edilon)(sedra SDS-M
(Sound Damping System - Modular)

Always a step ahead in rail systems!

www.edilonsedra.com
General information concerning

edilon)(sedra SDS-M Sound Damping System - Modular
Principles, Function, Materials used and Performance

Expertise where it matters

edilon)(sedra offers products and systems that won’t shake the world. Railway transportation is an indispensable part of modern society, which has to meet environmental regulations for noise and vibration. Not only can edilon)(sedra provide resilient solutions to meet noise and vibration limits, the products are designed for durability. Floating slab track and isolated track can be constructed using slab track mats, strips or bearings. Sub Ballast Mats (SBM) are available for ballasted track. However, edilon)(sedra track experts are always available to assist in custom-made solutions at any time.

edilon)(sedra is also offering comprehensive services such as:

- engineering
- consultancy
- vibration attenuation & insertion loss (dB) prognosis
- acoustic studies
- implementation / installation
- installation training
- on-site supervision
- on-site inspection

edilon)(sedra SDS-M Sound Damping System - Modular is a cost effective, electrical insulating, vibration attenuation (dBv) and airborne noise (dBA) reducing solution for light rail and in particular tramway applications, easy & quick to install. Two installation methods can be used: TopDown or BottomUp. For the TopDown installation method, edilon)(sedra provides specially designed SDS-M Track Alignment Portals (TAP).

edilon)(sedra SDS-M is perfectly designed for Top Down installation method and requires for normal track conditions neither gauge bars nor rail anchoring.

edilon)(sedra SDS-M is designed as a rail fastening system for light rail to be used for optimum integration in:

- grass track (not accessible track areas)
- paved track areas, cobble stones or imprint concrete (for pedestrians and bicycles)

- paved-in track with concrete top surface or with asphalt top surface (for bus lanes and in-street use)
- level crossings with reinforced side walls (for transverse road traffic)
- to construct cost effective embedded rail system combined with high performance Floating Slab Track system (Trackelast® FST)

edilon)(sedra SDS-M can be adapted to different elasticities and can also, for special track applications and demands, be factory-prepared to fit rectangular or round shape gauge bars and rail anchors, i.e. edilon)(sedra ISO rail anchoring system. If necessary SDS-M can be a part of level crossings and sharp curved track areas.

- SDS-M Standard Elasticity for electrical track insulation and regular vibration attenuation demands, the perfect answer for grass track applications and level crossings for pedestrians and bicycles.
- SDS-M Medium Elasticity for electrical track insulation and high vibration attenuation demands
- SDS-M High Elasticity as the improvement in design & function, with edge protection profile, for electrical track insulation, high vibration attenuation and ideal for the use in level crossings with high frequent / high load traffic such as heavy trucks and busses or for higher track deflection for highest vibration attenuation demands.

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edilon)(sedra SDS-M solutions

SDS-M Standard Elasticity

SDS-M Medium Elasticity

SDS-M High Elasticity
edilon)(sedra SDS-M Standard Elasticity is designed for the use in light rail systems to electrically insulate the track and to give regular vibration attenuation.

The edilon)(sedra SDS-M Strip (rail clamping strip) is made of a compound of high grade, specially selected, recycled rubber material and polyurethane material as the bonding agent. The density of the high compacted material is > 1.0 kg/dm³, which makes it nearly waterproof (water absorption is < 1%, measured acc. to DIN 52104-A).
edilon)(sedra SDS-M Fillerblocks provide lateral stability and lateral vibration attenuation (dBv) as well. The SDS-M Fillerblocks are specially designed for anchoring in concrete. SDS-M Fillerblocks are heat resistant up to about 250°C. It goes without saying, that SDS-M Fillerblocks and rail foot profiles are freeze-thaw salt resistant. As an additional benefit SDS-M Fillerblocks provide an impressive amount of airborne noise (dBA) reduction.

Both, the SDS-M rail foot profiles and Fillerblocks are manufactured in length of > = 1.200 mm, to limit the amounts of joints.

edilon)(sedra SDS-M rail foot profile and Fillerblocks are 100 % recyclable.

edilon)(sedra SDS-M Standard Elasticity is designed as a rail fastening system for light rail, to be used for optimum integration in:

- grass track (not accessible track areas)
- paved track areas, cobble stones or imprint concrete (for pedestrians and bicycles)
- paved-in track with concrete top surface or with asphalt top surface (for bus lanes and in-street use)

edilon)(sedra SDS-M can, for special track applications and demands, be factory-prepared to fit rectangular or round shape gauge bars and rail anchors, i.e. edilon)(sedra ISO rail anchoring system, for light traffic level crossings and sharp curved track areas.

SDS-M Standard Elasticity is for electrical track insulation and regular vibration attenuation demands, the perfect answer for grass track applications and level crossings for pedestrians and bicycles.

Please ask for detailed information such as product and/or system information sheets.
edilon)(sedra SDS-M Medium Elasticity

edilon)(sedra SDS-M Medium Elasticity is designed for the use in light rail systems to perfectly electrically insulate the track and to provide higher amount of vibration attenuation (dBv).

edilon)(sedra resilient SDS-M strip –clamping strip– is made of high grade polyurethane material with outstanding low dynamic to static stiffening ( < 1.2 ). The water absorption is extremely low (± 1%). The electrical insulation of the material is impressively high.
SDS-M Fillerblocks provide lateral stability and lateral vibration attenuation (dBv) as well. SDS-M Fillerblocks are specially designed for anchoring in concrete. SDS-M Fillerblocks are heat resistant up to about 250°C. It goes without saying, that SDS-M Fillerblocks and rail foot profiles are freeze-thaw salt resistant. As an additional benefit SDS-M Fillerblocks provide an impressive amount of airborne noise (dBA) reduction. Both, the SDS-M rail foot profiles and Fillerblocks are manufactured in length of \( > = 1.200 \text{ mm} \), to limit the amounts of joints.

edilon)sedra SDS-M rail foot profiles and Fillerblocks are 100% recyclable.

edilon)sedra SDS-M Medium Elasticity is designed as a rail fastening system for light rail, to be used for optimum integration in:

- grass track (not accessible track areas)
- paved track areas, cobble stones or imprint concrete (for pedestrians and bicycles)
- paved-in track with concrete top surface or with asphalt top surface (for bus lanes and in-street use)

edilon)sedra SDS-M can, for special track applications and demands, be factory prepared to fit rectangular or round shape gauge bars and rail anchors, i.e. edilon)sedra ISO rail anchoring system, i.e. for level crossings and sharp curved track areas.

edilon)sedra SDS-M Medium Elasticity is for electrical track insulation and high degree of vibration attenuation demands, the perfect answer for in-street, grass track and level crossings for pedestrians and bicycles applications.

Please ask for detailed information such as product and/or system information sheets.
edilon)(sedra SDS-M

SDS-M High Elasticity

SDS-M High Elasticity is an improvement in design, function and performance

I Heavy Duty Level Crossing
II Highly durable
III More flexible

<table>
<thead>
<tr>
<th>edilon)(sedra SDS-M High Elasticity</th>
<th>edge protection profiles</th>
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<tbody>
<tr>
<td>edilon)(sedra Corkelast® rail joint sealant along the rail head</td>
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<tr>
<td>resilient strip for improved vibration insulation (only in combination with I+II)</td>
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edilon)(sedra SDS-M High Elasticity is designed as a rail fastening system for light rail, to be used for optimum integration in level crossings with reinforced side walls (for transverse road traffic) and all kinds of paved-in track as additional applications.

Please ask for detailed information such as product and/or system information sheets.
SDS-M is the perfect combination of the cost effective SDS-M system with edilon)(sedra Trackelast® slab track mats (STM) to create a high performance floating slab track system (FST) tuned to the lower resonance frequencies

- cost effective rail fastening system
- easy and quick to build
- effective PU based joint sealant material (edilon)(sedra Jointelast VA-15 / VA-25) suitable for higher track deflection (up to 5 mm)
- fully electrical insulating
- resonant frequency of the floating slab track system (FST) tunable to lower frequencies
- generates highest level of vibration attenuation (dB)

Please ask for detailed information such as product and system information sheets, Trackelast® FST, Floating Slab Track (Mats, Strips & Bearings) brochure and reference-lists.
edilon)(sedra provides resilient Fillerblocks for S&C applications for the following rail types: 59R2, 60R2, 62R1, 67R1, 76C1, 105C1, 310C1, Ri59, Ri60, VKRi60 and other types as well, upon request. These resilient Fillerblocks are available in two basic designs:

1. with height up to the top of the rail (TOR), consequently no rail joint sealant material is required
2. with height up to the underside of the rail head to allow resilient rail joint sealant material, either Jointelast, bituminous material (hot pour) or edilon)(sedra Jointelast-STP (15, 25) (cold pour).

To allow a specific track deflection and perfect electrical insulation against stray current, various types of well proven edilon)(sedra Cork elast® polyurethane based materials are available to underpour the rails.
edilon)(sedra SDS-M can be installed easily and quickly. No special (heavy duty) equipment is required. edilon)(sedra SDS-M Track Alignment Portals (TAP) are to be used for the correct track alignment when using the TopDown installation method, as the preferred installation method. SDS-M TAP and a specially designed Fillerblock cutter can be supplied by edilon)(sedra.

Detailed installation instruction manuals, training plans and on-site training can be provided by edilon)(sedra as well, to ensure correct installation and consequently highest track quality.
edilon)(sedra is fully equipped with all necessary state-of-the-art test equipment to carry out performance tests, static tests, dynamic tests, fatigue tests, physical tests, mechanical tests, chemical tests, etc. to ensure highest constant quality of the products and systems.
Lateral track adjustment is performed by small wedges onto the new Fillerblocks. Thermit or box welding re-establishes the continuous welded rails. Treatment of the surfaces and pouring the self-levelling and quickly curing edilon)(sedra Jointelast elastomer on both sides of the new rails completes the installation process.

Replacement of SDS-M by ERS can be performed as many times as the quality of the concrete channel allows. With respect to this, the durable edge protection profiles of SDS-M High Elasticity offers even better future expectations than the conventional SDS-M systems.

When the lifetime of edilon)(sedra SDS-M has come to an end – in particular the rail – renewal has to be performed. Since the installation of edilon)(sedra SDS-M creates durable channels in the concrete slab, these channels are right-away suitable for installation of another high-quality rail fastening system, namely edilon)(sedra ERS.

It has been proven that this exchange of systems causes minimum disruption of both rail and road traffic.

The renewal in paved-in track starts with the creation of pockets for cutting the rails, and later for thermit or box welding. In an experimental set-up, this renewal process has been tested and approved for in-situ use.

SDS-M is cut with a disk-knife along the walls till the resilient clamping strip. Then a mobile crane or digger lifts the worn rail from the channel. After cleaning a new resilient strip is installed into the concrete channel and the rail is directly placed onto it, as track level is not changed.
References

Vélez-Málaga Tram (ES)

Blackpool Tram (UK)

Warsaw Tram (PL)

25 years anniversary
1990 - 2015

Inventors of recycled rubber filler blocks
for light rail tracks