Everlux®-RL

Reflectoluminescent safety signs for mines

Reflecto-luminescent signs

Retroreflective properties

The retroreflective sheeting used in Everlux®-RL products meet the coefficient values of retroreflective products as specified in the standards EN 12899-1:2007 and ASTM D4956-13.
The minimum performance requirements for a Type I [a] retroreflective sheeting color "White" and the Minimum Coefficient of Retroreflection (RA) for the Everlux-RL are as follows:

Minimum performance requirements for a Type I Retroreflective sheeting color "White"		
Observation Angle	ASTM D4956-13	EN 12899-1:2007
	0.2°	20'
Entrance Angle	-4°	+5°
Minimum Coefficient of Retroreflection R_A [cd • lux $^{-1}$ • m^{-2}]	70	50

(a) According to ASTM D4956-13 a retroreflective sheeting Type I is a retroreflective sheeting referred to as "engineering grade" that is typically an enclosed lens glass-bead sheeting. Applications for this material include permanent highway signing, construction zone devices, and delineators.

Minimum reflectiveness parameters Everlux-RL	
Colour	White
[1] R_A [cd • lux^{-1} • m^{-2}] 0,2°;-4°	70
[2] R_A [cd • lux^{-1} • m^{-2}] 0,33°; 5°	50

(1) According to ASTM D4956-13
(2) According to EN 12899-1:2007

Photoluminescent properties

The Everlux®-RL products meet the international norms DIN 67510-4:2008 and ISO 16 069:2004.
With the correct activation process, defined by each norm, the Everlux®-RL products show the following photoluminescent properties:

Norms	Minimum luminance properties (mcd/m^2)			Period of light decay (min)
	10 minutes	60 minutes	90 minutes	Luminance intensity greater than a 0.32 mcd/sqm
DIN 67510-4:2008	23	3	n.a.	-
ISO 16069:2004	20	2.8	n.a.	340
Everlux®-RL	57[1]	7[1]	-	845[1]
	20[2]	2,9[2]	-	380[2]

n.a. – not applicable

(1) Photoluminescent performance measured in compliance with Test Method DIN 67510-1:2009. The product was activated with a non-diffusing, unfiltered, continuous short xenon-arc source of light of 180 W, providing a mean illuminance of 1 000 lux on the surface of Everlux®-RL for 5 minutes. Lamp model: OSRAM XBO R 180 W/45 C OFR.

(2) Photoluminescent performance measured in compliance with Test Method "On-site" defined by ISO 16069 - Annex C. The stimulation of the Everlux-RL products was made by a fluorescent cool white source of light, of 18 W, with a correlated color temperature of 4000K for 15 min, providing an illumination of 25 lux. Lamp model: OSRAM L18W/840.

Reflecto-luminescent signs

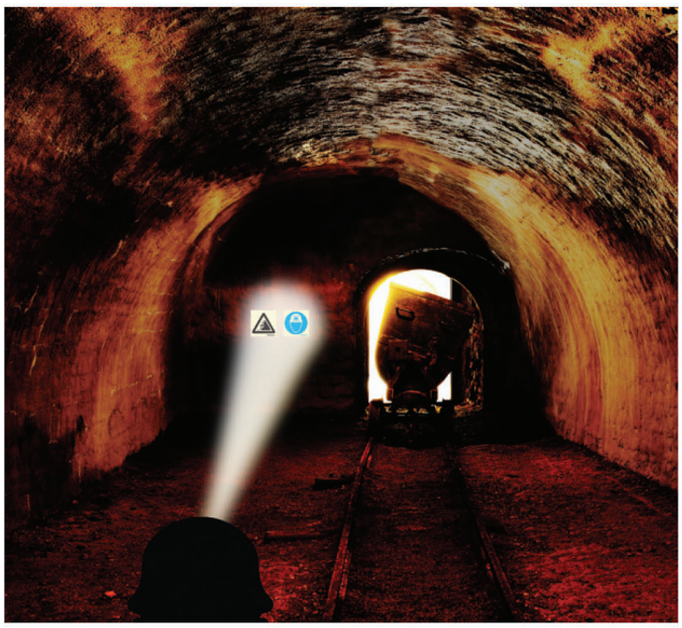
There are many situations where there is movement of both people and vehicles at the same time and at the same place in mines, and therefore there is a need for the information conveyed by the safety signs to be understood by all the parties involved and in all circumstances i.e.:
- Miners;
- Drivers of vehicles/machineries;
- Circumstances where vehicles/machineries are moving, with lights on, and miners are present.

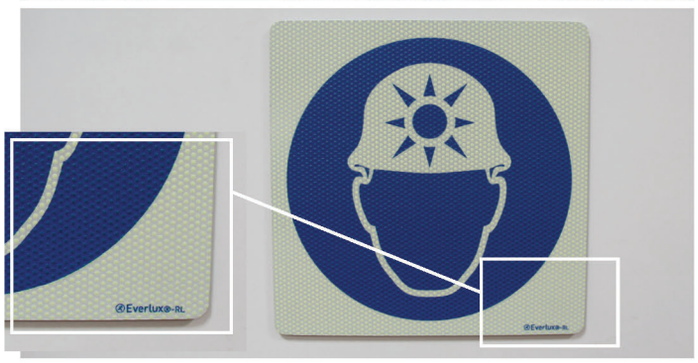
Everlux®-RL – Reflecto-luminescent signs are a new product at a global level with the advantage of combining two concepts in signs: The photoluminescent sign and the retro-reflective sign.

This sign system also performs a double function:
- The presence of external light from the vehicles/machineries or head torch lights allows it to react as a retroreflective product, i.e., the light is reflected back in the same direction it came from allowing the total visibility of the object (a characteristic already used in traffic signs).
- In total absence of light it acts as a photoluminescent product having absorbed the luminous radiation while exposed to the surrounding light (or light from vehicles/machineries or head torch light) and in a black-out situation the signs will remain visible for a period greater than 340 minutes which is the minimum period required by Norms.

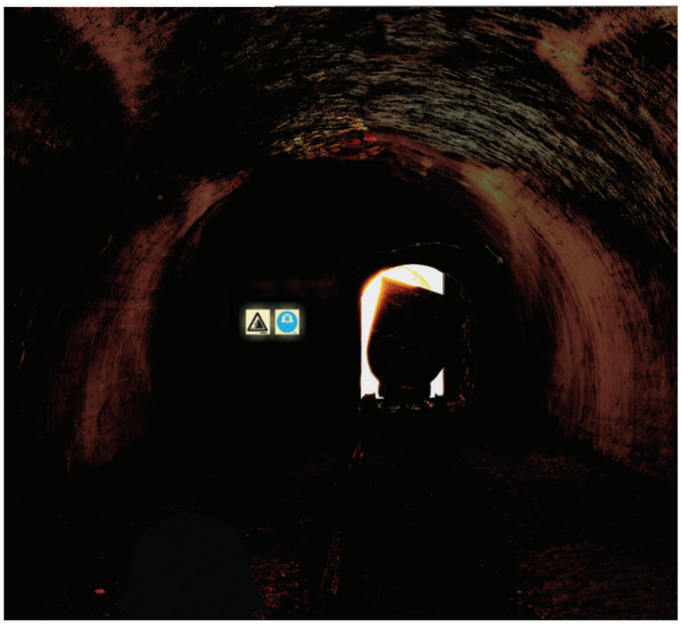
Everlux®-RL is manufactured with a generation of LLL pigments (Low Location Lighting) especially developed for situations where the surrounding light is diminished.
These signs are also ideal for situations where the fire and rescue service need to locate risers or hydrants thereby enabling these to be found more quickly, either by the fire engine lights or head torch lights.

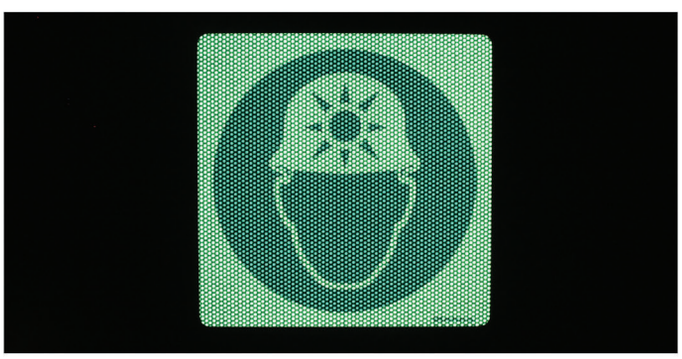
Retro-reflective Effect
Retro-reflective safety signs for
vehicles, machineries or head torch light





Photoluminescent Effect
Photoluminescent signs
for miners in the dark





Reflecto-luminescent signs

Evacuation routes and emergency exits in accordance with ISO 7010: 2011

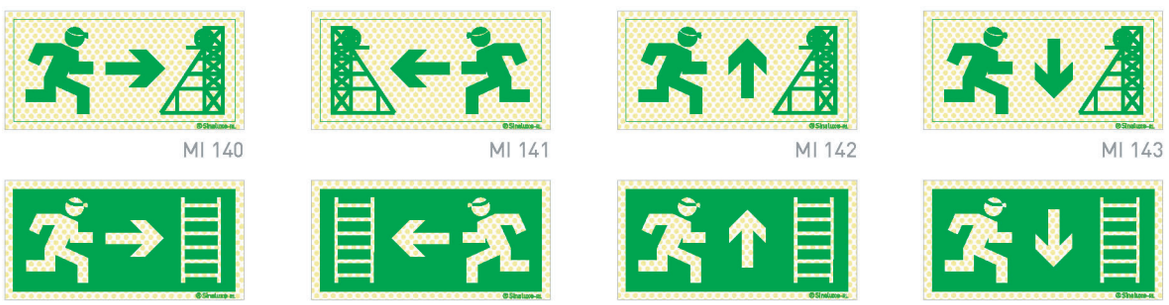
(mm)
300x150
400x200

MI 001 MI 002 MI 003 MI 004

MI 005 MI 006 MI 007 MI 008

Escape route signs

(mm)
300x150
400x200

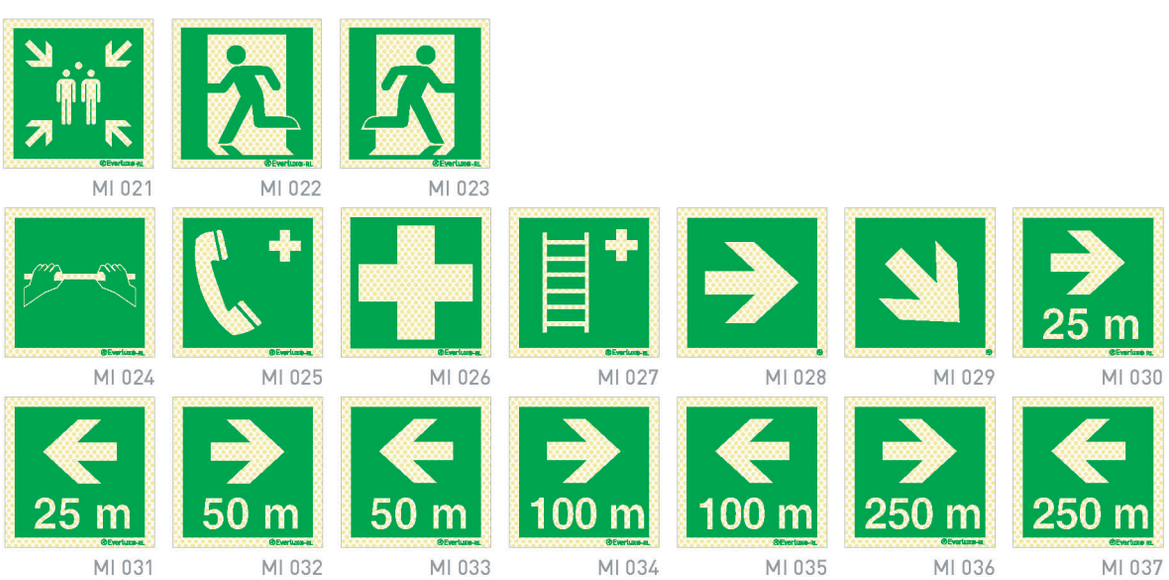


MI 140 MI 141 MI 142 MI 143

MI 144 MI 145 MI 146 MI 147

Evacuation routes and first aid equipment

(mm)
200x200
300x300
400x400



MI 021 MI 022 MI 023

MI 024 MI 025 MI 026 MI 027 MI 028 MI 029 MI 030

MI 031 MI 032 MI 033 MI 034 MI 035 MI 036 MI 037

Emergency equipment signs

(mm)
200x200
300x300
400x400

MI 160 MI 161 MI 162 MI 163

MI 164 MI 165 MI 166 MI 167 MI 168 MI 169

Emergency equipment signs with english text

(mm)
400x600
600x900

MI 180

MI 181

MI 182

MI 183

MI 184

MI 185

MI 186

MI 187

MI 188

MI 189

Emergency equipment signs with french text

(mm)
400x600
600x900

MI 200

MI 201

MI 202

MI 203

MI 204

MI 205

MI 206

MI 207

MI 208

MI 209

Emergency equipment signs with spanish text

(mm)
400x600
600x900

MI 220

MI 221

MI 222

MI 223

MI 224

MI 225

MI 226

MI 227

MI 228

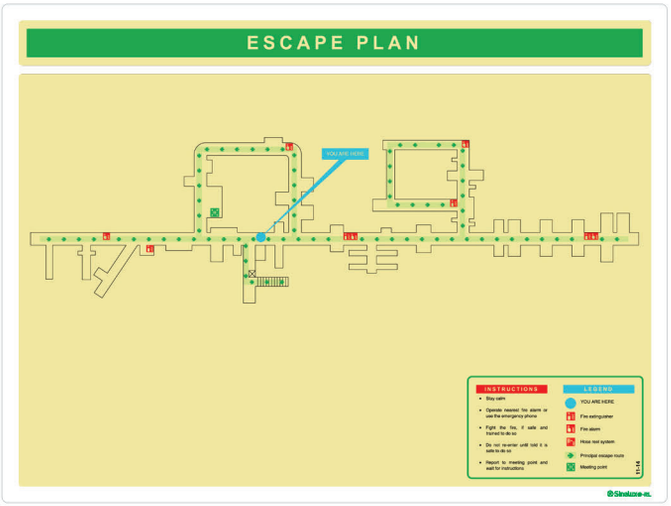
MI 229

Reflecto-luminescent signs

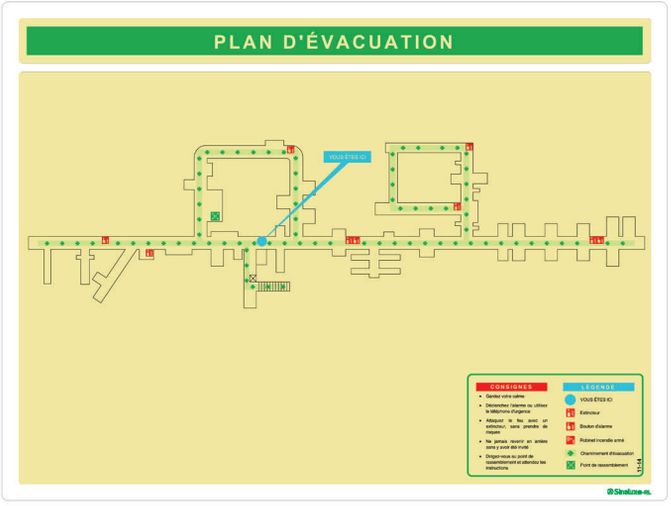
Escape plans in accordance to ISO 23601: 2009

The ISO 23601:2009 standard establishes design principles for displayed Escape Plans that contain information relevant to fire safety, escape, evacuation and rescue of the facility's occupants. These plans may also be used by intervention forces in case of emergency and are intended to be displayed as signs in public areas and workplaces.
The Escape Plans shall be designed in accordance with the evacuation strategy of the facility and addresses the specific needs of the occupants of the premises or part thereof.

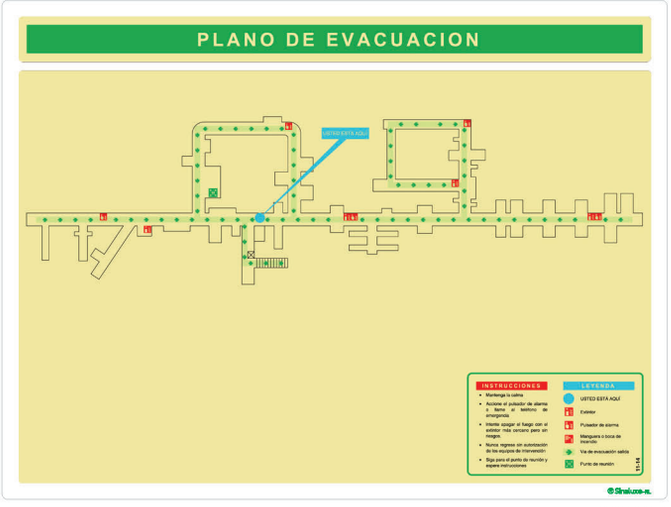
(mm)
400x300
600x400
900x600



MI PHU



MI PHF



MI PHS

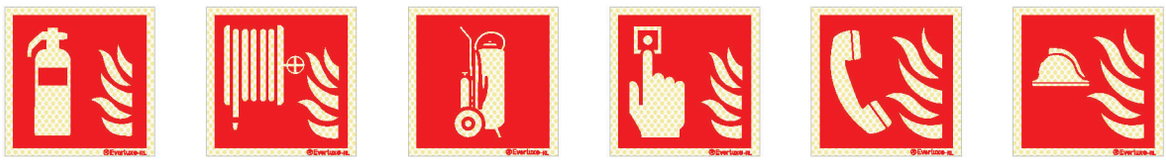
Note: also available in ANSI paper sizes B, C, D and ISO sizes A3, A2, A1.
See page 14.

Exit signs

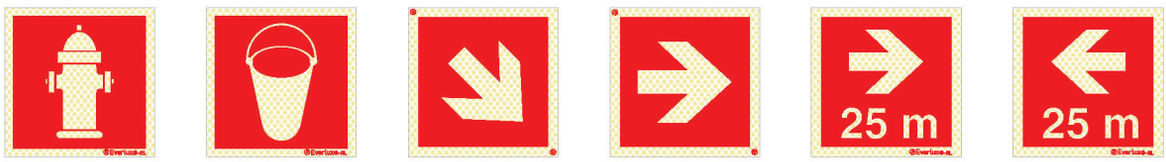
(mm)
300x150
400x200

Fire fighting equipment in accordance with ISO 7010:2011

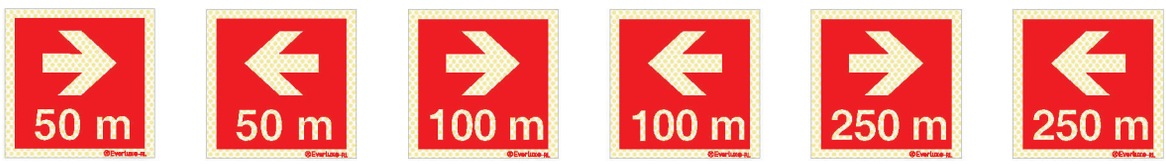
(mm)
200x200
300x300
400x400



MI 071 MI 072 MI 073 MI 074 MI 075 MI 076



MI 077 MI 078 MI 079 MI 080 MI 081 MI 082



MI 083 MI 084 MI 085 MI 086 MI 087 MI 088

Numbers and letters

(mm)
150x300

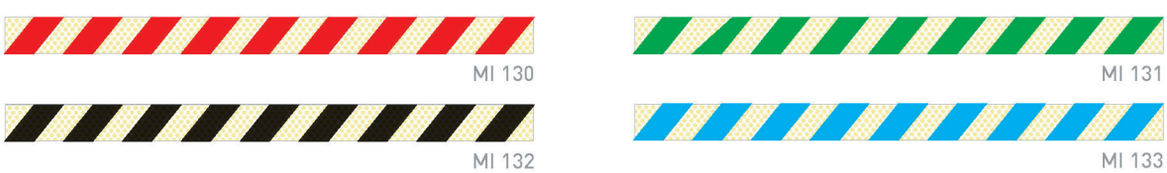
MI 10A MI 10B MI 10Z MI 1 00 MI 101 MI 109

Obstacle marking strips

(mm)
600x60
600x100

MI 120 MI 121 MI 122 MI 123

(mm)
1200x60
1200x100



MI 130 MI 131 MI 132 MI 133

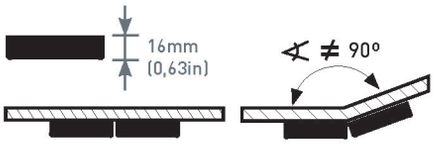
Reflecto-luminescent signs

Everlux® RL safety bumper for flat surfaces and for edges

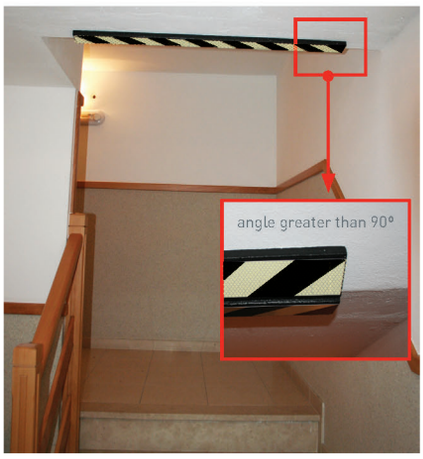
In all premises there are obstacles that can create a danger to the movement of people. Also pillars, tubes and other objects protruding from walls, pavements or ceilings can cause damage to users when they occur along the evacuation routes.
The Everlux® RL safety bumpers allow the softening of the impact in a way to minimise the effects of a collision. As they are photoluminescent they not only minimise the consequences of the impact but also help to prevent it as they remain visible in any circumstances, even in the absence of light.
Technical Characteristics of Everlux® RL Bumpers
- Material: cellular neoprene
- Resistance to fire: self-extinguishing (ex-class M1)
- Coating: with a retroreflective canvas and a photoluminescent material for Everlux® RL Bumpers.

Various bumpers can be put side by side to offer a wider area of protection.
Each bumper is supplied with a high adherence adhesive tape to allow it to be quickly and efficiently adhered to most common surfaces that are clean and free from dust.

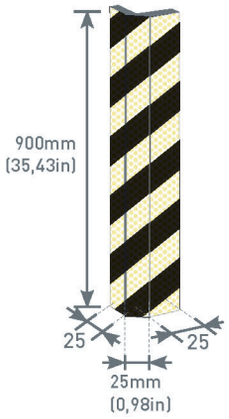
For angles other than 90°, flat bumpers should be used.



Sizes in mm (inch)

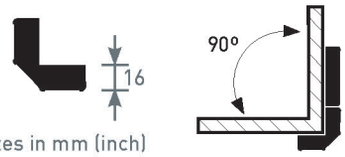


RL bumper for flat surfaces MI 150



Each bumper is supplied with two high adherence adhesive tapes (one for each internal surface) so as to allow it to be quickly and efficiently adhered to most common surfaces that are clean and free from dust.

This bumper can be applied together with the bumpers for flat surfaces (ref. 88 561) to increase the protection areas (see scheme below).



Sizes in mm (inch)

RL bumper for edges MI 151

Warning signs

(mm)
300x300


MI 260


MI 261


MI 262


MI 263


MI 264


MI 265

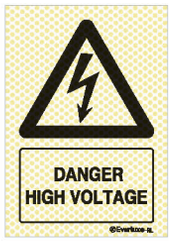

MI 266


MI 267

MI 268

Warning signs with english text

(mm)
400x600
600x900



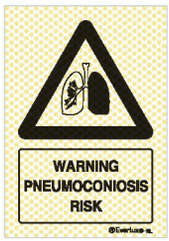
MI 280

MI 281

MI 282

MI 283

MI 284



MI 285

MI 286

MI 287

MI 288

MI 289

MI 290

MI 291

MI 292

MI 293

MI 294

Warning signs with french text

(mm)
400x600
600x900

MI 300

MI 301

MI 302

Reflecto-luminescent signs

Warning signs with french text

(mm)
400x600
600x900

MI 03 10

MI 03 11

MI 03 12

MI 03 13

MI 03 14

MI 03 15

MI 03 16

MI 03 17

MI 03 18

MI 03 19

MI 03 20

MI 03 21

Warning signs with spanish text

(mm)
400x600
600x900

MI 03 30

MI 03 31

MI 03 32

MI 03 33

MI 03 34

MI 03 35

MI 03 36

MI 03 37

MI 03 38

MI 03 39

MI 03 40

MI 03 41

MI 03 42

MI 03 43

MI 03 44

Mandatory signs

(mm)
200x200
300x300
400x400


MI 03 60


MI 03 61

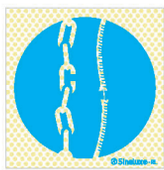

MI 03 62


MI 03 63


MI 03 64


MI 03 65


MI 03 66


MI 03 67


MI 03 68


MI 03 69

Mandatory signs with english text

(mm)
400x600
600x900

MI 03 80

MI 03 81

MI 03 82

MI 03 83

MI 03 84

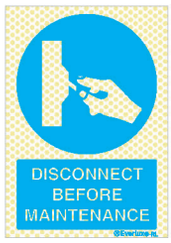
MI 03 85

MI 03 86

MI 03 87

MI 03 88

MI 03 89



MI 03 90

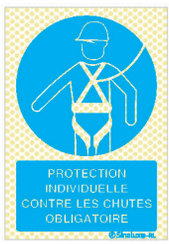
MI 03 91

Mandatory signs with french text

(mm)
400x600
600x900

MI 04 00

MI 04 01



MI 04 02

MI 04 03

MI 04 04

MI 04 05

MI 04 06

MI 04 07

MI 04 08

MI 04 09

MI 04 10

MI 04 11

Mandatory signs with spanish text

(mm)
400x600
600x900

MI 04 20

MI 04 21

MI 04 22

MI 04 23

MI 04 24

MI 04 25

MI 04 26

MI 04 27

MI 04 28

MI 04 29

MI 04 30

MI 04 31

Reflecto-luminescent signs

Prohibition signs

(mm)
200x200
300x300
400x400


MI 04 40


MI 04 41


MI 04 42


MI 04 43


MI 04 44


MI 04 45


MI 04 46


MI 04 47


MI 04 48


MI 04 49


MI 04 50

Prohibition signs with english text

(mm)
400x600
600x900

MI 04 60

MI 04 61

MI 04 62

MI 04 63

MI 04 64

MI 04 65

MI 04 66

MI 04 67

MI 04 68

MI 04 69

MI 04 70

MI 04 71

MI 04 72

MI 04 73

MI 04 74

MI 04 75

MI 04 76

Prohibition signs with french text

(mm)
400x600
600x900

MI 05 00

MI 05 01

MI 05 02

MI 05 03

MI 05 04

MI 05 05

MI 05 06

MI 05 07

MI 05 08

MI 05 09

MI 05 10

MI 05 11

MI 05 12

MI 05 13

MI 05 14

MI 05 15

MI 05 16

Prohibition signs with spanish text

(mm)
400x600
600x900

MI 05 30

MI 05 31

MI 05 32

MI 05 33

MI 05 34

MI 05 35

MI 05 36

MI 05 37

MI 05 38

MI 05 39

MI 05 40

MI 05 41

MI 05 42

MI 05 43

MI 05 44

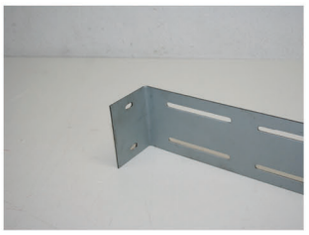
MI 05 45

MI 05 46

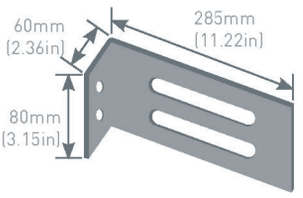
Reflecto-luminescent signs

Aluminium accessories for Type 2 and for Panoramic signs

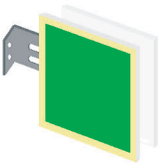
Everlux®-RL types of application can be:
Type 1 - Parallel wall mounted sign;
Type 2 - Perpendicular wall mounted sign fixed on an appropriate bracket;



MI 560



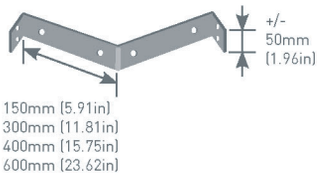
single-sided

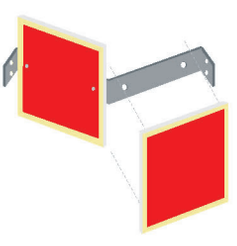


double-sided

Type P - Panoramic signs are comprised of two signs mounted on an aluminium frame at a 90 degree angle

MI 561





Size conversion table: mm/inches

mm	inch
150x300	5.91x11.81
200x200	7.87x7.87
300x150	11.81x5.91
300x300	11.81x11.81
400x200	15.75x7.87
400x400	15.75x15.75
600x60	23.62x2.36
600x100	23.62x3.94
400x600	15.75x23.62
600x900	23.62x35.43
900x25x25x25	35.43x0.98x0.98x0.98
900x65	35.43x2.56
1200x60	47.24x2.36
1200x100	47.24x3.94

Everlux evacuation plan sizes	
mm	in
400x300	15.75x11.81
600x400	23.62x15.75
900x600	35.43x23.62

ANSI evacuation plan sizes		
	mm	in
B	279x432	11x17
C	432×559	17×22
D	559×864	22×34

ISO evacuation plan sizes		
	mm	in
A3	297x420	11.69x16.54
A2	420×594	16.54×23.39
A1	594×841	23.39×33.11

Practical testing

To observe the functionality and advantages of Reflecto-luminescent signs, please observe the following steps:

Part 1: retro-reflective test

- Install the sign at the appropriate height which is most commonly within the 1.5 – 1.8m range from floor level and is considered to be the most suitable for comprehension at "eye level";
- Expose the sign surface to a light source;
- When the sign is met with external direct light, in the form of vehicle headlights, a flashlight, or a helmet lamp for example, it will react in a similar retro-reflective manner to traffic signs;
- The light is reflected back in the same direction as the source which will allow total visibility of the sign and its inherent message.

Once you have competed the retro-reflective performance test you can also test the sign's photoluminescent performance.

Part 2: Luminance test

Please note that the photoluminescence test is a consequence of the retro-reflective test and as such the sign and installation position should remain the same as the test above.

- Once the retro-reflective test has been completed switch off/ remove all light sources;
- In the absence of light, the photoluminescent aspect of the sign emits the light (which was absorbed and stored from the incidental light source) and allows total visibility of the sign and its inherent message, even during "black-out" conditions.

So, within the one sign you have the advantage of combining two concepts that offer two different solutions: the retro-reflective properties that enhance the visibility of the sign when exposed to light and the photoluminescent properties that guarantees the sign's visibility even when no light source is available.

In accordance with legislation, standards and consumer protection to ensure quality and conformity, our Trademarks are printed in all Everlux®-RL signs.

Ertecna, lda. - 11.2014

www.everlux.eu