



MINISTERIO
DE INDUSTRIA, COMERCIO Y
TURISMO

DIRECCIÓN GENERAL DE INDUSTRIA Y
DE LA PEQUEÑA Y MEDIANA EMPRESA

SUBDIRECCIÓN GENERAL DE
CALIDAD Y SEGURIDAD INDUSTRIAL



E9*23R00/22*23098*01 REV. 01

Página / Page 1/1

**REVISIONES ACEPTADAS EN EL EXPEDIENTE DE HOMOLOGACIÓN /
REVISIONS APPROVED FOR THE HOMOLOGATION**

E9*23R00/22*23098*01

REV. 01

A la vista de lo expuesto en el informe nº /
Regarding the test report No:

PC20020153

Del servicio técnico /
Of the technical service:

IDIADA

En lo que se refiere a la homologación cuya contraseña es /
Concerning the homologation under approval number:

E9*23R00/22*23098*00
E9*23R00/22*23098*01

Fecha / *Date:*

24/09/2019

Concedida al dispositivo / *Granted to device:*

Marca / *Make:*

FRISTOM

Tipo / *Type:*

FT-270 LED

Fabricante / *Manufacturer:*

FRISTOM SPÓLKA Z OGRANICZONA
ODPOWIEDZIALNOSCIA SPÓLKA
KOMANDYTOWA
UL. PRZEMYSŁOWA 5, 86-014
85416 SICIENKO
SICIENKO (POLONIA)

Esta Subdirección acepta para su ~~inclusión~~ / sustitución ⁽¹⁾ en el correspondiente expediente de homologación, la siguiente documentación / *This Subdirection accepts the following documentation for ~~inclusion~~ / replacement ⁽¹⁾ in the homologation package:*

- a) Comunicación / *Communication:* Sin cambios / *No changes*
- b) Informe de ensayo / *Test report:* Sin cambios / *No changes*
- c) Documentación técnica / *Technical documentation:* Actualización de la documentación / *Documentation updated*

Firma / *Signature:*

EL SUBDIRECTOR GENERAL DE CALIDAD Y SEGURIDAD INDUSTRIAL
Resolución P.D. del DIRECTOR GENERAL DE INDUSTRIA Y DE LA PYME de 25-10-2012

⁽¹⁾ Táchese lo que no proceda / *Delete as appropriate*



INFORME N° / REPORT No. PC20020153

RELATIVO A LA EXTENSIÓN DE HOMOLOGACIÓN DE LAS LUCES DE MARCHA ATRÁS PARA
LOS VEHÍCULOS A MOTOR Y SUS REMOLQUES SEGÚN EL REGLAMENTO ECE 23.00 /
*CONCERNING THE APPROVAL EXTENDED OF REVERSING LAMPS FOR POWER-DRIVEN VEHICLES
AND THEIR TRAILERS ACCORDING TO REGULATION 23.00 ECE*

REV. 01

Nombre y dirección del fabricante /
Manufacturer's name and address : FRISTOM SPÓLKA Z OGRANICZONA
ODPOWIEDZIALNOSCIA SPÓLKA
KOMANDYTOWA
UL. PRZEMYSŁOWA 5, 86-014
85416 SICIENKO
SICIENKO (POLONIA)

Marca comercial / *Trade mark* : FRISTOM

Tipo / *Type* : FT-270 LED

Lugar y fecha de emisión del informe /
Place and date of test report issue : L'Albornar, Santa Oliva (Tarragona)
13/02/2020

CONCLUSIONES / *CONCLUSIONS*: Analizado el motivo de la modificación que se detalla en el Anexo a este informe, el dispositivo presentado **CUMPLE** las prescripciones relativas a la homologación de luces de marcha atrás en aplicación del Reglamento ECE 23.00 y se acepta para su sustitución en los expedientes N° PC19060174, PC19090221. / *Taking into account the reason of the modification as detailed in the Annex attached to this report, this device **FULFILLS** the prescriptions with regard to the reversing approval of lamps in application to Regulation 23.00 ECE, and it accepts for replacement in the reports N° PC19060174, PC19090221.*

Realizado/ *Performed by*



Joan Fonts Sala
INGENIERO DE ENSAYOS
TEST ENGINEER

V. B°./ *Revised by:*



Ramon Santafè Guiu
JEFE DE DEPARTAMENTO
DEPARTMENT MANAGER

* LOS RESULTADOS PRESENTADOS SE REFIEREN ÚNICAMENTE A LA MUESTRA ENSAYADA.
THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE

* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCIÓN PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.
THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN



Se acepta para su sustitución en el correspondiente expediente de homologación N° PC19060174, PC19090221, la siguiente información / *It accepts the following information for replacement in the homologation information package N° PC19060174, PC19090221:*

- a) Comunicación / *Communication*: Sin cambios / *No changes*
- b) Informe de ensayo / *Test report*: Sin cambios / *No changes*
- c) Documentación técnica / *Technical documentation*: Actualización de la documentación / *Documentation updated*

Lugar / *place*: L'Albornar, E-43710 Santa Oliva (Tarragona)
Fecha / *date*: 13/02/2020



Joan Fonts Sala
INGENIERO DE ENSAYOS
TEST ENGINEER

* LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.
THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE

* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.
THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN

DOCUMENTACIÓN TÉCNICA /
TECHNICAL DOCUMENTATION

INFORMATION FOLDER:

FRISTOM FIRST APPLICATION
DATE: 02.08.2019
spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Sicienko, ul. Przemysłowa 5
NIP: 5542926937, REGON 341640907
reprezentowana przez FRISTOM sp. z o.o.

1. Specification data

Type	FT-270 LED <i>EXTA</i>	
Trade name or mark	Fristom	
Variants	-	
Function	Rear 7 function LED lamp (2a;R1;S1;L;F1;AR;IIIA)	
Color	Red light color , amber light color ,White light color	
Rated	Voltage	12V
	Wattage	R1=0,6;R1+L=2,4W;S1=1,5W;2a=2,4W;F1=2,4W;AR=2,4W
Applicable Regulation		R03 ; R04; R06; R07; R23; R38
Location of marking	Light Source	-rear position light : 4 LED`s serial connected in 2 parallel sections - registration plate light : 3 LED`s serial connected in one section -stop light : 4 LED`s serial connected in 2 parallel sections -direction indicator : 3 LED`s serial connected in 2 parallel sections - rear fog light : 4 LED`s serial connected in 2 sections - reversing light : 3 LED`s serial connected in 2 sections
	Trade mark	Fristom
	Marked on the visible area of reflex reflector under the lampshade	

2. Construction and material

Construction	Material	Remarks
Lenses	Defined on the technical drawing	--
Reflectors	Defined on the technical drawing	--
Bases	Defined on the technical drawing	--

3. Name and address of manufacturer:

FRISTOM Spółka z ograniczoną odpowiedzialnością Spółka komandytowa

86-014 Sicienko / Polska

ul. Przemysłowa 5

NIP: 5542926937, KRS: 0000529238

Tel.: +48 52 360 90 51, Fax: +48 52 327 75 41

4. REASON OF THE APPROVAL EXTENSION:

- a) new lens design for R1 rear position light and less LED`s for the function
- b) new function has been added to lamp – registration plate light

NOTE : APPROVAL MARKINGS ARE SHOWN IN THE ATTACHED DRAWING.
THIS INFORMATION FOLDER CONSISTS OF 1 PAGES

FRISTOM
spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Sicienko, ul. Przemysłowa 5
NIP: 5542926937, REGON 341640907
reprezentowana przez FRISTOM sp. z o.o.

PC20020153

2.08.2019

Manufacturer

FRISTOM Spółka z ograniczoną odpowiedzialnością Sp.K.
86-014 Ścieienko / Polska
ul. Przemysłowa 5
NIP: 5542926937, KRS: 0000529238
Tel.: +48 52 360 90 51, Fax: +48 52 327 75 41



Drawn by: Michał Dybicz
Date: 1-08-2019
sheet Nr.: 1/5

Type

FT- 270 LED - rear multifunction lamp

Material used in manufacturing :

- lampshade PC transparent clear
- collimator AR PMMA transparent clear
- collimator F1 PMMA transparent red
- housing ABS black
- frame ABS black
- lens 2a PMMA transparent amber
- IIIA reflector and R1 lens PMMA transparent red
- registration plate reflector ABS black vacuum metalized
- PCB FR4
- AR - 6 LED's - white light color
- F1 - 8 LED's - red light color
- R1 - 16 LED's - red light color
- S1 - 8 LED's - red light color
- 2a - 6 LED's - amber light color
- potting compound epoxy resin

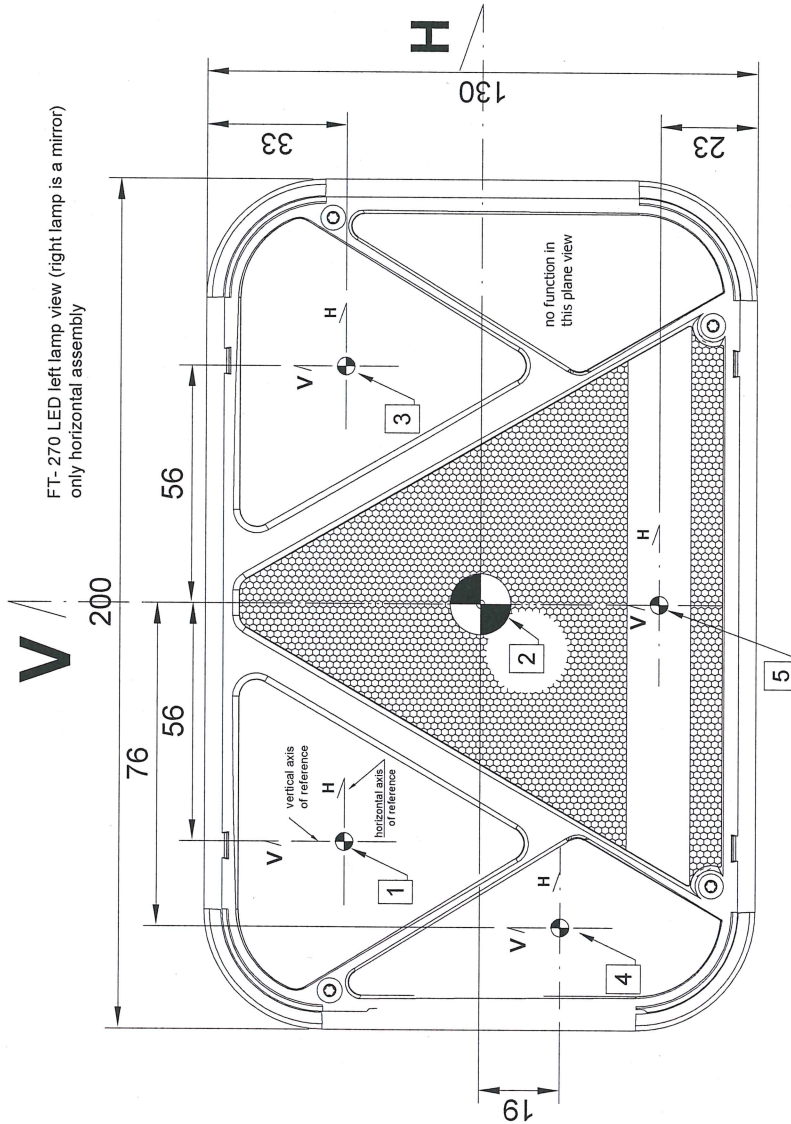
light source

LIGHT SOURCE : LED CHIP SMD chip mounted
AR - 6 LED's - white light color
F1 - 8 LED's - red light color
R1 - 16 LED's - red light color
S1 - 8 LED's - red light color
2a - 6 LED's - amber light color

sheet description

general drawing / lamp functions / assembly on vehicle

This drawing is a part of the application for approval



- 1 - center of reference direction indicator 2a
- 2 - center of reference reflex reflector cat IIIA
- 3 - center of reference rear fog or reversing light (F1 or AR)
- 4 - center of reference stop light cat S1
- 5 - center of reference rear position light cat R1

FRISTOM
spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Ścieienko, ul. Przemysłowa 5
NIP: 5542926937, REGON 34164507
reprezentowana przez FRISTOM sp. z o.o.

IDIADA PC20020153

Manufacturer

FRISTOM Spółka z ograniczoną odpowiedzialnością Sp.K.
86-014 Sicienka / Polska
ul. Przemysłowa 5
NIP: 5542926937, KRS: 0000529238
Tel.: +48 52 360 90 51, Fax: +48 52 327 75 41



Drawn by:

Michał Dybicz

Date:

1-08-2019

sheet Nr.

2/5

Type

FT- 270 LED - rear multifunction lamp

Material used in manufacturing :

- lampshade PC transparent clear
- collimator AR PMMA transparent clear
- collimator F1 PMMA transparent red
- housing ABS black
- frame ABS black
- lens 2a PMMA transparent amber
- IIIA reflector and R1 lens PMMA transparent red
- registration plate reflector ABS black vacuum metalized
- PCB FR4
- AR - 6 LED's - white light color
- F1 - 8 LED's - red light color
- R1 - 16 LED's - red light color
- S1 - 8 LED's - red light color
- 2a - 6 LED's - amber light color
- potting compound epoxy resin

sheet description

assembly on vehicle and electrical circuits of functions

This drawing is a part of the application for approval

light source

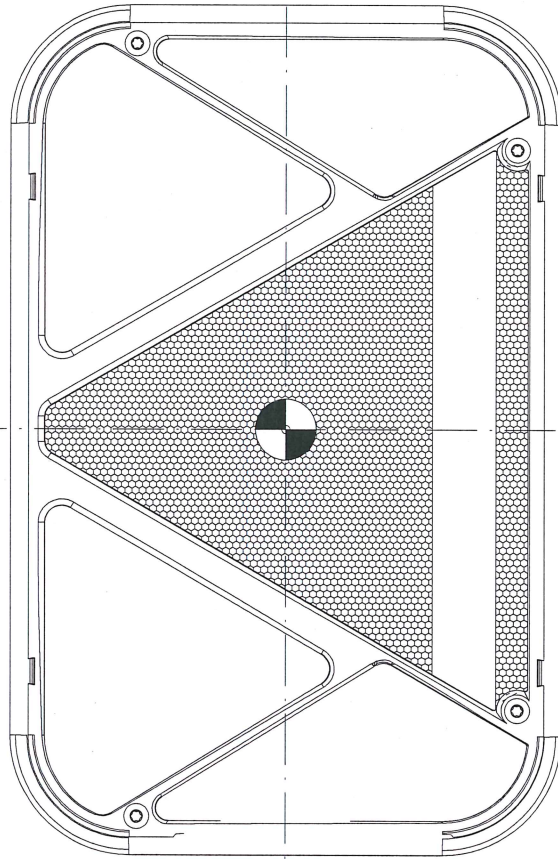
LIGHT SOURCE : LED CHIP SMD chip mounted

- AR - 6 LED's - white light color
- F1 - 8 LED's - red light color
- R1 - 16 LED's - red light color
- S1 - 8 LED's - red light color
- 2a - 6 LED's - amber light color

FT- 270 LED left lamp view (right lamp is a mirror)
only horizontal assembly

↑ top
of
vehicle

forward
driving
direction



connection of LED's in function circuits:

- R1 - 4 sections a 4 serial connected LED
- S1 - 2 sections a 4 serial connected LED
- 2a - 2 sections a 3 serial connected LED
- F1 - 2 sections a 4 serial connected LED
- AR - 2 sections a 3 serial connected LED

IDIADA PC20020153

FRISTOM

spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Sicienka, ul. Przemysłowa 5
NIP: 5542926937, REGON 341640907
zarejestrowana przez FRISTOM sp. z o.o.

Manufacturer

FRISTOM Spółka z ograniczoną odpowiedzialnością Sp.K.
86-014 Sicienka / Polska
ul. Przemysłowa 5
NIP: 5542926937, KRS: 0000529238
Tel.: +48 52 360 90 51, Fax: +48 52 327 75 41



Drawn by: Michał Dybicz

Date: 1-08-2019

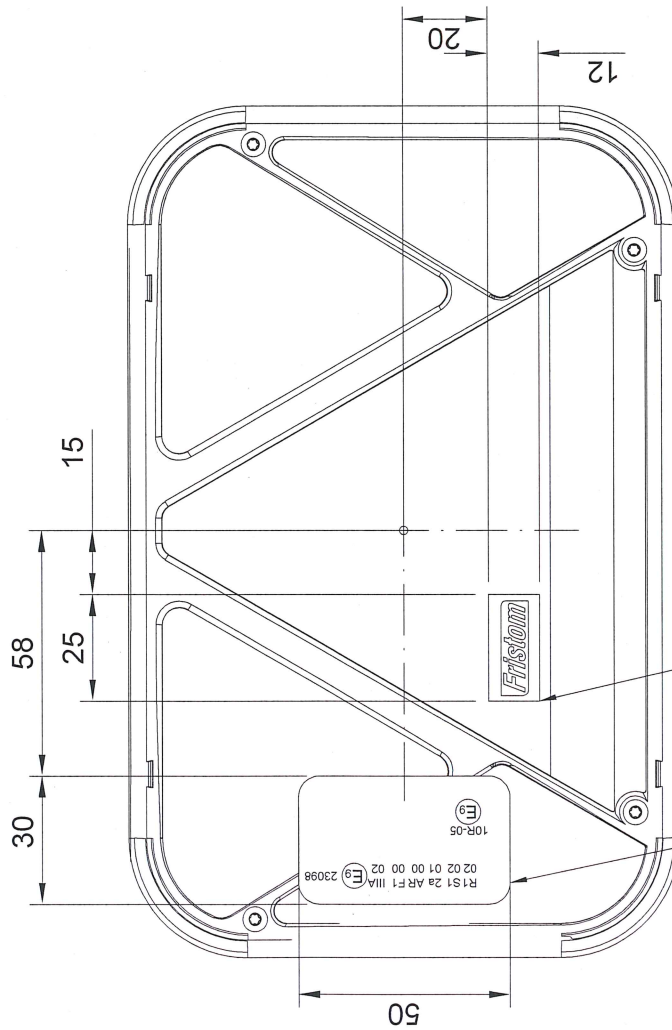
sheet Nr. 3/5

Type

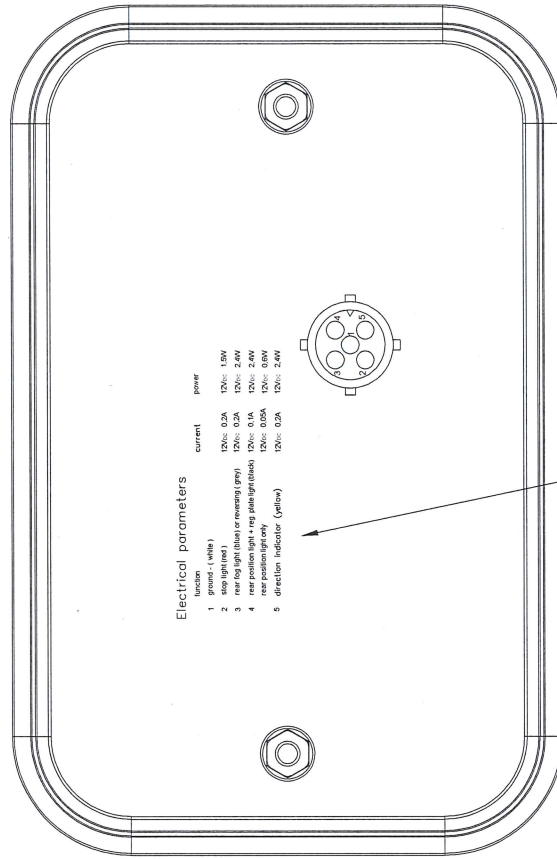
FT- 270 LED - rear multifunction lamp

light source

LIGHT SOURCE : LED CHIP SMD chip mounted
AR - 6 LED's - white light color
F1 - 8 LED's - red light color
S1 - 8 LED's - red light color
2a - 6 LED's - amber light color

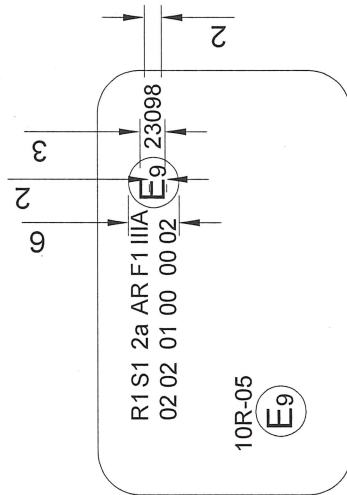


FT- 270 LED left lamp rear housing (right lamp is a mirror)
bajonet version



electrical parameters
on housing rear side

place for approval markings



approval marking dimensions:

spółka z ograniczoną odpowiedzialnością
86-014 Sicienka, ul. Przemysłowa 5
NIP: 5542926937, REGON 34164907

FRISTOM Spółka z ograniczoną odpowiedzialnością
PC20020153

Material used in manufacturing :

- lampshade PC transparent clear
- collimator AR PMMA transparent clear
- collimator F1 PMMA transparent red
- housing ABS black
- frame ABS black
- lens 2a PMMA transparent amber
- IIIA reflector and R1 lens PMMA transparent red
- registration plate reflector ABS black vacuum metalized
- PCB FR4
- AR - 6 LED's - white light color
- F1 - 8 LED's - red light color
- R1 - 16 LED's - red light color
- S1 - 8 LED's - red light color
- 2a - 6 LED's - amber light color
- potting compound epoxy resin

sheet description

marking of trademark , approvals and electrical parameters
This drawing is a part of the application for approval

Electrical parameters

function	current	power
1 ground - (white)		
2 stop light (red)	12Vdc: 0,2A	12Vdc: 1,5W
3 rear fog light (blue or reversing) (grey)	12Vdc: 0,2A	12Vdc: 1,5W
4 rear position light + reg. plate light (black)	12Vdc: 0,1A	12Vdc: 2,4W
5 rear position light only	12Vdc: 0,05A	12Vdc: 0,9W
6 direction indicator (yellow)	12Vdc: 0,2A	12Vdc: 2,4W

Electrical parameters

function	current	power
1 ground - (white)		
2 stop light (red)	12Vdc 0,2A	12Vdc 1,5W
3 rear fog light (blue) or reversing (grey)	12Vdc 0,2A	12Vdc 2,4W
4 rear position light + reg. plate light (black)	12Vdc 0,1A	12Vdc 2,4W
5 rear position light only	12Vdc 0,05A	12Vdc 0,6W
6 direction indicator (yellow)	12Vdc 0,2A	12Vdc 2,4W

Manufacturer

FRISTOM Spółka z ograniczoną odpowiedzialnością Sp.K.
86-014 Sicienka / Polska
ul. Przemysłowa 5
NIP: 5542926937, KRS: 0000529238
Tel.: +48 52 360 90 51, Fax: +48 52 327 75 41



Drawn by: Michał Dybicz
Date: 1-08-2019
sheet Nr.: 4/5

Type

FT- 270 LED – rear multifunction lamp

Material used in manufacturing :

- lampshade PC transparent clear
- collimator AR PMMA transparent clear
- collimator F1 PMMA transparent red
- housing ABS black
- frame ABS black
- lens 2a PMMA transparent amber
- registration plate reflector ABS black vacuum metalized
- PCB FR4
- AR - 6 LED` s - white light color
- F1 - 8 LED` s - red light color
- R1 - 16 LED` s - red light color
- S1 - 8 LED` s - red light color
- 2a - 6 LED` s - amber light color
- potting compound epoxy resin

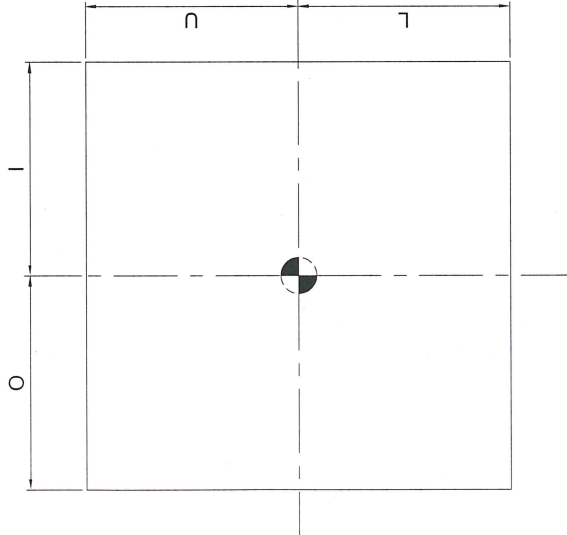
light source

LIGHT SOURCE : LED CHIP SMD chip mounted
AR - 6 LED` s - white light color
F1 - 8 LED` s - red light color
R1 - 16 LED` s - red light color
S1 - 8 LED` s - red light color
2a - 6 LED` s - amber light color

sheet description

lighting surface

This drawing is a part of the application for approval



lighting surface

function	U _{upper limit} (mm)	L _{lower limit} (mm)	O _{outer limit} (mm)	I _{inner limit} (mm)
reversing AR	23	23	25	25
rear fog F1	23	23	25	25
rear position R1	7,5	7,5	66	66
stop S1	44	44	18,5	18,5
direction indicator 2a	33	33	36	36
reflex reflector IIIA	58	58	70	70

Determining the lower , upper and lateral limits of the illumination surface of the lamp device.

According to European Directive 91/663/EEC , Annex I "Installation of lighting and light-signalling devices" clause 1.9.2.

According to ECE regulation 48/01 "Installation of light and light-signalling devices" clause 2.9.2.

FRISTOM

spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Sicienka, ul. Przemysłowa 5
NIP: 5542926937 REGON 341640307
reprezentowana przez FRISTOM sp. z o.o.

Manufacturer

FRISTOM Spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Ścieńko / Polska
ul. Przemysłowa 5
NIP: 5542926937, KRS: 0000529238
Tel.: +48 52 360 90 51, Fax: +48 52 327 75 41



Drawn by: Date: 1-08-2019
Michał Dybicz sheet Nr. 5/5

Type

FT- 270 LED - rear multifunction lamp

light source

LIGHT SOURCE : LED CHIP SMD chip mounted
AR - 6 LED` s - white light color
F1 - 8 LED` s - red light color
R1 - 16 LED` s - red light color
S1 - 8 LED` s - red light color
2a - 6 LED` s - amber light color

sheet description

variant tradenames

This drawing is a part of the application for approval

Material used in manufacturing :

- lamshade PC transparent clear
- collimator AR PMMA transparent clear
- collimator F1 PMMA transparent red
- housing ABS black
- frame ABS black
- lens 2a PMMA transparent amber
- IIIA reflector and R1 lens PMMA transparent red
- registration plate reflector ABS black vacuum metalized
- PCB FR4
- AR - 6 LED` s - white light color
- F1 - 8 LED` s - red light color
- R1 - 16 LED` s - red light color
- S1 - 8 LED` s - red light color
- 2a - 6 LED` s - amber light color
- potting compound epoxy resin

tradename of variant	description
FT-270 L NT LED	FT-270 L NT LED Lampa tylna uniwersalna lewa z trójkątek odblaskowym LED 12V, 4-funkcyjna STOP/POZYCJA/KIERUNKOWSKAZ/PRZECIWMGŁOWE, bez oświetlenia tablicy rej., przewód o długości 1m.<ang>FT-170 L NT LED Universal LED rear lamp 12-36V, 6-functional, left without number plate light, 1 m cable.<ang>
FT-270 P NT LED	FT-270 P NT LED Lampa tylna uniwersalna prawa z trójkątek odblaskowym LED 12V, 4-funkcyjna STOP/POZYCJA/KIERUNKOWSKAZ/COFANIA, bez oświetlenia tablicy rej., przewód o długości 1m.<ang>FT-170 L NT LED Universal LED rear lamp 12-36V, 6-functional, left without number plate light, 1 m cable.<ang>
FT-270 L NT LED BAJONET 5 PIN	FT-270 L NT LED BAJONET 5 PIN Lampa tylna uniwersalna lewa z trójkątek odblaskowym LED 12V, 4-funkcyjna STOP/POZYCJA/KIERUNKOWSKAZ/PRZECIWMGŁOWE, bez oświetlenia tablicy rej., złącze BAJONET 5 PIN.<ang>FT-170 L NT LED Universal LED rear lamp 12-36V, 6-functional, left without number plate light, 1 m cable.<ang>
FT-270 P NT LED BAJONET 5 PIN	FT-270 P NT LED BAJONET 5 PIN Lampa tylna uniwersalna prawa z trójkątek odblaskowym LED 12V, 4-funkcyjna STOP/POZYCJA/KIERUNKOWSKAZ/COFANIA, bez oświetlenia tablicy rej., złącze BAJONET 5 PIN.<ang>FT-170 L NT LED Universal LED rear lamp 12-36V, 6-functional, left without number plate light, 1 m cable.<ang>
FT-270 L TB LED	FT-270 L TB LED Lampa tylna uniwersalna lewa z trójkątek odblaskowym LED 12V, 4-funkcyjna STOP/POZYCJA/KIERUNKOWSKAZ/PRZECIWMGŁOWE, z oświetleniem tablicy rej., przewód o długości 1m.<ang>FT-170 L NT LED Universal LED rear lamp 12-36V, 6-functional, left without number plate light, 1 m cable.<ang>
FT-270 P TB LED	FT-270 P TB LED Lampa tylna uniwersalna prawa z trójkątek odblaskowym LED 12V, 4-funkcyjna STOP/POZYCJA/KIERUNKOWSKAZ/COFANIA, z oświetleniem tablicy rej., przewód o długości 1m.<ang>FT-170 L NT LED Universal LED rear lamp 12-36V, 6-functional, left without number plate light, 1 m cable.<ang>
FT-270 L TB LED BAJONET 5 PIN	FT-270 L TB LED BAJONET 5 PIN Lampa tylna uniwersalna lewa z trójkątek odblaskowym LED 12V, 4-funkcyjna STOP/POZYCJA/KIERUNKOWSKAZ/PRZECIWMGŁOWE, z oświetleniem tablicy rej., złącze BAJONET 5 PIN.<ang>FT-170 L NT LED Universal LED rear lamp 12-36V, 6-functional, left without number plate light, 1 m cable.<ang>
FT-270 P TB LED BAJONET 5 PIN	FT-270 P TB LED BAJONET 5 PIN Lampa tylna uniwersalna prawa z trójkątek odblaskowym LED 12V, 4-funkcyjna STOP/POZYCJA/KIERUNKOWSKAZ/COFANIA, z oświetleniem tablicy rej., złącze BAJONET 5 PIN.<ang>FT-170 L NT LED Universal LED rear lamp 12-36V, 6-functional, left without number plate light, 1 m cable.<ang>

FRISTOM

spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Ścieńko, ul. Przemysłowa 5
NIP: 5542926937, REGON 341642007
reprezentowane przez FRISTOM sp. z o.o.

IDIADA PC20020153

Manufacturer

FRISTOM Spółka z ograniczoną odpowiedzialnością Sp. z o.o.
86-014 Ścienko / Polska
ul. Przemysłowa 5
NIP: 5542926937, KRS: 0000529238
Tel.: +48 52 360 90 51, Fax: +48 52 327 75 41



Drawn by: **Date:**

Michał Dybicz 9-09-2019

sheet Nr.

1/6

Type

FT- 270 LED - rear multifunction lamp EXT1

Material used in manufacturing :

- lampshade PC transparent clear
- collimator AR PMMA transparent clear
- collimator F1 PMMA transparent red
- housing ABS black
- frame ABS black
- lens 2a PMMA transparent amber
- registration plate reflector ABS black vacuum metalized
- PCB FR4
- AR - 6 LED's - white light color
- F1 - 8 LED's - red light color
- R1 - 8 LED's - red light color
- S1 - 8 LED's - red light color
- 2a - 6 LED's - amber light color
- L - 3 LED's - white light color
- potting compound epoxy resin

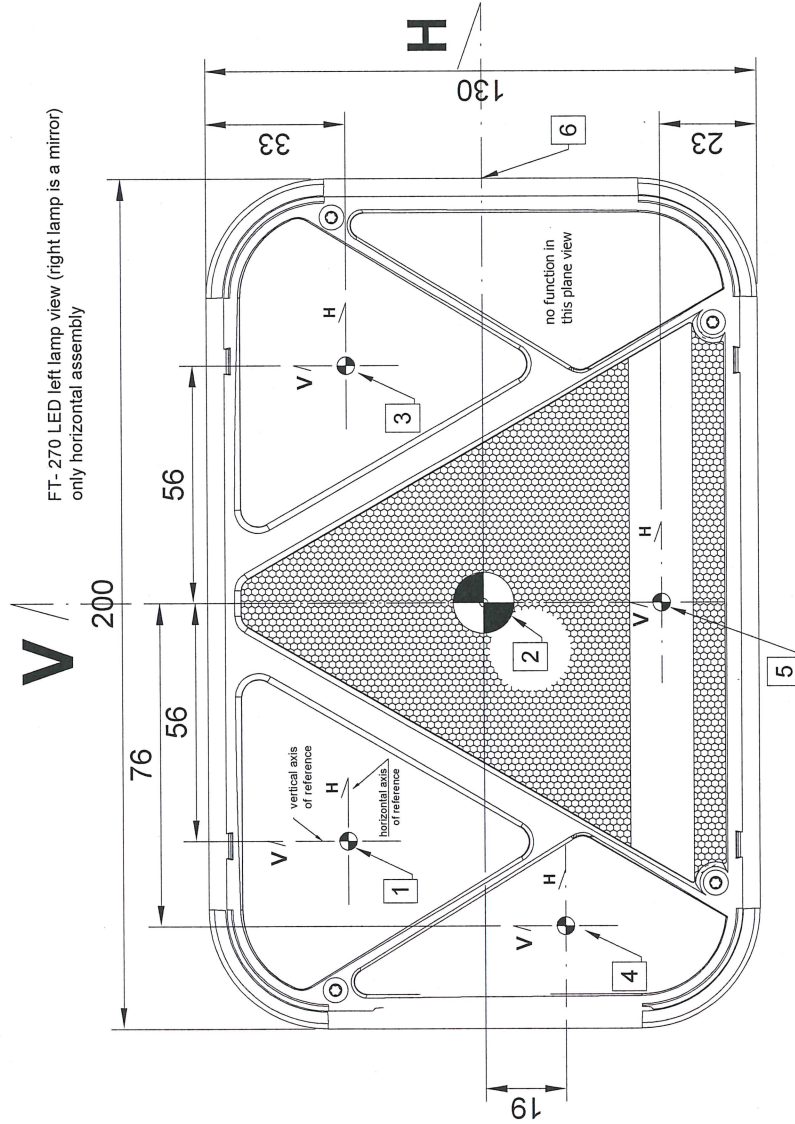
sheet description

general drawing / lamp functions / assembly on vehicle

This drawing is a part of the application for approval

light source

LIGHT SOURCE : LED CHIP SMD chip mounted
AR - 6 LED's - white light color
F1 - 8 LED's - red light color
R1 - 8 LED's - red light color
S1 - 8 LED's - red light color
2a - 6 LED's - amber light color
L - 3 LED's - white light color



FT- 270 LED left lamp view (right lamp is a mirror)
only horizontal assembly

- 1 - center of reference direction indicator 2a
- 2 - center of reference reflex reflector cat IIIA
- 3 - center of reference rear fog or reversing light (F1 or AR)
- 4 - center of reference stop light cat S1
- 5 - center of reference rear position light cat R1
- 6 - registration plate light

FRISTOM
spółka z ograniczoną odpowiedzialnością Sp. z o.o.
86-014 Ścienko, ul. Przemysłowa 5
NIP: 5542926937, REGON 341642307
reprezentowany przez FRISTOM sp. z o.o.

Manufacturer

FRISTOM Spółka z ograniczoną odpowiedzialnością Sp.K.
86-014 Ścienko / Polska
ul. Przemysłowa 5
NIP: 5542926937, KRS: 0000529238
Tel.: +48 52 360 90 51, Fax: +48 52 327 75 41



Drawn by: **Date:** 9-09-2019 **sheet Nr.** 2/6

Michał Dybicz

Type

FT- 270 LED - rear multifunction lamp EXT1

light source

LIGHT SOURCE : LED CHIP SMD chip mounted

AR - 6 LED's - white light color
F1 - 8 LED's - red light color
R1 - 8 LED's - red light color
S1 - 8 LED's - red light color
2a - 6 LED's - amber light color
L - 3 LED's - white light color

sheet description

assembly on vehicle and electrical circuits of functions

This drawing is a part of the application for approval

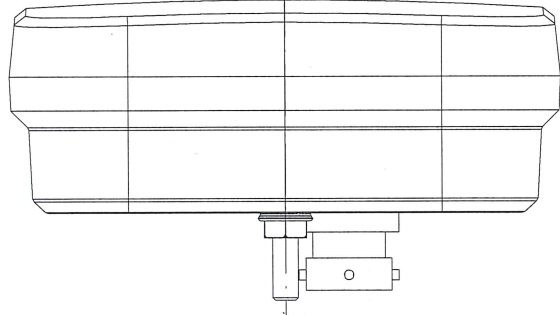
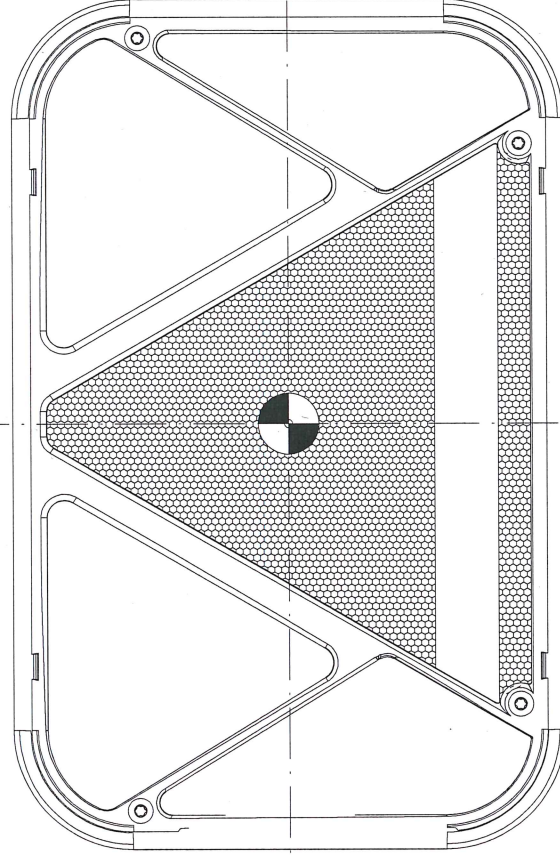
Material used in manufacturing :

- lampshade PC transparent clear
- collimator AR PMMA transparent clear
- collimator F1 PMMA transparent red
- housing ABS black
- frame ABS black
- lens 2a PMMA transparent amber
- IIIA reflector and R1 lens PMMA transparent red
- registration plate reflector ABS black vacuum metalized
- PCB FR4
- AR - 6 LED's - white light color
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- R1 - 8 LED's - red light color
- S1 - 8 LED's - red light color
- 2a - 6 LED's - amber light color
- L - 3 LED's - white light color
- potting compound epoxy resin

FT- 270 LED left lamp view (right lamp is a mirror)
only horizontal assembly

↑ top
of
vehicle

forward
driving
direction
→



connection of LED's in function circuits:

- R1 - 2 sections a 4 serial connected LED
- S1 - 2 sections a 4 serial connected LED
- 2a - 2 sections a 3 serial connected LED
- F1 - 2 sections a 4 serial connected LED
- AR - 2 sections a 3 serial connected LED

LED section a 3 serial connected LED

IDIADA PC20020153

FRISTOM

spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Ścienko, ul. Przemysłowa 5
NIP: 5542926937, REGON 341640907
reprezentant Michał Dybicz

Manufacturer

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Drawn by:	Date:	sheet Nr.
Michał Dybicz	9-09-2019	3/6

Type

FT- 270 LED - rear multifunction lamp EXT1

Material used in manufacturing :

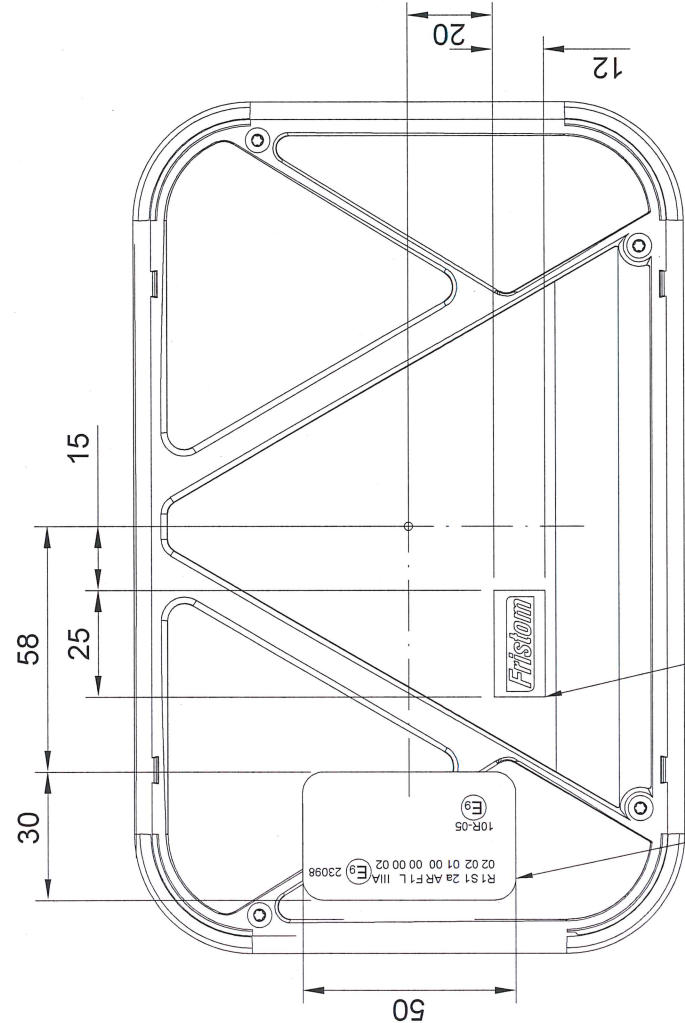
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L - 3 LED's - white light color

sheet description

marking of trademark , approvals and electrical parameters
This drawing is a part of the application for approval

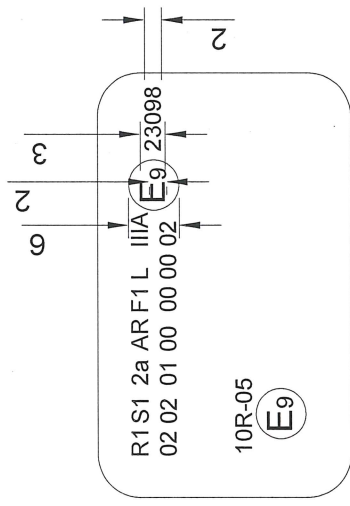


FT- 270 LED left lamp rear housing (right lamp is a mirror)
baionet version

Electrical parameters

function	current	power
1 ground - (white)	12Vdc 0.2A	12Vdc 1.5W
2 stop light (red)	12Vdc 0.2A	12Vdc 1.5W
3 rear fog light (blue or reversing (grey)	12Vdc 0.2A	12Vdc 2.4W
4 rear position light + reg. plate light (black)	12Vdc 0.05A	12Vdc 0.6W
5 direction indicator (yellow)	12Vdc 0.2A	12Vdc 2.4W

electrical parameters
on housing rear side



place for approval markings

place for trademark

Electrical parameters

function	current	power
1 ground - (white)	12Vdc 0.2A	12Vdc 1.5W
2 stop light (red)	12Vdc 0.2A	12Vdc 1.5W
3 rear fog light (blue) or reversing (grey)	12Vdc 0.2A	12Vdc 2.4W
4 rear position light + reg. plate light (black)	12Vdc 0.1A	12Vdc 2.4W
rear position light only	12Vdc 0.05A	12Vdc 0.6W
5 direction indicator (yellow)	12Vdc 0.2A	12Vdc 2.4W

FRISTOM
approval marking dimensions:
SPRZĘT OŚWIETLENIA PRZEZ FRISTOM SP. Z O.O.
86-014 SICIENKA, UL. PRZEMYSŁOWA 5
NIP: 5542926937, REGON 341644307
iBIADA PC20020153

PRISTOM Spółka z ograniczoną odpowiedzialnością Sp.K.
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Drawn by: Michał Dybicz	Date: 9-09-2019	sheet Nr. 4/6
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Drawn by: Michał Dybicz	Date: 9-09-2019
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4/6
sheet Nr.

Type

FT-270 LED - rear multifunction lamp EXT1

Material used in
manufacturing :

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- housing ABS black
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- registration plate reflector ABS black vacuum metallized
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- potting compound epoxy resin

sheet description

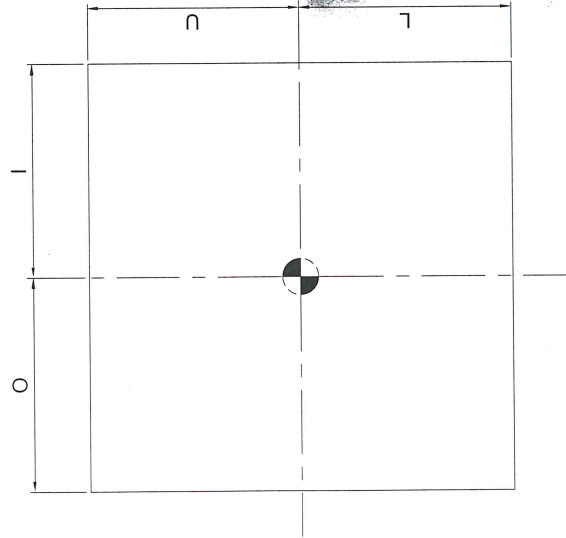
lighting surface

This drawing is a part of the application for approval

light source

LIGHT SOURCE : LED CHIP SMD chip mounted

- LIGHT SOURCE : LED CHIP SM



lighting surface

lighting surface				
function	U (upper limit) [mm]	L (lower limit) [mm]	O (outer limit) [mm]	I (inner limit) [mm]
reversing AR	23	23	25	25
rear fog F1	23	23	25	25
rear position R1	7,5	7,5	66	66
stop S1	44	44	18,5	18,5
direction indicator 2a	33	33	36	36
reflex reflector IIIA	58	58	70	70

Determining the lower , upper and lateral limits of the illumination surface of the lamp device.

According to European Directive 91/663/EEC , Annex I "Installation of lighting and light-signalling devices" clause 1.9.2.

According to ECE regulation 48/01 "Installation of light and light-signalling devices" clause 2.9.2.

Manufacturer

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Drawn by: Michał Dybicz

Date: 9-09-2019

sheet Nr. 5/6

Type

FT- 270 LED - rear multifunction lamp EXT1

light source

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sheet description

variant tradenames

This drawing is a part of the application for approval

Material used in manufacturing :

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description
FT-270 L NT LED PM
FT-270 P NT LED COF
FT-270 L NT LED PM Mxx
FT-270 P NT LED COF Mxx
FT-270 L NT LED PM BAJONET 5 PIN
FT-270 P NT LED COF BAJONET 5 PIN
FT-270 L TB LED PM
FT-270 P TB LED COF
FT-270 L TB LED PM Mxx
FT-270 P TB LED COF Mxx
FT-270 L TB LED PM BAJONET 5 PIN
FT-270 P TB LED COF BAJONET 5 PIN
FT-270 L NT LED COF
FT-270 P NT LED PM
FT-270 L NT LED COF Mxx
FT-270 P NT LED PM Mxx
FT-270 L NT LED COF BAJONET 5 PIN
FT-270 P NT LED PM BAJONET 5 PIN
FT-270 L TB LED COF
FT-270 P TB LED PM
FT-270 L TB LED COF Mxx
FT-270 P TB LED PM Mxx
FT-270 L TB LED COF BAJONET 5 PIN
FT-270 P TB LED PM BAJONET 5 PIN

where x is a digit between 0 and 9

FRISTOM

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86-014 Sicienko, ul. Przemysłowa 5
NIP: 5542926937, REGON 341646907
reprezentowana przez FRISTOM sp. z o.o.

IDIADA

PC20020153

Manufacturer

FRISTOM Spółka z ograniczoną odpowiedzialnością Sp.K.
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Drawn by: Michał Dybicz
Date: 9-09-2019
sheet Nr. 6/6

Type

FT- 270 LED - rear multifunction lamp EXT1

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LIGHT SOURCE : LED CHIP SMD chip mounted
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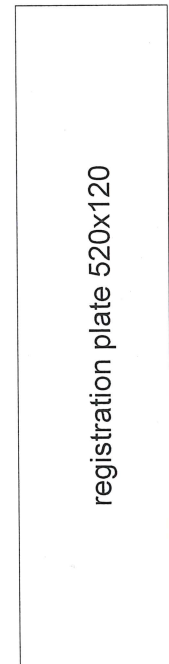
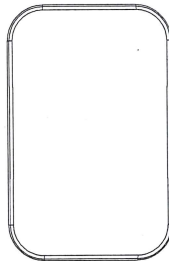
sheet description

positioning of registration plate light
This drawing is a part of the application for approval

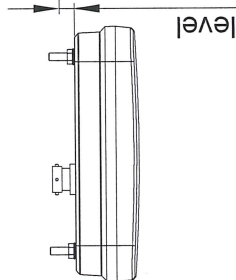
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- potting compound epoxy resin

distance



registration plate 520x120



level

lamp level [mm]	distance [mm]
4	26
8	50
14	100
28	200

FRISTOM
spółka z ograniczoną odpowiedzialnością Sp.k.
86-014 Sicienko, ul. Przemysłowa 5
NIP: 554 292 69 37 REGON 341643907
reprezentowany przez FRISTOM sp. z o.o.

DIADA PC20020153