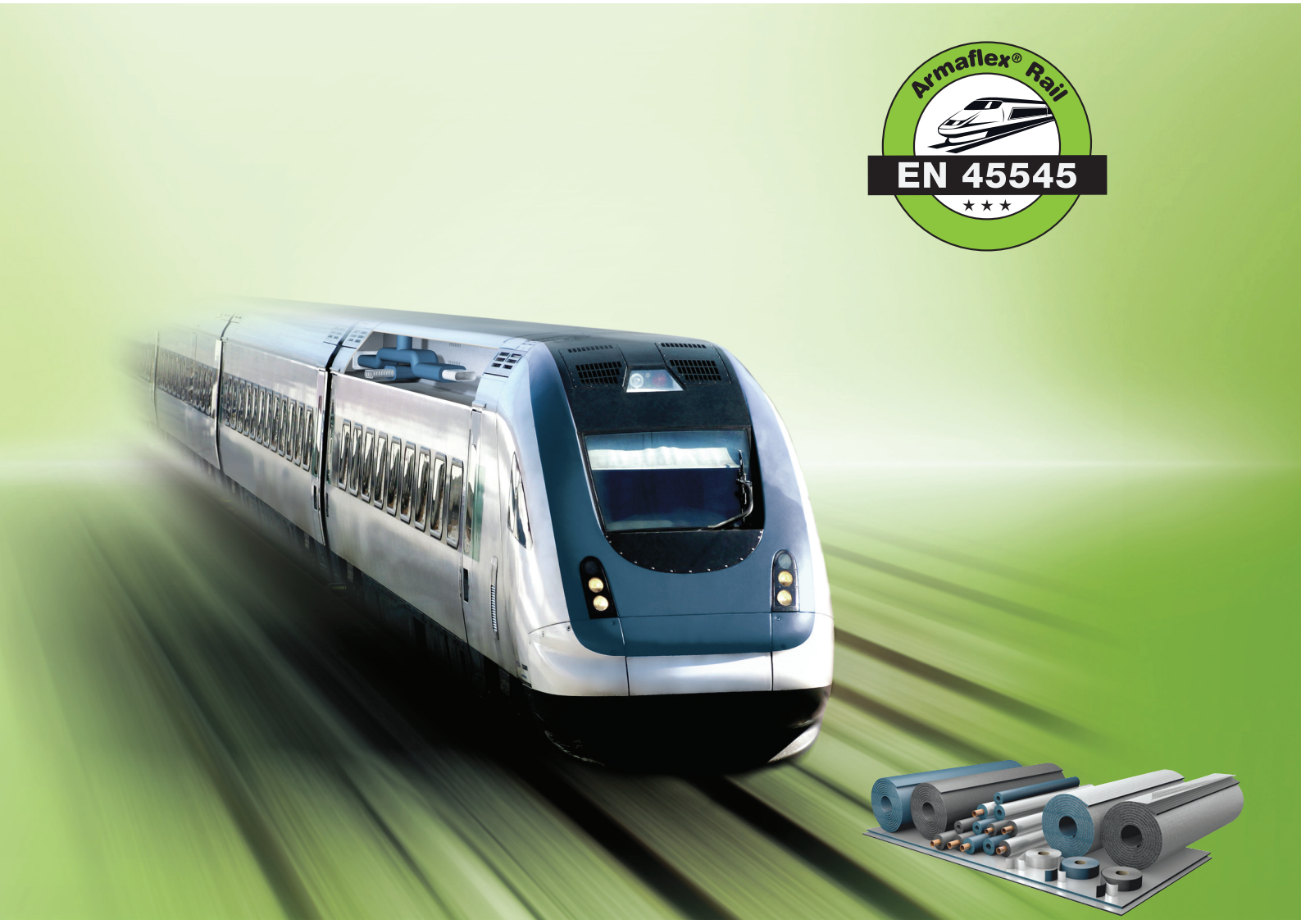
Armaflex® Rail

FIRST-CLASS IN TRAINS



- Advanced fire protection for railway vehicles: hazard level 2 & 3 according to EN 45545
- Effectively prevents moisture penetration
- High flexibility ensures ease of installation

Technical Data - Armaflex Rail SD

Brief description	Highly-flexible, closed-cell insulation foam with improved fire retardant properties, low smoke generation and in-built Microban® antimicrobial protection for railway vehicles.
Material type	Elastomeric foam based rubber; manufactured with Armaprene® patented technology; US patent no. 8 163 811, EU patent no. 2 261 305
Colour	Blue
Material Special Information	The pressure-sensitive adhesive coating is based on modified acrylate basis with mesh structure and covered with polyethylene foil. Traces of silicon can be found on the protection paper/foil used to protect self-adhesive closures.
Applications	Insulation / protection for air ducts and pipes (incl. elbows, fittings, flanges etc.) of air-conditioning / refrigeration to prevent condensation
Remarks	Armaflex® Rail SD is not designed for transparent insulation applications (exposed to sun light) and is not UV stable.

Property	Value/Assessment				Test*1	Special Remark
Temperature Range						
Temperature Range	max. service temperature	+ 110 °C		(+ 85 °C If sheet or tape is glued to the object with its whole surface)	EU 5654	Tested acc.to EN 14706, EN 14707 and EN 14304
	min. service temperature	-50 °C				
Thermal Conductivity						
Thermal Conductivity	ϑ_m +/-0	°C	λ=		EU 5654	Declared acc. to EN ISO 13787 Tested acc. to EN 12667 EN ISO 8497
	λ ≤ 0,040	W/(m · K)	$[40 + 0{,}1 \cdot \vartheta_m + 0{,}0009 \cdot \vartheta_m^2]/1000$			
Water vapour diffusion resistance						
Water vapour diffusion resistance	μ	≥	5.000		EU 5654	Tested acc. to EN 12086 and EN 13469
Fire performance						
Reaction to fire	Hazard level	HL2, R1 (3 mm sheets & tape: HL3, R1)			EU 5838 EU 5786 EU 6268 EU 6422	Declared acc. to EN 45545-2
	Fire behaviour and fire side effects	S4,ST2, SR2, FED < 1			D 5882	Classified acc to DIN 5510-2 Tested acc to DIN 54837
	Russian Federation Certificate of conformity	G1, V2, D2, T2, I1,8			RUS 6222	Declared acc to: GOST 12.1.044-89
	Burning behavoir for the use in motor vehicles (ECE Regulations)	Passed Annex 9, Passed Annex 6,7,8			D 5842 D 5612 D 5578	ECE R-118 p. 6-8, ECE -R18 annex.9
	NFPA 130 American fire test to railway components	I_s≤ 25	D_s(4,0) ≤100		D 5750 D 6314 D 5749 D 5748	Classified acc to NFPA 130:2014 Tested acc to ASTME E 162:20 ASTM E 662:2012
Other Fire Class						
Practical Fire Behaviour	Self-extinguishing, does not drip, does not spread flames					
Other technical features						
Dimensions and tolerances	In accordance with EN 14304, table 1				EU 5654	Tested acc. to EN 822, EN 823, EN 13467
Health aspects	Fulfill hygienically requirements of Russian Rail Industry				RUS 6567	
Storage & Shelf life	Self-adhesive tapes, self-adhesive sheets: 1 year					Can be stored in dry, clean rooms at normal relative humidity (50% to 70%) and ambient temperature (0 °C – 35 °C).

*1 Further documents such as test certificates, approvals and the like can be requested using the registration number given.

All data and technical information are based on results achieved under typical application conditions. Recipients of this information should, in their own interest and responsibility, clarify with us in due time whether or not the data and information apply to the intended application area. Installation instructions are available in our Armaflex installation manual. Please consult our Customer Service Center before insulating stainless steels.

Technical Data - Armaflex Rail SD-C

Brief description	Highly flexible, closed-cell pre-covered insulation foam with improved fire retardant properties, low smoke generation and in-built Microban® antimicrobial protection for railway vehicles.
Material type	Elastomeric foam based rubber with high-tech coating; manufactured with Armaprene® patented technology; US patent no. 8 163 811, EU patent no. 2 261 305, patent for multi-layer coating technology EP 2 522 502.
Colour	Blue with silver metallic look coating
Material Special Information	The pressure-sensitive adhesive coating is based on modified acrylate basis with mesh structure and covered with polyethylene foil. Traces of silicon can be found on the protection paper/foil used to protect self-adhesive closures.
Applications	Insulation / protection for air ducts and pipes (incl. elbows, fittings, flanges etc.) of air-conditioning / refrigeration to prevent condensation
Special Features	The covering offers an excellent durability even under UV exposure when used for outdoor applications. The insulation system is designed for easy cleaning.
Remarks	When dimensioning the insulation thickness please calculate with an external surface coefficient of 8 W/(m²·K).

Property	Value/Assessment				Test*1	Special Remark
Temperature Range						
Temperature Range	max. service temperature	+ 110 °C		(+ 85 °C If sheet or tape is glued to the object with its whole surface)		Tested acc.to EN 14706, EN 14707 and EN 14304
	min. service temperature	-50 °C				
Thermal Conductivity						
Thermal Conductivity	ϑ_m	+/-0	°C	λ=		Declared acc. to EN ISO 13787 Tested acc. to EN 12667 EN ISO 8497
	λ	≤ 0,040	W/(m · K)	$[40 + 0{,}1 \cdot \vartheta_m + 0{,}0009 \cdot \vartheta_m^2]/1000$		
Water vapour diffusion resistance						
Water vapour diffusion resistance	μ	≥	10.000			Tested acc. to EN 12086 and EN 13469
Fire performance						
Reaction to fire	Hazard level	HL3, R1			EU 6362 EU 6253	Declared acc. to EN 45545-2
Practical Fire Behaviour	Self-extinguishing, does not drip, does not spread flames					
Other technical features						
Tolerances	In accordance with EN 14304, table 1					
Storage & Shelf life	Self-adhesive tapes, self-adhesive sheets: 1 year					Can be stored in dry, clean rooms at normal relative humidity (50% to 70%) and ambient temperature (0 °C – 35 °C).

*1 Further documents such as test certificates, approvals and the like can be requested using the registration number given.

Technical Data - Armaflex Rail ZH

Brief description	Halogen free, flexible closed-cell insulation foam with improved fire retardant properties and low smoke generation for railway vehicles.
Material type	Elastomeric foam based on synthetic rubber.
Colour	Dark grey
Material Special Information	The pressure-sensitive adhesive coating is based on modified acrylate basis with mesh structure and covered with polyethylene foil. Traces of silicon can be found on the protection paper/foil used to protect self-adhesive closures.
Applications	Insulation / protection for air ducts and pipes (incl. elbows, fittings, flanges etc.) of air-conditioning / refrigeration to prevent condensation
Special Features	Without halogens (chloride, bromide) acc. to DIN / VDE 0472, part 815. Fulfils DIN 1988 Parts 200.
Remarks	Armaflex Rail ZH is not designed for transparent insulation applications (exposed to sun light) and is not UV stable.

Property	Value/Assessment				Test*1	Special Remark
Temperature Range						
Temperature Range	max. service temperature	+ 110 °C		(+ 85 °C If sheet or tape is glued to the object with its whole surface)		Tested acc.to EN 14706, EN 14707 and EN 14304
	min. service temperature	-50 °C				
Thermal Conductivity						
Thermal Conductivity	ϑ_m +/-0	°C	λ=			Declared acc. to EN ISO 13787 Tested acc. to EN 12667 EN ISO 8497
	λ ≤ 0,040	W/(m · K)	$[40 + 0{,}1 \cdot \vartheta_m + 0{,}0009 \cdot \vartheta_m^2]/1000$			
Water vapour diffusion resistance						
Water vapour diffusion resistance	μ	≥	1.000			Tested acc. to EN 12086 and EN 13469
Fire performance						
Reaction to fire	Hazard level	HL2, R1			EU 5816 EU 5857 EU5896 EU6665	Declared acc. to EN 45545-2
Practical Fire Behaviour	Self-extinguishing, does not drip, does not spread flames					
Other technical features						
Storage & Shelf life	Self-adhesive tapes, self-adhesive sheets: 1 year					Can be stored in dry, clean rooms at normal relative humidity (50% to 70%) and ambient temperature (0 °C – 35 °C).

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Technical Data - Armaflex Rail ZH-C

Brief description	Halogen free, flexible closed-cell pre-coverd insulation foam with improved fire retardant properties and low smoke generation for railway vehicles.
Material type	Elastomeric foam based on synthetic rubber with patented high-tech multi-layer coating; EU patent no. 2 522 502.
Colour	Dark grey with silver metallic look coating
Material Special Information	The pressure-sensitive adhesive coating is based on modified acrylate basis with mesh structure and covered with polyethylene foil. Traces of silicon can be found on the protection paper/foil used to protect self-adhesive closures.
Applications	Insulation / protection for air ducts and pipes (incl. elbows, fittings, flanges etc.) of air-conditioning / refrigeration to prevent condensation
Special Features	Without halogens (chloride, bromide) acc. to DIN / VDE 0472, part 815. Fulfils DIN 1988 Parts 200. The covering offers an excellent durability even under UV exposure when used for outdoor applications. The insulation system is designed for easy cleaning.
Remarks	When dimensioning the insulation thickness please calculate with an external surface coefficient of 8 W/(m²·K).

Property	Value/Assessment				Test*1	Special Remark
Temperature Range						
Temperature Range	max. service temperature	+ 110 °C		(+ 85 °C If sheet or tape is glued to the object with its whole surface)		Tested acc.to EN 14706, EN 14707 and EN 14304
	min. service temperature	-50 °C				
Thermal Conductivity						
Thermal Conductivity	ϑ_m +/-0	°C	λ=			Declared acc. to EN ISO 13787 Tested acc. to EN 12667 EN ISO 8497
	λ ≤ 0,040	W/(m · K)	$[40 + 0{,}1 \cdot \vartheta_m + 0{,}0009 \cdot \vartheta_m^2]/1000$			
Water vapour diffusion resistance						
Water vapour diffusion resistance	μ	≥	10.000			Tested acc. to EN 12086 and EN 13469
Fire performance						
Reaction to fire	Hazard level	HL3, R1			EU 6364 EU 5818	Declared acc. to EN 45545-2
Practical Fire Behaviour	Self-extinguishing, does not drip, does not spread flames					
Other technical features						
Storage & Shelf life	Self-adhesive tapes, self-adhesive sheets: 1 year					Can be stored in dry, clean rooms at normal relative humidity (50% to 70%) and ambient temperature (0 °C – 35 °C).

*1 Further documents such as test certificates, approvals and the like can be requested using the registration number given.

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