



nora[®] marine

High-performance IMO-certified floor coverings for use in the international shipbuilding and offshore industry

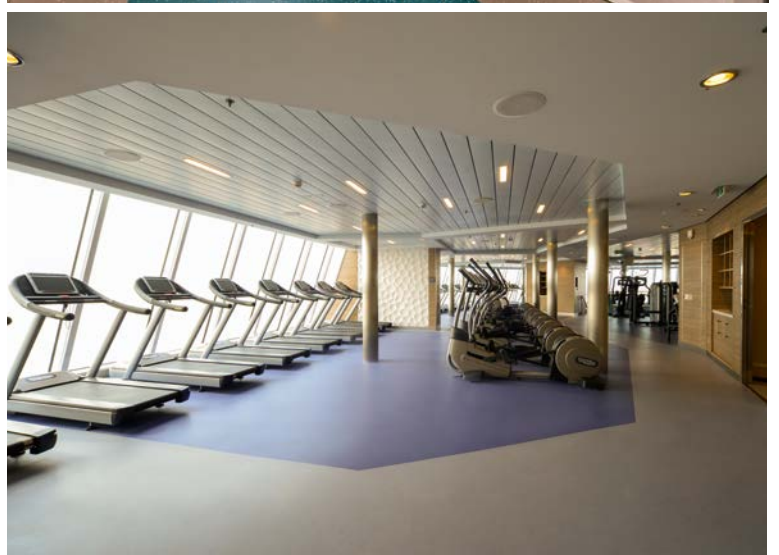
nora[®]
by **Interface**[®]

SECURE FLOORINGS EVEN DURING HEAVY SEAS

The shipbuilding and offshore industry demands unique and specific flooring solutions. For nearly 70 years, nora systems has developed rubber floor coverings that solve the daily challenges faced by customers. Our nora® floor covering solutions are the result of extensive experience in rubber materials and close partnerships with planners and users. nora® floor coverings meet the specific demands made on floor coverings for interior use in all types of vessels (e.g. passenger liners/ferries, cruisers, tankers, container and marine ships) as well as in the offshore industry worldwide.

noraplan® marine

To meet the increasingly stringent requirements of the international shipbuilding and offshore industry, nora systems is pleased to introduce a new and attractive product range called noraplan® marine. The new product range exceeds existing requirements according to the IMO Resolution MSC.61(67)-(FTP-Code) Annex 1, Part 2 and Part 5, Annex 2. The flooring's material properties feature an increased resistance to abrasive wear. The higher flexibility of noraplan® marine also leads to an easier installation. The noraplan® stone and signa marine top-seller colours are available from stock. Other noraplan® stone and signa colours as well as eco and sentica designs are available based on a minimum quantity of 600 m².



SURFACES FOR EVERY APPLICATION

The material properties of rubber floorings are perfectly suited to meet the needs of various applications. Safety benefits offered by nora® floorings include anti-slip surfaces and excellent fire-protection properties. For particularly demanding environments such as control rooms, nora systems offers electrostatically dissipative flooring solutions that resist most oils and greases. For high-traffic areas, our floorings are extremely durable as well as ergonomic for walking comfort. For ease of maintenance, the surfaces require no coating to allow for fast, efficient cleaning.

We offer a selection of IMO-Certified and Coast Guard Approved flooring solutions to meet the demands of different applications like:

Crew Quarters

The crew quarters area of ships should provide a comfortable and relaxing environment while meeting a number of marine regulatory specifications. Our highly functional floor coverings have an ergonomic design to provide a comfortable working and living environment for all crew members.

Control Rooms

A ship's control room is where the most crucial challenges are met. Rubber floor covering solutions from nora will help you meet those needs. Our rugged, slip-resistant floor coverings are designed to enhance personnel safety by reducing the risks of falls, oil and grease spills and other hazards. The static dissipative properties of rubber floorings help reduce risks associated with electronic malfunction.

Bridges

The flooring of the bridge of a ship needs to be tough enough to withstand constant use. A slip-resistant surface is also vital for both captain and crew to keep their footing. Slip-resistant and extremely durable, nora® marine flooring solutions maximise safety and provide rugged performance for the bridge of ships – a critical area of every vessel.

Stairwells

The anti-slip and fire protective properties of rubber make nora® floorings the ideal solution for stairwells and high traffic zones such as entrance areas and hallways. Noise-abating nora® floor coverings help reduce footfall sound for a less distracting environment. Additionally, the dirt-repellant properties of nora® floor coverings allow for quick, easy maintenance in high-traffic areas.

Galley Areas

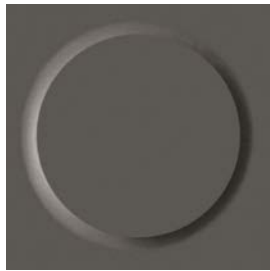
Shipboard restaurant areas and canteen corridors are meeting places that should evoke a pleasant, welcoming ambience to patrons and crew. Still, the floorings must address heavy traffic and inevitable spills. nora® galley area floor coverings set the tone of your ship's restaurant while also providing resistance to wear and spills, both in the kitchen and in the dining room. Available in a wide variety of attractive styles, nora® marine flooring solutions offer superior wear resistance and ease of maintenance to provide the perfect blend of beauty, comfort and safety.

STANDARD RANGE

norament[®] 920



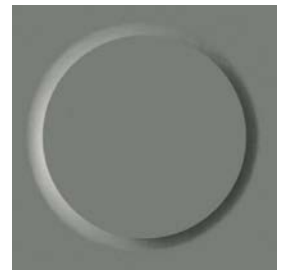
0733



0749



0862



0884



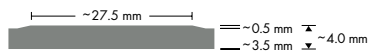
1346

norament[®] 920

5

Art. 920/354

□ ~1,006 x 1,006 mm, uni-coloured, round pastilles



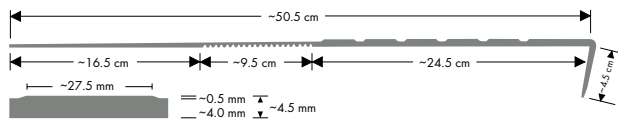
Special designs of norament[®] 920 such as hammerblow structure are subject to minimum order quantities.

Stairtread norament[®] 920

5

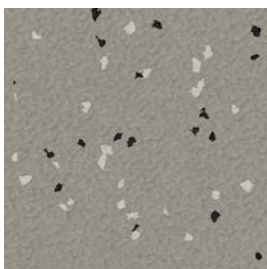
Art. 465 – width 1,285 mm

Stairtread norament[®] 920 colours available.



noraplan[®] marine

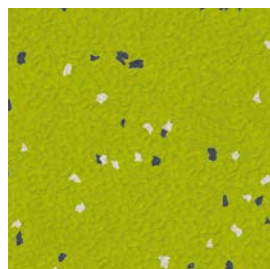
noraplan[®] stone marine



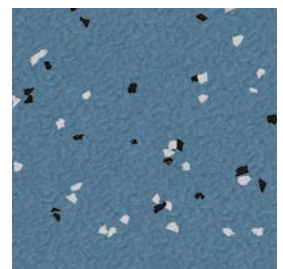
1146



1862



6607



1279

noraplan[®] stone marine

4

Art. 186A

□ ~1.22 m x 15.0 m



noraplan® signa marine



7033



7038



7054



7058



7065



7046



7061




7072

noraplan® signa marine



Art. 185A

 ~1.22 m x 15.0 m

 ~2.0 mm

SPECIAL RANGE

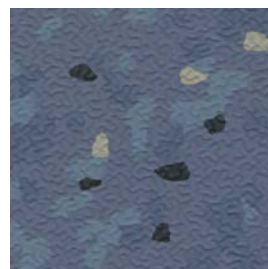
The shown colours are just examples. For the entire colour range please visit: www.nora.com. The following products have to be produced with a minimum of 600 m²:

noraplan®
sentica marine

6530

noraplan®
eco marine

6635

noraplan® mobil (931)
Resists oils and greases

6401

Also available with the easy install nora® nTx system.
Further information is available on request or online at www.nora.com.

PRODUCT INFORMATION

norament[®] 920



norament[®] 920 is an one-coloured, extremely fire-resistant and halogen-free rubber flooring for extremely heavy traffic areas. norament[®] 920 is largely resistant to oils and greases and offers all the advantages our customers rightfully expect from a resilient floor covering, too. Exposure to extreme stresses impairs neither the functionality nor its visual appearance.

Technical data Properties acc. to EN 12 199	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24 346	Mean value \pm 0.20 mm of nominal value	4.0 mm
Dimensional stability	EN ISO 23 999	\pm 0.4 %	\pm 0.3 %
Tear strength	ISO 34-1, method B, procedure A	Mean value \geq 20 N/mm	42 N/mm
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) \geq level 4 Procedure B (burning) \geq level 3	Fulfilled
Flexibility	EN ISO 24 344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 7619	\geq 75 Shore A	83 Shore A
Residual indentation	EN ISO 24 343	Mean value \leq 0.25 mm	0.15 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	\leq 250 mm ³	130 mm ³
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least 6 on the blue scale, \geq 3 on the grey scale (= 350 MJ /m ²)	Grey scale \geq 3 acc. to ISO 105-A02
Additional technical data			
Weight	EN ISO 23 997		\sim 6.50 kg/m ²
Improvement in footfall sound absorption	ISO 10 140-3		12 dB
Effect of chemicals	EN ISO 26 987		Resistant depending on concentration and time of exposure*
Electrostatic behaviour when being walked on	EN 1815		Antistatic charging in case of rubber soles < 2 kV
Dielectric strength	EN 60 243-1, VDE 0303, part 21		\leq 34 kV
Electrical insulation properties	IEC 60 093, VDE 0303 T.30		$>$ 10 ¹⁰ Ohm
Fire behaviour/smoke behaviour			
Fire behaviour	EN 13 501-1		B _f -s1
	EN 45545	Hazard Level	Fulfilled HL3 **
	UIC-Codex 564-2/12		Class A
Fire behaviour, sea going vessels (surface flammability)	MO Res. MSC.307 (88) - (F.T.P. Code 2010)		Fulfilled (glued with nora 310 PU or UZIN KR 430)
Smoke density and toxicity, sea going vessels	IMO Res. MSC.(61/67) - (F.T.P. Code) part 2+part 5		
Approvals			
EU-Type Examination Certificate for use on board of sea going vessels in compliance with directive 2014/90/EU			Certificate No. 124041-04

Colour variations due to different production batches as well as technical alterations to improve the product have to be accepted.

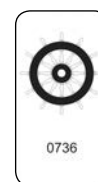
* In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels - please contact us.

** Tested and certified by an independent testing institute

PRODUCT INFORMATION

noraplan® marine

Designs: signa, sentica, stone, eco



noraplan® marine are single-layer rubber floor coverings available in rolls and tiles in the above-named designs. noraplan® stone has a mat, reflection-breaking, finely-structured surface. The designs signa, sentica and eco are available with a smooth, non-reflecting surface.

Technical data Properties acc. to EN 1817	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24 346	Mean value ± 0.15 mm of nominal value	2.0 mm
Dimensional stability	EN ISO 23 999	± 0.4 %	± 0.3 %
Cigarette-burn resistance	EN 1399	Procedure A (stuffed out) \geq level 4 Procedure B (burning) \geq level 3	Fulfilled
Flexibility	EN ISO 24 344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 7619	≥ 75 Shore A	91 Shore A
Residual indentation	EN ISO 24 343	Mean value ≤ 0.15 at thickness < 2.5 mm Mean value ≤ 0.20 at thickness ≥ 2.5 mm	0.03 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	≤ 250 mm ³	189 mm ³
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least 6 on the blue scale, ≥ 3 on the grey scale (= 350 MJ /m ²)	Grey scale ≥ 3 acc. to ISO 105-A02
Additional technical data			
Weight	EN ISO 23 997		~ 3.29 kg/m ²
Tear strength	ISO 34-1, method B, procedure A		20 N/mm
Slip resistance	DIN 51 130		R 9* (smooth surface) R 10* (finely-structured surface)
Improvement in footfall sound absorption	ISO 10 140-3		6 dB
Electrostatic behaviour when being walked on	EN 1815		Antistatic, charging in case of rubber soles < 2 kV
Fire behaviour/Smoke behaviour		Fulfills the requirements	
Fire behaviour	EN 13 501-1		C _s -s1
	DIN 5510-2	Deutsche Bahn AG	SF3*
	ASTM E-648/ISO 9239-1	Federal Railroad Administration	Class 1 (> 1.0 W/cm ²)
Toxicity of fire gases	ISO 5659-2	DIN 5510-2	FED ≤ 1 *
Fire behaviour, sea going vessels (surface flammability)	F.T.P. Code 2010, part 5	IMO Res. MSC.307(88)	Fulfilled
Smoke density and toxicity, sea going vessels	F.T.P. Code 2010, part 2		
Oxygen index	ISO 4589		28%
Approvals			
EC-Type Examination Certificate for use on board of sea going vessels in compliance with directive 2014/90/EU			Certificate No. 124.117

Colour variations due to different production batches as well as technical alterations to improve the product have to be accepted.

* Tested and certificated by an independent testing institute.

REFERENCES

Rescue Cruiser SAR Hermann Marwede	Germany	noramenti® 920
Research vessel „Sonne“	Germany	noramenti® 920 hammerblow
Cruise ship AIDA prima	Japan	noramenti® 920
Cruise ship Quantum of the Seas	Germany	noramenti® 920 hammerblow

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