Vehicle Certification Agency

THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL GRANTED OF A TYPE OF PROTECTIVE HELMET WITH ONE VISOR TYPE(S) PURSUANT TO UN REGULATION NO. 22.06

E11 Approval No: E11*22R06/00*0893*00

Reason(s) for Extension: Not applicable

1. Trade mark: SMK

2. Type: STELLAR – S01

3. Sizes: 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

9. Helmet with protective lower face cover (P)

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10. Type of visor or visors:
STELLAR – S01 Visor, Certificate Number E11*22R06/00*0894*00

11. Brief description of visor or visors: See manufacturer documentation

12. Submitted for approval on: 30 September 2022

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

14. Date of report issued by that service: 26 October 2022

15. Number of report issued by that service: ISA580567

16. Comments: None

17. Approval GRANTED

18. Place: BRISTOL

19. Date: 28 OCTOBER 2022

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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Vehicle Certification Agency

THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

APPROVAL NUMBER: E11*22R06/00*0893*00

INFORMATION PACKAGE CONTENTS

INDEX REVISION NUMBER: 00

Conformity of Production (COP) Declaration	**COP Confirmed**	
Assessment Method	**CoP Audit**	
Date of Initial Clearance	**July**	**2016**
Date of Last Clearance	**July**	**2022**

Total number of sheets: 25 (Twenty-five)

Reasons for Revision: Not applicable

Revision Date
&
Office Stamp

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INDEX OF DOCUMENTATION

- GENERAL INFORMATION
- DESCRIPTION OF THE HELMET / SHELL / RETENTION SYSTEM
- RETENTION SYSTEM / PROTECTIVE PADDING
- COMFORT PADDING/ OTHER CHARACTERISTICS / ACCESSORIES
- USER INSTRUCTIONS
- SIDE SECTION VIEW OF HELMET
- ASSEMBLY DRAWING OF HELMET WITH POSITIONING OF VENTILATIONS & HOLES
- EXPANDED POLYSTYRENE LINER DRAWING
- HANGER BRACKET DRAWING
- RIVET DRAWING
- SCREW FOR VISOR MECHANISM DRAWING
- SMK BUSH DRWAING
- ADJUSTER DRAWING
- BUCKLE LATCH PART DRAWING
- BUCKLE PART DRAWING
- BUCKLE CAP DRAWING
- BUCKLE HOUSING METAL PART DRAWING
- MICROMETRIC BUCKLE RIVET DRAWING
- CHIN STRAP ASSLY DRAWING

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1. GENERAL INFORMATION

1.1 Make:

SMK

1.2. Type:

STELLAR- 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 3 – Plot No. 918, Sector 68
Faridabad – 121005
Haryana, India

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

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~~

2.3. Sizes:

SIZES (Centimeters)	WEIGHT (Grams)
XS (54)	1460
S (55)	1450
M (57)	1580
L (59)	1555
XL (61)	1550
2XL (62)	1560

3. SHELL

3.1. Material:

ABS

3.2. Visor Beading:

TPU

3.3. Ventilations: **5 nos.**

3.3.1. Number of holes: **2 nos.**

3.3.2. Positioning on the shell:

BACK LEFT AND BACK RIGHT

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 / synthetic leather

4.3.2. Thickness:

3 mm

4.4. Fixing system to the shell:

By rivets

5. PROTECTIVE PADDING

5.1. Number of pieces:

4

5.2. Composition:

Expanded Polystyrene

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5.3. Density:

(1) 50 kg/m³ (Main part) For XL(61), 2XL (62)

(2) 45 kg/m³ (Main part) For M (57), L (59)

(3) 40 kg/m³ (Main part) For XS(54),S(55),

(4) 20 kg/m³ (Top part) For XS(54),S(55),M (57), L (59), XL (61), 2XL(62)

(5) 60 kg/m³ (Side part) For M (57), L (59), XL (61), 2XL(62)

(6) 50 kg/m³ (Side part) For XS (54), S (55)

(7) 60 kg/m³ (Chin part) For M (57), L (59), XL (61), 2XL(62)

(8) 50 kg/m³ (Chin part) For XS (54), S (55)

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/PVC Synthetic Leather**

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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 fitted with Visor & Rear Spolier

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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:

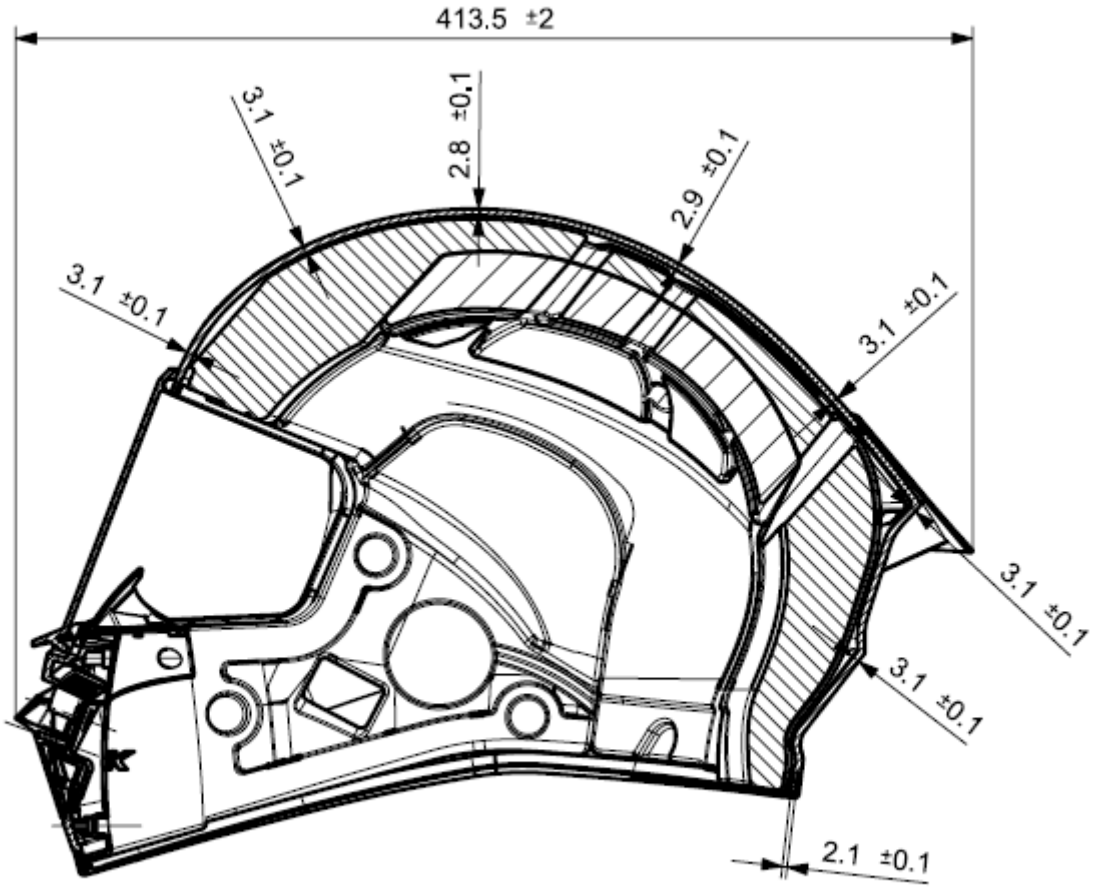
On the tag attached to the helmet

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SIDE SECTION VIEW

(For 2XL, XL, L & M HELMETS)

PART NO : SAL-STL-005



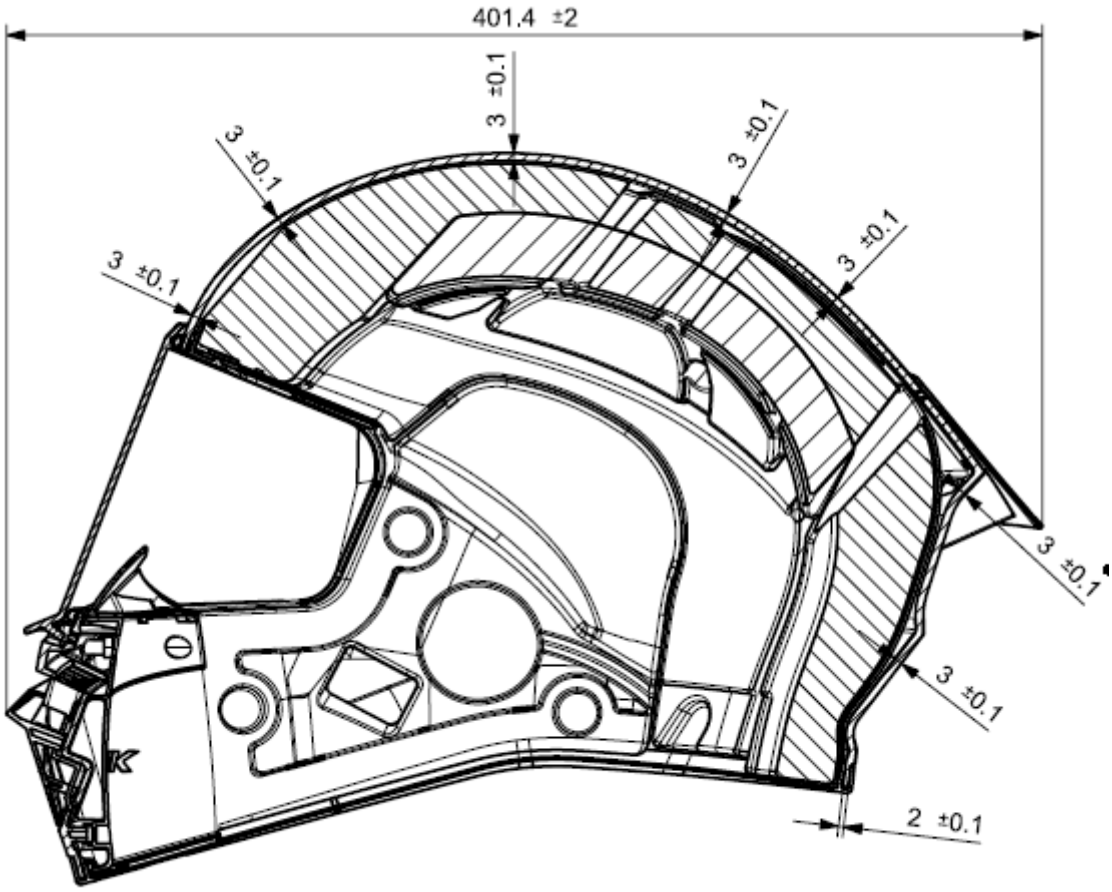
SECTION A-A

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SIDE SECTION VIEW

(FOR S & XS HELMETS)

PART NO : SAL-STL-001



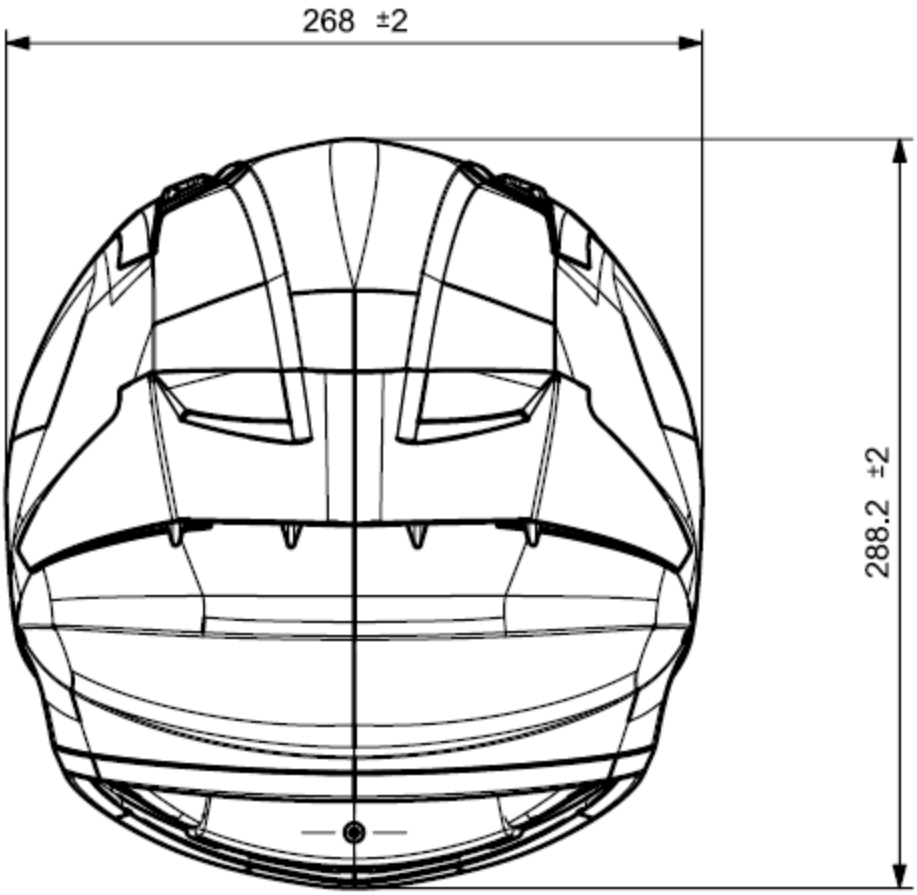
SECTION A-A

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REAR VIEW

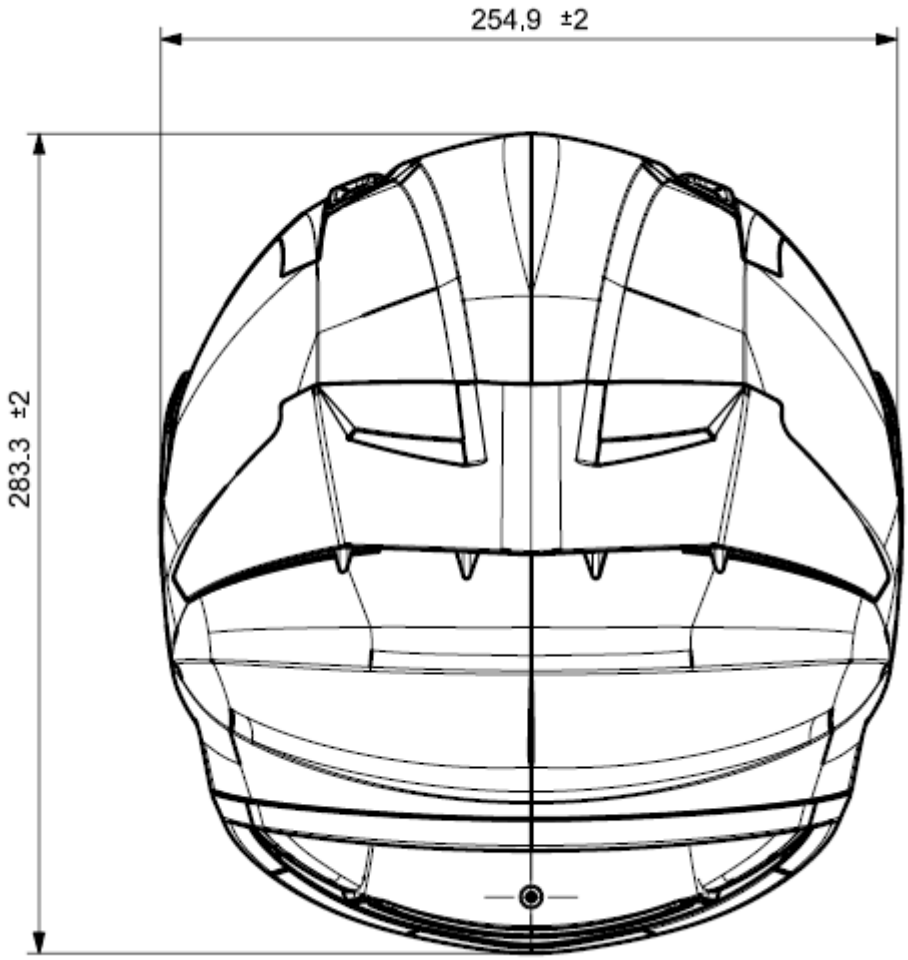
(FOR 2XL, XL, L & M HELMETS)

PART NO : SAL-STL-006



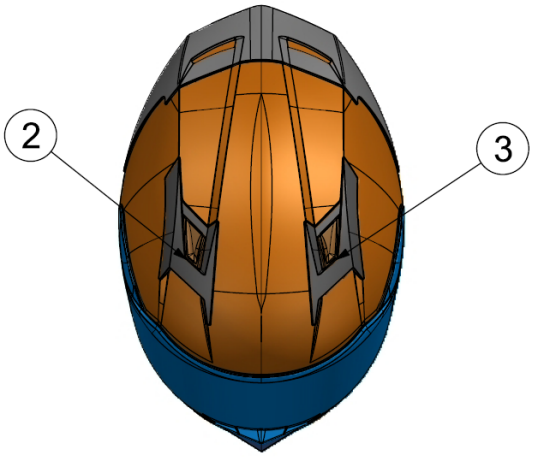
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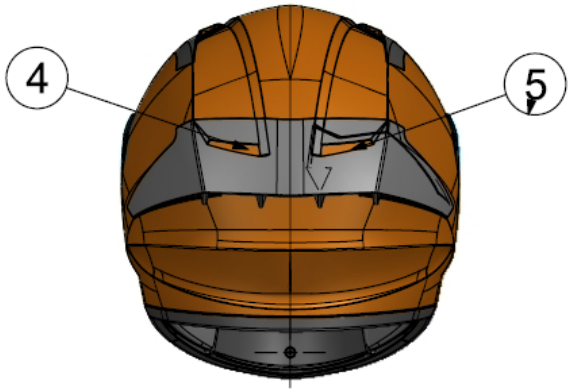
REAR VIEW
(FOR S & XS HELMETS)
PART NO : SAL-STL-002



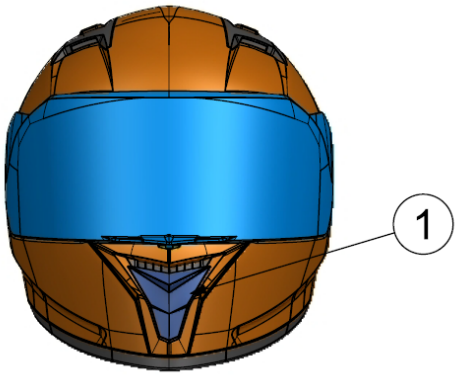
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POSITIONING OF VENTILIZATION HOLES



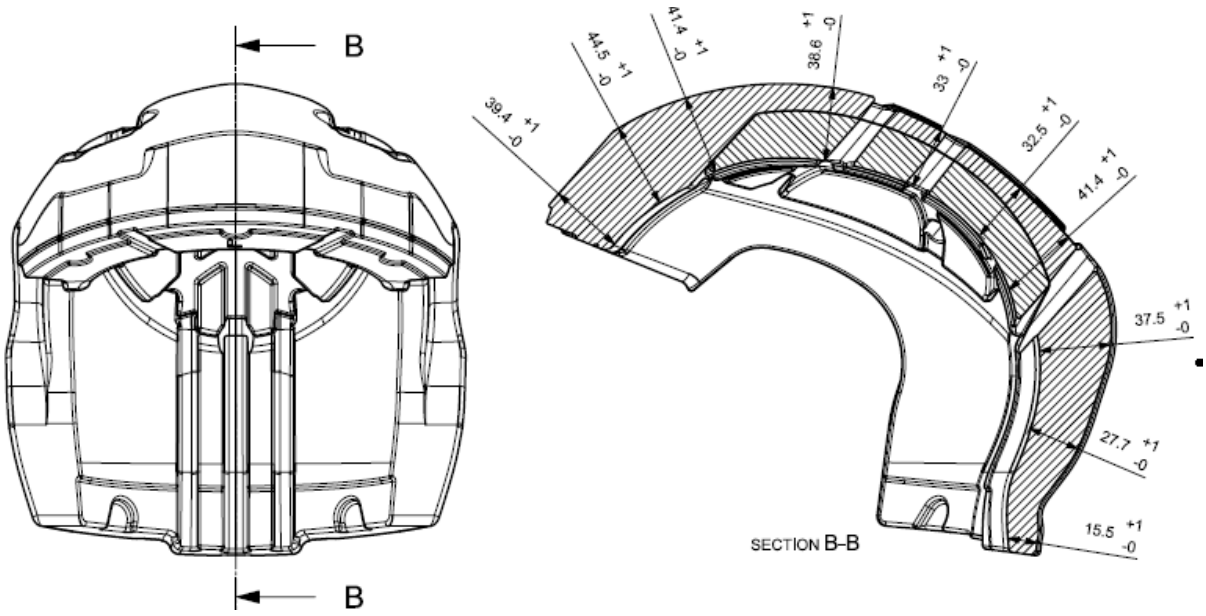


NOTE : 1,2,3,4 & 5 FOR VENTILIZATION



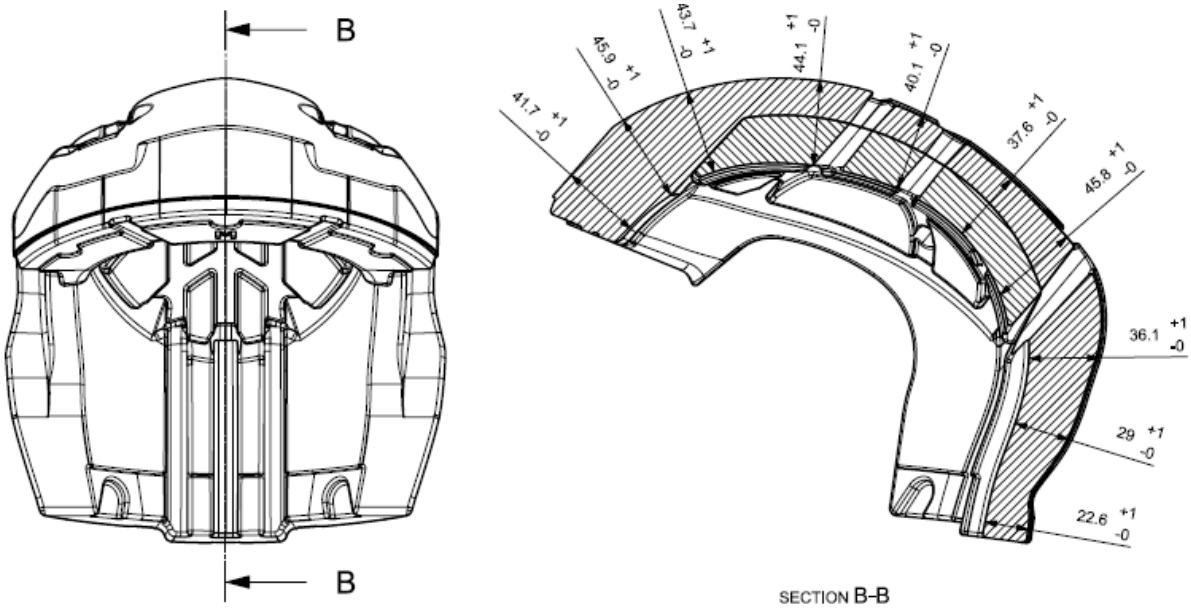
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EXPANDED POLYSTYRENE LINER DRAWING
(FOR 2XL, XL, L & M HELMETS)
PART NO. : SAL-STL-007



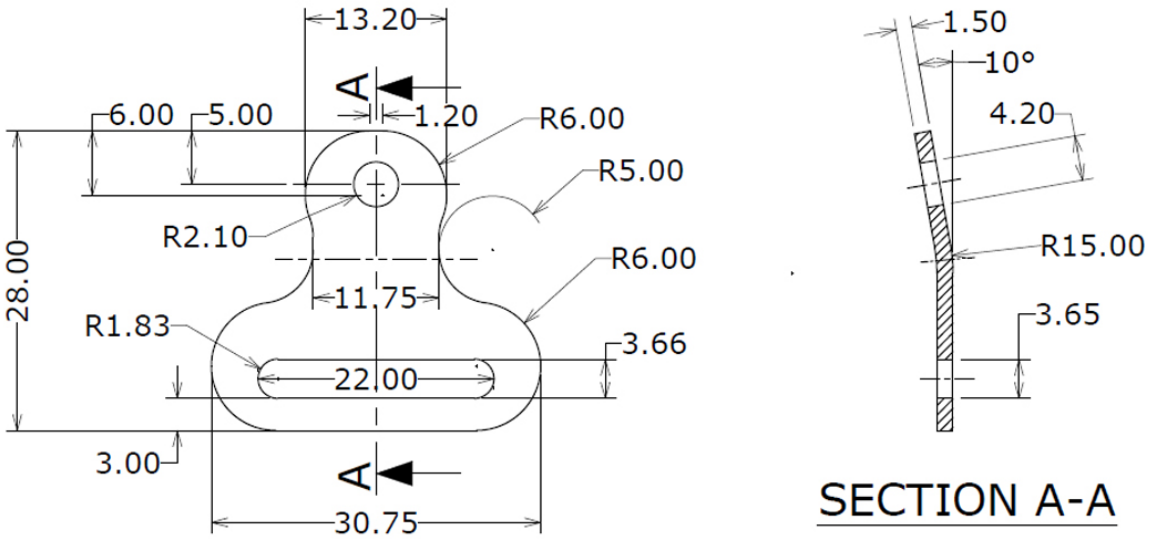
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EXPANDED POLYSTYRENE LINER DRAWING
(FOR S & XS HELMETS)
PART NO. : SAL-STL-003



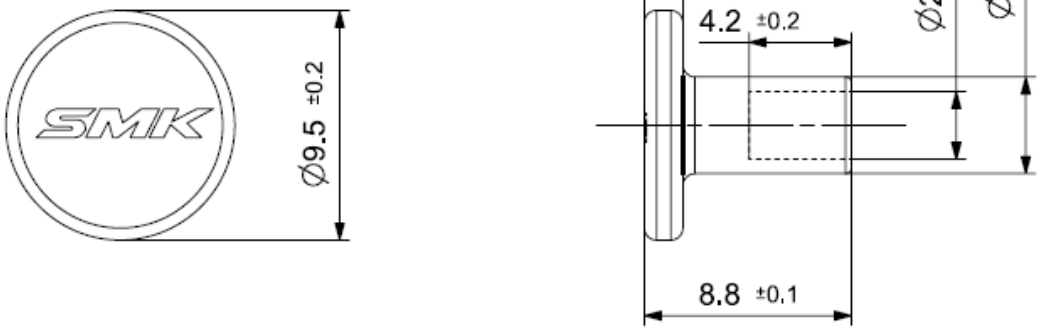
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HANGER BRACKET DRAWING
PART NO : - 17080013



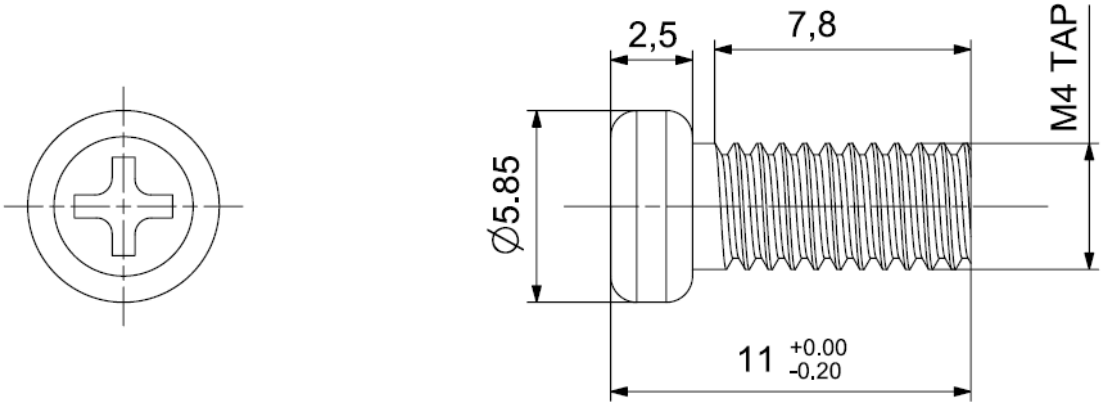
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SMK RIVET DRAWING



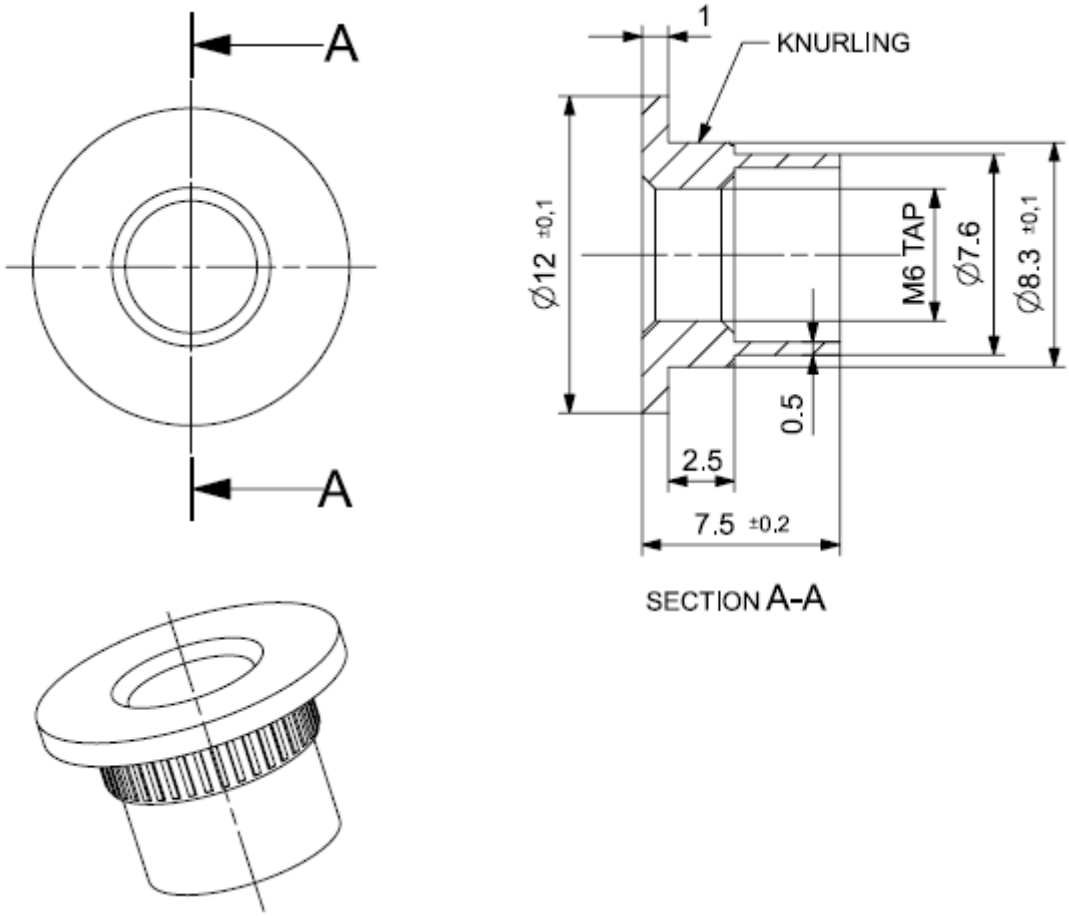
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SCREW FOR VISOR MECHANISM DRAWING



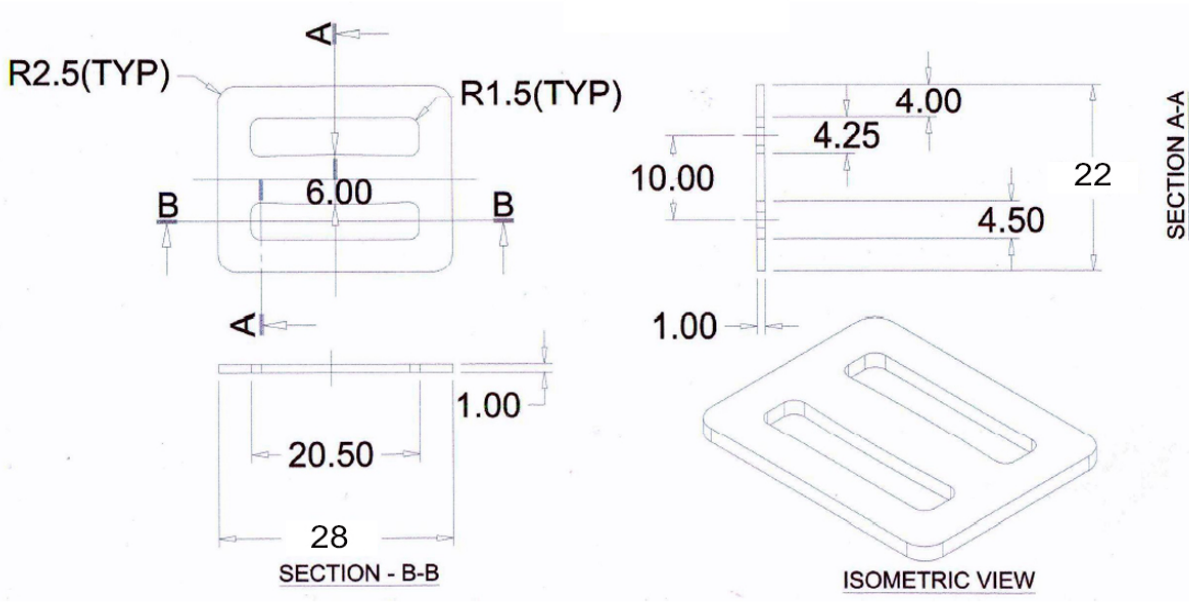
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SMK BUSH DRAWING



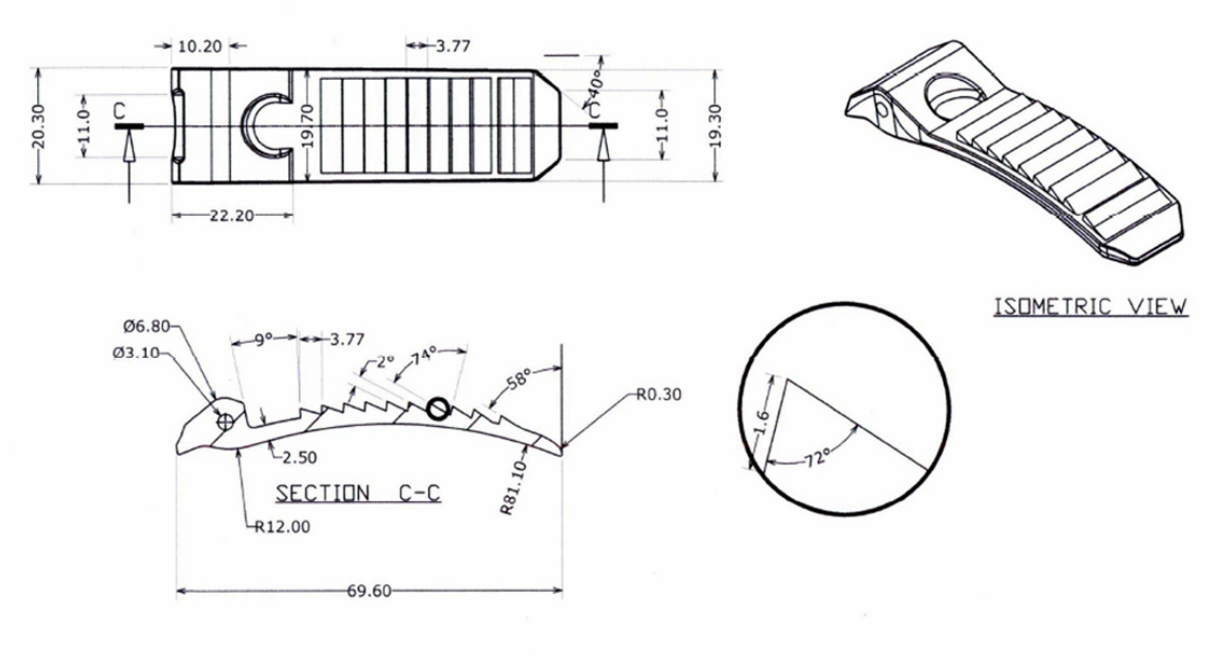
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ADJUSTER DRAWING
PART NO : - 14110006



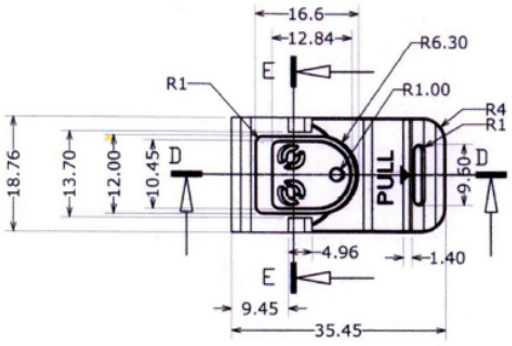
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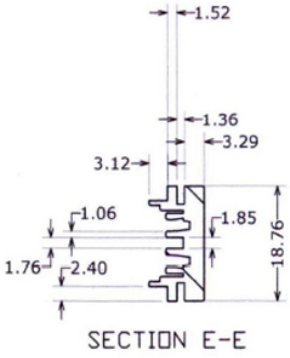
BUCKLE LATCH PART DRAWING
PART NO : - SAL/MMB/01



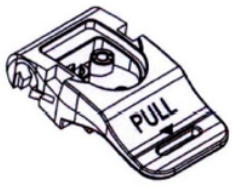
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BUCKLE PART DRAWING
PART NO : - SAL/MMB/02

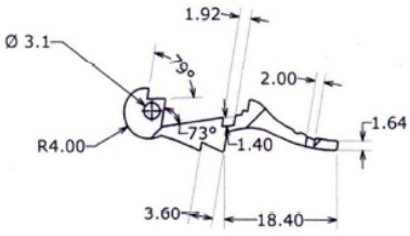




SECTION E-E



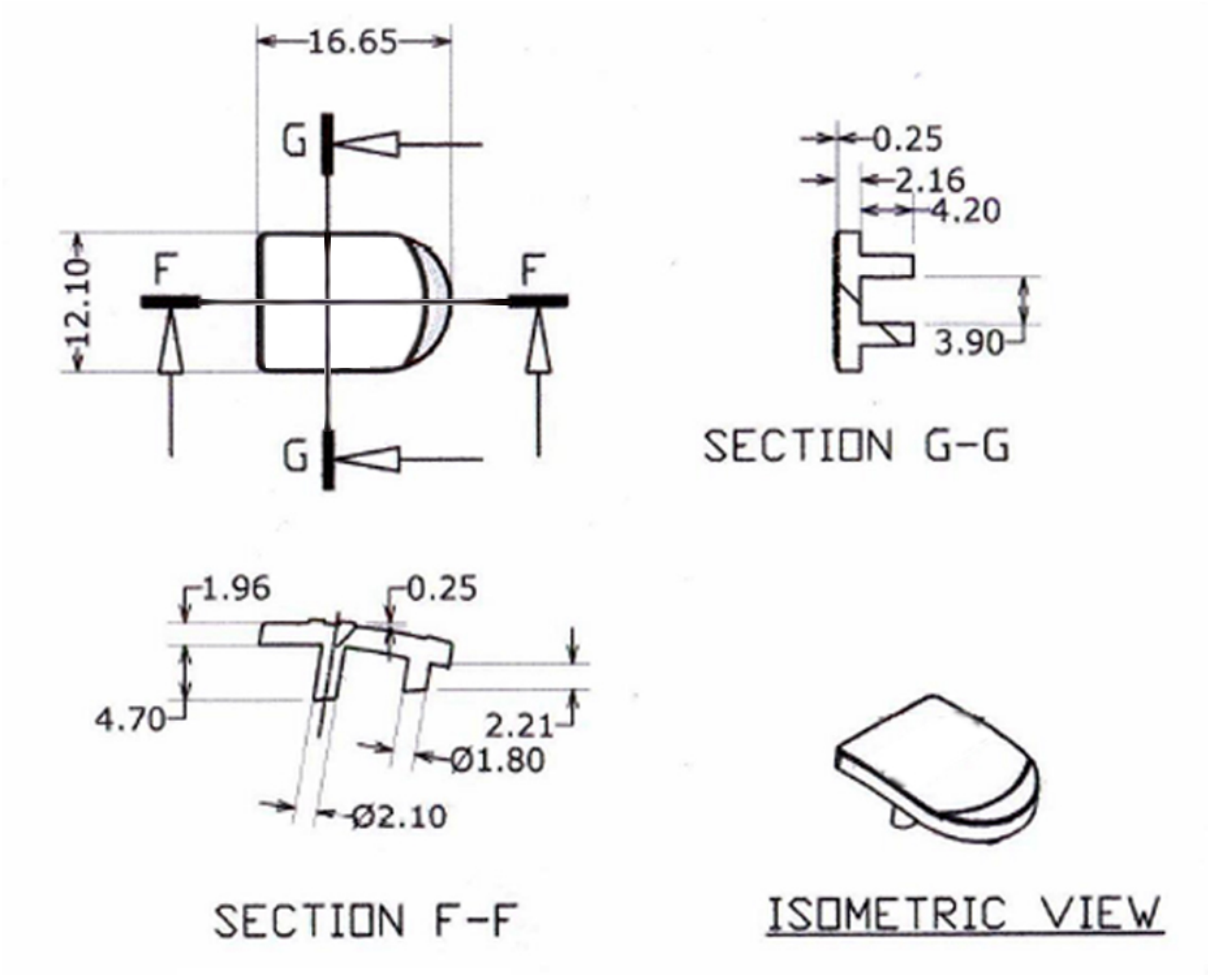
ISOMETRIC VIEW



SECTION D-D

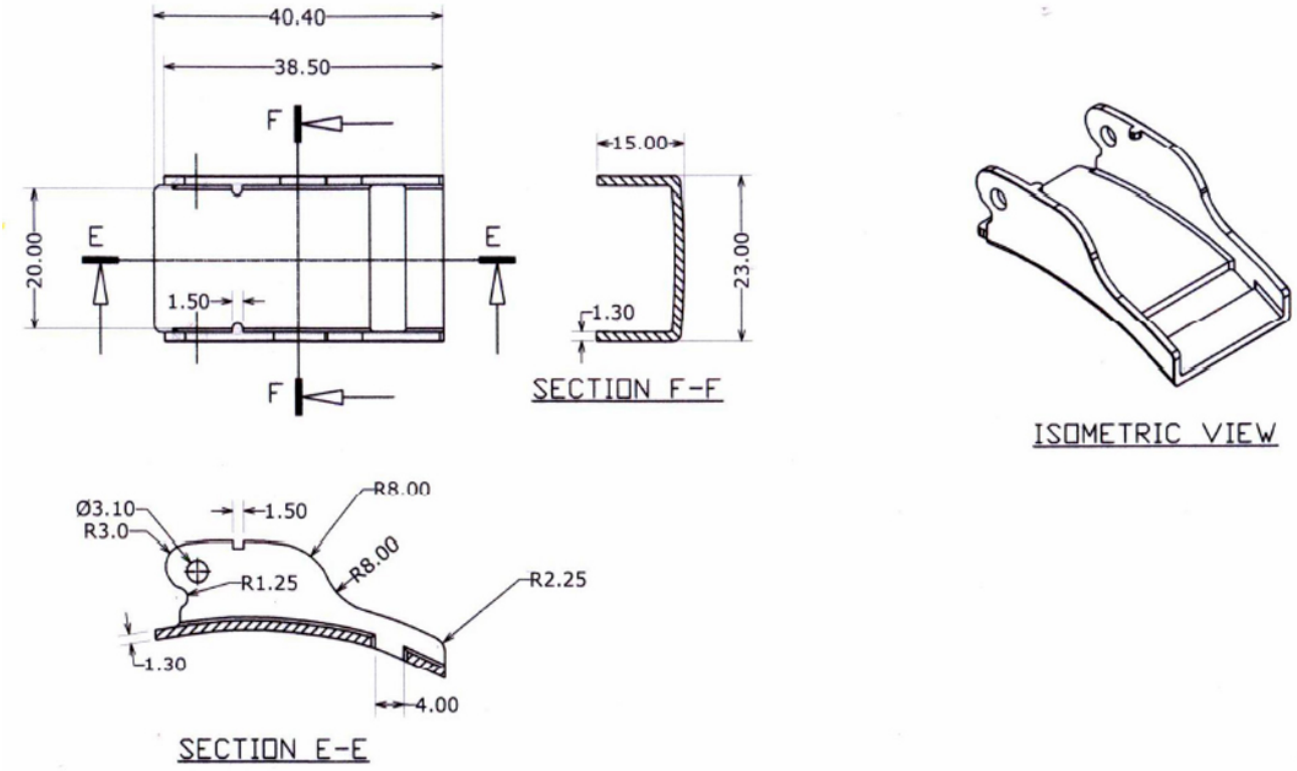
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BUCKLE CAP DRAWING
PART NO : - SAL/MMB/03



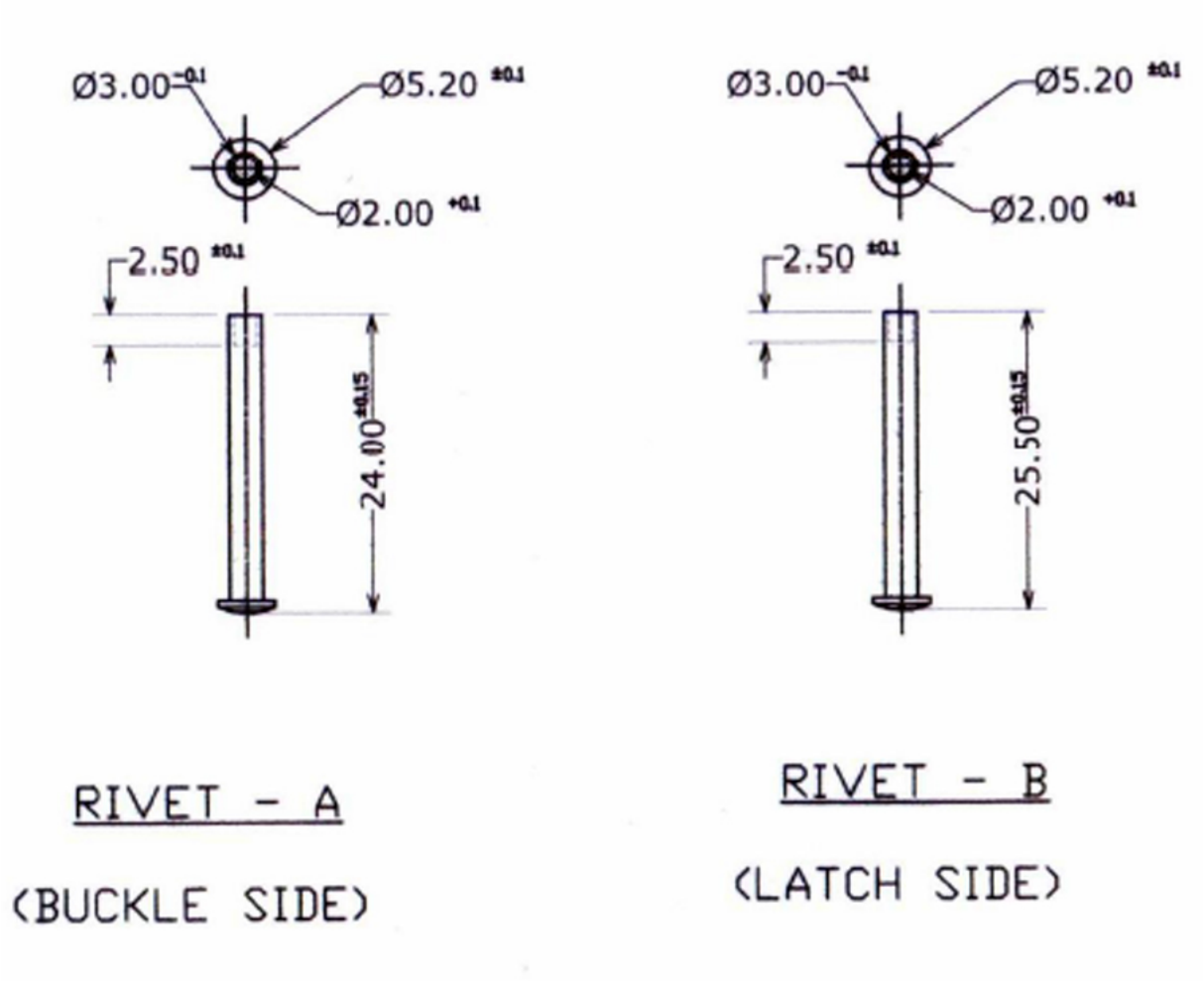
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BUCKLE HOUSING METAL PART DRAWING
PART NO : - SAL/MMB/04



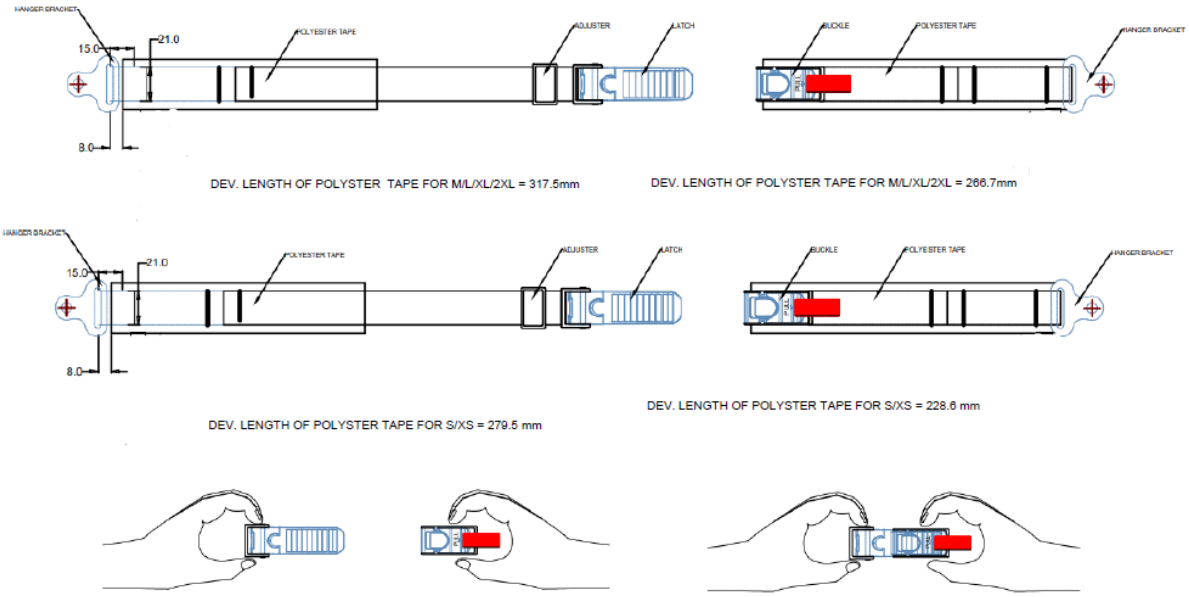
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MICROMETRIC BUCKLE RIVET DRAWING
PART NO : - SAL/MMB/06



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CHIN STRAP ASSY-SMK STELLAR



DEV. LENGTH OF POLYSTER TAPE FOR M/L/XL/2XL = 317.5mm

DEV. LENGTH OF POLYSTER TAPE FOR M/L/XL/2XL = 266.7mm

DEV. LENGTH OF POLYSTER TAPE FOR S/XS = 279.5 mm

DEV. LENGTH OF POLYSTER TAPE FOR S/XS = 228.6 mm

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VCA, 1 Eastgate Office Centre,
Eastgate Road, Bristol, BS5 6XX, United Kingdom
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www.vehicle-certification-agency.gov.uk |
+44(0) 300 330 5797

Report Number: ISA580567 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:	30 September 2022 to 09 October 2022
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, Ballabhgarh , Faridabad -121004 Haryana, India
Type:	STELLAR – S01
Commercial Description:	Protective helmet With Protective Lower Face Cover 'P 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:	26 October 2022

List of Annexes

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Report Number: ISA580567 Issue: 0

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Annex	No of Pages	Subject
I	08	Helmet Production Qualification Test Report – ISA580567A

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Report Number: ISA580567 Issue: 0

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Issue Record

Issue 0 is original report

Worst Case Rationale

Representative Protective Helmet Tested as submitted by Manufacturer

STELLAR- S01 Type Helmet is provided with Visor Type STELLAR-S01
Certificate Number ***E11*22R06/00*0894*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

Helmet Specification

Style of Helmet:	Helmet with Protective lower Face Cover (P Type) with Visor

Size

Shell Size:	Large Shell	Small Shell
Consumer Size:	2XL (62), XL (61), L (59), M (57)	S (55), XS (54)
Weight:	2XL (1560), XL (1550), L (1555), M (1580) gm	S (1450), XS (1460) gm

Materials

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28-Oct-22

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Vehicle Certification Agency

Report Number: ISA580567 Issue: 0

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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:	5 no.'s (One in Chin, Two on top & Two at rear)
Type of Shell Edging:	TPU material beading
Accessories:	Antifog film on Visor & Rear Spoiler
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

Description	Make	Model	Serial number	Calibration due date*
Head Forms	AD Engg	NA	SAL/LAB/HF/60	14/12/2022
Impact Test Set-up	AD Engg	MAU1006/CF/AL	SAL/LAB/PG/01	14/12/2022
Ultraviolet-Radiation Conditioning Chamber	AD Engg	NA	SAL/LAB/DT/02	14/12/2022
Low Temperature Conditioning Chamber	Cellforst	IKG301	SAL/LAB/CCC/01	15/08/2023
Heat Conditioning Chamber	Bellstone	NA	SAL/LAB/HC/01	14/12/2022
Hygrometer	Bellstone	NA	SAL/LAB/HUM/CH	15/08/2023
Retention Testing Machine	AD Engg	ROL1103/ECE	SAL/LAB/WG/06	14/12/2022
Rigidity Test Machine	MYQ Engg	NA	RTM-01	07/03/2023

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28-Oct-22

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Digital Tensile Machine	Bagga	BSI – 500	BSI – 500	07/03/2023

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

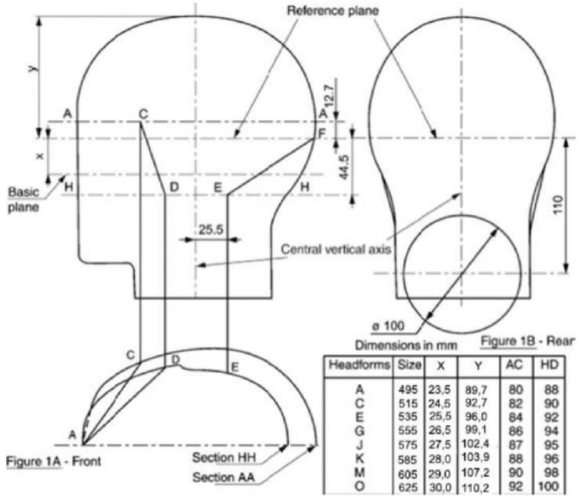
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Inspection/Test Requirements		Complies Yes / NA
Markings		
4.1.1.	On the helmet, it bears the applicant's trade name or mark, and an indication of the size and, if appropriate, an indication of the unsuitability of the lower face cover to offer any 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



Dimensions in mm

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

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

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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:	20.63	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°:	42 °	NA

Sun Shield

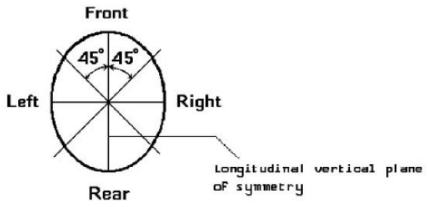
6.17.1	Sun shield does not restrain or prevent the movement of the visor. On opening the visor, the sun shield can pivot in the working position. By means of a simple movement the sun shield is able to be moved separately from the visor out of the visual field.		NA
6.17.2.1	Sun shield does not restrict 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.		NA

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	935	128
		X	K		7.62	1101	171
		P	K		7.62	1207	154
		R	K		7.62	796	122
2XL – 02	O	B	F	AMB	7.65	1486	169
		X	F		7.59	1525	212
		P	F		7.65	1780	198
		R	F		7.62	1005	141
2XL – 03	O	B	K	+50	7.65	1061	131
		X	K		7.59	1194	198
		P	K		7.65	1198	154
		R	K		7.65	798	128
2XL – 04	O	B	F	-10	7.65	1414	168
		X	F		7.62	1544	211
		P	F		7.65	1843	205

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		R	F		7.62	1020	147
		S	F		5.58	836	181
2XL - 05	O	B	K	UV + H2O	7.65	1007	132
		X	K		7.62	1102	193
		P	K		7.65	1219	164
		R	K		7.65	819	127

*F = Flat; K = Kerbstone

7.3. Helmet size: 2XL (62 cm)

Extra Impact points :

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	7.59	≤ 2,400	1365	≤ 275 g	168
		BXL	F		7.5	7.65	≤ 2,400	1365	≤ 275 g	173
		RXL	F		7.5	7.62	≤ 2,400	1158	≤ 275 g	160
2XL -	O	BP	K	AMB	7.5	7.62	≤ 2,400	1302	≤ 275 g	150
		RXPL	K		7.5	7.65	≤ 2,400	675	≤ 275 g	107
		RXR	K		7.5	7.62	≤ 2,400	897	≤ 275 g	126

[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 :

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	8.20	≤ 2,880	1819	≤ 275 g	187
		X	F		8.2	8.21	≤ 2,880	1950	≤ 275 g	226
		P	F		8.2	8.22	≤ 2,880	2065	≤ 275g	228
		R	F		8.2	8.20	≤ 2,880	1345	≤ 275 g	165
2XL -	O	B	K	Low Energy	6.0	6.12	≤ 1,300	690	≤ 180 g	112
		X	K		6.0	6.10	≤ 1,300	550	≤ 180 g	115
		P	K		6.0	6.12	≤ 1,300	541	≤ 180 g	126
		R	K		6.0	6.08	≤ 1,300	459	≤ 180 g	105

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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

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 - 06	M	B	K	+50	7.65	1006	133
		X	K		7.59	1089	162
		P	K		7.65	1237	145
		R	K		7.62	764	114
XL - 07	M	B	F	-10	7.62	1400	166
		X	F		7.62	2229	254
		P	F		7.63	2186	204
		R	F		7.65	1193	154
		S	F		5.56	740	188

**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 – 08	J	B	K	+50	7.62	1122	140
		X	K		7.65	1160	169
		P	K		7.62	1383	165
		R	K		7.62	653	112
L - 09	J	B	F	-10	7.65	1412	164
		X	F		7.62	1794	225
		P	F		7.62	2135	195
		R	F		7.59	1081	147
		S	F		5.58	522	151

**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 – 10	J	B	K	+50	7.62	986	128
		X	K		7.62	1083	162
		P	K		7.62	1246	165
		R	K		7.59	760	125
M - 11	J	B	F	-10	7.61	1439	195
		X	F		7.60	1689	214

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		P	F		7.62	1754	188
		R	F		7.62	964	145
		S	F		5.59	575	152

*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 - 12	E	B	K	AMB	7.62	1056	140
		X	K		7.55	1136	169
		P	K		7.65	1362	163
		R	K		7.59	772	131
S – 13	E	B	F	AMB	7.62	1346	160
		X	F		7.59	1952	232
		P	F		7.62	2281	219
		R	F		7.59	1097	155
S – 14	E	B	K	+50	7.62	1094	139
		X	K		7.59	1241	168
		P	K		7.65	1397	169
		R	K		7.62	775	132
S – 15	E	B	F	-10	7.65	1239	161
		X	F		7.62	2181	250
		P	F		7.60	2363	222
		R	F		7.60	1099	159
		S	F		5.64	882	210
S - 16	E	B	F	UV + H2O	7.59	1028	140
		X	K		7.59	1333	184
		P	K		7.62	1438	179
		R	K		7.62	775	126

*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 – 17	E	B	K	+50	7.62	1125	139
		X	K		7.65	1212	170
		P	K		7.62	1544	194
		R	K		7.65	802	130
XS - 18	E	B	F	-10	7.65	1385	170
		X	F		7.65	1955	227
		P	F		7.65	2082	190

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		R	F		7.62	1139	158
		S	F		5.58	359	127

**F = Flat; K = Kerbstone*

Test for Projection and Surface Friction (Method B)

	Helmet ID Number	Test	Tested Point	Results
7.4.2.1.3.1.	2XL – 19	Projection	Side	Pass
7.4.2.1.3.2.	2XL - 20	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.	NA
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.	NA
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.	NA
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.)	NA

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 – 21	XXL	Longitudinal	205	188 (17)	201 (4)

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2XL – 22	XXL	Transversal	145	126 (19)	140 (5)
S – 23	S	Longitudinal	195	179 (16)	193 (2)
S – 24	S	Transversal	138	117 (21)	134 (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 – 25	2XL (62 cm)	-	32.4	22.6
S – 26	S (55 cm)	-	33.2	21.5

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.	NA

Helmet ID Number	Helmet Size	Chin Strap	After the Test *(Angle ≤ 30°)*
2XL – 27	2XL (62 cm)	-	22.5
S – 28	S (55 cm)	-	23.6

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

Chin strap	Total Slip *(≤ 10 mm)*
2XL – CS - 01	2 mm
S – CS - 02	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 - 03	4.02 KN

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

	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)*	2.17 KN

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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
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

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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*
2XL – 29	O	Front lateral right (45°)	AMB	8.0	3063	0.35
		Rear (180°)		8.12	1460	0.21
		Lateral left (270°)		8.11	2797	0.42
2XL - 30	O	Front (0°)	AMB	8.05	2627	0.35
		Rear-lateral right (135°)		8.0	1953	0.33

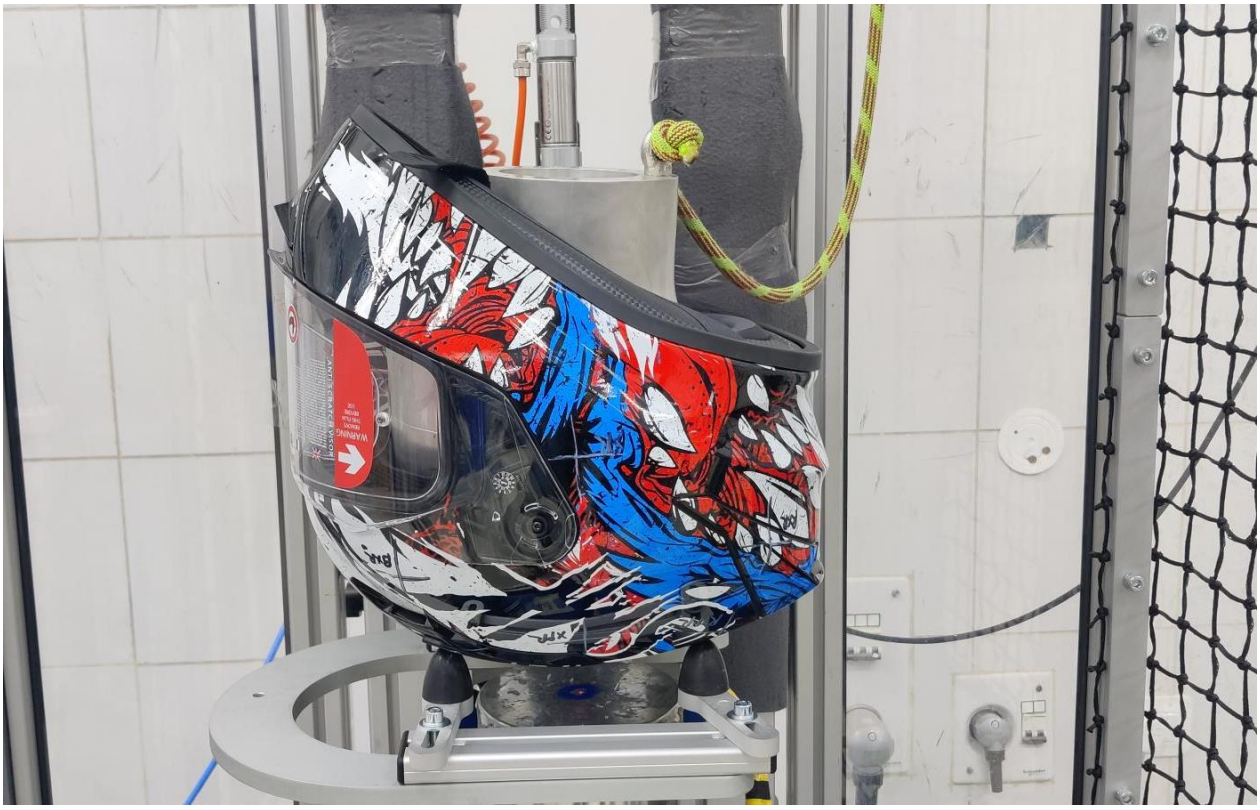
Helmet ID Number	H.F. Size Number	Impact Point	Cond. (°C)	Speed (8.0m/s)	Peak Resultant Acceleration (PRA) ≤ *10,400 rad/s²*	Brain Injury Criterion (BrIC) *≤ 0.78*
S – 31	E	Front lateral right (45°)	AMB	8.02	3231	0.38
		Rear (180°)		8.09	2765	0.27
		Lateral left (270°)		8.05	3754	0.41
S - 32	E	Front (0°)	AMB	8.11	2561	0.42
		Rear-lateral right (135°)		8.09	3260	0.49

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Photographs



Remarks

Production Qualification of STELLAR – S01 Helmet is determined
Please Refer PQ Report No. ISA580567A

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

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Vehicle Certification Agency

Report Number: ISA580567A 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:	30 September 2022 to 09 October 2022
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, Ballabhgarh , Faridabad -121004 Haryana, India
Type:	STELLAR-S01
Commercial Description:	Protective helmet With Protective Lower Face Cover 'P 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:	26 October 2022

List of Annexes

Annex	No of Pages	Subject
I	-	-

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Report Number: ISA580567A 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 ISA580567

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

Specification

Number of Samples		
Shell Size:	Large Shell	Small Shell
Consumer Size:	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:	5 no.'s (One in Chin, Two on top & Two at rear)	
Type of Shell Edging:	TPU material beading	
Accessories:	Antifog film on Visor & Rear Spoiler	
Reflecting Band:	NA	

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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	14/12/2022
Impact Test Set-up	AD Engg	MAU1006/CF/AL	SAL/LAB/PG/01	14/12/2022
Low Temperature Conditioning Chamber	Cellforst	IKG301	SAL/LAB/CCC/01	15/08/2023
Heat Conditioning Chamber	Bellstone	NA	SAL/LAB/HC/01	14/12/2022
Retention Testing Machine	AD Engg	ROL1103/ECE	SAL/LAB/WG/06	14/12/2022

**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	7.61	1456	168
	2		B	F		7.62	1526	162
	3		B	F		7.59	1485	171
	4		B	F		7.58	1456	170
	5		B	F		7.55	1526	164
	6		B	F		7.52	1624	165
	7		B	F		7.56	1479	166
	8		B	F		7.61	1596	169
	9		B	F		7.64	1459	167
	10		B	F		7.62	1471	162
2	11	O	X	K	+50	7.60	1198	204
	12		X	K		7.62	1296	205
	13		X	K		7.61	1245	198
	14		X	K		7.52	1175	197
	15		X	K		7.54	1196	196
	16		X	K		7.59	1263	197
	17		X	K		7.54	1252	190
	18		X	K		7.56	1249	189
	19		X	K		7.52	1310	209
	20		X	K		7.52	1185	205
3	21	O	P	F	-10	7.59	1946	211
	22		P	F		7.56	1856	214
	23		P	F		7.61	1999	206
	24		P	F		7.60	1746	198
	25		P	F		7.62	1876	204
	26		P	F		7.58	1906	200
	27		P	F		7.57	1974	202
	28		P	F		7.55	1960	201
	29		P	F		7.56	1896	197
	30		P	F		7.56	1746	199

**F = Flat; K = Kerbstone*

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Report Number: ISA580567A 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	7.55	805	130
	32		R	K		7.59	796	134
	33		R	K		7.58	996	135
	34		R	K		7.52	704	128
	35		R	K		7.55	846	129
	36		R	K		7.56	888	116
	37		R	K		7.55	970	120
	38		R	K		7.54	865	124
	39		R	K		7.54	936	125
	40		R	K		7.59	1059	120
5	41	O	S	F	-10	5.52	905	190
	42		S	F		5.59	836	185
	43		S	F		5.55	749	174
	44		S	F		5.51	804	195
	45		S	F		5.50	999	198
	46		S	F		5.59	846	182
	47		S	F		5.58	741	188
	48		S	F		5.52	934	184
	49		S	F		5.54	856	191
	50		S	F		5.56	792	190

**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	3.16	7.58	166.4	173.98
2	11 - 20	X	6.63	15.91	199	214.91
3	21 - 30	P	5.63	13.51	203.2	216.71
4	31 - 40	R	6.24	14.97	126.1	141.07
5	40 - 50	S	6.84	16.41	187.7	204.11

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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	29.21	19.58	Satisfactory
52	28.52	18.41	Satisfactory
53	29.15	17.62	Satisfactory
54	28.11	19.66	Satisfactory
55	27.62	18.88	Satisfactory
56	27.62	17.54	Satisfactory
57	29.31	18.62	Satisfactory
58	30.11	19.45	Satisfactory
59	29.46	17.52	Satisfactory
60	28.46	18.96	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	0.82	1.968	28.75	30.718
51 - 60	Extension residual	0.83	1.992	18.62	20.612

Remarks

Batch Size of 3200 Helmet

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

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