the lower face cover to offer any protection against impacts to the chin.	Yes
4.3.	Marking is not placed within the main visibility area.	Yes
4.4.	Marking is indelible, clearly legible and in a readily accessible place.	Yes
8.2	Raw data of test paragraph 7.13. stored by the technical service and available to the approval authority. (for the purpose of improvement of the Regulation at a later stage.)	Yes
General Specifications		
6.1.	Basic construction of the helmet is in the form of a hard outer shell, containing additional means of absorbing impact energy and a retention system.	Yes
6.2.	Protective helmet may be fitted with ear flaps and a neck curtain. It may also have a detachable peak, a visor, additional sun shield, electronic equipment or accessories and a lower face cover. If fitted with a non-protective lower face cover, the outer surface of the cover is marked 'Does not protect chin from impacts' and/or with the symbol shown in Figure 1 below, indicating the unsuitability of the lower face cover to offer any protection against impacts to the chin.  Note: this symbol or indication must be visible and extend over at least 2 cm^2	Yes
6.3.	No component or device is fitted to or incorporated in the protective helmet, unless it is designed in such a way that it will not cause injury	Yes

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	and that, when it is fitted to or incorporated in the protective helmet, the helmet still complies with the requirements of this regulation.	
6.4.1.	Shell covers all areas above plane AA' and extends downwards at least as far as the lines 'CDEF' on both sides of the headform. *Note: See Annex 4, Figure 1A.*	Yes
6.4.2.	At the rear, the rigid parts and, in particular, the shell, are not within a cylinder, defined as follows: - Diameter: 100 mm; - Axis situated at the intersection of the medium plane of symmetry of the headform and of a plane parallel to and 110 mm below the reference plane. *Note: See Annex 4, Figure 1B.*	Yes
6.4.3.	Protective padding covers all the areas defined in paragraph 6.4.1, with account being taken of the requirements of paragraph 6.5.	Yes
6.5.	Helmet does not dangerously affect the wearer's ability to hear.	Yes
6.5.	Temperature in the space between the head and the shell does not rise inordinately. *Note: To prevent this, ventilation holes may be provided in the shell.*	Yes
6.5.	Where means for attaching a visor are not provided, the profile at the front edge does not prevent the wearing of goggles.	Yes
6.6.	All projections from, or irregularities in the outer surface of the shell greater than 2 mm, are tested for shear assessment according to paragraphs 7.4.1 or 7.4.2. The outer surface of the helmet is tested for friction assessment, according to paragraphs 7.4.1 or 7.4.2. This	Yes



Headforms	Size	X	Y	AC	HD
A	495	23,5	89,7	80	88
C	515	24,5	92,7	82	90
E	535	25,5	96,0	84	92
G	555	26,5	99,1	86	94
J	575	27,5	102,4	87	95
K	585	28,0	103,9	88	96
M	605	29,0	107,2	90	98
O	625	30,0	110,2	92	100

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	applies in particular to a movable lower face cover in all positions intended by the manufacturer.			
6.7.	All external projections are radiused and any external projections other than press-fasteners are smooth and adequately faired.			Yes
6.7.1.	All external projections not more than 2 mm above the outer surface of the shell (e.g. rivet heads) have a radius of a minimum of 1 mm.			Yes
6.7.2.	All external projections more than 2 mm above the outer surface of the shell have a radius of a minimum of 2 mm. *Note: Latter specific requirements do not apply if a projection satisfies the requirements in paragraphs 7.4.1 or 7.4.2 below.*			Yes
6.8.	There are no inward-facing sharp edges on the inside of the helmet; rigid, projecting internal parts are covered with padding so that any stresses transmitted to the head are not highly concentrated.			Yes
6.9.	Various components of the protective helmet are so assembled that they are not liable to become easily detached as a result of an impact.			Yes
6.9	In the case of visor and movable or detachable lower face cover, only when in not protective position, the detachment is acceptable provided that it is complete and not to cause possible injuries to the user			Yes
6.10.	Retention systems are protected from abrasion.			Yes
6.11.	Helmet is held in place on the wearer's head by means of a retention system, which is secured under the lower jaw. All parts of the retention system are permanently attached to the system or to the helmet.			Yes
6.11.1.	If the retention system includes a chin-strap, the strap is not less than 20 mm wide under a load of 150 N ± 5 N, applied under the condition prescribed in paragraph 7.6.2:	20.75	mm	Yes
6.11.2.	Chin strap does not include a chin cup.			Yes
6.11.3.	Chin straps are fitted with a device to adjust and maintain tension in the strap.			Yes
6.11.4.	Chin strap fastening and tensioning devices are positioned on the straps so that:			Yes

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	- There are no rigid parts extending more than 130 mm vertically below the headform reference plane, with the helmet mounted on the appropriate sized headform* - The whole of the device is between the bony projections of the underside of the lower jaw* **Strikethrough, as appropriate.*	
6.11.5.	If the retention system includes either a double-D ring or sliding bar fastening device ("roller buckle"), then means are provided to prevent the retention system being completely undone and also to retain the free end of the strap when the retention system is adjusted. (If the retaining system can be opened completely, it must be possible only with voluntary action. To prevent any possible misuse, the helmet must be provided with detailed instructions on the use of the buckle if required.)	NA
6.11.6.	Sliding bar and double-D ring fastening devices are fitted with a pulling flap to be used for releasing the retention system. Its colour is red and its minimum dimensions are 10 x 20 mm.	NA
6.11.7.	If a retention system includes a quick-release mechanism, then the method of release of this mechanism is self-evident. Any levers, tabs, buttons or other components that need to be operated to release the mechanism are coloured red; those parts of the rest of the system that are visible when closed are not similarly coloured, and the mode of operation is permanently indicated.	Yes
6.11.8.	Retention system remains closed when the tests described in paragraphs 7.3, 7.6 and 7.7 are carried out.	Yes
6.11.9.	Buckle of the retention system is designed so as to preclude any possibility of incorrect manipulation. This means inter alia (among other things) that it is not possible for the buckle to be left in a partially closed position.	Yes
6.12.	If the lower face cover is detachable or movable, the lower face cover is fitted with a device that maintains the intended position even during the complete series of impacts and retention (detaching) test. The device is such that incorrect handling is impossible. The control/actuating device must be of red colour. The helmet must comply with the requirements for helmet categories "J","P" or both.	Yes
6.13.	Characteristics of the materials used in the manufacture of helmets are known not to undergo appreciable alteration under the influence of ageing or of the circumstances of use to which the helmet is normally subjected, such as exposure to sun, extremes of temperature and rain. For those parts of the helmet coming into	Yes

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	contact with the skin, the materials used are known not to undergo appreciable alteration through the effect of perspiration or of toilet preparations. The manufacturer does not use materials known to cause skin troubles. The suitability of a proposed new material is established by the manufacturer.	
6.14.	After the performance of one of the prescribed tests, the protective helmet does not exhibit any breakage or deformation dangerous to the wearer. Note: As example visor sunshield and shell significant cracks or any part partially detached (spoiler, lower face cover, accessories) that can hurt the user while he's rolling on the road.	Yes
	Peripheral Vision	
6.15.1 *6.15.2*	The technical service has selected from among the existing sizes of a helmet type the size it considers likely to yield the least favourable result and helmet placed on the headform corresponding to its size by the procedure set out in Annex 5 to this Regulation;	Yes
6.15.3.	There is no occultation in the field of vision bounded by:	Yes
6.15.3.1.	- Horizontally: Two segments of dihedral angles symmetrical in relation to the median longitudinal vertical plane of the headform and situated between the reference and the basic planes. Each of these dihedral angles is defined by the median longitudinal vertical plane of the headform and the vertical plane forming an angle of not less than 105° with the median longitudinal vertical plane and whose edge is the straight line LK;	
6.15.3.2.	- Upwards: Dihedral angle defined by the reference plane of the headform and a plane forming an angle of not less than 7° with the reference plane and whose edge is the straight line L_1 L_2, the points L_1 and L_2 representing the eyes;	
6.15.3.3.	- Downwards: Dihedral angle defined by the basic plane of the headform and a plane forming an angle of not less than 45° with the basic plane, and whose edge is the straight line K_1 K_2.	

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Visors

6.16.1.	Systems of attachment of a visor to a helmet is such that the visor is removable. It is possible to manoeuvre the visor out of the field of vision with a simple movement of one hand. (However, the latter prescription may not be required for helmets which do not provide chin protection provided that a label is attached to the helmet to the effect of warning the purchaser that the visor cannot be manoeuvred.)		Yes
6.16.2.	Angle opening (see annex 9) ≥ 5°:	47 °	Yes

Sun Shield

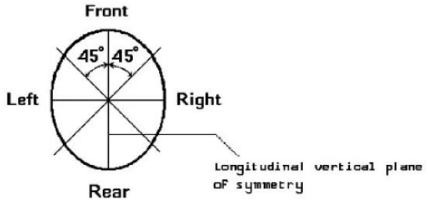
6.17.1	Sun shield does not restrain or prevent the movement of the visor. On opening the visor, the sun shield can pivot in the working position. By means of a simple movement the sun shield is able to be moved separately from the visor out of the visual field.		Yes
6.17.2.1	Sun shield does not restrict the field of vision given in paragraph 6.15. in the working or parking position. If the sun shield is fixed outside of the visor, the surface may include fixings or devices to make movement possible. The total surface of the fixings or devices does not exceed 2cm^2; they can be distributed on both sides of the field of vision.		Yes

Conspicuity Marking

6.18.1.	In order to comply with national requirements for use, the helmet may be required by individual Contracting Parties to contribute to the conspicuity of the user both during the daytime and at night from the front, rear, right and left, by means of parts made of reflective materials that conform to the specifications laid down in paragraphs 6.16.2 to 16.6.6 of this regulation.		NA
6.18.1.	It is allowed that the helmet is equipped with reflective materials in the box, with proper indications to the user on where and how to apply them on the helmet. *Note: Mandating of conspicuity marks is left to the discretion of individual Contracting Parties. Article 3 of the Agreement to which this regulation is annexed does not prevent the Contracting Parties from prohibiting the use of helmets not meeting the conspicuity requirements.*		NA

6.18.2 **Reflective Parts**

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6.18.2.1.	Total surface area and shape of the reflective part used is such that in each direction, corresponding to one of the areas defined in the figure below, visibility is ensured by a surface area of at least 18 cm^2 of simple shape and measured by application on a plane. 	NA
6.18.2.1.	In each surface area of minimum 18 cm^2, it is possible to mark either a: - Circle of 40 mm diameter* - Rectangle of at least 12.5 cm^2 in surface area and at least 20 mm in width*	NA
6.18.2.1.	Each of these surfaces are situated as near as possible to the point of contact with the shell of a vertical plane parallel to the longitudinal vertical plane of symmetry, to the right and to the left, and as near as possible to the point of contact with the shell of a vertical plane perpendicular to the longitudinal plane of symmetry, to the front and to the rear.	NA
6.18.3.	Each of the retro-reflective areas emit white light when it is illuminated with standard illuminant A, with an observation angle of 1/3° and an illumination angle $\beta 1 = \beta 2 = 0°$ (or $\beta 1 = \pm 5°$, $\beta 2 = 0°$).	NA
6.18.4.	Minimum value of the luminous intensity coefficient of a surface area of 18 cm^2 of material, when revolved, is not less than the values specified in the table below, expressed in millicandelas per lux.	NA

Angle of Divergence (')	Angle of Illumination (°)		
	0	20	40
20	100	60	25

6.18.5.	After each conditioning as described in paragraph 7.2, the helmet is visually inspected. There are no signs of cracking or appreciable distortion of the retro-reflective material.	NA
6.18.6.	Neither the adhesive nor the retro-reflective material affects the mechanical performance of the helmet according to the related tests in this regulation.	NA

Tests

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7.1

Each helmet type, fitted with its visor if placed on the market with a visor, conditioned as shown below.

Test	Number of helmets to be conditioned				Total
	ambient-temperature and hygrometry conditioning	Heat conditioning	low-temperature conditioning	ultra- violet radiation conditioning and moisture conditioning	
Impact absorption	2	1	1	1	5
Imp. Abs. extra point	2				2
Hi/Low energy impact	2				2
Rotational	2				2
Projection and surface friction	1				1
Rigidity	2				2
Retention system	1				1
					15

Yes

7.1

Testing Notes:
The largest size of each combination shell size and protective padding of each helmet type shall be tested for impact absorption, rotational and rigidity. For impact absorption on extra point, Hi and Low energy impacts and tests of the retention system, helmet sizes shall be chosen such that the helmet to be tested shall be that offering the likely least favorable conditions (such as thickest padding, etc).
All the types of retention systems available for the helmet must be tested. Supplementary samples could be necessary.
Additionally, for each smaller headform size within the size range of the helmet type two helmets shall undergo the impact absorption test. One helmet shall be heat conditioned, and the other low temperature conditioned. The conditioned helmets shall be impacted against either anvil, in equal numbers if possible, at the choice of the laboratory.

Yes

Types of Conditioning

7.2

Prior to any type of further conditioning for mechanical tests, as specified in paragraph 7.1., each helmet shall be subject:

Yes

7.2.1.

Ambient-temperature and hygrometry conditioning:
The helmet shall be exposed to a temperature of 25 °C ± 5 °C and a relative humidity of 50 per cent ± 10 per cent for at least 4 hours.

Yes

7.2.2.

Heat conditioning:

Yes

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	The helmet shall be exposed to a temperature of 50 °C ± 2 °C for not less than 4 hours and not more than 8 hours.	
7.2.3.	Low-temperature conditioning: The helmet shall be exposed to a temperature of -10 °C ± 2 °C for not less than 4 hours.	Yes
7.2.4.	Ultraviolet-radiation conditioning and moisture conditioning. The outer surface of the protective helmet shall be exposed successively to: ultraviolet irradiation by a 150-watt xenon-filled quartz lamp for 48 hours at a range of 25 cm; spraying for 4 to 8 hours with water at ambient temperature at the rate of 1 litre per minute.	Yes

Test Results

Impact Absorption Tests

7.3.1.4.	The tests completed not more than five minutes after the helmet is taken from the conditioning chamber.	Yes

7.3. Helmet size: 2XL (62 cm)

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
2XL - 01	O	B	K	AMB	7.65	1677	216
		X	K		7.65	1145	175
		P	K		7.65	1293	157
		R	K		7.65	930	131
2XL – 02	O	B	F	AMB	7.62	2048	220
		X	F		7.62	1949	234
		P	F		7.62	2072	206
		R	F		7.62	1562	186
2XL – 03	O	B	K	+50	7.62	1950	209
		X	K		7.65	1026	162
		P	K		7.65	1661	220
		R	K		7.65	983	135
2XL – 04	O	B	F	-10	7.62	2062	223
		X	F		7.65	1864	237
		P	F		7.62	1567	178

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		R	F		7.62	1516	189
		S	F		6.18	434	144
2XL - 05	O	B	K	UV + H2O	7.65	2139	208
		X	K		7.65	1059	170
		P	K		7.65	1289	152
		R	K		7.65	1006	133

*F = Flat; K = Kerbstone

7.3. Helmet size: 2XL (62 cm)

Extra Impact points (Worst Case Size Selected):

Helmet ID Number	H.F. Size Number	Impact Point (Extra Test Locations)	Anvil[1]	Cond. (°C)	Required Speed (m/s)	Measured Speed (m/s)	HIC requirement	Measured HIC	Decel requirement	Measured Decel
2XL -	O	BXR	F	AMB	7.5	7.65	≤ 2,400	1674	≤ 275 g	195
		BXL	F		7.5	7.65	≤ 2,400	1794	≤ 275 g	202
		RXL	F		7.5	7.55	≤ 2,400	2105	≤ 275 g	237
2XL -	O	BP	K	AMB	7.5	7.62	≤ 2,400	1399	≤ 275 g	179
		RXPL	K		7.5	7.62	≤ 2,400	983	≤ 275 g	131
		RXR	K		7.5	7.62	≤ 2,400	1169	≤ 275 g	167

[1] : F = Flat; K = Kerbstone
[2]: Extra test locations to be selected from the 12 listed in section 7.3.4.2.1

7.3. Helmet size: 2XL (62 cm)

Hi/Low Energy Impact points (Worst Case Size Selected):

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Test	Required Speed (m/s)	Measured Speed (m/s)	HIC requirement	Measured HIC	Decel requirement	Measured Decel
2XL -	O	B	F	High Energy	8.2	8.22	≤ 2,880	2492	≤ 275 g	244
		X	F		8.2	8.26	≤ 2,880	2446	≤ 275 g	264
		P	F		8.2	8.22	≤ 2,880	2527	≤ 275g	232
		R	F		8.2	8.26	≤ 2,880	1648	≤ 275 g	185
2XL	O	B	K	Low Energy	6.0	6.18	≤ 1,300	796	≤ 180 g	125
		X	K		6.0	6.14	≤ 1,300	717	≤ 180 g	140
		P	K		6.0	6.18	≤ 1,300	607	≤ 180 g	119
		R	K		6.0	6.18	≤ 1,300	574	≤ 180 g	106

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[1] : F = Flat; K = Kerbstone
[2]: Extra test locations to be selected from the 12 listed in section 7.3.4.2.1 7.3.

Helmet size: XL (61 cm)

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
XL - 01	M	B	K	AMB	7.65	1447	196
		X	K		7.65	1414	209
		P	K		7.65	1556	186
		R	K		7.65	1201	170
XL – 02	M	B	F	AMB	7.65	1716	200
		X	F		7.65	2031	243
		P	F		7.65	2337	253
		R	F		7.65	1406	198
XL – 03	M	B	K	+50	7.65	1461	201
		X	K		7.62	1240	195
		P	K		7.65	1474	177
		R	K		7.65	1108	160
XL – 04	M	B	F	-10	7.65	1832	221
		X	F		7.65	2085	251
		P	F		7.65	2389	247
		R	F		7.65	1746	219
		S	F		6.14	361	156
XL - 05	M	B	K	UV + H2O	7.65	1280	179
		X	K		7.62	1257	187
		P	K		7.65	1498	181
		R	K		7.59	1216	170

**F = Flat; K = Kerbstone*

Helmet size: L (59 cm)

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
L – 01	J	B	K	+50	7.62	1562	192
		X	K		7.62	1380	220
		P	K		7.65	1557	199
		R	K		7.65	1129	164
L - 02	J	B	F	-10	7.62	2151	230
		X	F		7.62	2148	261
		P	F		7.65	2386	262
		R	F		7.62	1819	231
		S	F		6.16	488	175

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F = Flat; K = Kerbstone

Helmet size: M (57 cm)

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
M – 01	J	B	K	AMB	7.65	1551	199
		X	K		7.62	1390	216
		P	K		7.65	1384	178
		R	K		7.65	1034	149
M – 02	J	B	F	AMB	7.65	1730	206
		X	F		7.65	1888	238
		P	F		7.65	1990	231
		R	F		7.65	1519	191
M – 03	J	B	K	+50	7.62	1555	202
		X	K		7.65	1118	186
		P	K		7.65	1317	170
		R	K		7.65	919	137
M – 04	J	B	F	-10	7.62	1673	198
		X	F		7.65	1746	230
		P	F		7.65	2055	231
		R	F		7.62	1402	189
		S	F		6.16	633	211
M - 05	J	B	F	UV + H2O	7.62	1339	177
		X	K		7.62	1043	182
		P	K		7.65	1324	173
		R	K		7.65	949	140

F = Flat; K = Kerbstone

Helmet size: S (55 cm)

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
S – 01	E	B	K	+50	7.59	1257	164
		X	K		7.59	1466	201
		P	K		7.59	1333	179
		R	K		7.59	1047	148
S - 02	E	B	F	-10	7.59	1682	203
		X	F		7.59	1894	229
		P	F		7.59	1968	230
		R	F		7.59	1603	213

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		S	F		6.21	221	111

F = Flat; K = Kerbstone

Helmet size: XS (54 cm)

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
XS – 01	E	B	K	+50	7.62	1372	179
		X	K		7.65	1555	211
		P	K		7.65	1519	188
		R	K		7.59	993	150
XS - 02	E	B	F	-10	7.65	1787	209
		X	F		7.65	2141	244
		P	F		7.65	2200	242
		R	F		7.62	1375	197
		S	F		6.14	370	137

F = Flat; K = Kerbstone

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Test for Projection and Surface Friction (Method B)

	Helmet ID Number	Test	Tested Point	Results
7.4.2.1.3.1.	2XL	Projection	Side	Pass
7.4.2.1.3.2.	2XL	Surface	Top	Pass
	XL	Projection	Side	Pass
	XL	Surface	Top	Pass

Test for projections of the category P/J with movable lower face cover

7.4.3.1	Strength assessment of the movable face cover in the position "J", the helmet placed on the appropriate test head form selected from Annex 4 in compliance with paragraph 7.3.1.3.1.	Yes
7.4.3.2	Falling mass of 4 kg ± 0.01 kg released in guided free fall from a height of 600 ± 5 mm hooked on to the front part of the chin section in the position "J" in the median vertical plane of the helmet.	Yes
7.4.3.3	Test apparatus used to apply a shock load to a helmet secured to the headform by its own retention system. Headform secured in a test fixture with its vertical axis pointing upward at 45° to the direction of gravity. Equipment allows drop weight to slide in a guided free fall to impact a rigid stop anvil. Mass of the guide is 1.0 -0.0 +0.2 kg. Impact speed not less than 95 per cent of the theoretical speed.	Yes
7.4.3.4	Movement such to avoid any possible interference of the chin guard with 100 mm cylinder as defined in paragraph 6.4.2. (Partial detachment is not acceptable.)	Yes

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Rigidity Tests

7.5.1.	The test helmets have undergone ambient-temperature and hygrometry conditioning.	Yes

Helmet ID Number	Helmet Size	Load Direction	Deformation (mm)		
			Initial *(load 30 N)*	Max *(load 630 N) (≤ 40 mm)*	Final *(load 30 N) (≤ 15 mm)*
2XL	XXL	Longitudinal	167	149 (18)	165 (2)
2XL	XXL	Transversal	116	100 (16)	112 (4)
XL	XL	Longitudinal	155	136 (19)	152 (3)
XL	XL	Transversal	110	93 (17)	106 (4)
M	M	Longitudinal	156	138 (18)	152 (4)
M	M	Transversal	110	89 (21)	106 (4)

Dynamic Test of the Retention System

7.6.1	Helmet is positioned as prescribed in paragraph 7.3.1.3.1.	Yes
7.6.2	Set up is as per 7.6.2 and Annex 8, Figure 2	Yes
7.6.3	Falling mass of 10 kg ± 0.1 kg released drops in guided free fall from a height of 750 ± 5 mm.	Yes
7.6.4	During the test, the dynamic displacement of the point of application of the force shall not exceed 35 mm	Yes
7.6.5	After two minutes, the residual displacement of the point of application of the force, as measured under a mass of 15 kg ± 0.5 kg, does not exceed 25 mm.	Yes

Helmet ID Number	Helmet Size	Chin Strap	Extension Dynamic *(≤ 35 mm)*	Extension Residual *(≤ 25 mm)*
2XL	2XL (62 cm)	-	32.4	19.3
L	L (59 cm)	-	31.8	20.5
XS	XS (54 cm)	-	31.4	23.1

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Retention (Detaching) Test

7.7.1.	The test helmets have undergone ambient-temperature and hygrometry conditioning.	Yes
7.7.6.	Modular helmets tested in J and P configuration.	Yes

Helmet ID Number	Helmet Size	Chin Strap	After the Test *(Angle ≤ 30°)*
2XL	2XL (62 cm)	-	24.6
L	L (59 cm)	-	22.1
XS	XS (54 cm)		26.5

Micro-slip Test of the Chin Strap
Note: See Annex 8, Figure 4)

Chin strap	Total Slip *(≤ 10 mm)*
2XL – CS	2 mm
L - CS	2 mm
XS - CS	2 mm

Test for Resistance to Abrasion of the Chin Strap
Note: See Annex 8, Figure 5.

7.11.5	Strap tested to a tension of 3 kN without breaking.	Yes

Chin Strap	Tension of 3 kN
2XL – CS	4.05
L - CS	4.11
XS - CS	4.09

Tests for Retention Systems Relying on Quick Release Mechanism

7.12.2	Tests carried out as per the procedures of 7.12.2 in the order given.	Yes

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	Helmet ID Number	Test	Results
7.12.1.	-	Inadvertent release by pressure	NA
7.12.2.	RS - 01	Ease of release *(Max. load ≤ 30 N or ≤ 60 N)*	Yes
7.12.3.2.	RS - 01	Durability of quick release mechanisms *(Release after 5,000 cycles)*	Yes
7.12.3.3.	RS - 01	Durability of quick release mechanisms *(Saline spray)*	Yes
7.12.3.4.	RS - 01	Durability of quick release mechanisms *(Traction 2 kN ± 50 N)*	2.18 KN

Tests for Oblique impact and measurement of rotational acceleration

7.13	The test helmets have undergone ambient-temperature and hygrometry conditioning.	Yes
Annex 7, 2.4.	Coefficient of friction (m) 0.3 ± 0.05 between the outer surface of the head form and the common fabric used in the comfort padding of the helmet.	Yes
Annex 7, 2.5.	Chin strap force controller "Tightened as for normal use". (This means that the helmet must be tightened before each test after having applied below the chin a rigid cylinder 10 mm diameter at least 30 mm long that will be removed before the test. According paragraph 7.3.1.3.)	Yes
Annex 7, 2.6.	Instrumentation for measuring the head kinematics during impact calibrated in line with Annex 7, 2.6.	Yes
Annex 7, 2.7.	Headform coefficient of friction calibrated in line with Annex 7, 2.7.	Yes

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Annex 7, 3.1	Helmet placed on a headform of appropriate size in accordance with the requirements of Annex 5. Helmet positioned in accordance to the HPI (helmet positioning index) provided by the manufacturer. If it is not available, the helmet shall be tipped towards the rear so that the front edge of the helmet in the median plane is displaced by 25 mm.	Yes
Annex 7, 3.2.2	Anvil (A) as per Annex 7, 3.2.2 and figure 2	Yes
Annex 7, 3.	Test method in accordance with Annex 7, 3.	Yes

Helmet ID Number	H.F. Size Number	Impact Point	Cond. (°C)	Speed (8.0m/s)	Peak Resultant Acceleration (PRA) ≤ *10,400 rad/s²*	Brain Injury Criterion (BrIC) *≤ 0.78*
2XL	O	Front lateral right (45°)	AMB	8.0	1996	0.31
		Rear (180°)		8.0	2921	0.44
		Lateral left (270°)		8.0	3179	0.32
2XL	O	Front (0°)	AMB	8.0	2398	0.29
		Rear-lateral right (135°)		8.0	2402	0.39

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Helmet ID Number	H.F. Size Number	Impact Point	Cond. (°C)	Speed (8.0m/s)	Peak Resultant Acceleration (PRA) ≤ *10,400 rad/s²*	Brain Injury Criterion (BrIC) *≤ 0.78*
XL	M	Front lateral right (45°)	AMB	8.0	3855	0.39
		Rear (180°)		8.0	3464	0.40
		Lateral left (270°)		8.0	2811	0.27
XL	M	Front (0°)	AMB	8.0	2860	0.31
		Rear-lateral right (135°)		8.0	2597	0.45

Helmet ID Number	H.F. Size Number	Impact Point	Cond. (°C)	Speed (8.0m/s)	Peak Resultant Acceleration (PRA) ≤ *10,400 rad/s²*	Brain Injury Criterion (BrIC) *≤ 0.78*
M	J	Front lateral right (45°)	AMB	8.0	2006	0.31
		Rear (180°)		8.0	5135	0.50
		Lateral left (270°)		8.0	3358	0.47
M	J	Front (0°)	AMB	8.0	3402	0.35
		Rear-lateral right (135°)		8.0	3572	0.42

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Photographs



Remarks

Production Qualification of GULLWING-S01 Helmet is determined.
Please Refer PQ Report No. ISB602965A

Note: VCA apply measurement uncertainty to calibrated items but not test results.

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Report Number: ISB602965A Issue: 0

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Inspection/Test Report: Protective Helmets and their Visors for Drivers and Passengers of Motorcycles and Mopeds

Legislation

UNECE Regulation 22.06 (Revision 4 Amendment 3)

Inspection/Test Details

Location of Inspection/Test:	STUDDS Inhouse Test Laboratory - Faridabad
Date of Inspection/Test:	04 June 2023 to 22 June 2023
VCA Representative(s):	Aekansh Saxena
Inspectors Home Office Location:	VCA India
Manufacturer's Representative(s):	Ram V. Kumar
Reason for Test Report:	Production Qualification

Manufacturer Details

Name and Address:	STUDDS ACCESSORIES LIMITED Plant I – 23/7 Mathura Road, Ballabgarh , Faridabad -121004 Haryana, India
Type:	GULLWING-S01
Commercial Description:	Protective helmet equipped with a movable or detachable protective lower face cover 'P/J Type' fitted with Visor
Category:	Not Applicable

Conclusion

The above mentioned component was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested

Witness Engineer/Test Engineer Signature:



Name:	Aekansh Saxena
Position:	Sr. Type Approval Engineer
Date:	01 August 2023

List of Annexes

Annex	No of Pages	Subject
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Report Number: ISB602965A Issue: 0

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Issue Record

Issue 0 is original report

Worst Case Rationale

Production Qualification Testing done on 50 Quantity Helmet For Type approval Testing, Refer VCA Job Number ISB602965

Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report

Significant Interpretations, Alternative Test Methods, New Technologies

None

Inspection/Tests Required

	Yes, NA, See Report … / Approval … / Annex …
Information for wearers:	Yes
Impact Absorption Tests:	Yes
Dynamic Test of the Retention System:	Yes

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Report Number: ISB602965A Issue: 0

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Specification

Number of Samples

Shell Size:	XXL Shell With XXL EPS	Large Shell With Large EPS	Large Shell With Small EPS
Consumer Size:	4XL (65), 3XL (64), 2XL (62)	XL (61), L (59)	M (57), S (55), XS (54)
Sample Quantity:	60		
Production Batch Quantity:	3200		
Production Batch Serial Number:	01 - 3200		

Materials

Shell:	ABS
Padding:	Expanded Polystyrene
Liner:	Polyurethane Foam, Polyester Cloth
Chin Strap:	Polyester

Retention System

Type:	Quick Release Mechanism
Buckle:	Micro Metric Buckle
Strap Retainer:	Refer attach drawing
Anchorages:	Riveting

Ventilation System:	4 nos (Chin, Top and Rear area of helmet)
Type of Shell Edging:	TPE material beading
Accessories:	NA
Reflecting Band:	NA
Additional Feature:	NA

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component tested, and covers all variants and versions agreed in the worst case rationale. Information document uploaded to job folder and identified by job number.	Yes

Facility and Equipment Checks

Facility Appraisal reference and date *(Reference and date if formal; state if ad-hoc appraisal).*	FAIND118 and 13 July 2022
Calibration certificates checked and valid, recorded in the following table:	Yes

Equipment

Description	Make	Model	Serial number	Calibration due date*
Head Forms	AD Engg	NA	SAL/LAB/HF/60	27/01/2024
Impact Test Set-up	AD Engg	MAU1006/CF/AL	SAL/LAB/PG/01	03/01/2024

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Low Temperature Conditioning Chamber	Cellforst	IKG301	SAL/LAB/CCC/01	15/08/2023
Heat Conditioning Chamber	Bellstone	NA	SAL/LAB/HC/01	23/02/2024
Retention Testing Machine	AD Engg	ROL1103/ECE	SAL/LAB/WG/06	27/01/2024

**Specify calibrated date + (interval) or calibration due date.*

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Qualifying the Production of Helmets

	The production of each new approved type of helmet must be subjected to production qualification tests.	
9.2	The first batch is considered to be the production of the first tranche containing a minimum of 200 helmets and a maximum of 3,200 helmets.	
-	Random sample of helmets taken from the first batch, divided into homogenous lots of 10, choosing the biggest helmet sizes for each shell size.	Yes
-	At least two lots among those subjected to the shock-absorption test shall consist of maximum size helmets.	Yes
9.2.1.	Test on the system of retention	
9.2.1.1.	The 10 helmets of the smallest size of each shell subjected to the test of the retention system described in paragraph 7.6.	Yes
-	All the types of retention system available for the helmet checked.	Yes
9.2.2.	Shock absorption test	
-	From every shell size of helmet type take two groups each with 10 helmets of the largest size.	Yes
9.2.2.2.	All of the helmets in a group subjected to the same conditioning treatment and then subjected to the shock absorption test described in paragraph 7.3. at the same point of impact.	Yes
-	The conditioning and the anvil for each group chosen by the technical service which conducted the approval tests.	Yes
-	The location of the points must be the same for all the helmets of the same batch.	Yes
-	The helmets of the same batch can be submitted to test up to three different impact point.	Yes

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9.2.2.3.	All the shell sizes of a type of helmet submitted to standard linear impact test on the BXPR and S points if present.	Yes

Information for wearers

14.1.	Every protective helmet placed on the market shall bear a clearly visible label with the following inscription in the national language, or at least one of the national languages of the country of destination. This information shall contain: "For adequate protection, this helmet must fit closely and be securely attached. Any helmet that has sustained a violent impact should be replaced" and, if fitted with a non-protective lower face cover: "Does not protect chin from impacts" together with the symbol indicating the unsuitability of the lower face cover to offer any protection against impacts to the chin.	Yes
14.2.	Additionally where hydrocarbons, cleaning fluids, paints, transfers or other extraneous additions affect the shell material adversely a separate and specific warning shall be emphasized in the above-mentioned label and worded as follows: " 'Warning' - Do not apply paint, stickers, petrol or other solvents to this helmet".	Yes
14.3.	Every protective helmet shall be clearly marked with its size and its maximum weight, to the nearest 50 grams, as placed on the market. The maximum weight quoted should include all the accessories that are supplied with the helmets, within the packaging, as it is placed on the market, whether or not those accessories have actually been fitted to the helmet.	Yes
14.4.	Every protective helmet offered for sale shall bear a label showing the type or types of visor that have been approved at the manufacturer's request.	Yes

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Inspection/Test Results

Impact Absorption Tests

7.3. Helmet size: 2XL (62 cm)

Group	Sample Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,640)*	Deceleration *(≤ 302.5 g)*
1	1	O	B	F	-10	7.62	2062	224
	2		B	F		7.60	2116	226
	3		B	F		7.61	2092	227
	4		B	F		7.60	2114	220
	5		B	F		7.62	2014	219
	6		B	F		7.62	2156	215
	7		B	F		7.65	2148	224
	8		B	F		7.60	2162	226
	9		B	F		7.59	2095	218
	10		B	F		7.60	2078	217
2	11	O	X	K	+50	7.61	1024	162
	12		X	K		7.65	1026	172
	13		X	K		7.62	1185	170
	14		X	K		7.62	1196	165
	15		X	K		7.62	1125	161
	16		X	K		7.61	1248	160
	17		X	K		7.60	1166	159
	18		X	K		7.62	1085	155
	19		X	K		7.62	1074	178
	20		X	K		7.65	1163	174
3	21	O	P	F	-10	7.58	1567	178
	22		P	F		7.59	1685	190
	23		P	F		7.58	1485	184
	24		P	F		7.55	1632	185
	25		P	F		7.54	1449	189
	26		P	F		7.59	1358	174
	27		P	F		7.60	1596	170
	28		P	F		7.60	1632	169
	29		P	F		7.58	1485	188
	30		P	F		7.58	1596	189

**F = Flat; K = Kerbstone*

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Vehicle Certification Agency

Report Number: ISB602965A Issue: 0

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Helmet size: 2XL (62 cm)

Group	Sample Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,640)*	Deceleration *(≤ 302.5 g)*
4	31	O	R	K	+50	7.62	980	135
	32		R	K		7.62	983	140
	33		R	K		7.65	1005	141
	34		R	K		7.61	1009	138
	35		R	K		7.62	996	139
	36		R	K		7.64	972	131
	37		R	K		7.63	968	130
	38		R	K		7.62	994	141
	39		R	K		7.60	1058	142
	40		R	K		7.60	1048	137
5	41	O	S	F	-10	6.11	434	144
	42		S	F		6.10	556	146
	43		S	F		6.12	404	152
	44		S	F		6.12	414	149
	45		S	F		6.12	489	130
	46		S	F		6.10	416	135
	47		S	F		6.08	519	142
	48		S	F		6.07	509	149
	49		S	F		6.07	514	147
	50		S	F		6.05	409	155

**F = Flat; K = Kerbstone*

Statistical Analysis

Group	Sample Number	Impact Point	S *(Standard deviation of the values)*	2.4 S	X *(Mean of the values)*	X + 2.4 S
1	1 - 10	B	4.29	10.29	221.6	231.89
2	11 - 20	X	7.50	18.00	165.6	183.60
3	21 - 30	P	8.18	19.63	181.6	201.23
4	31 - 40	R	4.19	10.05	137.4	147.45
5	40 - 50	S	7.60	18.24	144.9	163.14

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Dynamic Test of the Retention System

Note: See Annex 8, Figure 2.

7.6. Helmet size: XS (54 cm)

Sample Number	Extension Dynamic *(≤ 38.5 mm)*	Extension Residual *(≤ 27.5 mm)*	Note
51	31.4	23.1	Satisfactory
52	30.5	22.5	Satisfactory
53	30.9	22.6	Satisfactory
54	31.5	23.4	Satisfactory
55	32.8	22.1	Satisfactory
56	30.8	21.9	Satisfactory
57	30.5	22.8	Satisfactory
58	30.2	22.4	Satisfactory
59	31.9	22.0	Satisfactory
60	31.2	22.9	Satisfactory

Statistical Analysis

Sample Number	Displacement	S *(Standard deviation of the values)*	2.4 S	X *(Mean of the values)*	X + 2.4 S *Extension dynamic (≤ 35 mm) Extension residual (≤ 25 mm)*
51 - 60	Extension dynamic	0.77	1.848	31.17	33.018
51 - 60	Extension residual	0.49	1.176	22.57	23.746

Remarks

Batch Size of 3200 Helmet

Note: VCA apply measurement uncertainty to calibrated items but not test results.

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