

Stered[®] -解决音响和热力绝缘的世界

Stered, 斯洛伐克的独特技术

优秀的再循环合成纺织品

Ing. Juraj Plesník
PR Krajné, s.r.o.

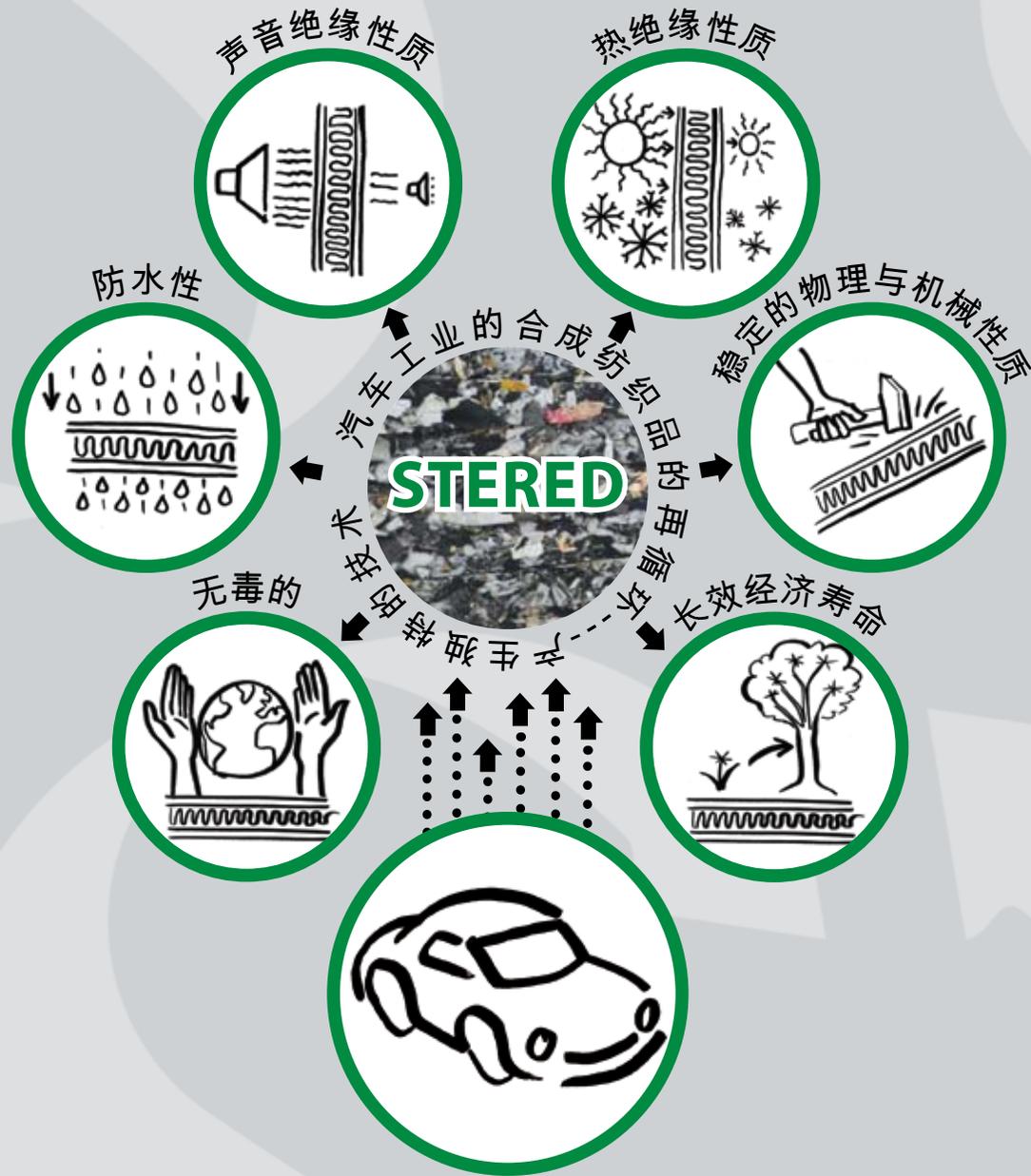


我们的项目符合欧洲指导方针

- 根据欧洲议会与理事会的法令修正与补充条款，在汽车寿命到期后所采用的2000年9月18日的文件2000/53/ES
- 欧洲议会和理事会指导的文件2008/98/ES应该是帮助欧盟实现“再循环社会”的要求：
该社会致力于预防废料的产生以及把废料转为原料来源。
- 欧洲使团的能源效益行动计划
 - Stered 生产所需的低能耗要求 (每吨产品3GJ)
与用玻璃和石头来生产绝缘材料不同，STERED公司可以节省2到5倍的能源。
 - STERED 公司用于生产的建筑产品可以降低热能消耗
- 欧盟在噪音方面的指导文件2003/10/EC
 - 根据优秀与特别的音响参数，在防止噪音措施方面，STERED 公司可以提供广泛应用的产品。

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技术纺织品参数



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一种独特技术的开端

STERED 是一个综合的生产线，它旨在为汽车构造中使用的技术纺织品的回收材料进行再循环。该生产线可以加工各种组合材料，因此，不仅在欧洲的框架内，在其他州也是第一流的技术。

PR Krajné, s.r.o. 公司成立于2006年，Ing. Juraj Plesník 为汽车生产工业纺织品废料回收问题提供了工程解决方案。作为合作方，Ing. Juraj Plesník 和布拉迪斯拉发 Luka&Bramer, a s., 集团的强有力的金融伙伴。

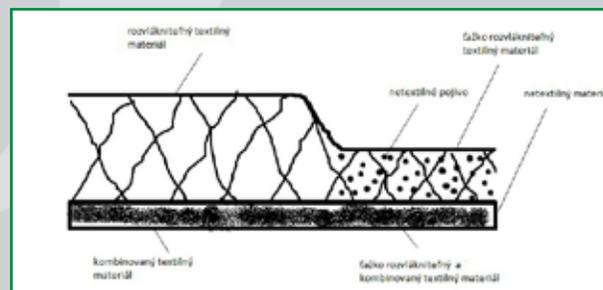
STERED综合加工流水线是 Juraj Plesníka 和 Jozef Zlámala两位作者的结晶，根据他们当初的主意，RS II 纤维分离机是作为流水线基础，由Ústav textilnej techniky, š.p. Bratislava (布拉迪斯拉发纺织品技术公司) 开发，随之创新而出。

Výskumný ústav chemických vlákien 股份公司，位于Svit地区，作为STERED加工线的总提供商。它与供货商 MK Kodreta, s.r.o. Myjava 有着密切的合作关系。

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加工技术是受到专利保护的。

用于汽车构造的技术纺织品特点就是对付难以成纤维的复杂材料，因此不能用后来的纺织品加工。



STERED公司的生产是对汽车工业的合成纺织品进行机械再循环，并受到专利保护。

STERED公司生产体系

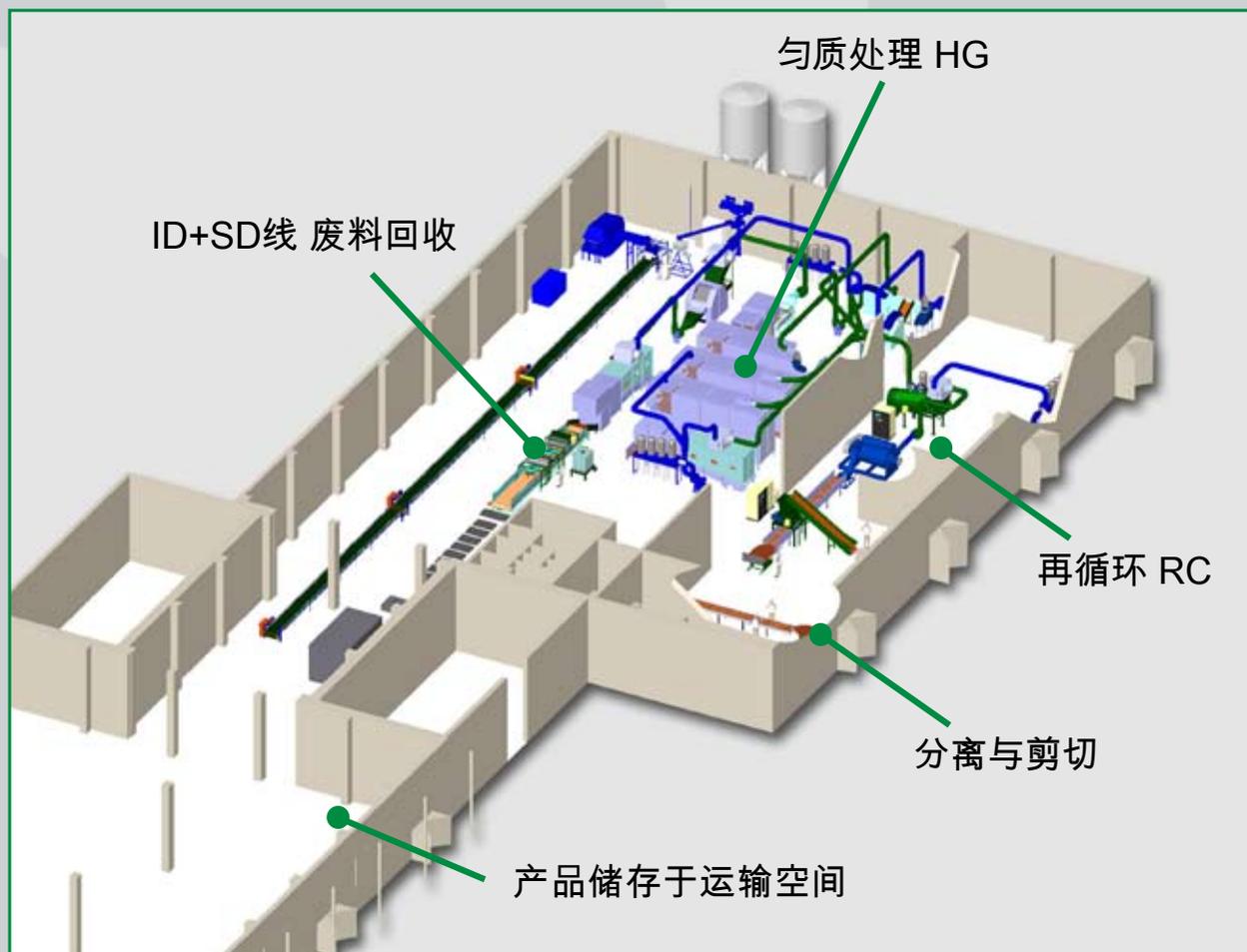


为汽车部件的纺织品加工 STERED公司产品的能源要求是1公斤 ≤ 1 kWh

材料增值的流程



汽车纺织品回收技术 PR Krajné 第一个加工工厂

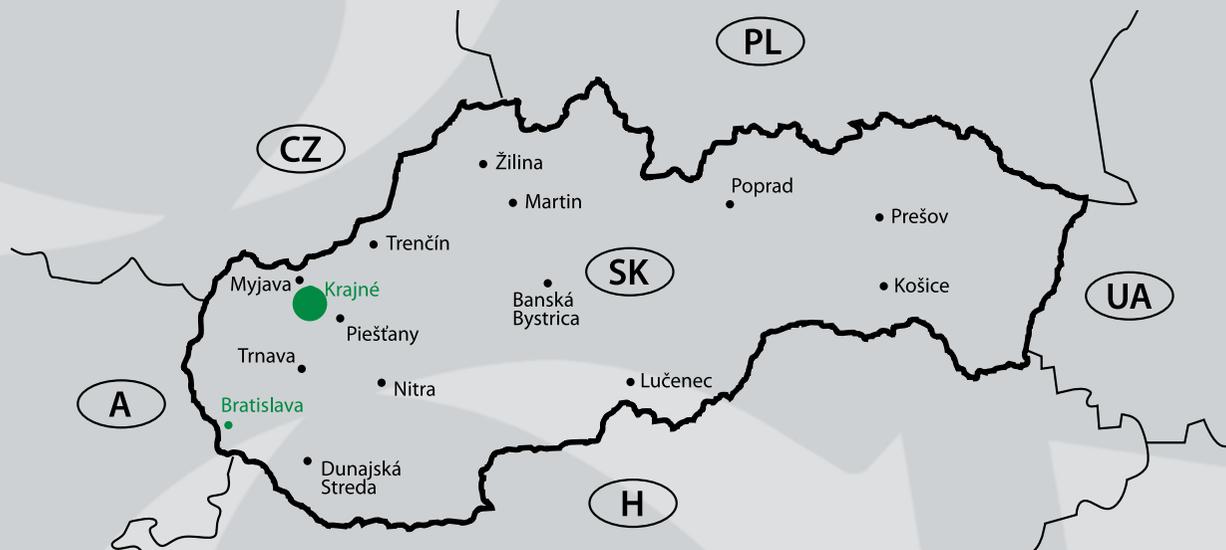


项目参数

- 加工流水线的 购买支出大约是 3 500 000欧元，用于已知的配置
- 加工流水线要求三班操作，每年的纺织品和纺织碎屑可以回收3500吨，也就是，生产1 000 000辆新车的废料，是100 000辆报废汽车以及20 000吨的轮胎
- 用于已知的生产力，输入投资的回报大约为4年。
- 已知规模的加工流水线可以由25人一个班来承担。
- 生产技术的维修间隔大约是24个月
- 生产面积最少为 2500 m²
其他储藏和服务面积最小为 2000 + 2000 m²

加工工厂的布局

- 根据可接受的输入原材料后勤消费水平确定地点的选择。斯洛伐克的汽车生产商位于不到100公里的距离
- 公司位于未使用的棕色地带，作为生产地区



- 公司雇佣其他地区的公司为建筑和技术支持解决专家，以及具有技术和加工背景的人员

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产品

STERED 产品增值输入材料的性质（包括热绝缘性质，音响绝缘性质，防止震动性质，固体性，稳定性，等），其回收性质是：即使原产品（即，汽车）寿命到期以后也不会改变。

STERED S ---绝缘纤维化合物是由建筑材料生产而来。

STERED, 无需粘合剂，分布松散。化合物可以由聚丙烯，聚酯，聚酰胺以及聚氨基甲酸酯的纤维组成。它用在震动和散播。这个产品就是打算用在热绝缘和音响绝缘上，特别是用在内部零件以及屋顶空间地板，基本上是在屋顶构造上，没有蒸汽的障碍，也用在框架结构上的地板。



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产品

STERED ID – 用建筑材料作绝缘板，加入聚氨酯粘合剂。化合物可以由聚丙烯，聚酯，聚酰胺以及聚氨酯的纤维组成。关于音响绝缘的必要价值，产品可以解决噪音问题。它在减少已知环境的动态压力方面是非常有效的。例如：地板绝缘

STERED ID - K,G,F... 采用基础绝缘板，一来可以加强阻断火势蔓延，二来可以形成空气隔音，其橡胶板是用再循环材料制成，以加强吸收震动。



用数字表示的产品参数

- 音响绝缘参数

STERED ID 还表明了在中频或低频范围内的高吸收率。保持了非常满意的吸收。音响吸收的频率特性是交通噪音的频谱，鉴于STN EN 1793-3文件，证实了这种材料作为减少交通噪音，且具有高吸收程度---A4类，适合于防噪音障碍的构造。

- 震动吸收板

STERED ID 甚至具有较高的特殊价值 $250-300 \text{ kg/m}^3$ ，震动吸收的良好效果，材料总量即使在动态负载时也保持了同时的压缩特性。

- 热绝缘参数

STERED S 不需要粘合剂，也可以用于垂直和水平的散播绝缘，例如， 60 kg/m^3 就是 $\lambda = 0,047 \text{ W/mK}$

STERED ID 作为特定质量的绝缘板 $150 - 300 \text{ kg/m}^3$ 平均值为 $\lambda = 0,047 - 0,0585 \text{ W/mK}$ 。

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Stered®

SK – Declaration of Conformity

CSK

The undersigned, as a representative of the manufacturer
PR Krajiné, s. r. o., Pribinova 25, 811 09 Bratislava
manufacturing plant: PR Krajiné, s. r. o., 916 16 Krajiné, No. 874

hereby declares that the product **thermal and sound insulation products made from recycled synthetic materials joined by polyurethane-based adhesive**

type: Boards STERED-ID (STERED-ID 150, STERED-ID 200, STERED-ID 250, STERED-ID 300)

is in conformity with the provisions of Act No. 90/1998 Coll. on construction products as amended if being built-in according to the assembly manual of the Technical Sheet and the product with its manufacturing process is subject to Technical Certificate No.

TO – 13/0010 thermal and sound insulation products made from recycled synthetic materials joined by polyurethane-based adhesive.

The initial tests have verified the following:

Table 1 – Type: STERED-ID

Property	Declared value or class	Test Report Number	
Reaction to Fire (AO) ¹⁾	E	FIRES-RF-129-12-AUNS ²⁾ FIRES-RF-008-13-AUNS FIRES Batizovce	
Emission of harmful pollutants	NPD	-	
Short-term rate of absorption by partial immersion (AO)	max. 13.0 kg/m ²	40-12-0655, 40-12-0656, 40-12-0657, 40-12-0658 ¹⁾ TSÚS, testing site (hereinafter referred to as the "SP") Nitra	
Long-term rate of absorption by partial immersion (AO)	max. 17.0 kg/m ²		
Water vapour permeability - diffusion resistance factor	max. 4 (-)		
Sound absorption capacity	STERED-ID 150	B	
	STERED-ID 200	A	
	STERED-ID 250	A	
	STERED-ID 300	B	
Dimensions	permissible variations in length	max. ±5 mm	
	permissible variations in width	max. ±5 mm	
	permissible variations in thickness	max. ±3 mm	
Rectangularity	max. 5 mm/m	40-12-0655, 40-12-0656, 40-12-0657, 40-12-0658 TSÚS, SP Nitra	
Flatness	max. 6 mm		
Dimensional stability under certain conditions	permissible variations in length and width	±1 %	
	permissible variations in thickness	±4 %	
Compressive stress at 10% compression	min. 15 kPa		
Deformation at defined pressure and temperature	max. 22 kPa		
Vertical tensile strength	STERED-ID 150	min. 30 kPa	40-12-0655, TSÚS, SP Nitra
	STERED-ID 200	min. 30 kPa	40-12-0656, TSÚS, SP Nitra
	STERED-ID 250	min. 30 kPa	40-12-0657, TSÚS, SP Nitra
	STERED-ID 300	min. 15 kPa	40-12-0658, TSÚS, SP Nitra
Heat transfer – heat transfer coefficient	STERED-ID 150	0,050 W/(m.K)	40-12-0647, TSÚS, SP Nitra
	STERED-ID 200	max. 0,054 W/(m.K)	40-12-0648, TSÚS, SP Nitra
	STERED-ID 250	max. 0,061 W/(m.K)	40-12-0649, TSÚS, SP Nitra
	STERED-ID 300	max. 0,077 W/(m.K)	40-12-0650, TSÚS, SP Nitra

Property	Declared value or class	Test Report Number	
Compressibility	STERED-ID 150	max. 3 mm	40-12-0655, TSÚS, SP Nitra
	STERED-ID 200	max. 4 mm	40-12-0656, TSÚS, SP Nitra
	STERED-ID 250	max. 5 mm	40-12-0657, TSÚS, SP Nitra
	STERED-ID 300	max. 5 mm	40-12-0658, TSÚS, SP Nitra

Product description and purpose and method of its use in construction:

Thermal and sound insulation products STERED-ID are manufactured from recycled mixture of synthetic materials created from deburring of synthetic waste of textile vehicle parts. Such waste may contain polypropylene, polyester, polyamide, and polyurethane fibres.

STERED-ID type is manufactured by joining the recycled mixture using polyurethane-based adhesive Elasthan manufactured by BASF in the form of boards in four volumetric weights with the subtype labelling: STERED-ID 150, STERED-ID 200, STERED-ID 250 and STERED ID 300.

No burning inhibitors are used to limit the flammability.

Volumetric weight of the product subtypes:

- STERED-ID 150	150 kg/m ³
- STERED-ID 200	200 kg/m ³
- STERED-ID 250	250 kg/m ³
- STERED-ID 300	300 kg/m ³

Dimensions:

length: 1 200 mm 500 mm
width: 600 mm 500 mm
thickness: 30 mm; 50 mm; 60 mm

Application: Thermal and sound insulation of interior and exterior vertical structures, interior and exterior horizontal structures.

Name and address of the authorized laboratories performing the tests:

- 1) Technický a skúšobný ústav stavebný, n. o., (Building Testing and Research Institute, non-profit organization), accredited testing laboratory S-045, testing site in Nitra, Braneckého 2, 949 01 Nitra, Slovak Republic
- 2) FIRES s.r.o., accredited testing laboratory 041/S-159, Osloboditeľov 282, 059 35 Batizovce,
- 3) Centrum stavebného inžinýrství a. s., pracovisko Zlín – accredited testing laboratory of gap filling, construction thermal technology and acoustics



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IČ DPH: SK2022264497
odd. zriaďovacieho úradu: 4136e/18

Name: Ing. Juraj Plesnik
Title: Company Executive
Date: 26 February, 2013

Signature:
Stamp:

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Stered®

STERED ID 200

INSULATING BOARD



Product Data Sheet

• PRODUCT DESCRIPTION

The product is made of the new constructional insulating material Stered®, designed for antivibration, thermic and acoustic insulating solutions, of PUR (polyurethane adhesive) binding, on the basis of patented mechanical recycling of the synthetic textile material used in car industry.

Stered ID 200 board contains 200 kg/m³ of this new insulating material. Its standard measures are 1200 mm x 600 mm, with thickness of 50 mm. In case of the customer's demand the producer can realize additional surface finishing able to prevent from fire propagation..

• BASIC CHARACTERISTIC

Declared value of thermal conductivity:

$\lambda = 0,054 \text{ W/mK}$

Declared value of noise absorption / class of noise absorption:

0,90 Hz/A

Declared value DL α regarding absorption of roadway noise:

13 dB/ category A4

• WHY EXACTLY STERED®?

- ✓ unique constructional insulating material for solving the noise problems
- ✓ very effective for solving of dynamic environment inhibition and vibrations
- ✓ very favourable thermic and acoustic insulating qualities
- ✓ consists of more than 90% synthetic materials
- ✓ long life-cycle thanks to physical and mechanical characteristics stability
- ✓ extraordinary resistance to moisture
- ✓ measure stability
- ✓ cost saving
- ✓ easy, quick and simple assembly operations without need of technology knowledge or special craftsmanship
- ✓ no use of protective means, since the material is human body friendly
- ✓ nontoxic, resistant to moulds and rodents
- ✓ in case of a roof destruction as a result of some climatic anomalies, it is possible to extract the material used, to dry it, and to reuse it without risks of shape changes, with preserving of the original qualities
- ✓ design element

• APPLICATION FIELD

Stered ID 200 Board offers yet not known parameters of acoustic absorption with preserving comparable parameters of thermal and acoustic insulation. In this way the insulating plate offers new possibilities of utilization for particular building systems (barriers, acoustic panels, sound absorbing walls etc.):

- ✓ in new and reconstructed apartments and houses
- ✓ in industrial plants to acquire normative parameters of noise and for energy saving
- ✓ to reduce noise of running in shopping centres and industrial administrative buildings
- ✓ in infrastructure as inseparable part of concrete anti-noise walls with preserving economic and esthetic forms and heights of, for example, concrete barriers, and reduce of noise in compliance with noise parameters regulations,
- ✓ wherever normative parameters of noise and vibrations are required.

Discover the World of Stered

The World of Acoustic and Thermal Insulation Solutions

Headquarters : PR Krajiné, s.r.o., Krajiné 874, 916 16 Krajiné

Production Plant: PR Krajiné, s.r.o., Krajiné 874, 916 16 Krajiné

Stered®

STERED ID 200

INSULATING BOARD



Product Data Sheet

• PHYSICAL PROPERTIES

Property	Unit	Value
Material Thickness	mm	50
Format	mm	1200 x 600
Area of the Board	m ²	0,72
Weight of the Board	kg	7,2
Nominal density	kg/m ³	200
Packing	Pcs. / m ² / kg	32 / 23,04 / 230,40
Thermal conductivity λ	W/m.K	0,054
Sound absorption directly mounted α_w	-	0,90
Declared value DL α regarding absorption of roadway noise	dB	13/A4
Compressive stress at 10% Compression	kPa	20,3
Vertical tensile strength	kPa	32,2
Short-term rate of absorption by partial immersion (AO)	kg/m ²	11,8
Long term rate of absorption by partial immersion (AO)	kg/m ²	13,4
Compressibility	mm	3,68
Water Vapour Permeance μ	-	2,9
Hygienic Harmlessness	-	According to respective regulations
Reaction to fire	-	E
Application	-	Thermal and sound insulation of interior and exterior vertical structures, interior and exterior horizontal structures. Industry Infrastructure, Design

• PACKAGING

Stered ID 200 plates are packed on palettes in polyethylene foil labelled with the producer's identity, basic technical parameters and recommended application of the product

• APPLICATION

Semi-rigid plate Stered ID 200 is applied in assembled bars similarly as the products based on glass or mineral wool, whereas it is also possible to take advantage of its docking capacity. As an acoustic adsorber (advanced acoustic wall, anti-noise wall, noise absorbing covering of interior spaces) it is stuck directly on a wall with adhesives based on acrylate or polyurethan; in case of higher degree of stress the plate can be mechanically docked to the substrate.

External face construction (SDK, DTD plate) can be also stuck with the same adhesive on the Stered ID 200 plate. Face construction can be also created directly on the Stered ID 200 plate as colour surface coating or structured plastering, without impacts on the acoustic parameters. The design in question should be consulted with the producer. As for a floor realizing, the Stered ID 200 plate can be used as thermic insulation and simultaneously as steps absorbing material (Zv1). In case of light floors it can substitute a spread layer

• SERVICE

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STERED 的工业应用

1. 墙面声音吸收



2. 顶部声音吸收



3. 内装饰的声音吸收



4. 护墙的声音吸收



5. 其他应用：

防噪音舱，机器或楼房的防震动固件，防震动地板

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STERED 在交通基础设施上的应用



1. 防噪音墙



2. 防噪音障碍



3. 防震动板



4. 噪音和震动吸收器



TRADEPETROL



MACCAFERRI

5. 石笼噪音吸收墙



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STERED 屋

房内汽车-----汽车件组合房



Stered® - 解决音响和热力绝缘的世界

奖品



Stered[®] -解决音响和热力绝缘的世界

谢谢关注

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