SWAREFLEX®

lights the way to safety

Company history

For more than a hundred years Swarovski, the Austrian family company based in Wattens in the Tyrol, has been the world's leading manufacturer of cut crystal. Crystal jewellery stones and crystalline semi-finished goods for the fashion, jewellery and lighting industries are as much a part of the company's product range as gift articles and collectibles fashioned from faceted crystal. Since 1995 visitors have been able to enjoy the ultimate crystal experience at the Swarovski Crystal Worlds. The Swarovski group also includes Tyrolit, which produces grinding tools and abrasives, and Swarovski Optik, the company's optics division with its precision optics for hunting and nature observation.

Swareflex is a Swarovski product group and was founded in 1950. They have produced reflectors and road marking studs with glass elements in a variety of sizes and designs ever since. These products are exported world-wide for many different applications. In the last ten years the Swareflex product group has developed and manufactured a variety of electronic guidance systems and LED warning systems.

SWAREFLEX®
lights the way to safety

Contents

SWAREFLEX

SWAREFLEX is a Swarovski product group and a factor of safety on roads everywhere. SWAREFLEX produces reflectors and road marking studs with glass elements, as well as LED products, for a wide variety of road traffic applications.

This high-tech programme utilises the reflective power and robustness of glass elements embedded in high-grade plastic. SWAREFLEX products are leading products in their field. SWAREFLEX products conform to ISO 9001 quality standards.

qualityaustria
SYSTEM CERTIFIED
ISO 9001:2000 NR.01382/0

IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and OQS

hereby certify that the organization

D. Swarovski & Co.
Swareflex Division
A-6112 Wattens, Swarovskistrasse 30

NACE: 26.1.3 EAC: 15

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard

ISO 9001:2000

Issued on:	**2006-12-19**
Validity date:	**2009-10-22**
OQS certified since:	**1998-11-05**
Registration Number:	**AT-01382/0**

René Wasmer
President of IQNet

Viktor Seitschek
President of OQS

IQNet Partners*:
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IQNet is represented in the USA by: AFAQ AFNOR, AIB-Vincotte International, CISQ, DQS, NSAI Inc., QMI and SAI Global
* The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

IRF

SWAREFLEX is a member of the International Road Federation (IRF). The IRF is a non-profit-making, politically independent service organisation with over 600 private and public sector members world-wide. It develops and improves road and transport systems through lobbying, development and training, by means of international road programmes, products and publications.

ÖQS

ÖQS-ZERTIFIKAT

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Die Quality Austria - Trainings-, Zertifizierungs- und Begutachtungs GmbH stellt folgender Organisation ein Quality Austria-Zertifikat aus:

SWAREFLEX

D. Swarovski & Co.
Swareflex Division
A-6112 Wattens, Swarovskistrasse 30

NACE: 26.1.3 EAC: 15

Die Gültigkeit dieses Quality Austria-Zertifikates wird durch jährliche Überwachungsaudits und dreijährige Verlängerungsaudits aufrechterhalten.

Dieses Quality Austria-Zertifikat bestätigt die Anwendung und Weiterentwicklung eines wirksamen

QUALITÄTSMANAGEMENT-SYSTEMS
entsprechend den Forderungen der
ISO 9001:2000

Registrier-Nummer: 01382/0
Erstzulassung: 5. November 1998
Gültig bis: 22. Oktober 2009

Wien, am 19. Dezember 2006

Quality Austria - Trainings-, Zertifizierungs- und Begutachtungs GmbH

TR Ing. Viktor Sattchek, Präsident
Konrad Scheiber, Geschäftsführer

ÖQS

OQS-CERTIFICATE

qualityaustria

Quality Austria Training, Certification and Evaluation Ltd. awards this Quality Austria Certificate to the following organisations:

SWAREFLEX

D. Swarovski & Co.
Swareflex Division
A-6112 Wattens, Swarovskistrasse 30

NACE: 26.1.3 EAC: 15

The validity of the Quality Austria Certificate will be maintained via annual surveillance audits and three yearly renewal audits.

This Quality Austria Certificate confirms the application and further development of an effective

QUALITY MANAGEMENT SYSTEM
complying with the requirements of standard
ISO 9001:2000

Registration No.: 01382/0
Date of initial issue: 5. November 1998
Valid until: 22. October 2009

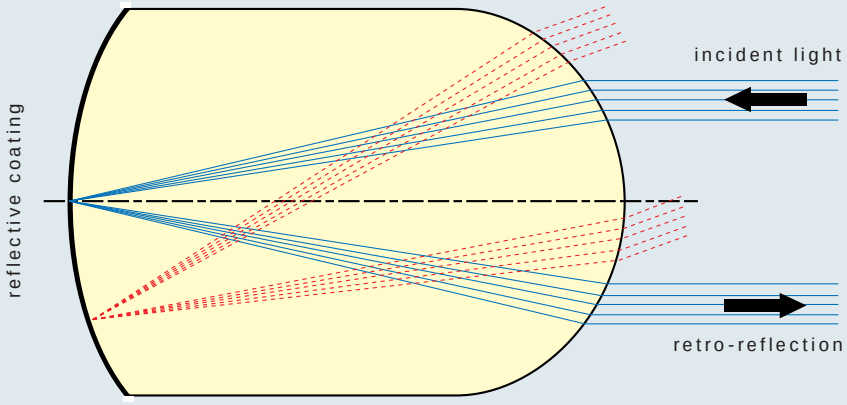
Vienna, 19. December 2006

Quality Austria Training, Certification and Evaluation Ltd.

TR Ing. Viktor Sattchek, President
Konrad Scheiber, General Manager

Performance and properties of the glass elements

SWAREFLEX reflectors employ the principle of retro-reflection: if a beam of light hits a retro-reflective optical system, it is reflected back to its point of origin, irrespective of the direction from which the beam strikes the reflector. The shape of the glass element is calculated precisely by computer to achieve optimum reflection. The backs of the glass elements are finished with a highly reflective, silvered, mirror layer and several special protective over-layers.

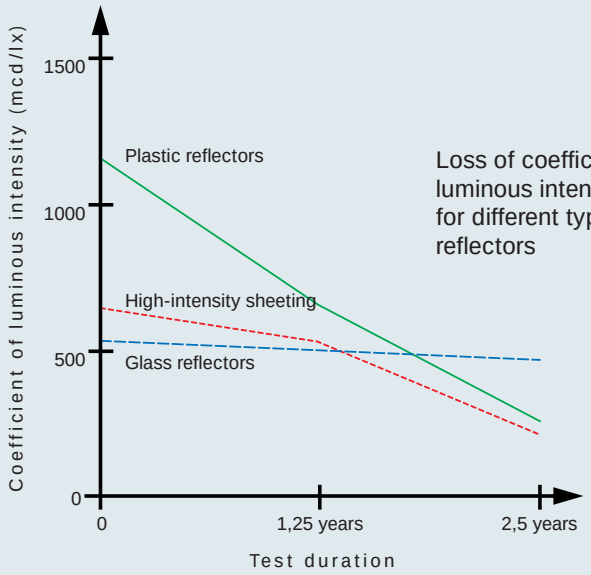


path of the rays in a spherical glass element

Glass elements

As a reflector is subjected to enormous mechanical stress from vehicles, its surface must be as resistant as possible. Glass is the best material for this type of load.

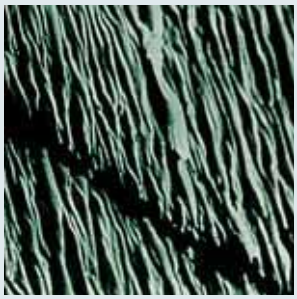
Test results from the Federal Highway Research Institute (BAST) in Germany



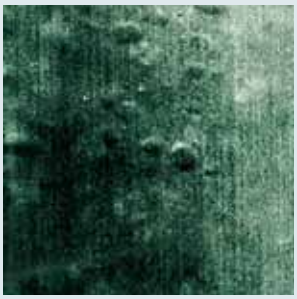
Loss of coefficient of luminous intensity (C.I.L.) for different types of reflectors

Microscopic pictures of different reflector surfaces

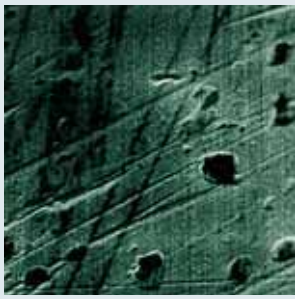
New plastic reflector



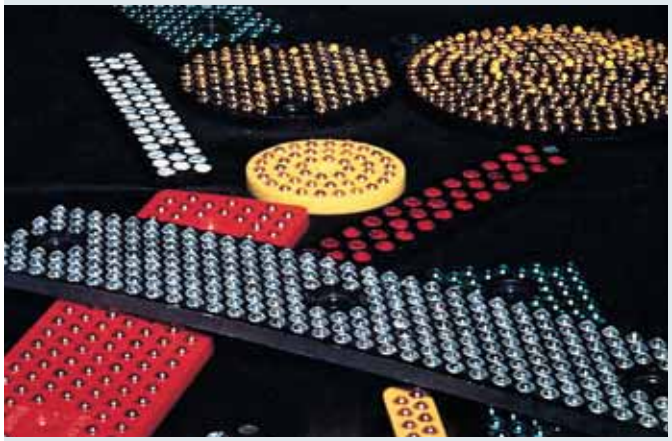
Plastic reflector after 2.5 years on the road



New glass reflector



Glass reflector after 2.5 years on the road



SWAREFLEX glass reflectors

Depending on their respective fields of use SWAREFLEX glass elements are embedded in a variety of plastics, which have proven to be perfect for outdoor use.

The advantages of SWAREFLEX glass reflectors:
- Low loss of reflection intensity compared with reflectors made of other materials
- High resistance to breaking and scratches
- Outstanding resistance to heat (up to 95° C), cold and UV light
- Good resistance to chemicals (de-icing salt, oil, petrol, cleaning solutions, etc.)
- Highly economical due to durability

GLOBEMARKER® plastic road studs

International studies have shown that SWAREFLEX road studs are the perfect way for a driver to identify the course of a carriageway in darkness or bad weather conditions, and they can be heard and felt due to the bumpy effect caused by driving over them. When visibility is low, SWAREFLEX road studs guarantee the best carriageway guidance.

The new design of the GLOBEMARKER® road stud has two side finger grips for easy handling. The newly designed base gives excellent bonding with the roadway with minimal use of adhesive. We recommend fixing with a 2-component adhesive. SWAREFLEX road studs are fitted with extremely durable glass elements - their surfaces are cleaned by rain and vehicles passing over them. A test performed in Germany confirmed that SWAREFLEX road studs displayed the highest coefficient of luminous intensity out of 48 different products after 6 months of road use.

All SWAREFLEX road studs for permanent marking comply with standards EN 1463 and BS 873/Part 4. The "Classic" version GLOBEMARKER® road studs also meet CIL requirements according to ASTM D 4280 standards.

GLOBEMARKER® version "Classic"
Art. 3551 one-way reflective
Art. 3552 two-way reflective
Dimensions: 100 x 100 x 17.9 mm
Plastic body with 1 or
2 x 45 glass elements, 19° tilted

GLOBEMARKER® version "Economy"
Art. 3541 one-way reflective
Art. 3542 two-way reflective
Dimensions: 100 x 100 x 17.9 mm
Plastic body with 1 or
2 x 29 glass elements, 19° tilted

GLOBEMARKER® version "Small"
Art. 3555 one-way reflective
Art. 3556 two-way reflective
Dimensions: 120 x 60 x 15.5 mm
Plastic body with 1 or
2 x 39 glass elements, 19° tilted

The GLOBEMARKER® versions "Classic", "Economy" and "Small" are available in the following colour combinations:
Body: yellow, white, blue.
Glass elements: yellow, white, blue, red or green.
These colours are available in any combination.






Metal road studs

The SWAREFLEX road studs made of metal are particularly suitable for roads with heavy traffic. We recommend metal road studs also for locations where the asphalt is not of optimum quality.

Art. 3543 one-way reflective
Art. 3544 two-way reflective
Dimensions: 100 x 100 x 19.8 mm
Length anchoring shank: 50 mm
Aluminium body with 1 or
2 x 43 glass elements

Art. 3547 one-way reflective
Art. 3548 two-way reflective
Dimensions: 100 x 100 x 19.8 mm
Length anchoring shank: 50 mm
Aluminium body with 1 or
2 x 43 glass elements, 19° tilted

Art. 3533 one-way reflective
Art. 3534 two-way reflective
Dimensions: 100 x 100 x 19.8 mm
Length anchoring shank: 50 mm
Aluminium body with 1 or
2 x 21 glass elements

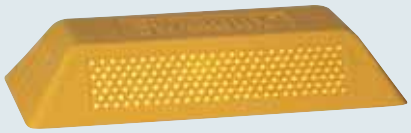
Art. 5209 one-way reflective
Art. 5210 two-way reflective
New body design with finger grips
Dimensions: 101 x 102 x 19.8 mm
Length anchoring shank: 50 mm
Aluminium body with 1 or
2 x 43 glass elements

Art. 5211 one-way reflective
Art. 5212 two-way reflective
New body design with finger grips
Dimensions: 101 x 102 x 19.8 mm
Length anchoring shank: 50 mm
Aluminium body with 1 or
2 x 43 glass elements, 19° tilted

Art. 5031 one-way reflective
Art. 5032 two-way reflective
Dimensions: 149 x 149 x 27 mm
Length anchoring shank: 80 mm
Aluminium body with 1 or
2 x 76 glass elements
(also available with 1 or 2 x 39 glass elements).

Special road studs

SWAREFLEX CITY STUDS are designed for permanent use, e.g. kerb marking in tunnels, bridges, roundabouts, etc. or to separate bus and taxi lanes. City studs are highly visible at night due to their large number of glass reflector elements.



Art. 5001 one-way reflective
Art. 5002 two-way reflective
Dimensions: 220 x 100 x 40 mm
Plastic body with 1 or
2 x 179 glass elements

Art. 5047 one-way reflective
Art. 5048 two-way reflective
City Stud version "Economy"
Dimensions: 220 x 100 x 40 mm
Plastic body with 1 or
2 x 45 glass elements

Art. 5003 one-way reflective
Art. 5004 two-way reflective
Dimensions: 220 x 100 x 40 mm
Plastic body with 1 or
2 x 179 glass elements
and 2 anchoring shanks

SWAREFLEX MINISTAR road studs are used for additional road marking and provide improved guidance, in particular at night or during poor visibility conditions such as fog or rain. For simple installation, you can also order Ministar road studs prepared with butyl adhesive. Butyl adhesive should only be used for temporary marking.

SWAREFLEX road studs are available in a variety of colour combinations. White or yellow plastic with white, yellow, red, green or blue glass elements. Art. 3004 is also available in orange plastic. Special colours available on request.

Easy fixing with butyl adhesive

Art. 3091 one-way reflective
Art. 3092 two-way reflective
Dimensions: 68 x 34 x 9.8 mm
Plastic body with 1 or
2 x 8 glass elements

Art. 3091 B one-way reflective
Art. 3092 B two-way reflective,
with butyl adhesive
Dimensions: 68 x 34 x 9.8 mm
Plastic body with 1 or
2 x 8 glass elements

Art. 3004 two-way reflective
Dimensions: Ø 119 x 19 mm
Plastic body with
2 x 2 glass elements

Lane dividers

SWAREFLEX lane dividers are temporary delineators, e.g. for road works. They provide ideal visibility and are highly resistant to vehicle stress. A test report by the Federal Highway Research Institute BAST in Germany confirms several thousand vehicle traverses without damage.

Excellent daytime visibility due to the 28.5 cm high rubber flag

Outstanding night visibility due to the glass reflectors in the base

Resistant to vehicle impact due to the high-quality, robust rubber flag

The rubber flag can be fitted with reflectors on request

Can be glued to concrete and asphalt surfaces

Art. 5017 one-way reflective
Art. 5018 two-way reflective
Dimensions: 220 x 150 x 285 mm
Base plate 25 mm high
with 1 or 2 x 128 glass elements,
rubber flag without reflector

Art. 5020 two-way reflective
Dimensions: 220 x 150 x 285 mm
Base plate 25 mm high
with 2 x 128 glass elements,
rubber flag with 2 round glass reflectors

Art. 5058 two-way reflective
Dimensions: 220 x 150 x 285 mm
Base plate 25 mm high
with 2 x 21 glass elements,
rubber flag without reflector

COLOURS

The individual parts of the various types of SWAREFLEX
lane dividers can be combined as follows:
- Yellow, white or orange base plate with yellow, white or red glass elements
- Red rubber flag
- Yellow or white reflector in the rubber flag

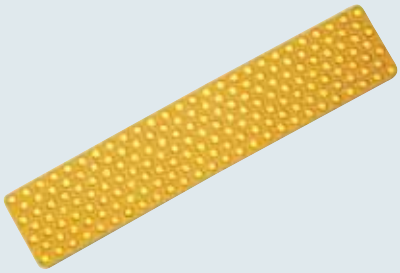
Traffic calming by Art. 5006
(sleeping police)

Art. 5060 two-way reflective
Dimensions: 220 x 150 x 285 mm
Base plate 25 mm high
with 2 x 21 glass elements,
rubber flag with 2 round glass reflectors

Art. 5005 one-way reflective
Art. 5006 two-way reflective
Dimensions: 220 x 150 x 25 mm
Road stud with 1 or 2 x 128 glass elements,
plastic body without slot

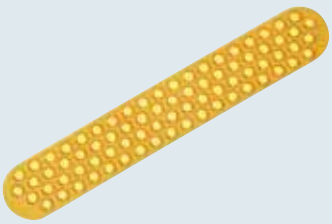
Reflective inserts for road studs

SWAREFLEX has reflective inserts in different sizes, shapes and colours for a whole range of road studs. The insert's coefficient of luminous intensity (C.I.L.) depends on the number of glass elements and the angle of the insert or the glass elements in the road stud.

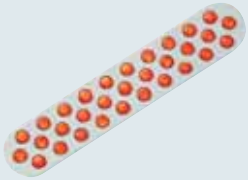


Art. 3392
Dimensions: 150.2 x 31 mm
Number of glass elements:
179 pieces

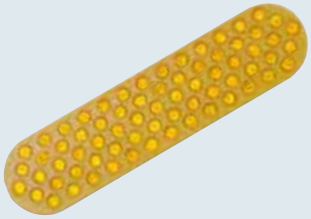
Art. 3395
Dimensions: 150.2 x 31 mm
Number of glass elements:
45 pieces



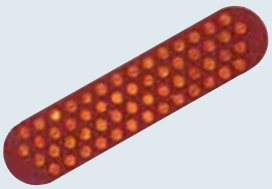
Art. 3568
Dimensions: 112.7 x 18.25 mm
Number of glass elements:
76 pieces



Art. 3585
Dimensions: 74.7 x 13.9 mm
Number of glass elements:
31 pieces



Art. 3582
Dimensions: 91.6 x 21.8 mm
Number of glass elements:
69 pieces



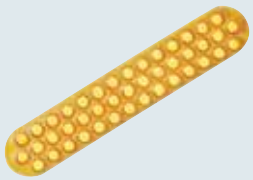
Art. 3575
Dimensions: 78 x 18 mm
Number of glass elements:
56 pieces

Art. 3601
Dimensions: Ø 16.55 x 3.8 mm
Number of glass elements:
7 pieces

Art. 3040
Dimensions: Ø 12 x 9.5 mm
Number of glass elements:
1 piece

Art. 3020
Dimensions: Ø 14.8 x 14 mm
Number of glass elements:
1 piece

Art. 3561
Dimensions: 74.7 x 13.9 mm
Number of glass elements:
43 pieces



Art. 3563
Dimensions: 74.7 x 13.9 mm
Number of glass elements:
43 pieces, 19° tilted

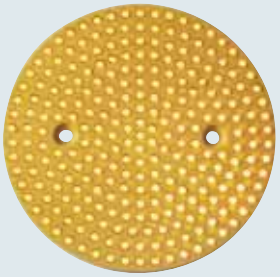
Art. 3577
Dimensions: 74.7 x 13.9 mm
Number of glass elements:
21 pieces

Art. 3570
Dimensions: 52 x 7 mm
Number of glass elements:
10 pieces

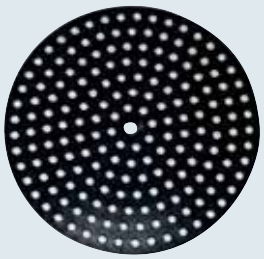
Art. 3589
Dimensions: 60 x 10 mm
Number of glass elements:
19 pieces

Art. 3590
Dimensions: 64.6 x 10 mm
Number of glass elements:
21 pieces

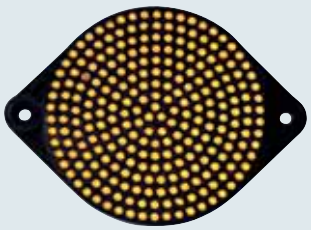
Vertical marking



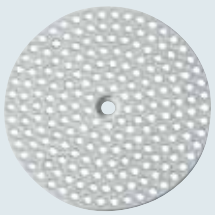
Art. 3900
Ø 104 mm, 256 glass elements,
distance between holes 56 mm



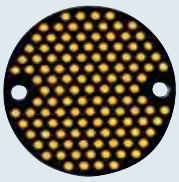
Art. 3901
Ø 100 mm, 185 glass elements,
with central hole



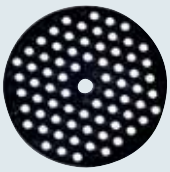
Art. 3880
Ø 88 mm, 251 glass elements,
distance between holes 102 mm



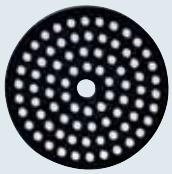
Art. 3290
Ø 76 mm, 197 glass elements,
with central hole



Art. 3380
Ø 65 mm, 121 glass elements,
distance between holes 52.5 mm

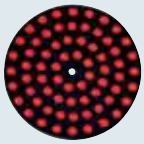


Art. 2380
Ø 61 mm, 72 glass elements,
with central hole



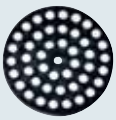
Art. 2381
Ø 60 mm, 80 glass elements,
with central hole

Art. 3680
Ø 51 mm, 70 glass elements,
without central hole



Art. 3690
Ø 51 mm, 69 glass elements,
with central hole

Art. 3660
Ø 41 mm, 46 glass elements,
without central hole



Art. 3670
Ø 41 mm, 45 glass elements,
with central hole

Art. 3640
Ø 32 mm, 24 glass elements,
without central hole

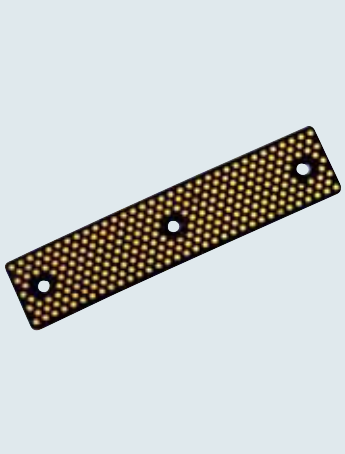
Art. 3650
Ø 32 mm, 23 glass elements,
with central hole

Art. 3620
Ø 22.7 mm, 15 glass elements
without central hole

Art. 3630
Ø 22.7 mm, 15 glass elements
with central hole

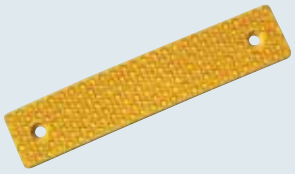
Art. 3610
Ø 16.55 mm, 6 glass elements
with central hole

Art. 3320
Dimensions: 250 x 40 mm
268 glass elements, distance
between holes 105 mm

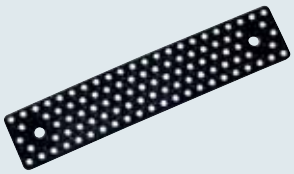


Art. 3370
Dimensions: 180 x 40 mm
272 glass elements, distance
between holes 75 mm

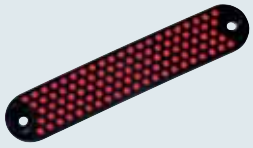
Art. 2371
Dimensions: 180 x 40 mm
170 glass elements, distance
between holes 150 mm



Art. 3390
Dimensions: 150 x 31 mm
171 glass elements, distance
between holes 120 mm



Art. 2390
Dimensions: 150 x 31 mm
100 glass elements, distance
between holes 121 mm



Art. 3852
Dimensions: 125 x 24 mm
101 glass elements, distance
between holes 108 mm
Reflectors for snow poles

Delineator post,
length 1120 mm,
completely flexible
and traversable

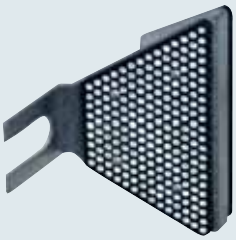
Art. 9002 N with 2 reflectors Art. 2371
(2 x 170 glass elements)
Art. 9001 N with 1 reflector Art. 2371
(1 x 170 glass elements)
Art. 9000 N without reflector

Reflectors for guard rails

SWAREFLEX reflectors for guard rails show the course of a carriageway at night. Guard rail reflectors are available for a variety of metal rail profiles.

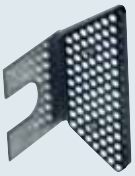
Glass reflectors retain excellent reflective properties across a number of years. This differentiates glass reflectors from other reflective materials.

SWAREFLEX reflectors guarantee the highest degree of safety for night-time traffic.



Art. 3256 two-way reflective
Art. 3257 one-way reflective
Guard rail reflector for large profiles,
metal bracket, with 1 or
2 x 213 glass elements

Art. 3240 two-way reflective
Art. 3241 one-way reflective
Guard rail reflector for all profiles,
metal bracket, with 1 or
2 x 166 glass elements



Art. 3710 two-way reflective
Art. 3711 one-way reflective
Guard rail reflector for small profiles,
metal bracket, with 1 or
2 x 82 glass elements

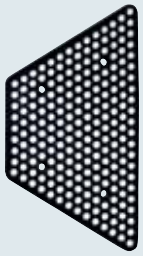
Art. 3722 two-way reflective
Art. 3721 one-way reflective
Guard rail reflector for "Kolsva" profile,
metal bracket, with 1 or
2 x 54 glass elements

Art. 3270 two-way reflective
Art. 3280 one-way reflective
Guard rail reflector for
type VOEST 1 (A profile) with 1 or
2 x 166 glass elements

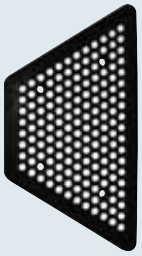
Art. 3250 two-way reflective
Art. 3260 one-way reflective
Guard rail reflector for B profile,
with 1 or 2 x 166 glass elements

Art. 3500 two-way reflective
Art. 3510 one-way reflective
Guard rail reflector type Alpine 2,
with 1 or 2 x 106 glass elements

Art. 3520 two-way reflective
Art. 3530 one-way reflective
Guard rail reflector type Ranshofen,
with 1 or 2 x 106 glass elements



Art. 3402 reflective insert
for Art. 3256/3257, 213 glass elements



Art. 3403 reflective insert
for large metal angles, 158 glass elements

Art. 3401 reflective insert
for Art. 3240/3241, 166 glass elements

Art. 3700 reflective insert
for Art. 3710/3711, 82 glass elements

Art. 3720 reflective insert
for Art. 3721/3722, 54 glass elements

Reflectors for concrete barriers

SWAREFLEX offers a variety of reflector types for guidance on concrete safety walls.

WALLFLEX is a flexible mounting, on which different SWAREFLEX reflectors of size 120 x 80 mm can be used. The mounting is made of high-quality, weather-resistant plastic (thermoplastic polyester elastomer). WALLFLEX can be mounted on concrete safety walls, as well as in tunnels and underpasses.

WALLFLEX TOP
Art. 5111 one-way reflective
Art. 5112 two-way reflective
Dimensions: 146 x 88 mm
Mounting with 1 or 2 x 188 glass elements

WALLFLEX TOP
Art. 5121 one-way reflective
Art. 5122 two-way reflective
Dimensions: 146 x 88 mm
Mounting with 1 or 2 x 346 glass elements

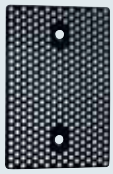
WALLFLEX TOP
Art. 5100, flexible mounting without reflector
Dimensions: 146 x 88 mm
Suitable for reflector size 120 x 80 mm

WALLFLEX SIDE
Art. 5161 one-way reflective
Art. 5162 two-way reflective
Dimensions: 128 x 110 mm
Mounting with 1 or 2 x 188 glass elements

WALLFLEX SIDE
Art. 5163, one-way reflective
Art. 5164, two-way reflective
Dimensions: 128 x 110 mm
Mounting with 1 or 2 x 346 glass elements

WALLFLEX SIDE
Art. 5160, flexible mounting without reflector
Dimensions: 128 x 110 mm
Suitable for reflector size 120 x 80 mm

Art. 3362, reflector for WALLFLEX
Dimensions: 120 x 80 mm
188 glass elements



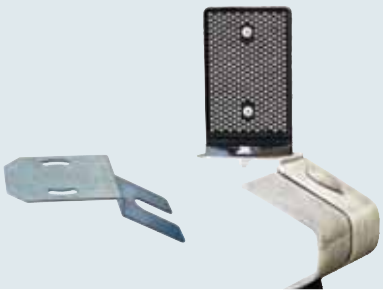
Art. 3364, reflector for WALLFLEX
Dimensions: 120 x 80 mm
346 glass elements

WALLFLEX is available in the following colours:
black plastic with white, red or yellow reflective glass elements.

WALLFLEX is installed using plugs and screws.

Art. 3350 two-way reflective
Art. 3351 one-way reflective
Dimensions: 154 x 36 x 40 mm
with 1 or 2 x 171 glass elements

Flexible reflector panel BOOMERANG
Art. 5193 one-way reflective
Art. 5194 two-way reflective
Dimensions: 550 x 45 x 40 mm
with 1 or 2 x 300 glass elements (Art. 2390)



WALLFLEX TOP mounted on guard rail
using metal mounting Art. 5105
Art. 5105, metal mounting for WALLFLEX,
with nuts, bolts and washers
to install WALLFLEX on guard rails

Art. 3340
Art. 3340 B (with butyl adhesive)
Art. 3340 S (with two mounting holes)
Dimensions: 60 x 18 x 14 mm
with 35 glass elements

Wildlife Warning System

Accident prevention with SWAREFLEX wildlife warning system: The headlight beam from an approaching vehicle creates an optical and acoustic warning fence for wildlife, causing the animals to remain where they are or retreat until the threat has passed. Once the vehicle is gone the warning fence is deactivated and wildlife can cross the road safely. The SWAREFLEX wildlife warning system significantly reduces the incidences of wildlife-related accidents!

Optical Wildlife Warning Reflector WWR

During the hours of twilight and darkness SWAREFLEX wildlife warning reflectors (WWR) deflect the headlight beams of approaching vehicles into the areas at the edges of the road. This produces a constantly changing optical warning fence, which either stops wildlife in its tracks or sends it fleeing away from the road.

The wildlife warning reflectors do not reflect the headlight beam back to the driver, but deflect it into the roadside areas. The optical warning fence is only activated when a vehicle approaches.

The wildlife warning reflector is supplied with 2 screws for installation at usual street reflector height on any existing wooden, plastic or metal roadside post. It can be mechanically cleaned during normal road sweeping or by hand with a cloth or sponge.

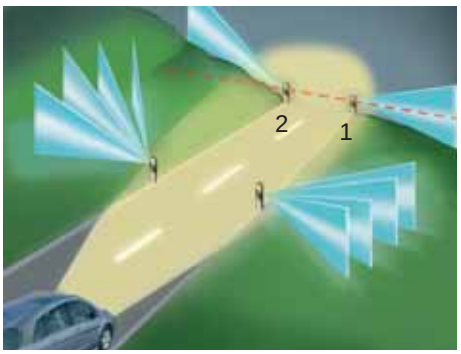
Thousands of kilometres of roadways in areas of wildlife migration are already protected by SWAREFLEX wildlife warning reflectors. Austrian national guidelines for wildlife protection have recommended the use of these products for many years. Preventing a single vehicle-animal collision covers the cost of installation on a stretch of road several kilometres long.

WWRs are resistant to de-icing salts and corrosion since reflector and casing form a single compact unit.

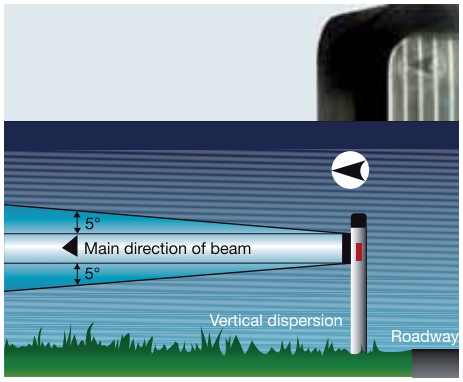
We recommend Art. 7172 for level terrain and slight slopes of up to 5°. Inclines and declines require Art. 7182. The arrow on the product shows the direction of the reflected light.

Art. 7172 Wildlife warning reflector for level or slightly sloping terrain, colour red or white
Dimensions: height 184 mm, width 81 mm, depth 60 mm

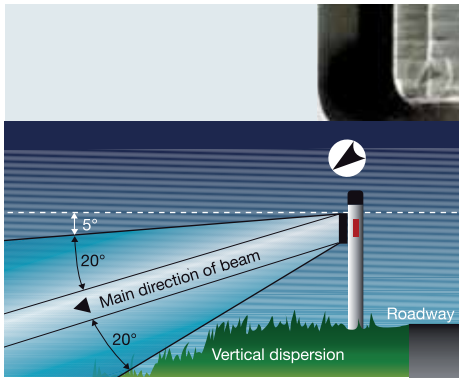
Art. 7182 Wildlife warning reflector for steep sloping terrain, colour red or white
Dimensions: height 184 mm, width 81 mm, depth 60 mm



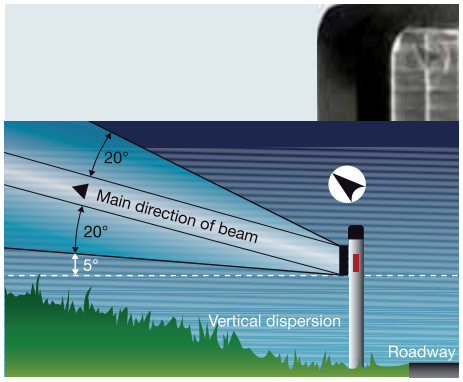
Optical warning fence
1 WWR for level or slightly sloping terrain
2 WWR for steep sloping terrain



Vertical dispersion of reflector on level terrain



Vertical dispersion of reflector on embankment (slope down)



Vertical dispersion of reflector on embankment (slope up)

Acoustic Wildlife Warning Module WWA

The acoustic wildlife warning module (WWA) is a device, which does not interfere with natural wildlife habitat, yet has the ability to drastically reduce wildlife-related vehicle accidents. The acoustic wildlife warning module complements the optical wildlife warning reflector to stimulate both the visual and auditory senses of wild animals.

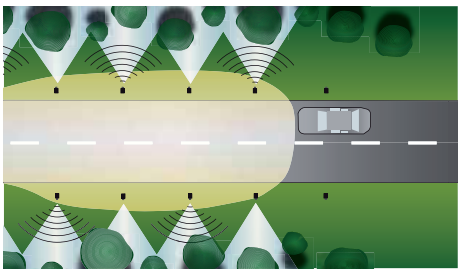
Acoustic wildlife warning modules can be installed alone, or in combination with optical wildlife warning reflectors, on alternate roadside posts, facing away from the road, with the screws supplied. Installation can be made on existing wooden, plastic or metal roadside posts above the optical wildlife warning reflector.

Example for mounting the WWA and WWR (height of mounting is depending on the situation on site)

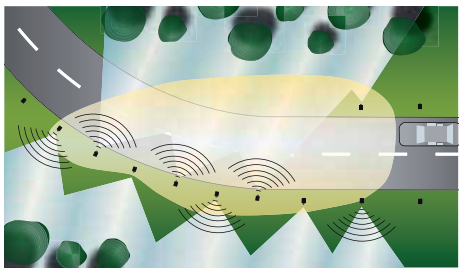
1 Solar cell
2 Photosensor
3 Loudspeaker

Art. 7192 acoustic wildlife warning module WWA
Dimensions: height 125 mm, width 81 mm

Excerpt from RVS 3.01
(guidelines and regulations for road engineering in Austria)
Set-up instructions for combined WWR and WWA system:



On straight roads a vehicle's headlight beam will hit the acoustic wildlife warning modules installed on the right and left sides of the road, thus triggering the acoustic signal. On straight roads the modules can be installed on alternate sides of road 30 m – 40 m apart.



On curved roads a vehicle's headlight beam will not illuminate a sufficiently long distance, as is possible on straight roads. It is therefore necessary to install acoustic wildlife warning modules on both sides every 30 m – 40 m through the curve and on hilly road sections. The intervals between roadside posts are reduced depending on the radius of the curve.

LED products

SIGNFLASH – warning system for pedestrian crossings

SIGNFLASH is a fully automatic flashing unit installed above traffic signs on pedestrian crossings. LEDs automatically flash left and right, when pedestrians are detected by movement sensors. Power can be supplied via solar cell/battery (no cables in the roadway required) or alternatively through mains connection.

LEVELITE – flush-mounted guidance system with LED

LEVELITE is a flush-mounted, optical guidance system with LEDs. The LED modules protrude no more than 3 mm above the road surface and can therefore be traversed without sustaining damage, even by a snowplough. The modules are available for one- or two-way operation and in different colours. Various functions can be selected from a control unit.

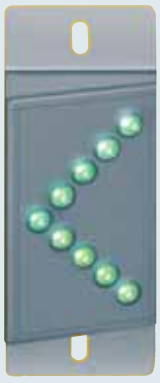
SIGNFLASH flashing unit with
movement sensor increases the safety
at pedestrian crossings

LEVELITE cannot be damaged by snowploughs

SWAROEXIT can be installed with an optional
flashing module with ultra-bright LEDs which is
activated in an emergency and is visible
from a great distance, even in dense smoke.

SIGNFLASH A630 – Solar
Flashing LED unit, width 630 mm,
integrated control unit and battery

LEVELITE module
6 LEDs per side, one- or two-way
Colours: white, red, yellow, green or blue
Dimensions installation canister: Ø 130 mm,
depth 60 mm, maximum height of
LED modules above road surface: 3 mm



SWAROEXIT arrow module with 9 LEDs
SWAROEXIT module 197 with 2 x 6 LEDs
Housing: stainless steel A4 1.4571

SWAROLINE - lane indicator system for tunnels and galleries

A SWAROLINE system uses one or more control units, depending on the length of the tunnel, to control LED modules. Energy to the modules is transferred through cable or via an inductive system. These modules should ideally be installed on the kerb or tunnel wall.

The modules are equipped with highly intensive white, red, yellow, green or blue LEDs. The brightness of the LEDs can be adjusted. Switchover from daytime operation (high light intensity) to night operation (reduced light intensity) takes place automatically.

Power supply: mains or solar. SWAROLINE uses very little energy. The annual energy consumption for a 300 m long tunnel amounts to approx. 200 kWh.

SWAROLINE module 100
6 LEDs per side, one- or two-way
Colours: white, red, yellow, green or blue
Dimensions: 100 x 105 x 19 mm

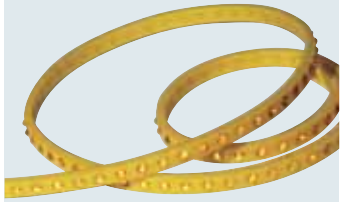
SWAROLINE module 220
6 LEDs per side, one- or two-way
Colours: white, red, yellow, green or blue
Dimensions: 220 x 100 x 40 mm

Products for special applications

Reflective, elastic textile bands

Art. 6300 reflective band
elastic, width 49 mm
4 glass elements per row

Reflective, flexible plastic bands for various road markings

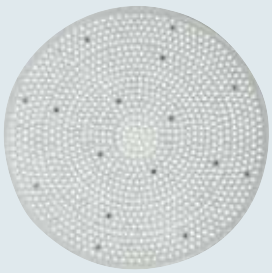


Art. 3100 reflective band
flexible, width 7.5 mm
one row of glass elements

Art. 3110 reflective band
flexible, width 15 mm
two rows of glass elements

Reflectors for the railway

Art. 3180 rectangular insert for switch signal with aluminium sheet
Art. 3181 rectangular insert for switch signal without aluminium sheet
102.3 x 97 mm, 364 glass elements



Art. 3190 round insert for switch signal with aluminium sheet
Art. 3191 round insert for switch signal without aluminium sheet
Ø 211 mm, 1132 glass elements

Glass reflectors for opto-electronic controls

These reflectors are fitted with triple prisms and can withstand high temperatures (140°C constant temperature stability), are highly scratch and impact-proof, and have excellent resistance to the effects of chemicals and steam. All reflectors can be supplied with dispersion ranges of 0.5°, 1.0° or 1.5°.

Art. 8429, reflector for
opto-electronic controls,
Ø 86 mm, 156 triple prisms

Art. 8464, reflector for
opto-electronic controls,
Ø 28.8 mm, 19 triple prisms

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SWAREFLEX®
lights the way to safety

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