PEUTZ

Laboratory for Fire Safety

Classification of the fire resistance in accordance with EN 13501-2:2016 of a timber floor construction made of Staircraft TFSi I-joists, chipboard flooring and gypsum plasterboard (12.5 mm Gyproc Wallboard type A) ceiling incorporating twelve ROBUS downlights

Classification report

Report number YA 2248-1E-RA-001 dated August 31, 2020

Laboratory for Fire Safety

Classification of the fire resistance in accordance with EN 13501-2:2016 of a timber floor construction made of Staircraft TFSi I-joists, chipboard flooring and gypsum plasterboard (12.5 mm Gyproc Wallboard type A) ceiling incorporating twelve ROBUS downlights

Classification report

Client	LED Group Nangor Road Dublin 12 D12E7VP Ireland
Prepared by	Peutz bv Lindenlaan 41, NL-6584 AC Molenhoek Postbus 66, NL-6585 ZH Mook The Netherlands
Notified body	NB 2264
Product name	Timber floor construction with *ROBUS* downlights
Report number	YA 2248-1E-RA-001
Date of issue	August 31, 2020
Reference	HL/TBr//YA 2248-1E-RA-001
Representative	H.H.A. Leenders, BSc.
Author	T. Brzoskowski, MSc. +31 858 228 621 t.brzoskowski@peutz.nl

This classification report, containing 8 pages and an Appendix containing 12 pages, can only be used and reproduced as an entity.

1 Introduction

This classification report defines the fire resistance classification which is assigned to a timber floor construction made of Staircraft TFSi I-joists, chipboard flooring and gypsum plasterboard ceiling incorporating twelve *ROBUS* downlights. The system was tested in the Peutz Laboratory for Fire Safety in Mook using the standard heating curve and in accordance with the procedures given in EN 1365-2:2014, further referenced as EN 1365-2 and EN 1363-1:2020, further referenced as EN 1363-1.

For performing the testing and classification, the Laboratory for Fire Safety is recognized by the ''Stichting Raad voor Accreditatie'' (RvA).

The RvA is member of the EA MLA (**EA MLA**: **E**uropean **A**ccreditation Organisation **M**ulti**L**ateral **A**greement: http://www.european-accreditation.org).

EA: "Certificates and reports issued by bodies accredited by MLA and MRA members are considered to have the same degree of credibility, and are accepted in MLA and MRA countries."

2 Details of the classified system

2.1 General

The element, is defined as a loadbearing floor with fire separating function according to EN 13501-2:2016 (further referenced as EN 13501-2), paragraph 7.3.3. The floor has been classified for the fire applied from below only.

2.2 Product description

The element, a timber floor construction made of Staircraft TFSi I-joists, chipboard flooring and gypsum plasterboard ceiling incorporating twelve *ROBUS* downlights is fully described in the test report listed in table 3.1.

The Staircraft TFSi I-joists are 220 mm high, made of two rectangular timber flanges of 47 mm x 47 mm connected to each other with 11 mm thick OSB4 board. The Staircraft TFSi I-joists were positioned at 600 mm centres. The web at the end of the Staircraft TFSi I-joists was filled from both sides with soft wood 'end blocks' (47 mm x 125 mm x 18 mm).
On the top of the Staircraft TFSi I-joists a flooring of chipboard 22 mm thick (full board 1800 mm x 600 mm) has been applied.
Under the Staircraft TFSi I-joists a ceiling of gypsum plasterboard (12.5 mm, British Gypsum, GYPROC Wallboard, type A) has been mounted (full board 2400 mm x 1200 mm). In and on top of the joints and heads of the screws joint filler was used. The perimeter joints (bearing sides) between the floor construction and the supporting construction were filled with intumescent sealant. No plasterboard edge noggings or perimeter board noggings were used.

Twelve *ROBUS* downlights, listed below, were incorporated in the gypsum plasterboards.

- 2 x **RSF201** in Ø73 mm,
- 2 x **RATR0113060** in Ø70 mm,
- 2 x **RSF20165** in Ø76 mm,
- 2 x **RRA084060** in Ø70 mm,
- 2 x **RSF208** in Ø86 mm,
- 2 x **RUL0740** in Ø72 mm

At the request of the client an extra load of 106 kg/m^2 has been applied during the test. For the purpose of the supporting construction a frame work made of aerated concrete (class G4/600), respectively 200 mm thick in the vertical direction (bearing sides) and 150 mm thick in the longitudinal direction (free edges), has been used.

For more details of the layout of the construction please refer to the drawing in Appendix 1.

3 Data to support the classification

3.1 Report

The classification is based on the report mentioned in table 3.1. The client has stated that the report provided may be used for this classification report.

t3.1 Report used for classification

Name of laboratory	Name of sponsor	Reports reference number and date	Used methods
Peutz bv	LED Group	Test report Y 2248-3E-RA-001 dated July 31, 2020	EN 1365-2 EN 1363-1

3.2 Results

The test specimen was heated using the standard heating curve as defined in EN 1363-1 with heating from below.

In the table 3.2 below it is shown after which time each of the criteria was exceeded (fails). The elapsed time is expressed in whole (already elapsed) minutes, counted from the start of the test. After 39 minutes the test was ended (construction collapses).

t3.2 Test results

Assessment criterion	Elapsed time	Pass / Fail
Loadbearing capacity (R)		
– limiting deflection * 1.5	39 minutes	fail (due to collapsing)
– limiting deflection	39 minutes	fail (due to collapsing)
– limiting rate of deflection	36 minutes	fail
Integrity (E)		
– sustained flaming	39 minutes	fail (due to failing R)
– cotton pad	39 minutes	fail (due to failing R)
– gap gauges	39 minutes	fail (due to failing R)
Insulation (I)		
– average temperature rise	39 minutes	fail (due to failing R)
– maximum temperature rise	39 minutes	fail (due to failing R)

4 Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with Clause 7.3.3 of EN 13501-2.

4.2 Classification

The element, a timber floor construction, is classified according to the following combinations of performance parameters and classes as appropriate.

Fire resistance classification
REI 30

4.3 Field of application

This classification is valid for the construction given on the drawings in Appendix 1 and the description given in Chapter 2.2. The field of application is based on the direct field of application in accordance with the test standard EN 1365-2. The test results are directly applicable to a similar untested floor or roof construction with the following end use applications.

4.3.1 Construction element

The span of the construction may be increased or decreased, the spacing of the Staircraft TFSi I-joists may be decreased, or the depth and flange size of the Staircraft TFSi I-joists increased, provided that the maximum moments and shear forces on the Staircraft TFSi I-joists, considering the load applied in practise, are not greater than those tested (106 kg/m^2), when calculated on the same basis in the fire condition.

4.3.2 The dimension crosswise to the span direction

The dimension perpendicular to the span direction may be increased or decreased provided that the spacing of the Staircraft TFSi I-joists is not greater than 600 mm.

4.3.3 Boards of the ceiling

The maximum size of boards of the ceiling is 2450 mm x 1250 mm, provided that the number of fixings per square meter remains at least the same as tested. The boards shall be of the type British Gypsum, Gyproc Wallboard, Type A, 12.5 mm.

4.3.4 Cavity

The height of the cavity between the ceiling and the flooring may be increased but with a minimum Staircraft TFSi I-joists height of 220 mm. No extra material may be added to that cavity.

4.3.5 Fittings

ROBUS downlights

The centre-to-centre distance between 2 random fittings shall be no less than 600 mm in the direction parallel to the joists and no less than than 600 mm in the direction perpendicular to the joists. Alternatively the downlights may be spaced closer than 600 mm perpendicular to the joists provided that the spacing is adjusted accordingly in the parallel direction such than the density of downlights per m^2 is no greater than one downlight per 1 m^2 for the entire ceiling area. The distance between a downlight and a joint of the gypsum board and between a downlight and centre of the TFSi I-joist shall be at least 200 mm.

The diameter of the hole in the gypsum board for the installation of the downlight shall not exceed:

- 70 mm for:
  - RATR0113060 and RRA084060
- 72 mm for:
  - RUL0740
- 73 mm for:
  - RSF201
- 76 mm for:
  - RSF20165
- 86 mm for:
  - RSF208

5 Limitations

This classification document does not represent type approval of certification of this product.

Mook,

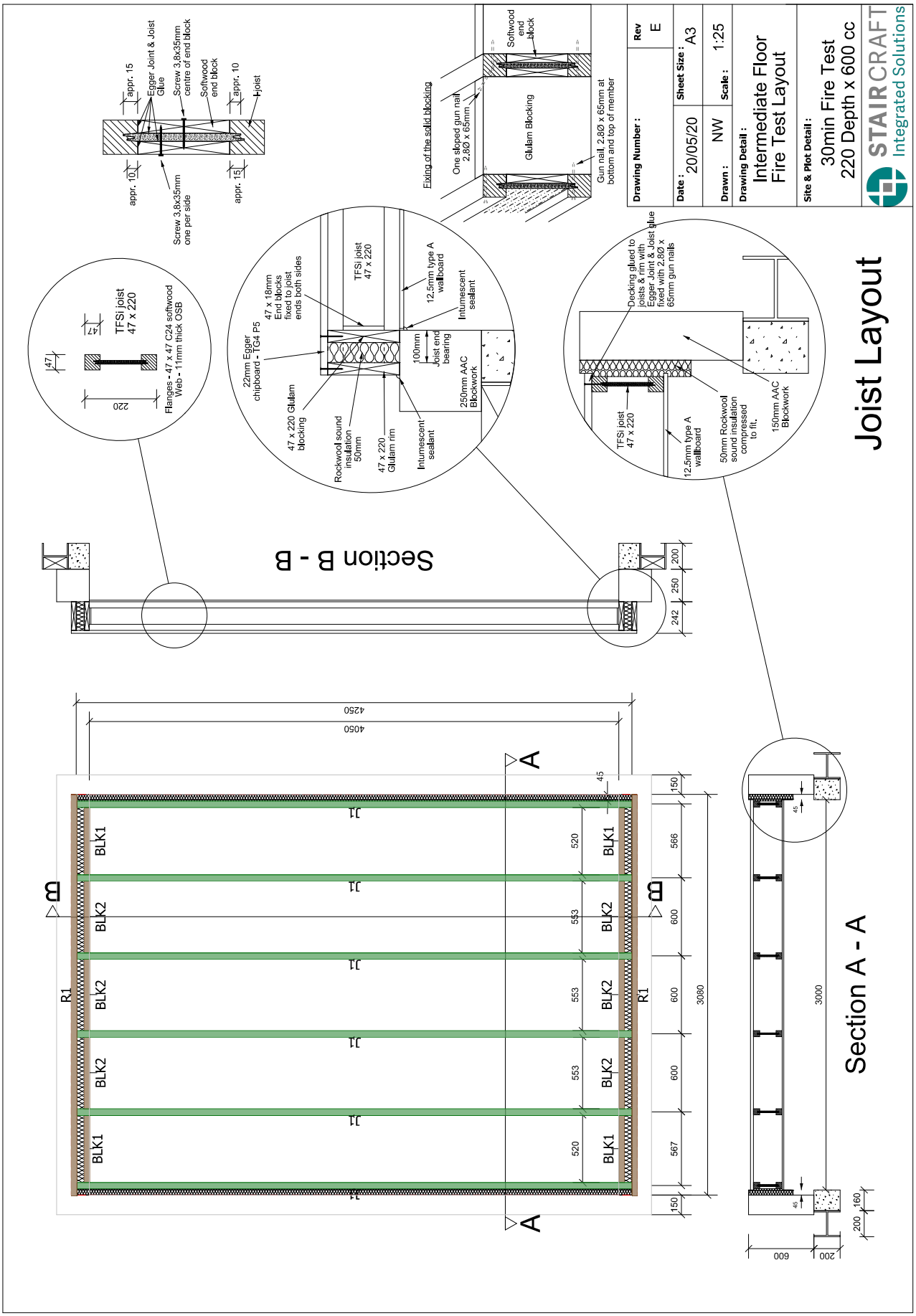
H.H.A. Leenders, BSc.

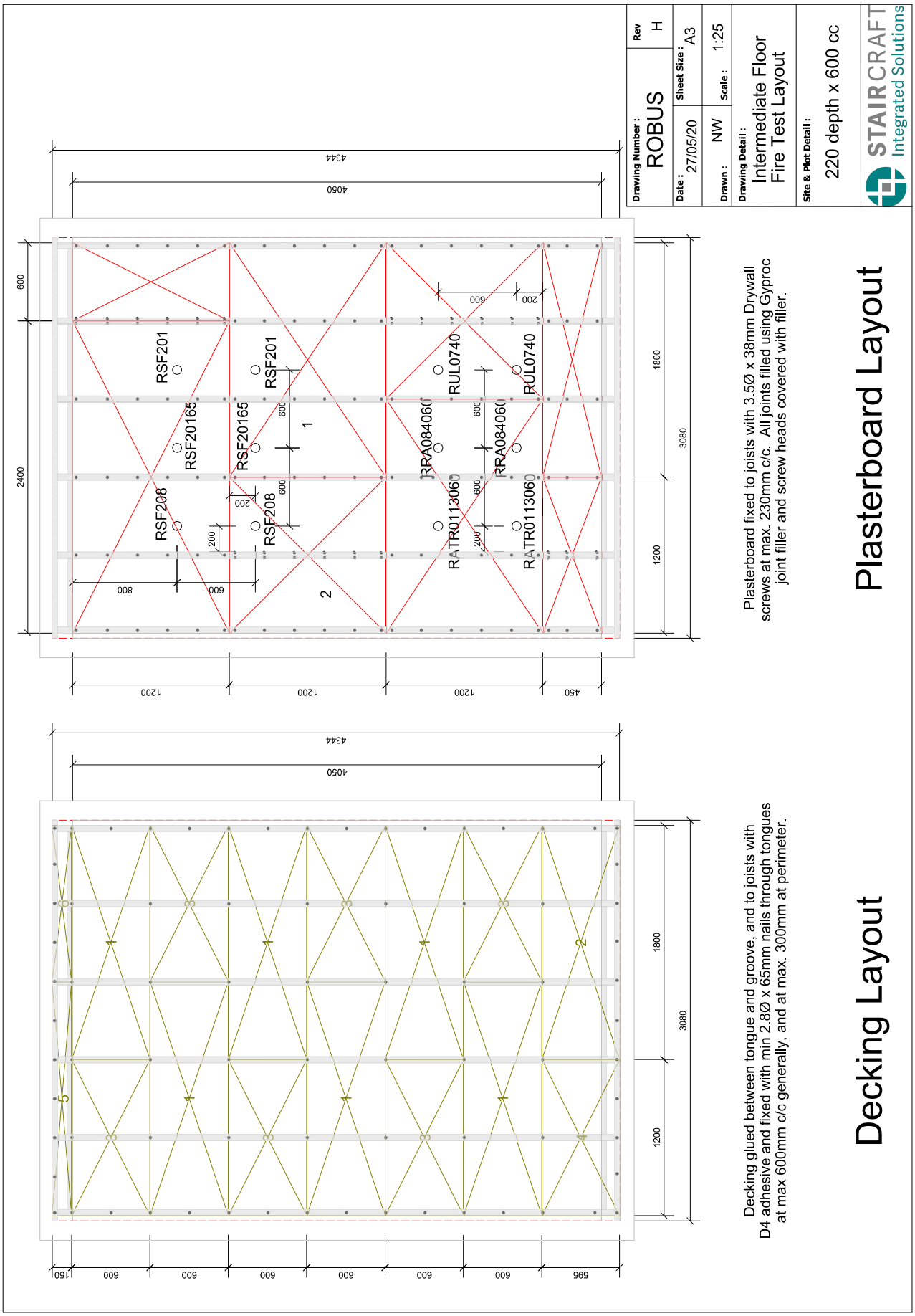
D.J. Den Boer, B.Eng.

Head of Laboratory for Fire Safety

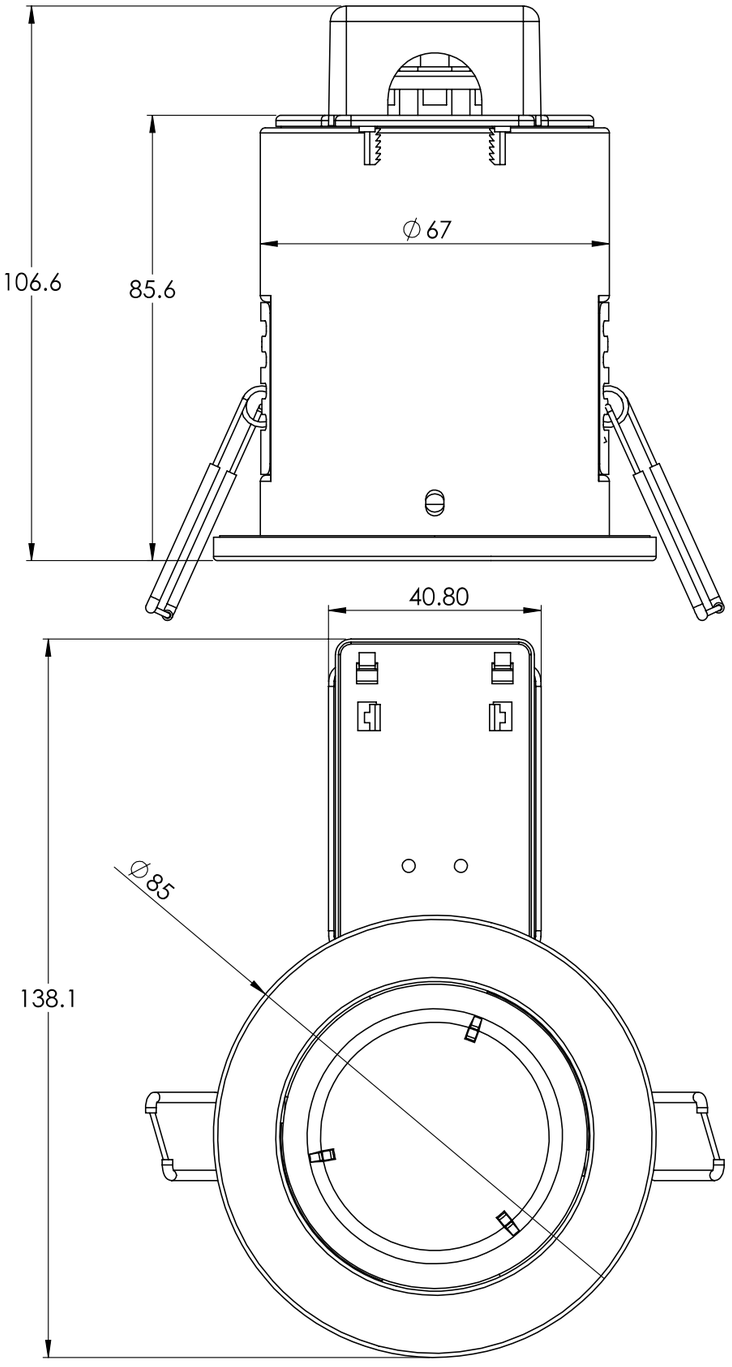
Management

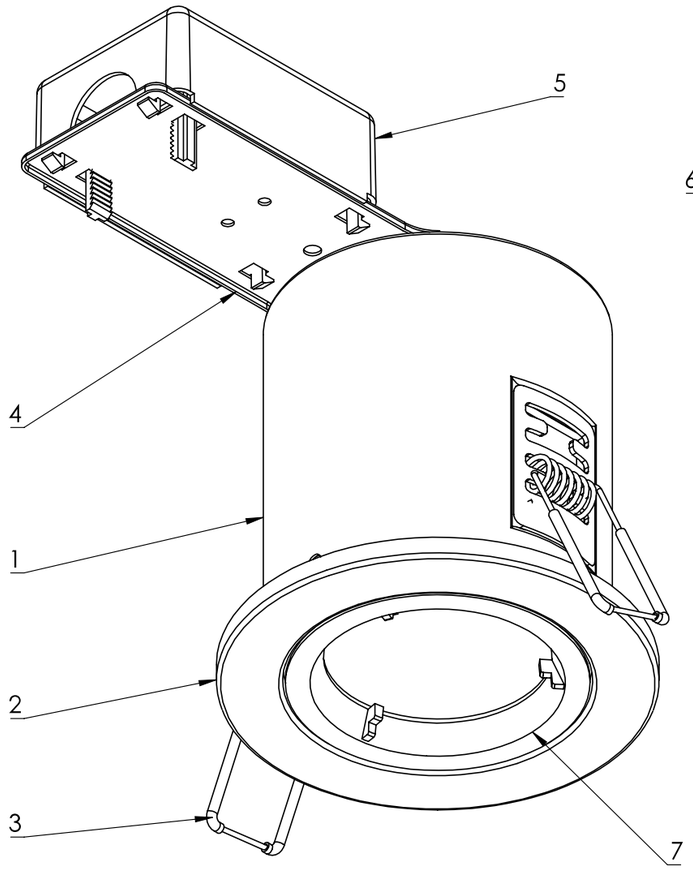
This report contains 8 pages and 1 appendix:
Appendix 1 Drawings of the classified system.

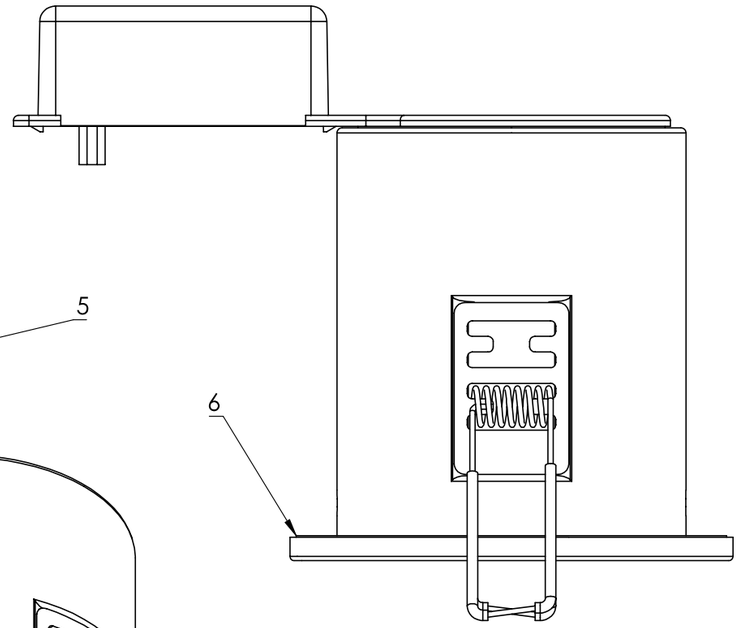

Joist Layout
Section A - A
Section B - B
Drawing Number :
Rev E
Date : 20/05/20
Sheet Size : A3
Drawn : NW
Scale : 1:25
Drawing Detail : Intermediate Floor Fire Test Layout
Site & Plot Detail : 30min Fire Test 220 Depth x 600 cc
STAIRCRAFT Integrated Solutions
TFSi joist 47 x 220
Flanges - 47 x 47 C24 softwood
Web - 11mm thick OSB
Fixing of the solid blocking
One sloped gun nail 2.8Ø x 65mm
Softwood end block
Glulam Blocking
Gun nail 2.8Ø x 65mm at bottom and top of member
Egger Joint & Joist Glue
Screw 3.8x35mm centre of end block
Softwood end block
Screw 3.8x35mm one per side
22mm Egger chipboard - TG4 P5
47 x 18mm End blocks fixed to joist ends both sides
47 x 220 Glulam blocking
Rockwool sound insulation 50mm
47 x 220 Glulam rim
Intumescent sealant
100mm Joist end bearing
250mm AAC Blockwork
12.5mm type A wallboard
Decking glued to joists & rim with Egger Joint & Joist glue fixed with 2.8Ø x 65mm gun nails
50mm Rockwool sound insulation compressed to fit.
150mm AAC Blockwork
BLK1
BLK2
R1
4250
4050
3080
3000
600
200


Drawing Number : ROBUS
Rev H
Sheet Size : A3
Scale : 1:25
Drawn : NW
Date : 27/05/20
Drawing Detail : Intermediate Floor Fire Test Layout
Site & Plot Detail : 220 depth x 600 cc
STAIRCRAFT Integrated Solutions
Plasterboard Layout
Plasterboard fixed to joists with 3.5Ø x 38mm Drywall screws at max. 230mm c/c. All joints filled using Gyproc joint filler and screw heads covered with filler.
Decking Layout
Decking glued between tongue and groove, and to joists with D4 adhesive and fixed with min 2.8Ø x 65mm nails through tongues at max 600mm c/c generally, and at max. 300mm at perimeter.

	List of downlights									
	ItemCode	**ItemName**	**Width**	**Depth**	**Length**	**Diameter**	**CutOut**	**Recessed Depth**	**Projection**	**Weight**
1	**RATR0113060-01 – tested**	**TRIUMPH ACTIVATE LEDCHROIC 11W LED downlight, IP65, 92mm, White, 3000K, dimmable**	**na**	**108**		**91.5**	**70**	**98**	**10**	**0.37**
2	RATR0114060-01	TRIUMPH ACTIVATE LEDCHROIC 11W LED downlight, IP65, 92mm, White, 4000K, dimmable	na	108		91.5	70	98	10	0.37
3	RATR6P03038-01	TRIUMPH ACTIVATE LEDCHROIC 6W LED downlight, IP65, 92mm, White, 3000K, dimmable	na	63		92	70	53	10	0.27
4	RATR6P04038-01	TRIUMPH ACTIVATE LEDCHROIC 6W LED downlight, IP65, 92mm, White, 4000K, dimmable	na	66	NA	91.5	70	56	10	0.27
5	RATR6P03038NC-01	TRIUMPH ACTIVATE LEDCHROIC 6W LED downlight, IP65, 92mm, White, 3000K, dimmable, no connector	na	63		92	70	53	10	0.27
6	RATR6P04038NC-01	TRIUMPH ACTIVATE LEDCHROIC 6W LED downlight, IP65, 92mm, White, 4000K, dimmable, no connector	na	63		92	70	53	10	0.27
7	RATR8P03038-01	TRIUMPH ACTIVATE LEDCHROIC 8W LED downlight, IP65, 92mm, White, 3000K, dimmable	na	90	NA	91.5	70	80	10	0.32
8	RATR8P03038CE-01	TRIUMPH ACTIVATE 8W Fire Rated Driver On Board COB IP65 Downlight with 38° LEDCHROIC lens, 3000K, w	na	91	NA	91.5	70	80	10	0.34
9	RATR8P03038NC-01	TRIUMPH ACTIVATE 8W Fire Rated Driver On Board COB IP65 Downlight with 38° LEDCHROIC lens, 3000K, S	na	92	NA	91.5	70	80	10	0.34
10	RATR8P04038-01	TRIUMPH ACTIVATE LEDCHROIC 8W LED downlight, IP65, 92mm, White, 4000K, dimmable	na	90	NA	91.5	70	80	10	0.32
11	RATR8P04038CE-01	TRIUMPH ACTIVATE 8W Fire Rated Driver On Board COB IP65 Downlight with 38° LEDCHROIC lens, 4000K, w	na	91	NA	91.5	70	80	10	0.34
12	RATR8P04038NC-01	TRIUMPH ACTIVATE 8W Fire Rated Driver On Board COB IP65 Downlight with 38° LEDCHROIC lens, 4000K, S	na	93	NA	91.5	70	80	10	0.34
13	RRA083060-01	RAMADA 8.5W Fire Rated Downlight 3000K, 60° beam angle, IP65, dimmable, c/w White and B Chrome trim	**na**	**94**	**NA**	**86**	**70**	**83**	**10**	**0.3**
14	**RRA084060-01 – tested**	**RAMADA 8.5W Fire Rated Downlight 4000K, 60° beam angle, IP65, dimmable, c/w White and B Chrome trim**	na	94	NA	86	70	84	10	0.3
15	**RSF201-01 – tested**	**STARLING 50W mains voltage steel fire rated downlight, IP20, 85mm, White**	**na**	**105**	**NA**	**85**	**73**	**100**	**5**	**0.25**
16	RSF201-02	STARLING 50W mains voltage steel fire rated downlight, IP20, 85mm, Brass	na	105	NA	85	73	100	5	0.25
17	RSF201-03	STARLING 50W mains voltage steel fire rated downlight, IP20, 85mm, Chrome	na	105	NA	85	73	100	5	0.25
18	RSF201-13	STARLING 50W mains voltage steel fire rated downlight, IP20, 85mm, Br.Chrome	na	105	NA	85	73	100	5	0.25
19	**RSF20165-01 – tested**	STARLING 50W mains voltage steel fire rated shower downlight, IP65, 91mm, White	na	125	NA	91	76	119	6	0.31
20	RSF20165-01PTC	STARLING 50W mains voltage steel fire rated shower downlight, IP65, 91mm, White c/w push connector	na	125	NA	91	76	119	6	0.31
21	RSF20165-03	STARLING 50W mains voltage steel fire rated shower downlight, IP65, 91mm, Chrome	na	125	NA	91	76	119	6	0.31
22	RSF20165-13	STARLING 50W mains voltage steel fire rated shower downlight, IP65, 91mm, Br.Chrome	na	125	NA	91	76	119	6	0.31
23	RSF201MP-01	ROBUS STARLING Fire Rated 240v Fixed D/L White Pk10	na	105	NA	85	73	100	5	0.25
24	RSF201MP-13	ROBUS STARLING Fire Rated 240v Fixed D/L BR. Chrome Pk10	na	105	NA	85	73	100	5	0.25
25	**RSF208-01 – tested**	**STARLING 50W mains voltage steel fire rated downlight, IP20, 100mm, White, directional (RF208-01)**	**na**	**115**	**NA**	**100**	**86**	**110**	**5**	**0.32**
26	RSF208-02	STARLING 50W mains voltage steel fire rated downlight, IP20, 100mm, Brass, directional	na	115	NA	100	86	110	5	0.32
27	RSF208-03	STARLING 50W mains voltage steel fire rated downlight, IP20, 100mm, Chrome, directional	na	115	NA	100	86	110	5	0.32
28	RSF208-13	STARLING 50W mains voltage steel fire rated downlight, IP20, 100mm, Br.Chrome, directional	na	115	NA	100	86	110	5	0.32
29	**RUL0740-01 – tested**	**ULTIMUM 7W IP65 Fire Rated Downlight, 4000k, white trim**	**NA**	**60**	**NA**	**85**	**72**	**55**	**5**	**0.24**
30	RUL0530-01	ULTIMUM 5W IP65 Fire Rated Downlight, 3000k, white trim	NA	60	NA	85	72	55	5	0.24
31	RUL0540-01	ULTIMUM 5W IP65 Fire Rated Downlight, 4000k, white trim	NA	60	NA	85	72	55	5	0.24
32	RUL05X0-01	ULTIMUM 5W IP65 Fire Rated Downlight, colour selectable, white trim	NA	60	NA	85	72	55	5	0.24
33	RUL070WIFI-01	ULTIMUM CONNECT 7W IP65 WIFI Tunable Fire Rated Downlight, white trim	NA	60	NA	85	72	55	5	0.28
34	RUL0730-01	ULTIMUM 7W IP65 Fire Rated Downlight, 3000k, white trim	NA	60	NA	85	72	55	5	0.24
35	RUL0740-01	ULTIMUM 7W IP65 Fire Rated Downlight, 4000k, white trim	NA	60	NA	85	72	55	5	0.24
36	RUL07X0-01	ULTIMUM 7W IP65 Fire Rated Downlight, colour selectable, white trim	NA	60	NA	85	72	55	5	0.24







ID	Material	Component
1	Painted Mild Steel	Can/body
2	Painted Mild Steel	Bezel/Trim
3	Chromed Steel	Spring Clips
4	Steel and intumescent carbon	Back Plate
5	Polycarbonate	Terminal Cover
6	Intumescent Carbon	Seal ring
7	Painted Mild Steel	Lamp Holder

Material	
Surface Finish	Clean and free from sharp edges / burrs

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

Title: Starling Straight IP20

Part No:

Mass:

LED GROUP
WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

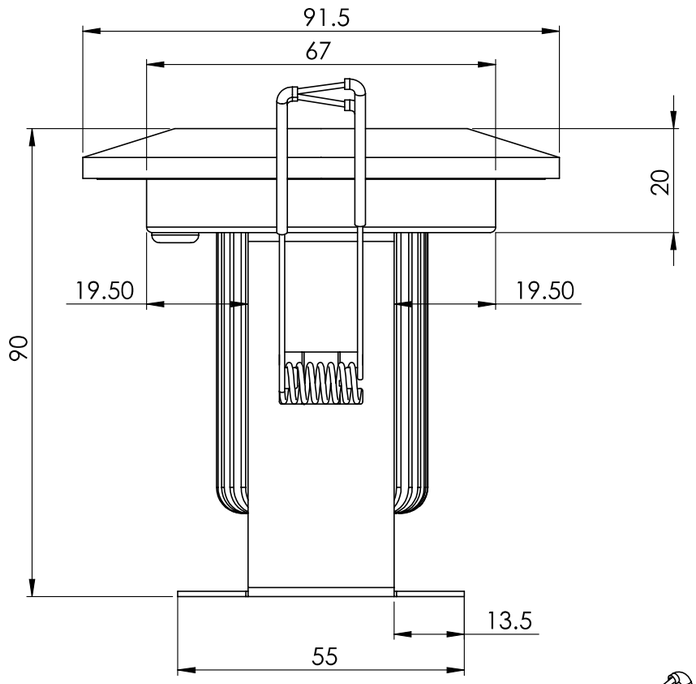
TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL:
INFO@LEDGROUPROBUS.COM
WEBSITE:
WWW.LEDGROUPROBUS.COM

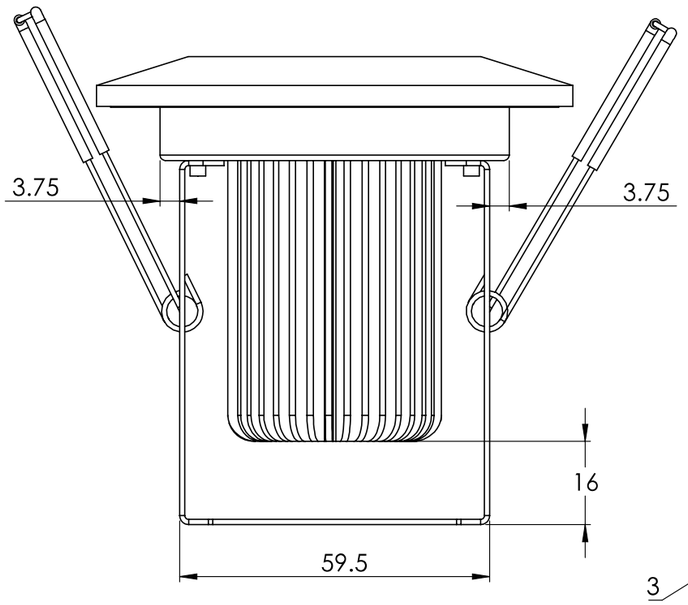
Drawn By:	Date:	Scale:	Revision:
DKennedy	26/06/2020	DO NOT SCALE	

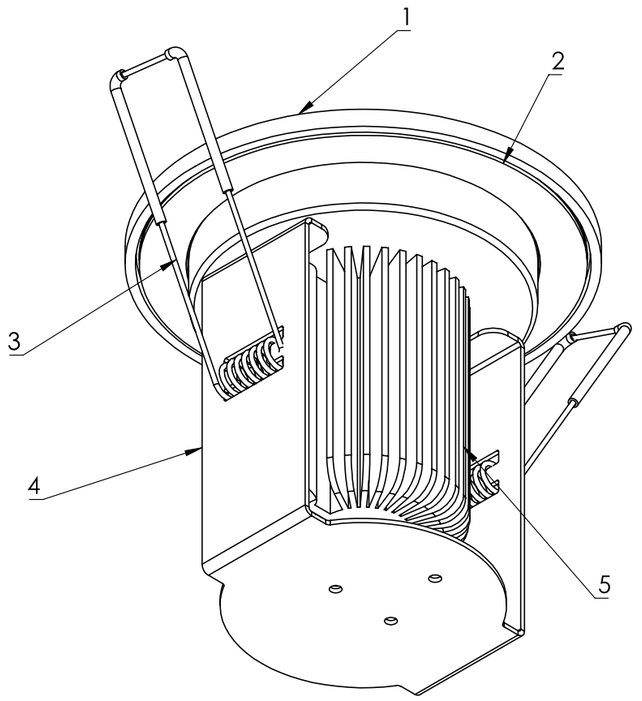
LEDGROUP ROBUS

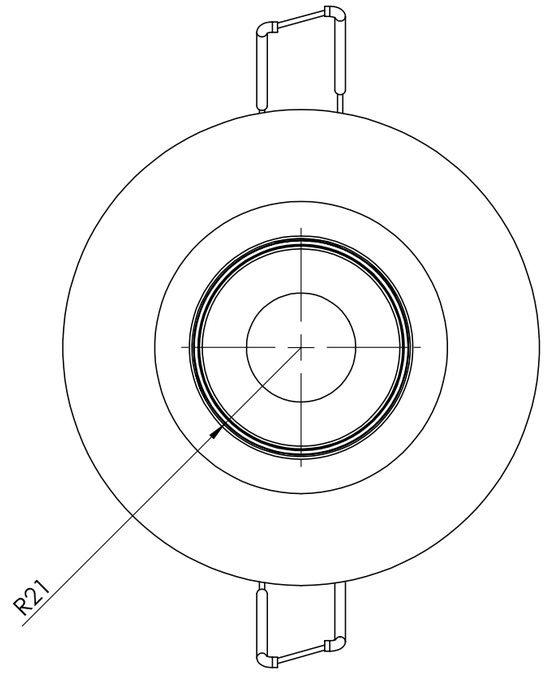
Sheet No: Sheet1 of 1

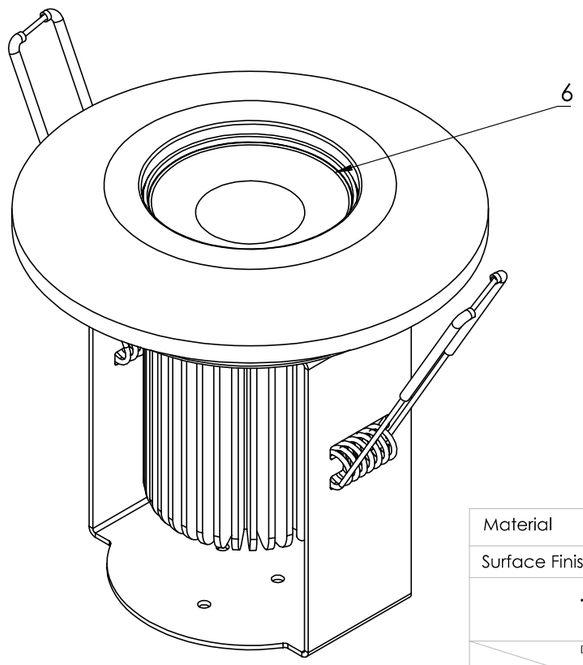
ID	Material	Component
1	Polycarbonate	Front Trim/Bezel
2	Painted Mild Steel	Can/Body
3	Chromed Steel	Spring Clips
4	Painted Mild Steel	Clamp Plate
5	Aluminium	Heat Sink
6	Acrylic	Lens











Material

Surface Finish: Clean and free from sharp edges / burrs

Title: Triumph Activate 8w

Part No: RATR8P03038

Mass: 269.93 3.0

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

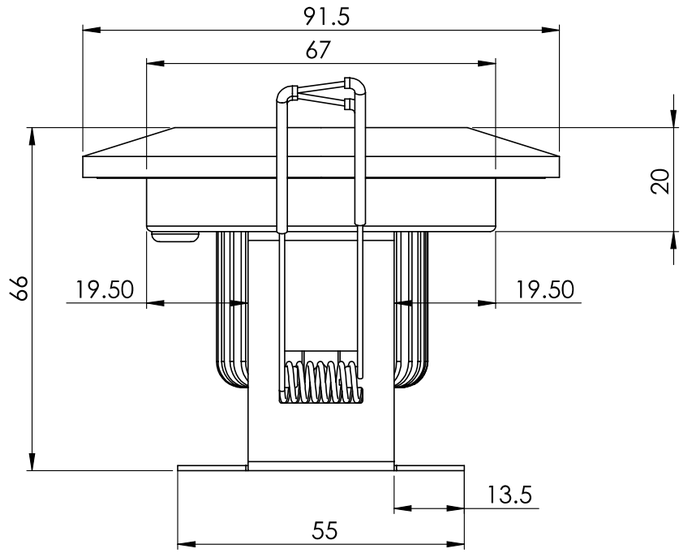
LED GROUP
WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

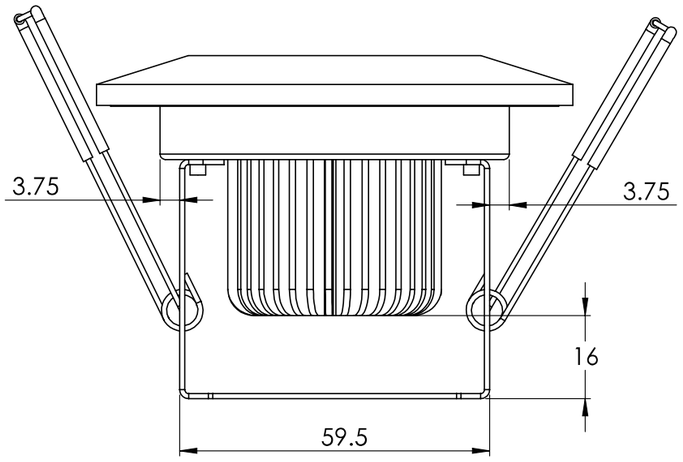
TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL: INFO@LEDGROUPROBUS.COM
WEBSITE: WWW.LEDGROUPROBUS.COM

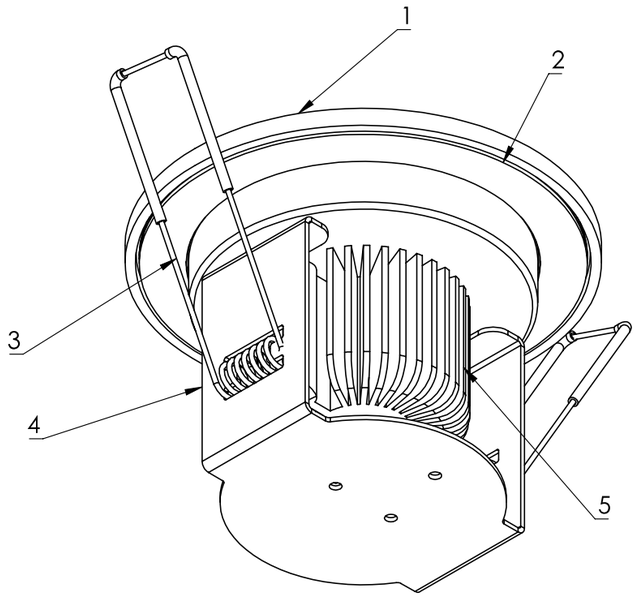
Drawn By: D.K
Date: 07/11/2018
Scale: DO NOT SCALE
Revision:
Sheet No:

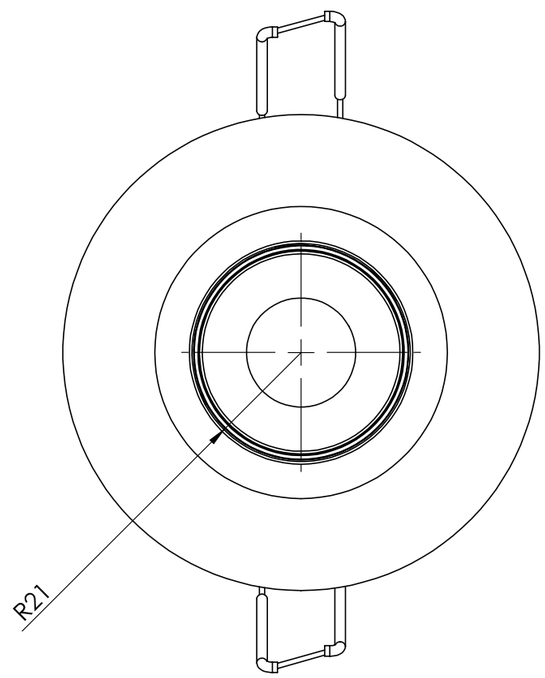
LEDGROUP ROBUS

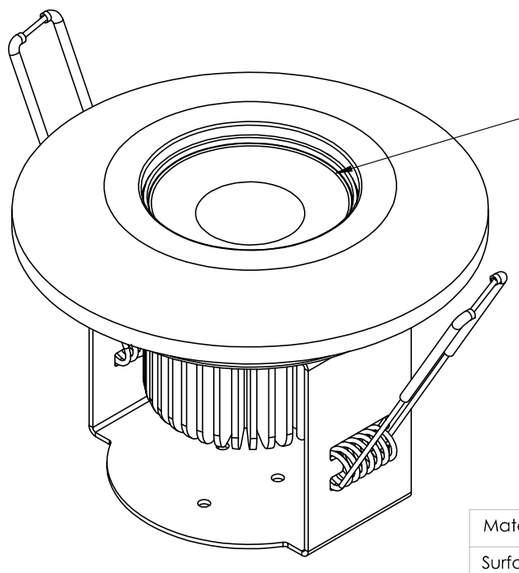
ID	Material	Component
1	Polycarbonate	Front Trim/Bezel
2	Painted Mild Steel	Can/Body
3	Chromed Steel	Spring Clips
4	Painted Mild Steel	Clamp Plate
5	Aluminium	Heat Sink
6	Acrylic	Lens











Material		Title: Triumph Activate 6W	
Surface Finish	Clean and free from sharp edges / burrs	Part No:RATR6P03038	Mass: 269.93

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

LED GROUP
WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL: INFO@LEDGROUPROBUS.COM
WEBSITE: WWW.LEDGROUPROBUS.COM

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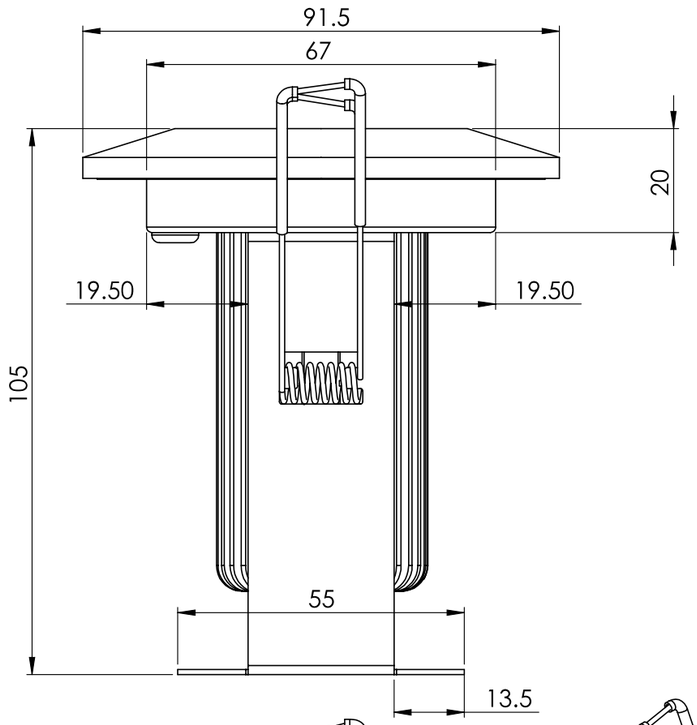
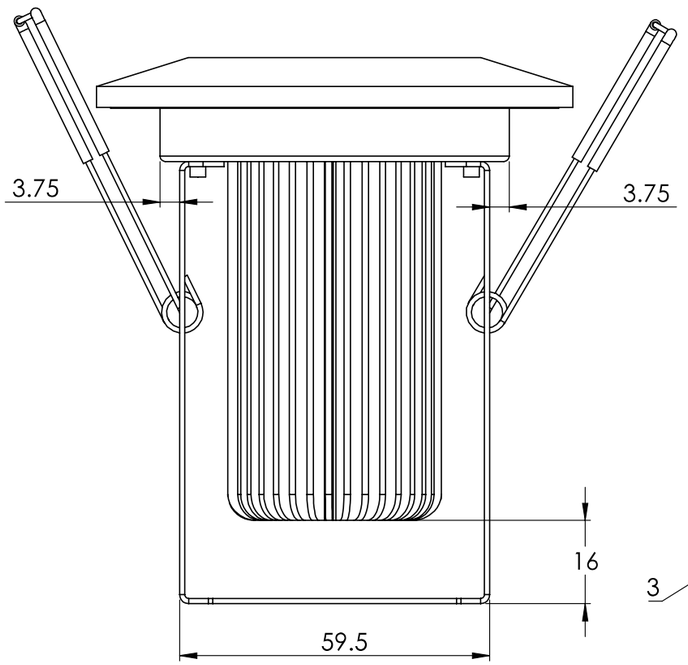
D.K	07/11/2018	DO NOT SCALE	

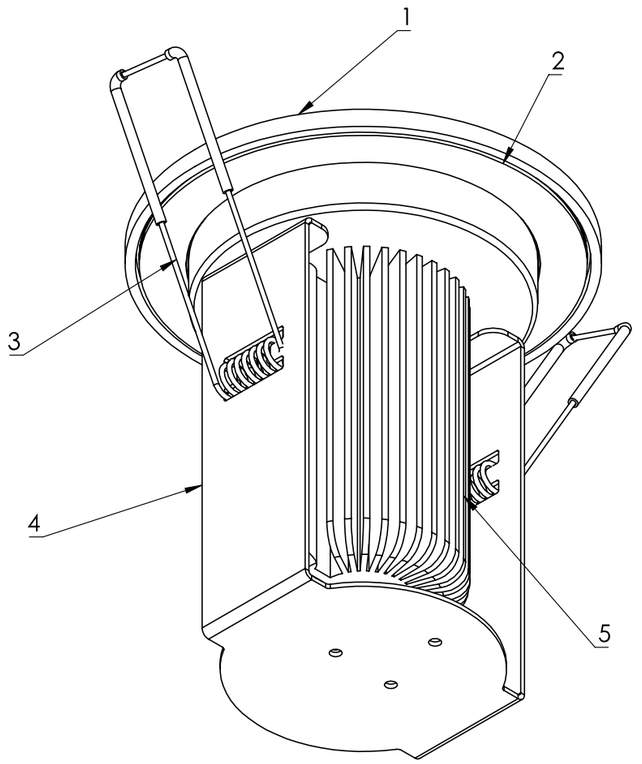
LEDGROUP ROBUS

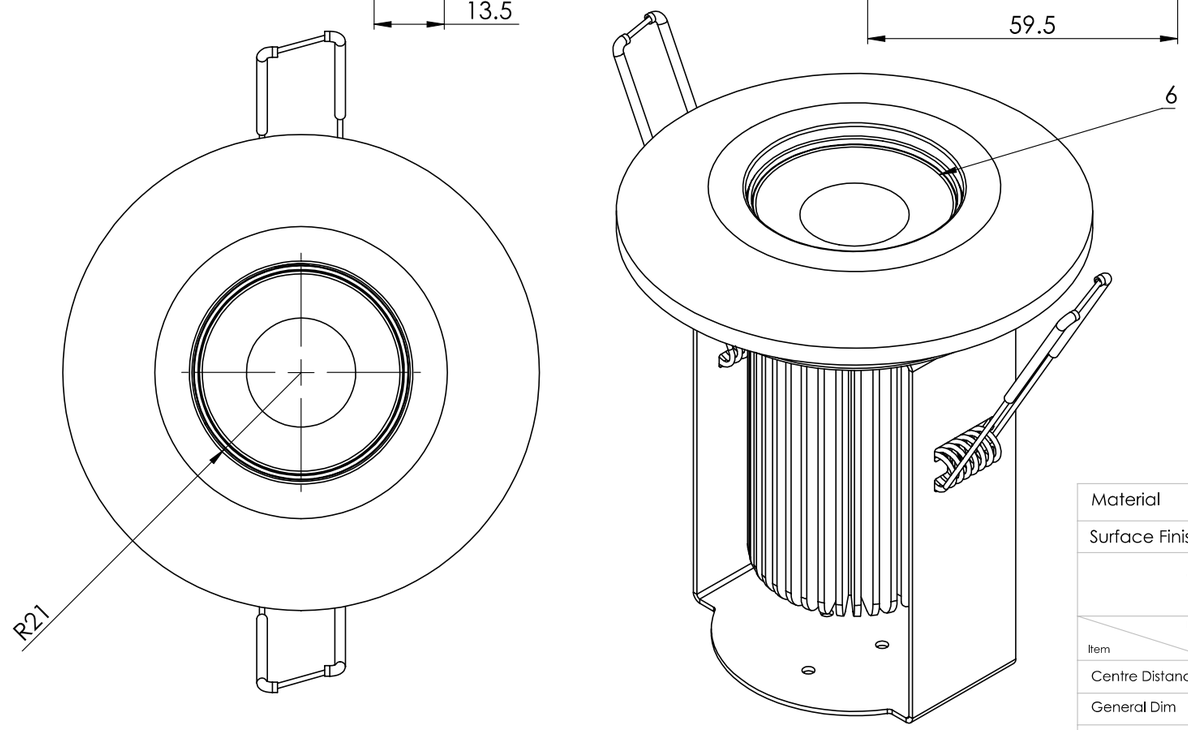
Sheet No:

ID	Material	Component
1	Polycarbonate	Front Trim/Bezel
2	Painted Mild Steel	Can/Body
3	Chromed Steel	Spring Clips
4	Painted Mild Steel	Clamp Plate
5	Aluminium	Heat Sink
6	Acrylic	Lens









Material		Title: Triumph Activate 11W	
Surface Finish	Clean and free from sharp edges / burrs	Part No:RATR0113060	Mass: 269.93

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

LED GROUP
WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL: INFO@LEDGROUPROBUS.COM
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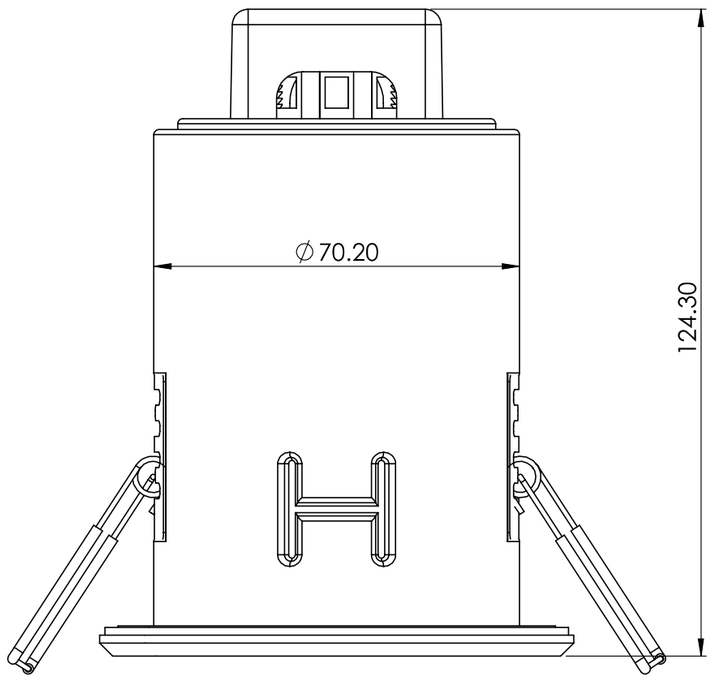
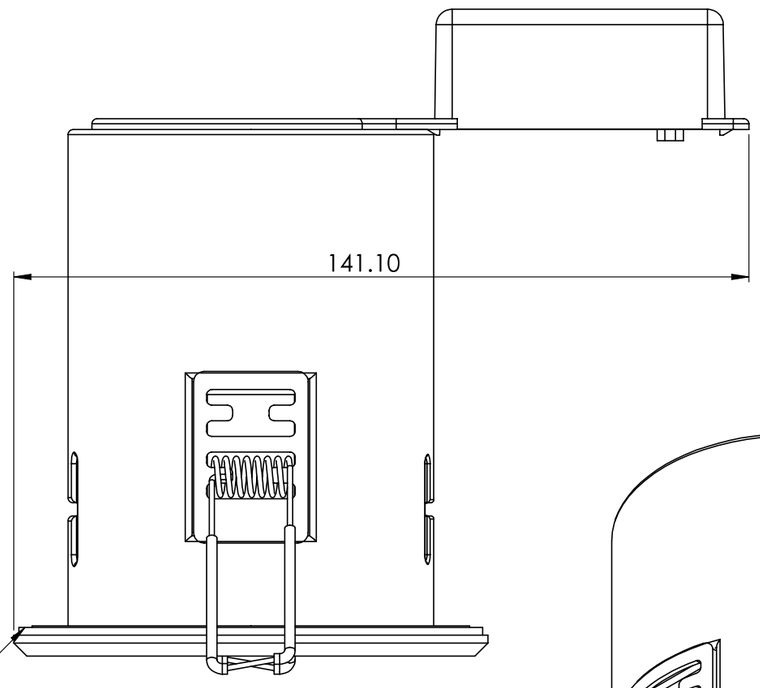
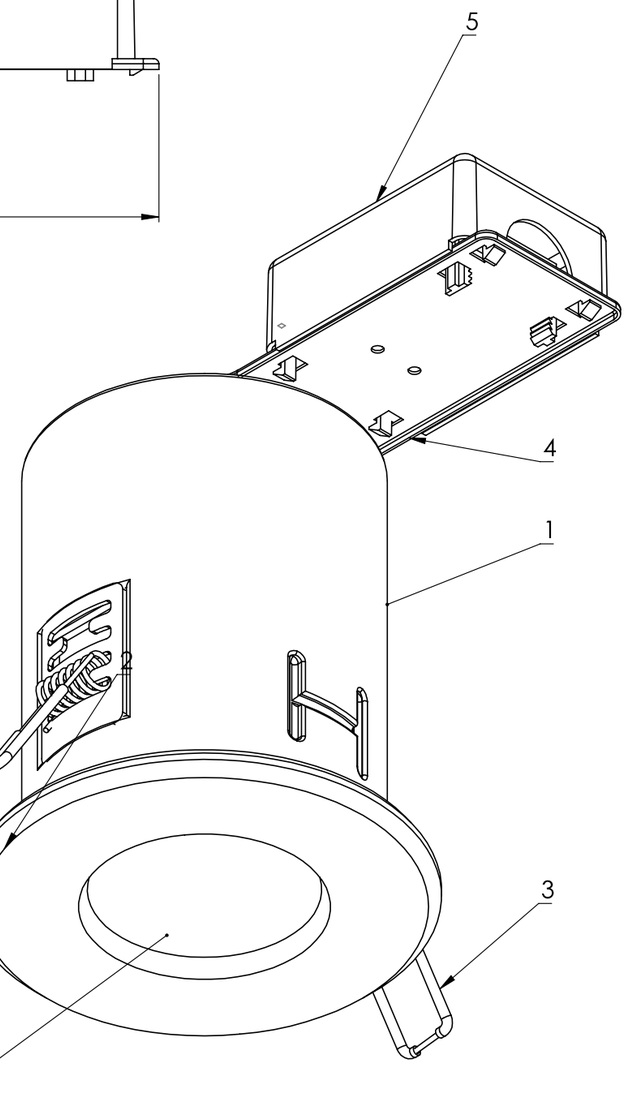
Drawn By:	Date:	Scale:	Revision:
D.K	07/11/2018	DO NOT SCALE	

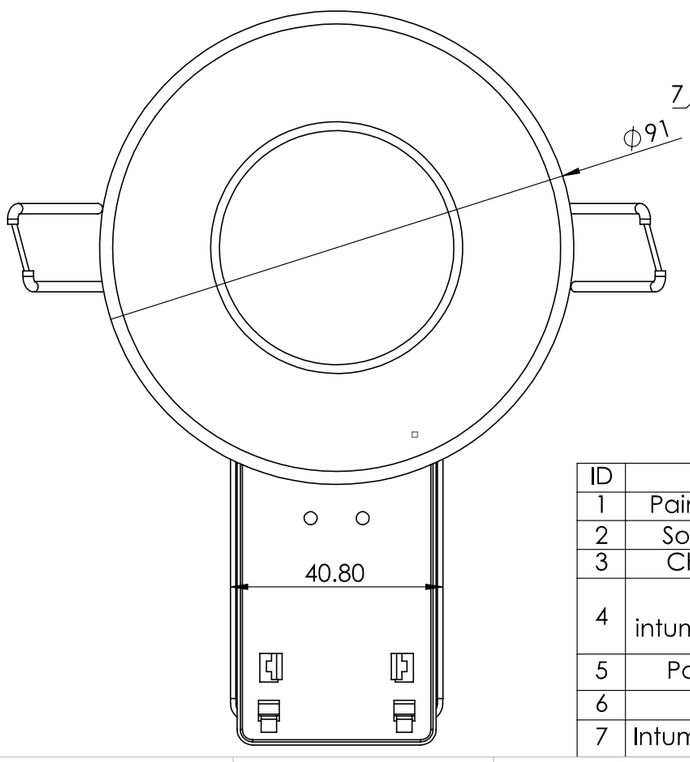
LEDGROUP ROBUS

Sheet No:









ID	Material	Component
1	Painted Mild Steel	Can/body
2	Soda lime Glass	Bezel/Trim
3	Chromed Steel	Spring Clips
4	Steel and intumescent carbon	Back Plate
5	Polycarbonate	Terminal Cover
6	Acrylic	Lens
7	Intumescent Carbon	Seal ring

Material		Title: Starling IP65 GU10 FRD	
Surface Finish	Clean and free from sharp edges / burrs	Part No:	Mass:

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

LED GROUP
WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL: INFO@LEDGROUPROBUS.COM
WEBSITE: WWW.LEDGROUPROBUS.COM

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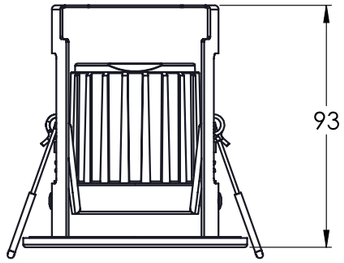
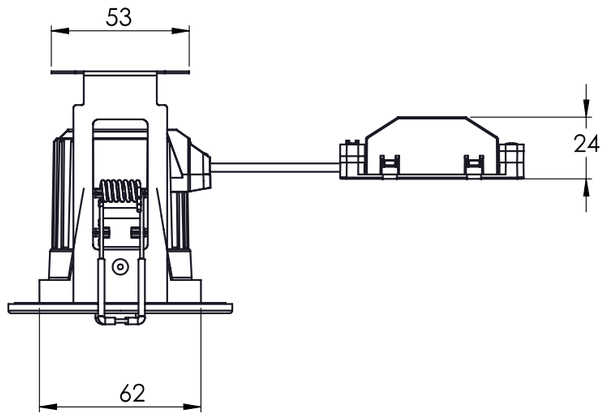
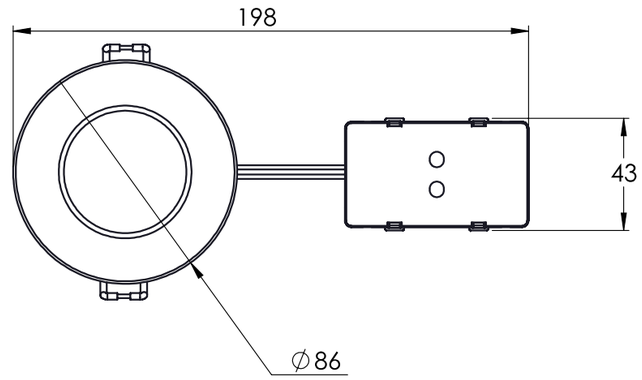
DKennedy	26/06/2020	DO NOT SCALE	

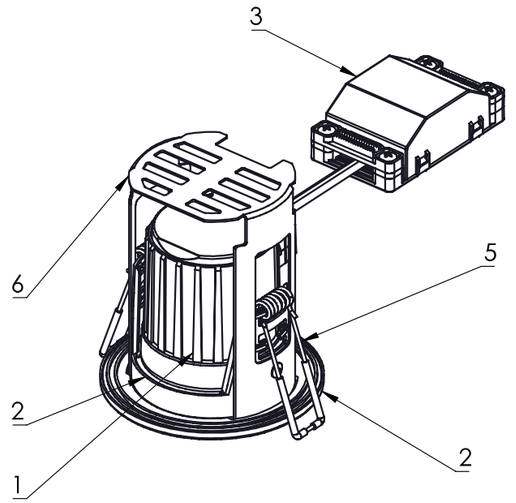
LEDGROUP ROBUS

Sheet No:









ID	Material	Component
1	Painted Aluminium	Inner/Main Body
2	Polycarbonate	Cover/Trim
3	Polycarbonate	Terminal Holder
4	Painted Aluminium	OuterBody/ Holder and Trim
5	Chromed Steel	Spring Clips
6	Painted Mild Steel	Bracket

Material		Title: Ramada FRD	
Surface Finish	Clean and free from sharp edges / burrs	Part No:	Mass:

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

LED GROUP
WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL: INFO@LEDGROUPROBUS.COM
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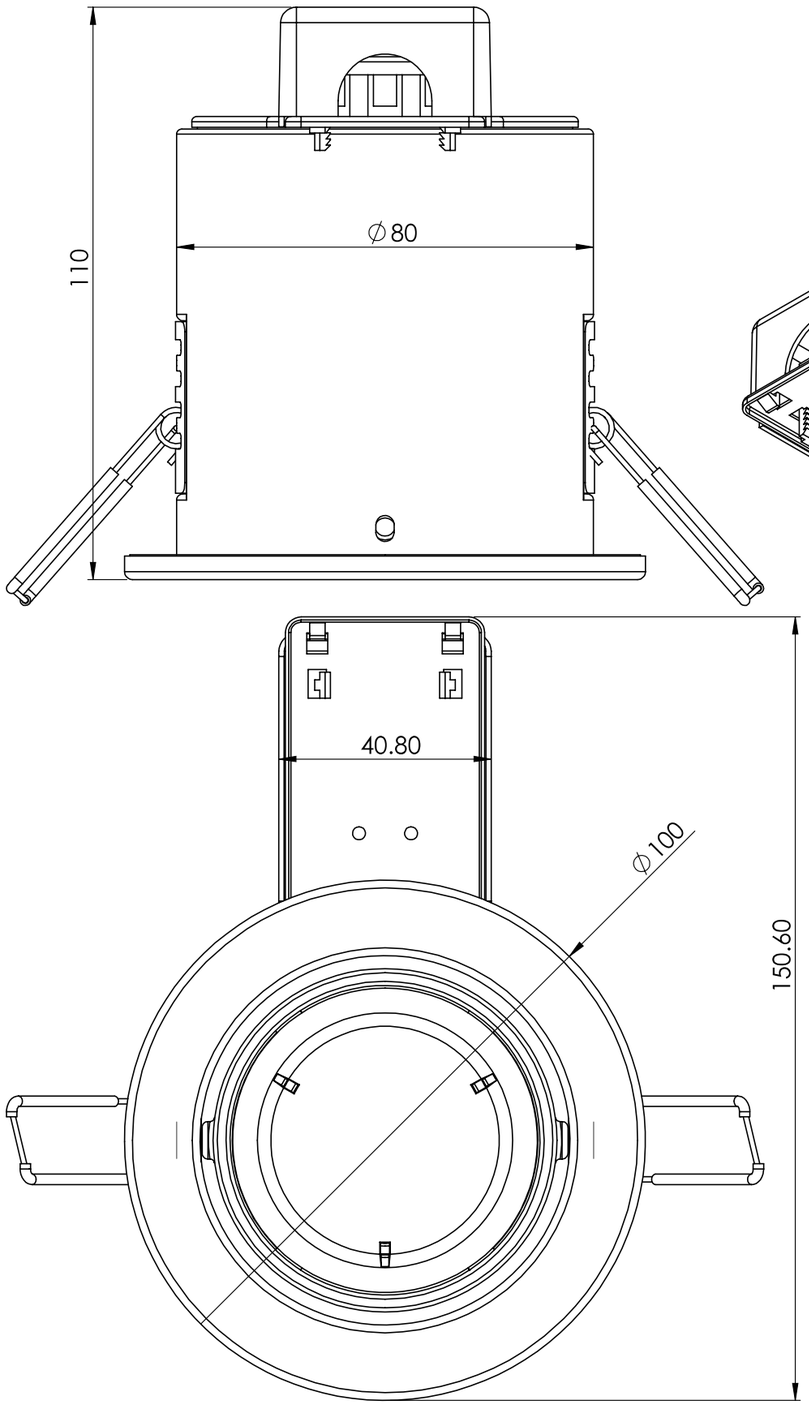
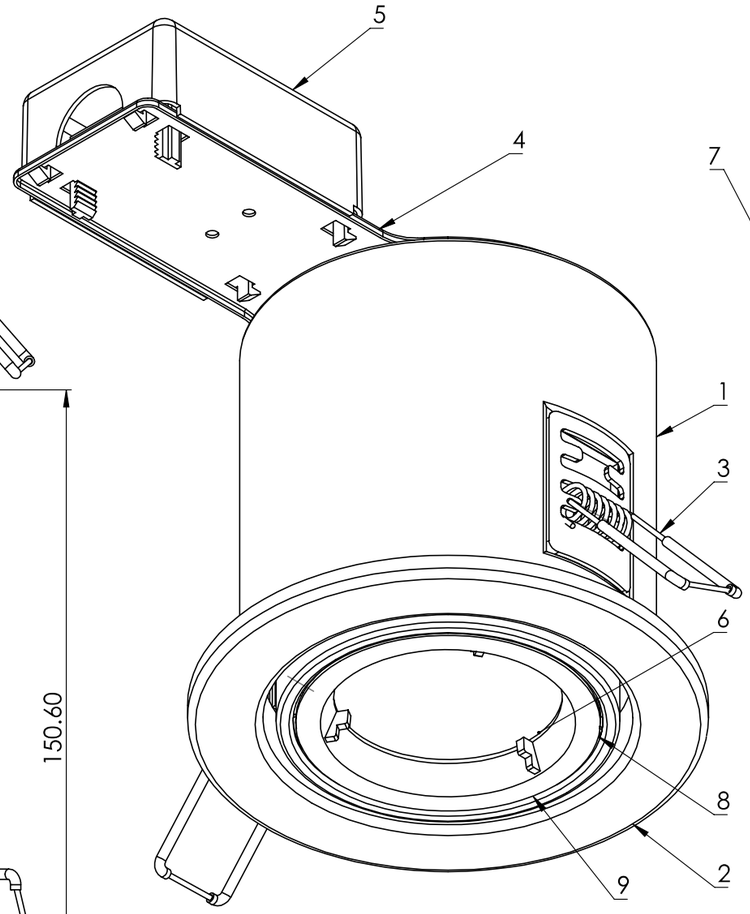
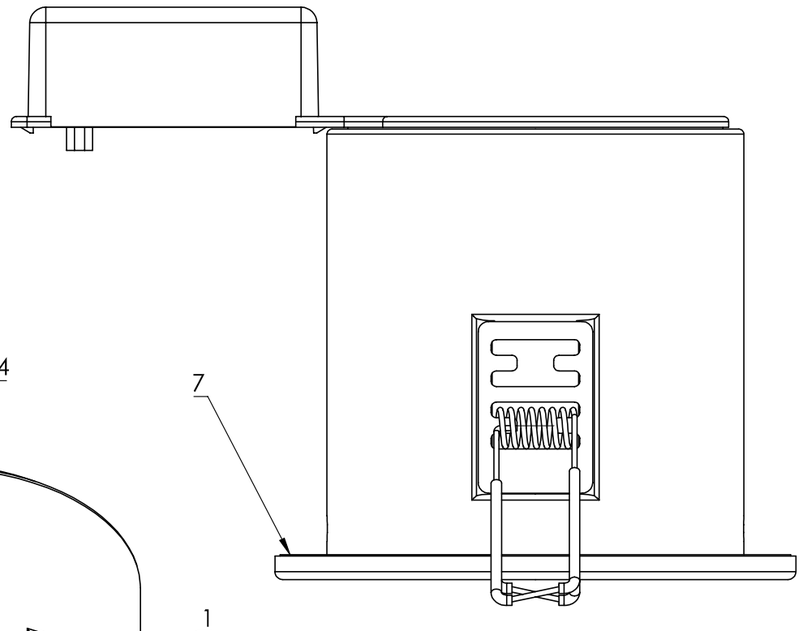
Sheet No: Sheet1 of 1







ID	Material	Component
1	Painted Mild Steel	Can/body
2	Painted Mild Steel	Bezel/Trim
3	Chromed Steel	Spring Clips
4	Steel and intumescent carbon	Back Plate
5	Polycarbonate	Terminal Cover
6	Soda lime Glass	Lens
7	Intumescent Carbon	Seal ring
8	Painted Mild Steel	Tilt Bezel
9	Painted Mild Steel	Lamp Holder

Material		Title: Starling GU10 FRD Directional	
Surface Finish	Clean and free from sharp edges / burrs	Part No:	Mass:

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

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WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL: INFO@LEDGROUPROBUS.COM
WEBSITE: WWW.LEDGROUPROBUS.COM

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DKennedy	24-06-2020	DO NOT SCALE	

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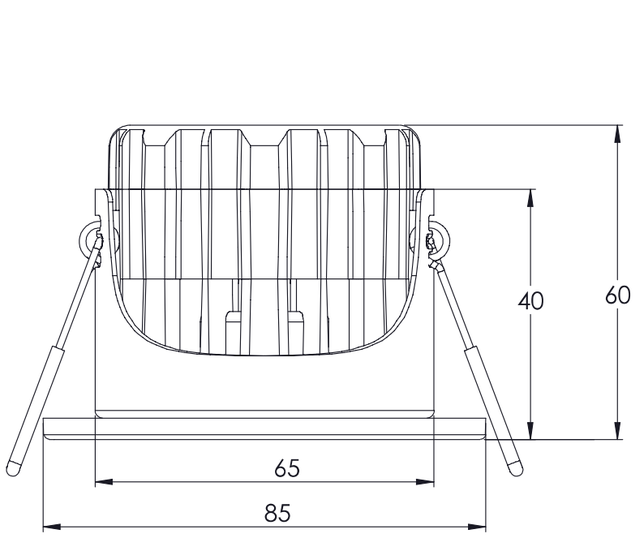
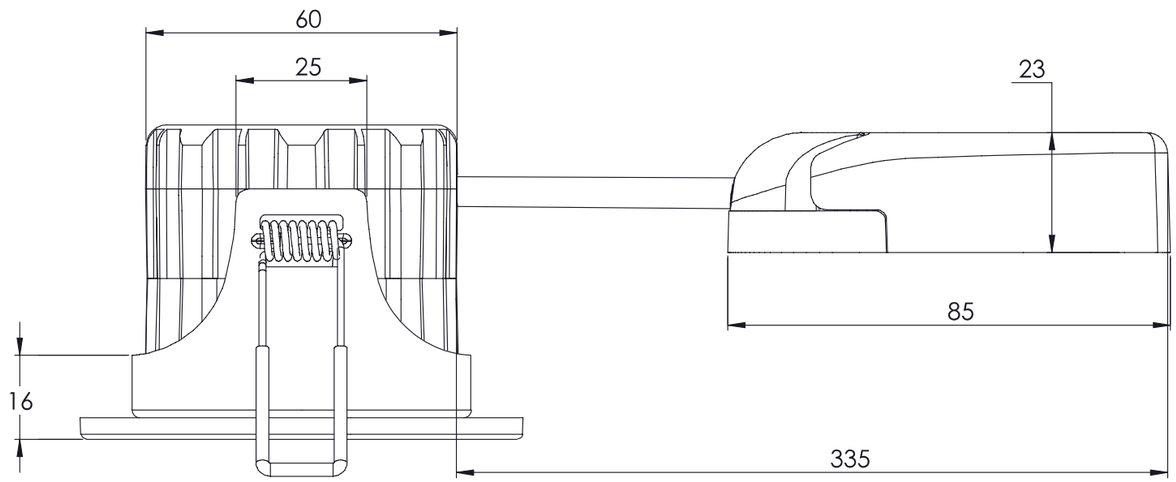
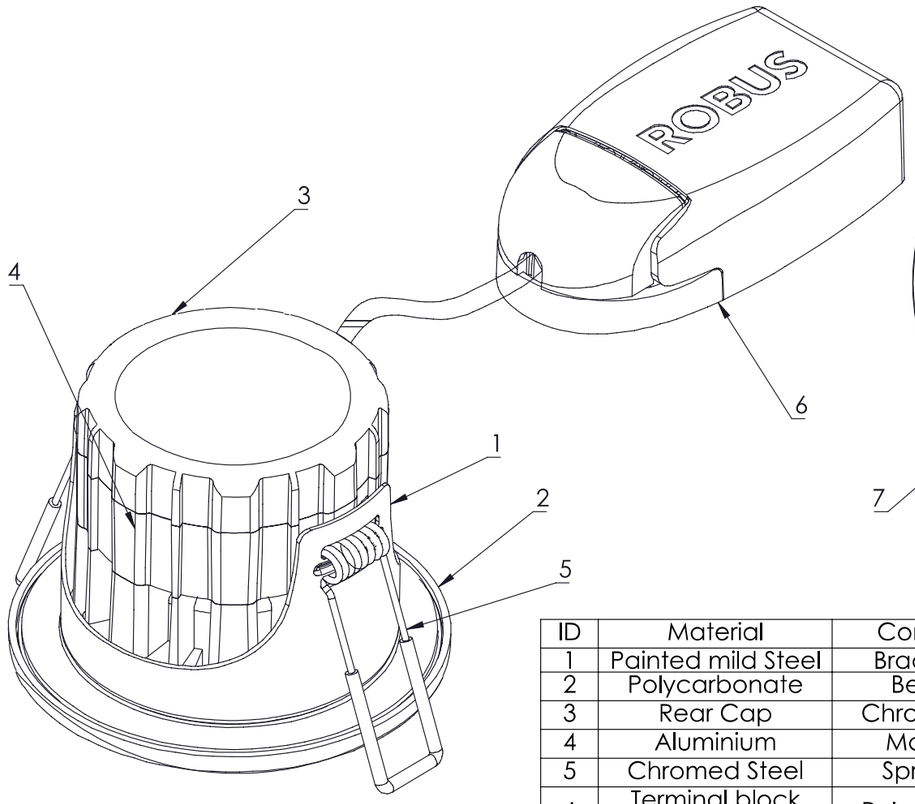
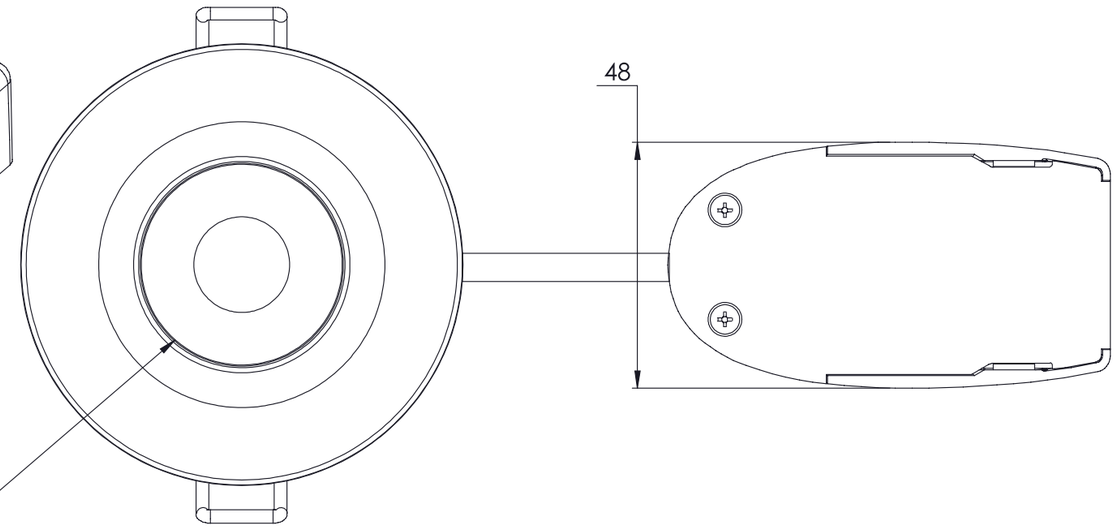
Sheet No: Sheet1 of 1









ID	Material	Component
1	Painted mild Steel	Bracket/Can
2	Polycarbonate	Bezel/Trim
3	Rear Cap	Chromed Steel
4	Aluminium	Main body
5	Chromed Steel	Spring Clips
6	Terminal block holder	Polycarbonate
7	Acrylic	Lens

Material		Title: Ultimum FRD CCT1	
Surface Finish	Clean and free from sharp edges / burrs	Part No:	Mass:

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

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WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL: INFO@LEDGROUPROBUS.COM
WEBSITE: WWW.LEDGROUPROBUS.COM

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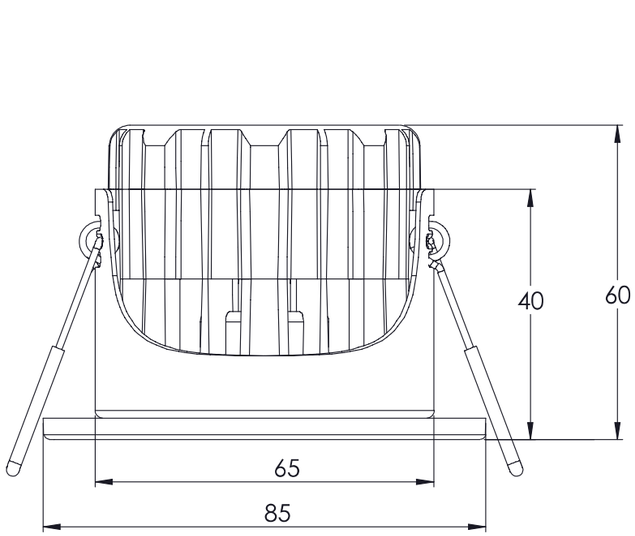

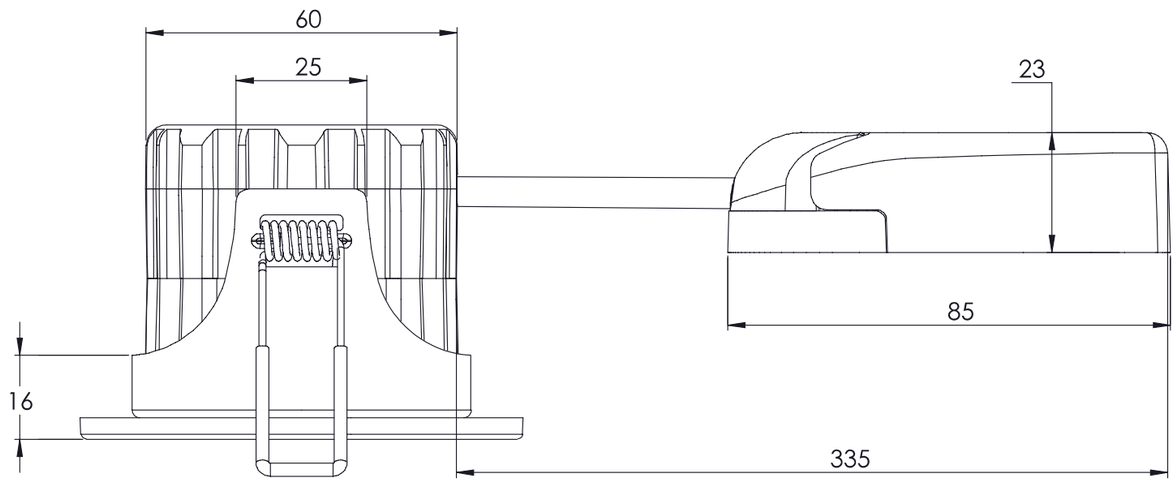

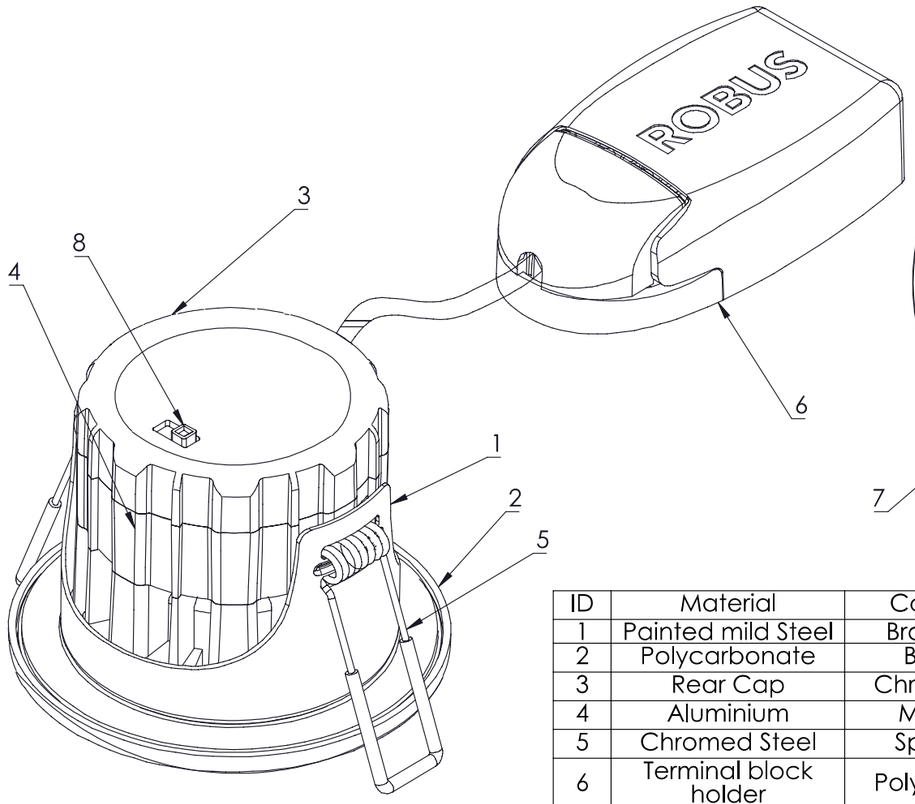

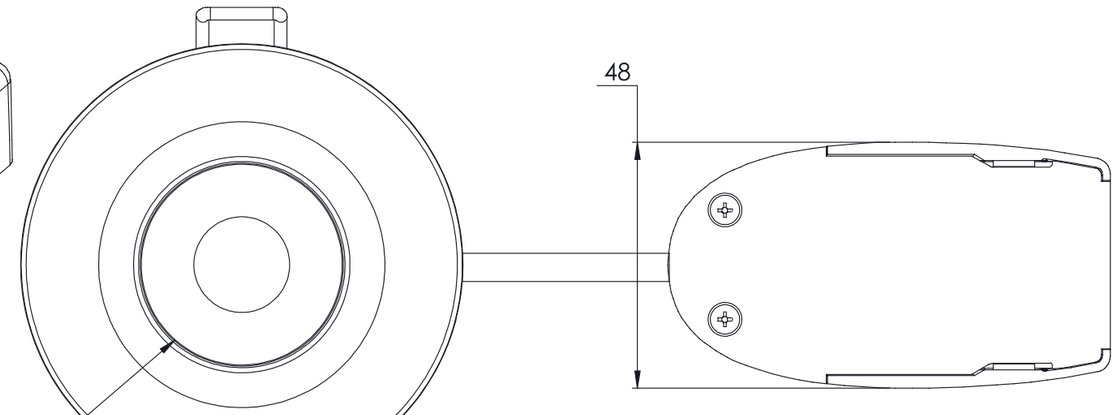

ID	Material	Component
1	Painted mild Steel	Bracket/Can
2	Polycarbonate	Bezel/Trim
3	Rear Cap	Chromed Steel
4	Aluminium	Main body
5	Chromed Steel	Spring Clips
6	Terminal block holder	Polycarbonate
7	Acrylic	Lens
8	Polycarbonate	CCT Switch

Material		Title: Ultimum FRD CCT3	
Surface Finish	Clean and free from sharp edges / burrs	Part No:	Mass:

Tolerance Table

Item \ Dim	<30	<120	<315	<1000	<2000
Centre Distance	±0.2	±0.2	±0.2	±0.3	±0.5
General Dim	±0.2	±0.25	±0.25	±0.5	±0.7
Assembly Dim Bend Dim	±0.2	±0.3	±0.5	±0.8	±1.2

LED GROUP
WESTERN RETAIL PARK
NANGOR ROAD
DUBLIN 12, IRELAND

TEL: +353 1 709 9000
FAX: +353 1 709 9060
EMAIL: INFO@LEDGROUPROBUS.COM
WEBSITE: WWW.LEDGROUPROBUS.COM

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