

ARDEX OFF SHORE SYSTEM

Cementitious,
Indoor Floor
Coverings for the
Marine and Off-
shore Industry



SOLIDE FORBINDELSER



Offshore approved ARDEX products



ARDEX A 35 MIX: Pre-Blended Concrete Screed With ARDURAPID effect

- Pre-blended, rapid setting, hardening and drying screeding mortar
- Apply as a bonded screed at a minimum thickness of 20 mm
- Apply as floating screeds at a minimum thickness of 35 mm
- Ready to receive floor coverings after 24 hours - regardless of layer thickness
- Walkable in 3 hours



ARDEX K 55: Ultra Rapid Drying, Self-Levelling Compound with ARDURAPID effect

- Flexible sub-floor smoothing and patching compound
- Ready to receive floor coverings in as little as 1-2 hours
- Priming rarely required for most renovation work
- Ideal for repairs and renovations



ARDEX K 15: Self-Levelling Compound with ARDURAPID-Effect

- Cementbased smoothing and self-levelling compound and thin screed with ARDURAPID-effect
- Superior flowing characteristics
- Makes surfaces ready to receive floor coverings in one single operation
- Crack-free even in thick layers
- Resistant to rolling loads
- Ideal for pump applications



ARDEX A 45: Repair Mortar with ARDURAPID effect

- rRpid drying and hardening, slump free mortar
- For filling cracks, surface irregularities and gaps
- Receives finishes after approx. 1 hour regardless of thickness
- Sand can be added



ARDEX K 70: Coarse-Grained Levelling Compound

- Cement based self-levelling compound and thin-layer screed mortar
- Self-smoothing with optimum flow properties
- For layer thicknesses from 3 mm to 30 mm without addition of sand
- Especially ideal for pump applications



ARDEX K 80: Fast Drying, Self-Levelling Compound and Thick-Layer Screed Mortar

- Self-Smoothing with Excellent Flow Properties
- For layer thicknesses from 3 to 50 mm
- Ideal for pump application



ARDEX LM 5 L 2-20: Lightweight levelling compound developed specifically for offshore use

- With a density of only 1 kg per litre ideal for offshore and maritime use
- For layer thicknesses from 2 to 20 mm in a single application
- Walkable in as little as 3 hours. Fully hardened after 24 hours



ARDEX P 82: Two Component Epoxy Primer and Bonding Agent

- Forms a bonding layer on smooth and dense substrates
- Solvent-free
- Replaces neoprene primer
- Easy application
- For internal use



ARDEX E 25: Flexible Mortar Admix

- Plastification additive for cement-based self-levelling compounds
- Increases the elasticity and the wheeled traffic resistance of the mortar
- Solvent free
- Aqueous synthetic based dispersion



ARDEX E 90: Acrylic Dispersion

- Mortar admix for ARDEX tile adhesives
- Increases the adhesion and the elasticity of the mortar
- Enhances the water resistance properties
- Aqueous synthetic based dispersion

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** ARDEX K 15 is marketed under various names i.e.
ARDEX K 15 DR - please see certificate.*

About ARDEX Offshore System

ARDEX Skandinavia A/S has provided the marine and offshore market with rapid and safe solutions within cement based internal deck coverings for more than 30 years.

The various solutions flooring system solutions are all developed in close co-operation with the users, and are all thoroughly tested on tens of thousands of square metres applied throughout the Nordic countries. The systems shown will meet most requirements for rapid steel deck coverings, whether it concerns repairs or new constructions.

All products have been subjected to all necessary fire tests, and each product carries the appropriate certifica-

tion from Det Norske Veritas (DNV) and the U.S. Coast Guard.

The ARDEX Off Shore System has been expanded and currently consists of five different solutions, where self-smoothing sub-floor levelling compounds are installed in a permanent bond to the steel deck, and one solution where a floating Fire Class A 60 construction is produced by using ARDEX A 35 MIX - thus ensuring that the floor screed may be applied at a thickness between 1 mm to 50 mm in one operation. This gives the user a wide variety of flooring systems to choose from when searching for the optimum solution to any given flooring requirement.



For all solutions there can be installed rubber or vinyl coverings by using the offshore approved covering adhesive ARDEX PREMIUM AF 2100.

The combination ARDEX A 45 added ARDEX E 90 and mixed with Hyperlite produces a flexible low-weight mortar that is ideal for repairing and for applications at thicknesses between 5 - 50 mm. Regardless of the layer thickness, this system will be ready to receive floor coverings after 24 hours, incl. application of the final smoothing layer using ARDEX K 15.

ARDEX K 15 added ARDEX E 25 produces an elastic sub-floor levelling compound that is wear resistant. For more than 30 years, ARDEX K 15 has allowed successful installation over steel decks at thicknesses from 0 mm to 10 mm. ARDEX K 15 is ready to receive floor-coverings after 24 hours.

For areas where rapid drying is essential, we recommend ARDEX K 55 self-levelling compound which allows dense floor-coverings to be installed in as little as 1 - 2 hours. ARDEX K 55 can be applied from 0 - 10 mm in thickness, has floating properties that easily compare to those of ARDEX K 15 and does not require incorporation of ARDEX E 25.

For thick applications, we recommend ARDEX K 70 added ARDEX E 25. ARDEX K 70 can be applied from 3 mm to 30 mm in thickness and can receive floor-coverings within 24 hours, regardless of the layer thickness. For layer thicknesses beyond this range, we recommend ARDEX K 80 which can be applied from 3 - 50 mm.

Where comfort requirements such as sound reduction, heat insulation or merely soft flooring must be satisfied, the solution is ARDEX A 35 MIX laid onto Rockwool fire slabs in a so-called Fire Class A 60 construction. The total construction thickness will hereby be reduced to

70 mm, consisting of 30 mm insulation and 40 mm ARDEX A 35 MIX.

The contact to our users is vital for the development of new systems. We always welcome recommendations for new constructions or improvements of existing solutions, thus ensuring that our solutions will always meet the immediate demands of the market.

We are, therefore, happy to get any recommendations or comments that you may have.

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Application

ARDEX Off Shore Systems are ideal for new constructions, renovations and repairs onboard ships, drilling rigs, container modules etc., where time is a crucial factor.

ARDEX Off Shore Systems are intended for applications onto surfaces such as: Steel, aluminium, screeds, concrete and existing tiles, provided that the below conditions are satisfied:

Sub-Floor Preparation

Please note that the ARDEX Off Shore Systems must always be installed in strict compliance with the ARDEX installation instructions as all certificates and fire tests are

subject to a correct powder-to-water-mixing-ratio. Same applies to the addition of admixes and aggregates, if any. If overwatering occurs, the hardening times and strengths of the material will be affected, which will lead to a poorer final result of the application.

All technical product data on primers, cement based products and covering adhesives are dependent on sub-floor and room temperatures from +18 - 20 °C, and a relative humidity of app. 50 % RH. Any deviation will shorten or extend the working and hardening times, thereby deferring the time at which the sub-floor can be given the finishing treatment.



The sub-floor, viz. steel or any other material, must be cleaned thoroughly. Dirt and similar contaminating substances must be removed. Sub-floors that may oxidize or become rusty, e.g. steel and aluminium, must always be treated with an anti-corrosive coating to efficiently protect the moisture sensitive sub-floor prior to the installation of the ARDEX Off Shore System. As ARDEX does not manufacture or promote any anti-corrosive paints, such will not fall within our sphere of responsibility. A supplier of such products should therefore be contacted.

With our ARDEX Off Shore System we want to show our commitment to the build-up of quality constructions no regardless of the location per site. We offer product and hands-on schooling and training throughout the entire year, providing up-to-date technical information and instal-

lation techniques that are foremost in keeping contractors' skills competent. Courses will be held at our schooling and training facilities in Hedensted and Herlev (Denmark), as required.

Our technicians and consultants are always at your disposal for further information about our Off Shore Programme.

Please attend our home page www.ardex.dk for updated offshore certificates and further information.



System 1

Lightweight ARDEX A 45 + ARDEX E 90 Added Hyperlite

Owing to a low weight, this construction is especially suitable for greater application thicknesses, e.g. in accommodations modules, cabins and the like, prior to the application of new floor coverings.

This construction type is also ideal for bathrooms, showers and washrooms, where a drainage slope is to be created prior to the application of a waterproofing compound.

Application

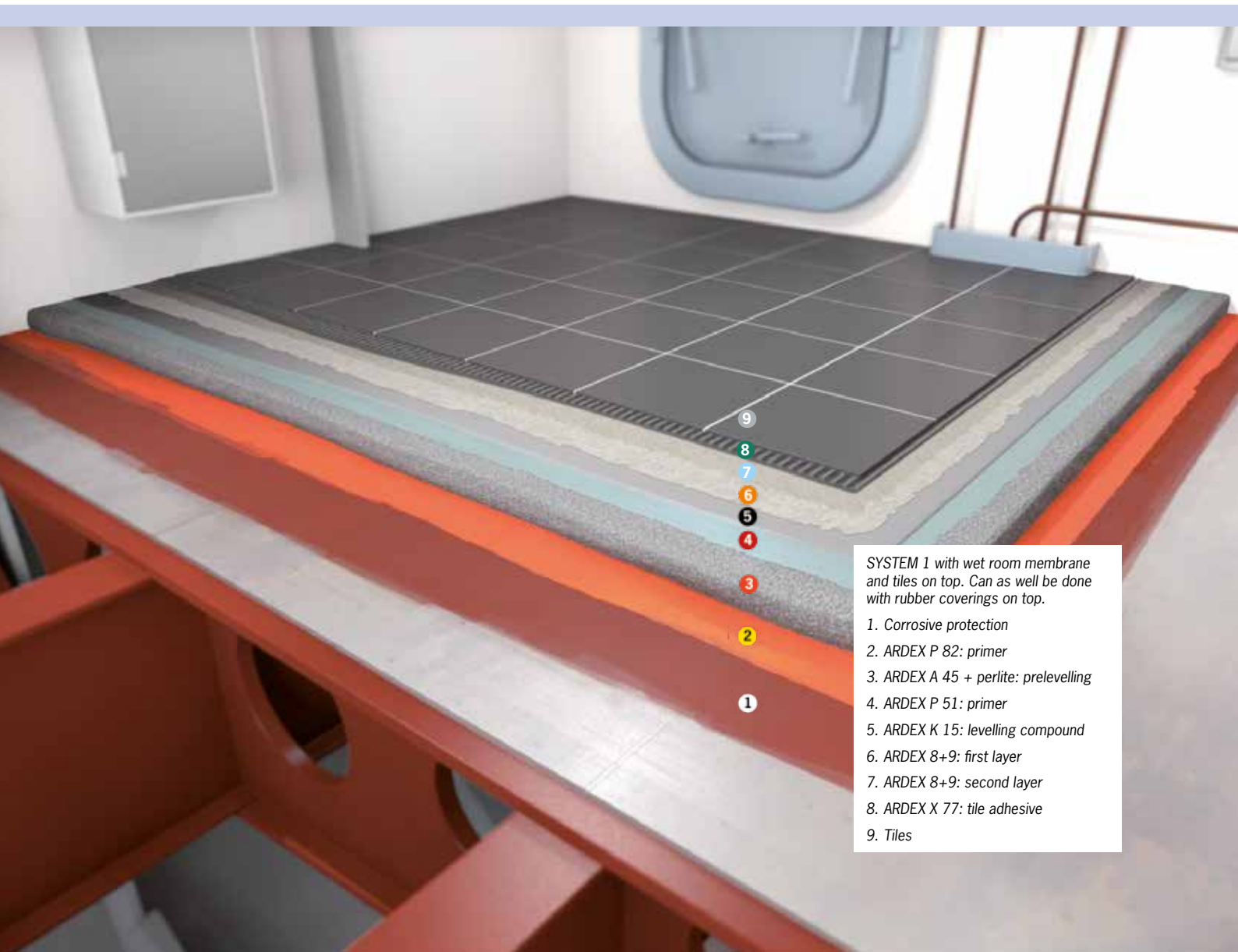
The steel deck must be efficiently protected with an anti-

corrosive coating.

Prime with ARDEX P 82. The drying time is approx. 1 hour. Coverage approx. 200 g/m².

This surface is installed by using ARDEX A 45 mixed with Hyperlite and added ARDEX E 90 and is walkable in as little as approx. 30 min.

ARDEX A 45 is mixed in a 75 litre mixing bucket in the following order:



SYSTEM 1 with wet room membrane and tiles on top. Can as well be done with rubber coverings on top.

1. Corrosive protection
2. ARDEX P 82: primer
3. ARDEX A 45 + perlite: prelevelling
4. ARDEX P 51: primer
5. ARDEX K 15: levelling compound
6. ARDEX 8+9: first layer
7. ARDEX 8+9: second layer
8. ARDEX X 77: tile adhesive
9. Tiles

- 5.5 litres of water
- 2.5 litres of ARDEX E 90
- 25 kg ARDEX A 45 (equivalent to 15.6 litres by volume)
- 15.6 litres of siliconized Hyperlite (grain size 0.5-6 mm). Density approx. 150 kg/m³.

ARDEX E 90 diluted with clean cold water is mixed with Hyperlite. Then add the ARDEX A 45 powder whilst stirring vigorously until a lump free mortar is produced. The mortar is workable for approx. 15 minutes at 20 °C. Apply the mixed mortar onto screed battens by using a screed bar to pre-level the subfloor. A final smoothing layer can be installed after 1 hour.

Table 1:

Layer thickness	10 mm per m ²	15 mm per m ²	20 mm per m ²	30 mm per m ²	40 mm per m ²	50 mm per m ²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
Pre-levelling	12.0 kg	18.0 kg	24.0 kg	36.0 kg	48.0 kg	80.0 kg
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
Top layer (3 mm)	5.7 kg	5.7 kg	5.7 kg	5.7 kg	5.7 kg	5.7 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg
Total relative density	18.4 kg	24.4 kg	30.4 kg	42.4 kg	54.4 kg	66.4 kg

Table 2:

Layer thickness	10 mm per m ²	15 mm per m ²	20 mm per m ²	30 mm per m ²	40 mm per m ²	50 mm per m ²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
ARDEX A 45	8.30 kg	12.50 kg	16.70 kg	25.00 kg	33.32 kg	41.65 kg
Perlite	0.8 kg	1.2 kg	1.5 kg	2.3 kg	3.1 kg	3.9 kg
ARDEX E 90	0.83 kg	1.25 kg	1.66 kg	2.49 kg	3.32 kg	4.15 kg
Total relative density	13,60 kg	18,65 kg	23,55 kg	33,50 kg	43,40 kg	53,40 kg

Table 3:

Layer thickness	1 mm per m ²	2 mm per m ²	3 mm per m ²	4 mm per m ²	5 mm per m ²	10 mm per m ²
ARDEX K 15	1.4 kg	2.8 kg	4.2 kg	5.6 kg	7.0 kg	14.0 kg
ARDEX E 25	0.12 kg	0.24 kg	0.36 kg	0.48 kg	0.60 kg	1.20 kg
Total relative density	1.52 kg	3.04 kg	4.56 kg	6.08 kg	7.60 kg	15.20 kg

When installing ARDEX K 55, do not incorporate ARDEX E 25. The coverage is approx. 1.5 kg/mm/m².

As a final top smoothing layer we recommend ARDEX K 15 + ARDEX E 25. One bag of 25 kg ARDEX K 15 is mixed with approx. 5.25 litres of clean cold water and 2 litres of ARDEX E 25 whilst stirring vigorously until a lump-free self-smoothing mortar is produced. The working time of the mortar is approx. 30 min. at 20 °C. The self-smoothing levelling compound will be walkable in 2 hours and ready to receive floor-coverings within 24 hours.

For small areas, or in case of time pressure, we recommend ARDEX A 45 + ARDEX E 25. For each bag of 25 kg ARDEX A 45, add approx. 4.75 litres of water and 1.75 litres of ARDEX E 25. Mix thoroughly to obtain a lump-free fluid consistency. The mixed mortar has a working time of approx. 15 min. ARDEX A 45 is ready to receive floor coverings in only 1 hour. For large areas under time pressure, we recommend ARDEX K 55 as a final smoothing layer. ARDEX K 55 is a self-levelling sub-floor smoothing compound that will be ready to receive floor coverings in 1 to 2 hours. Where the installation of the final smoothing layer is delayed for longer than 2 hours (or where the surface is completely dry), the pre-levelling layer must be primed with 1 part ARDEX P 51 diluted with 3 parts water (drying time 3 to 6 hours) or with ARDEX P 82 (drying time 1 hour).

*Rubber or vinyl coverings are installed using ARDEX PREMIUM AF 2100 adhesive on top of all recommended levelling compounds.

Relative density

The relative density of the pre-levelling layer is approx. 1.2 kg per mm/m², and the relative density of the final smoothing layer is approx. 1.7 kg per mm/m². The total relative density of a standard construction, as described under "Application", is shown in Table 1. The average total relative density will be approx 1.23 kg per mm/m². It is hereby assumed that the pre-levelling layer will have a thickness of 30 mm, and the final smoothing layer a thickness of 3 mm. If the thickness of the pre-levelling layer is greater, the average relative density will be reduced.

ARDEX TIME:

A construction consisting of ARDEX A 45 mixed with Hyperlite and ARDEX E 90, including a top layer, can receive dense floor coverings in:

Small areas:
ARDEX P 82: **1 hour**

ARDEX A 45 + Hyperlite and ARDEX E 90 can be walked on after: **1 hour**

A top layer of ARDEX A 45 added ARDEX E 25 will be ready to receive floor-covering in: **1 hour**

Total ARDEX time: 3 hours

Large areas:
ARDEX P 82 **1 hour**

ARDEX A 45 + Hyperlite and ARDEX E 90 can be walked on after: **1 hour**

A top layer of ARDEX K 15 added ARDEX E 25 will be ready to receive floor-covering in: **24 hours**

Total ARDEX time: 26 hours

Wet rooms:
ARDEX A 45 added Hyperlite and ARDEX E 90 can be walked on after: **1 hour**

Top coat of ARDEX A 45 added ARDEX E 25 will be ready to receive floor-covering in: **1 hour**

ARDEX 8+9 first coat, drying time: **1 hour**

ARDEX 8+9 second coat, drying time: **2 hours**

ARDEX X 77 S tile adhesive, hardening time: **1½ hour**

ARDEX GK grouting compound, hardening time: **1½ hour**

Total ARDEX time: 8 hours

Alternatives

ARDEX A 45 + Hyperlite can be smoothed by using any certified ARDEX self-smoothing levelling compound. However, the resilience of the construction should always be taken into consideration when deciding whether or not to use ARDEX K 55 as a final smoothing layer. The hardening and drying times of the specific self-smoothing levelling compound determine when the floor covering can be installed.

Tile fixing

ARDEX A 8 + 9 can also be applied as a waterproof coat over ARDEX A 45 + Hyperlite prior to tiling with ARDEX X 77 or ARDEX X 77 S (rapid setting). Tiles can be grouted with ARDEX G8S FLEX, ARDEX G7N FLEX or ARDEX GK. For kitchen areas and toilets we recommend ARDEX WA

as a chemical resistant grout

Additional information

The hardening and drying times showed depend on normal temperatures (approx. 20 °C) and a relative humidity of approx. 50 % RF. Lower temperatures and a higher air humidity will lengthen the drying time.

Levelling and tiling of steel deck surfaces will require that the steel sub-floor is sufficiently rigid to avoid cracks in the tiling owing to movements and deflections in the steel deck.

Note: We point out that fire tests have not been conducted and that no certifications have been obtained for the tile adhesives and the tile grouts, as this is not usually required by the authorities.



Kitchen on drilling rig before and during renovation with ARDEX Offshore System

System 2

ARDEX K 15 + ARDEX E 25

ARDEX K 15 in conjunction with ARDEX E 25 is especially suitable for levelling of steel deck surfaces and can be applied at thicknesses from 0 - 10 mm, owing to the enhanced flexibility of the levelling compound layer. ARDEX K 15 can be walked on after approx. 2 hours and can be used as an underlayment for all types of floor-coverings. Dense floor-coverings can easily be installed after 24 hours.

Application

1. The steel deck must be efficiently protected by applying an anti-corrosive coat.
2. Prime with ARDEX P 82. Drying time 1 hour. Coverage approx. 200 g/m².
3. Allow primer to dry before applying ARDEX K 15 added ARDEX E 25 at a thickness up to 10 mm. For each bag of 25 kg ARDEX K 15 add 5.25 litres of water mixed with 2 litres of ARDEX E 25. For large areas, it may be advantageous to use a large ARDEX 75 litre mixing bucket and a cart for mixing bucket (75 kg ARDEX K 15 mixed with 15.75 litres of water and 6 kg of ARDEX E 25).
4. With ARDEX PREMIUM AF 2100 any dense floor-covering can be installed 24 hours after the application of ARDEX K 15 self-smoothing levelling compound.



SYSTEM 2: ARDEX K 15 + ARDEX E 25 as screed for installation of rubber covering with ARDEX PREMIUM AF 2100.

1. Corrosive protection
2. ARDEX P 82: primer
3. ARDEX K 15 + ARDEX E 25: 0 - 10 mm layer thickness
4. ARDEX PREMIUM AF 2100: floor adhesive
5. Offshore approved covering

ARDEX TIME

A construction consisting of ARDEX K 15 mixed with 5.25 litres of water and 2 litres of ARDEX E 25 will require the following hardening and drying times before it can receive dense floor coverings:

ARDEX K 15 + ARDEX E 25, priming with ARDEX P 82, drying time: **1 hour**

A top coat of ARDEX K 15 + ARDEX E 25, ready to receive floor-covering in: **24 hours**

Total ARDEX time: 25 hours

Tiling, wet rooms:
Priming with ARDEX P 82: **1 hour**

Levelling with ARDEX K 15 + ARDEX E 25 drying time: **24 hours**

ARDEX 8+9 first coat, drying time: **1 hour**

ARDEX 8+9 second coat, drying time: **2 hours**

ARDEX X 77 S tile adhesive, hardening time: **1½ hour**

ARDEX G8S FLEX or ARDEX GK grouting compound, hardening time: **1½ hour**

Total ARDEX time: 31 hours

Density

The relative density of the ARDEX K 15 levelling compound layer is approx 1.8 kg/mm/m². When applied onto a non-absorbent sub-floor, ARDEX K 15 should always be laid at a thickness of at least 1.5 mm, to ensure the drying and hardening of the water-based flooring adhesive used to install the floor-covering. When priming with ARDEX P 82, the relative density of the underlayment will be as follows:

Layer thickness	2 mm per m²	3 mm per m²	4 mm per m²	5 mm per m²	10 mm per m²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
ARDEX K 15 + ARDEX E 25	3.6 kg	5.4 kg	7.2 kg	9.0 kg	18.0 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg
Total relative density	4.1 kg	5.9 kg	7.7 kg	9.5 kg	18.5 kg

Coverage per m²

The coverage of ARDEX K 15 is approx. 1.4 kg powder/mm/m² which gives the following material consumption:

Alternatives

Layer thickness	2 mm per m²	3 mm per m²	4 mm per m²	5 mm per m²	10 mm per m²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
ARDEX K 15	2.8 kg	4.2 kg	5.6 kg	7.0 kg	14.0 kg
ARDEX E 25	0.24 kg	0.36 kg	0.48 kg	0.60 kg	1.20 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg

ARDEX K 15 lightweight:

Where a low weight is required, a lightweight additive (Poraver 0.25 - 0.5 mm) may be incorporated into ARDEX K 15, thereby reducing the relative density from 1.8 kg/mm/m² to approx. 1.1 kg/mm/m².

Mix a bag of 25 kg ARDEX K 15 with 4 litres of clean cold water and 4 litres of ARDEX E 25, and then add 15.6 litres of Poraver (0.25 - 0.50 mm) whilst stirring thoroughly. 50 kg ARDEX K 15 mixed with 8 litres of water and 8 litres of ARDEX E 25 in a 75 litre mixing bucket will require incorpo-

ration of 31.2 litres of Poraver. That is the approximate equivalent of one heaped 30 l ARDEX bucket.

ARDEX K 15 with drainage slope

A drainage slope can be created in showers and bathrooms by using ARDEX K 15 with a reduced water volume. A bag of 25 kg ARDEX K 15 is mixed with 4.6 litres of water. The levelling compound is poured along the wall edges of the base area and will freely flow towards the drain assembly at a gradient of about 1 cm per meter.

Tile fixing

Tiles are installed using ARDEX X 77, ARDEX X 77 S or ARDEX S 48. Apply ARDEX 8+9 waterproof coating prior to tiling in wet rooms. For grouting we recommend ARDEX G8S FLEX, ARDEX G7N FLEX or ARDEX GK. If using moisture-sensitive natural stones, please contact ARDEX Technical Services for instructions.

Additional information

The above hardening and drying times depend on normal temperatures (approx. 20 °C) and a relative humidity of approx. 50 % RH. Lower temperatures and a higher ambient humidity will extend the drying time.

Levelling and tiling of steel deck surfaces require that the steel sub-floor is sufficiently rigid in order to avoid cracks in the tiling, caused by movements and deflections in the steel deck.

Note: We point out that fire tests have not been conducted and that no certifications have been obtained for the tile adhesives and the tile grouts, as this is not usually required by the authorities.

System 3

ARDEX K 55: Ready for Floor Coverings in 3 Hours

ARDEX K 55 is a sub-floor smoothing and patching compound with rapid drying and exceptional flow properties for levelling and smoothing of large areas of steel deck surfaces where coverings must be installed in as little as 1 - 2 hours. ARDEX K 55 is designed for applications from 0 - 10 mm and can be walked on and receive floor coverings in as little as 2 hours. ARDEX K 55 is suitable as an underlayment for all types of floor coverings.

Application

1. The steel deck must be efficiently protected using an anti-corrosive coating.
2. Prime with ARDEX P 82. Drying time is 1 hour. Coverage approx. 200 g/m².
3. Allow the primer to dry before applying ARDEX K 55 at a thickness from 0 to 10 mm. Mix 25 kg ARDEX K 55 with approx. 6.5 litres of clean cold water whilst stirring thoroughly until a lump-free mortar is produced.

Relative Density

The relative density of the ARDEX K 55 mortar is approx. 1.9 kg/mm/m². The ARDEX K 55 smoothing compound should always be laid at a thickness of at least 1.5 mm onto a non-absorbent subfloor to ensure that a water-



SYSTEM 3: ARDEX K 55 in layer thicknesses of 0-10 mm. Rubber covering adhered with ARDEX PREMIUM AF 2100.

1. Corrosive protection
2. ARDEX P 82: primer
3. ARDEX K 55: Levelling compound
4. ARDEX PREMIUM AF 2100: floor adhesive
5. Offshore approved covering

ARDEX TIME

A construction consisting of ARDEX K 55 mixed with 6.5 litres of water can be walked on after 1 to 2 hours, and will subsequently be ready to receive dense floor coverings:

Priming with ARDEX P 82, drying time: **1 hour**

A top coat of ARDEX K 55, drying time 1-2 hour(s): **2 hours**

Total ARDEX time: 3 hours

based flooring adhesive applied subsequently to install floor covering will dry and harden sufficiently.

When priming with ARDEX P 82, the relative density of the sub-floor will be as follows:

Layer thickness	2 mm per m ²	5 mm per m ²	10 mm per m ²
ARDEX P 82	0.2 kg/ m ²	0.2 kg/ m ²	0.2 kg/ m ²
ARDEX K 55	3.8 kg/ m ²	9.0 kg/ m ²	18.0 kg/ m ²
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg
Samlet vægt	4.3 kg/ m ²	9.5 kg/ m ²	18.5 kg/ m ²

Coverage per m²

The coverage of ARDEX K 55 is approx. 1.5 kg/mm/m² of layer thickness, viz.:

Layer thickness	2 mm per m ²	3 mm per m ²	4 mm per m ²	5 mm per m ²	10 mm per m ²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
ARDEX K 55	3.0 kg	4.5 kg	6.0 kg	7.5 kg	15.0 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg

Additional information

The hardening and drying times showed are subject to normal temperatures (approx. 20 °C) and a relative humidity of approx. 50 % RH. Lower temperatures and a higher relative humidity of the air will extend the drying time.

The levelling and tiling of steel deck surfaces will require that the steel sub-floor is sufficiently rigid to prevent tiles from cracking owing to movements and deflections in the steel deck.

Note: We point out that fire tests have not been conducted and that no certifications have been obtained for the tile adhesives and the tile grouts, as this is not usually required by the authorities.

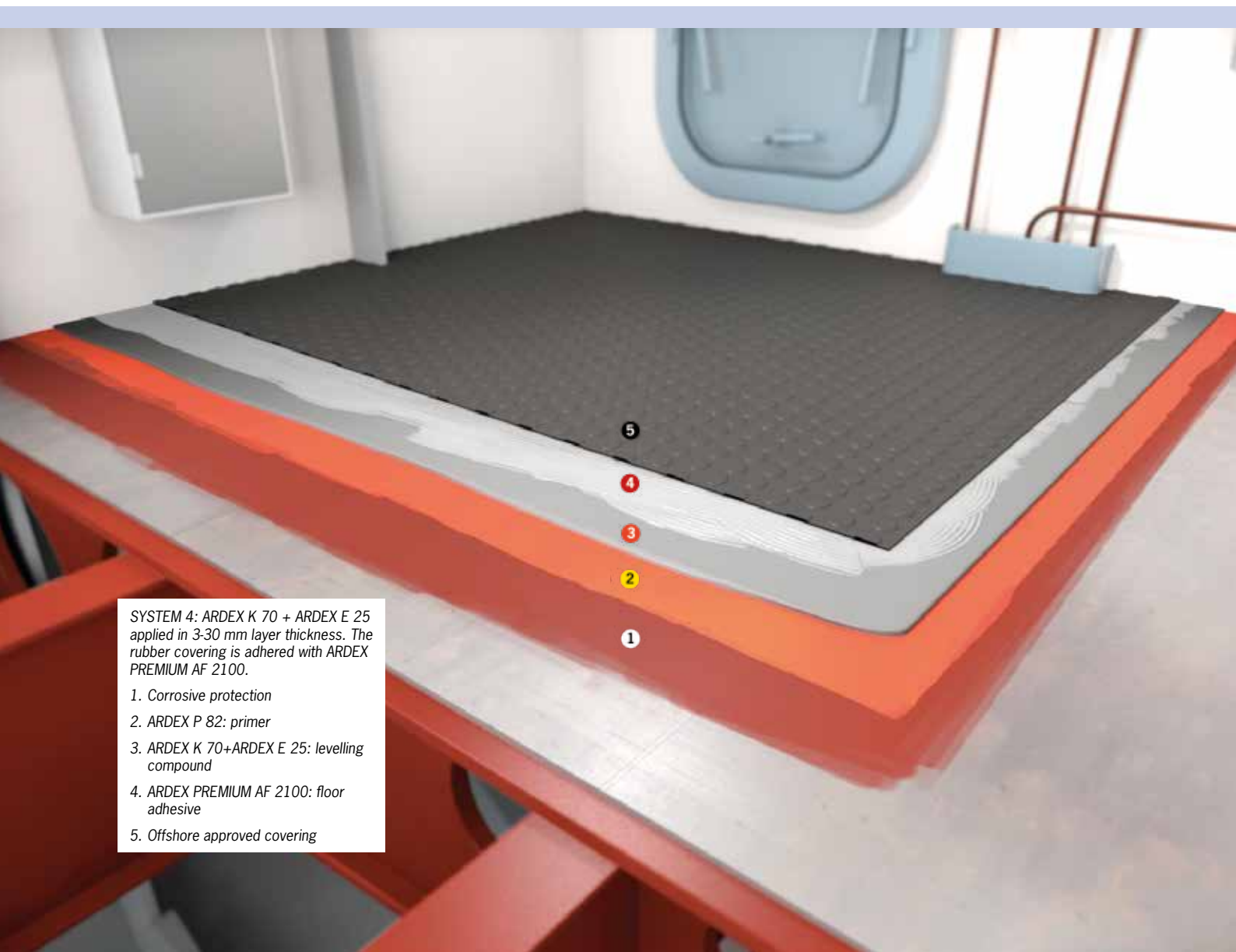
System 4

ARDEX K 70 + ARDEX E 25: Levelling for Thick Layers

ARDEX K 70 added ARDEX E 25 hardener is ideal for levelling and smoothing of steel decks and can be applied from 3 mm to 30 mm in thickness in one operation. ARDEX K 70 is walkable in only 2 hours, and is suitable as a finished underlayment for most floor coverings. Dense floor-coverings can be installed after 24 hours.

Application

1. The steel deck must be efficiently protected with an anti-corrosive coating.
2. Prime with ARDEX P 82. Drying time is 1 hour. Coverage approx. 200 g/m².
3. Allow the primer to dry before applying the ARDEX K 70 mortar added ARDEX E 25 in a layer of up to 30 cm thick. A 25 kg bag of ARDEX K 70 is mixed with 4.0 litres of clean cold water and 1.75 litres of ARDEX E 25. Where large sub-floors require smoothing with ARDEX K 70, it may be advantageous to use an ARDEX 75 litre mixing bucket and a cart (75 kg of ARDEX K 70 mixed with 12 litres of water and 5.25 litres of ARDEX E 25). When applying ARDEX K 70 added ARDEX E 25 at great thicknesses, 1/3 part of grain size 0 - 4 mm sand aggregate can be incorporated into the mortar, provided that there are no maximum weight require-



SYSTEM 4: ARDEX K 70 + ARDEX E 25 applied in 3-30 mm layer thickness. The rubber covering is adhered with ARDEX PREMIUM AF 2100.

1. Corrosive protection
2. ARDEX P 82: primer
3. ARDEX K 70+ARDEX E 25: levelling compound
4. ARDEX PREMIUM AF 2100: floor adhesive
5. Offshore approved covering

ARDEX TIME

A construction consisting of ARDEX K 70 mixed with 4.0 litres of water and 1.75 litres of ARDEX E 25 will require the following hardening and drying times before it can receive dense floor coverings:

ARDEX K 70 + ARDEX E 25, priming with ARDEX P 82, drying time: **1 hour**

A top coat of ARDEX K 70 + ARDEX E 25. Ready to receive floor-covering in: **24 hours**

Total ARDEX time: 25 hours

Tiling, wet rooms: ARDEX 8+9 first coat, drying time **1 hour**

ARDEX 8+9 second coat, drying time: **2 hours**

ARDEX X 77 S tile adhesive, hardening time: **1½ hours**

ARDEX G8S FLEX or GK grouting compound, hardening time: **1½ hours**

Total ARDEX time: 6 hours

ments that must be met.

4. With ARDEX PREMIUM AF 2100 any dense floor-covering can be installed 24 hours after the application of ARDEX K 70.

Density

The density of the ARDEX K 70 mortar is approx 2.0 kg/mm². When priming with ARDEX P 82, the density will

be as follows: Layer thickness	2 mm per m ²	5 mm per m ²	10 mm per m ²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg
ARDEX K 70 + ARDEX E 25/ water	4.0 kg	10.0 kg	20.0 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg
Total density	4.5 kg	10.5 kg	20.5 kg

Coverage per m²

The coverage of ARDEX K 70 is approx 1.7 kg powder per mm/m² which gives the following material consump-

tion: Layer thick- ness	2 mm per m ²	3 mm per m ²	4 mm per m ²	5 mm per m ²	10 mm per m ²
ARDEX P 82	0.20 kg	0.20 kg	0.20 kg	0.20 kg	0.20 kg
ARDEX K 70	3.40 kg	5.10 kg	6.80 kg	8.50 kg	17.00 kg
ARDEX E 25	0.24 kg	0.36 kg	0.48 kg	0.60 kg	1.20 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg

Alternatives

Tile Fixing

Tiles are installed using ARDEX X 77, ARDEX X 77 S or ARDEX S 48. ARDEX 8+9 waterproof coating is applied prior to tiling in wet rooms. As grouting compound we recommend ARDEX G8S FLEX, G7N FLEX or ARDEX GK. When using moisture sensitive natural stones, please contact ARDEX Technical Services for instructions.

Additional information

The above hardening and drying times are dependent upon normal temperatures (approx. 20 °C) and a relative humidity of approx. 50 % RH. Lower temperatures and a higher humidity will extend the drying time.

Levelling, smoothing and tiling of steel deck surfaces

require that the steel sub-floor is sufficiently rigid in order to avoid cracks in the tiling, caused by movements and deflections in the steel deck.

Note: We point out that fire tests have not been conducted and that no certifications have been obtained for the tile adhesives and the tile grouts, as this is not usually required by the authorities.

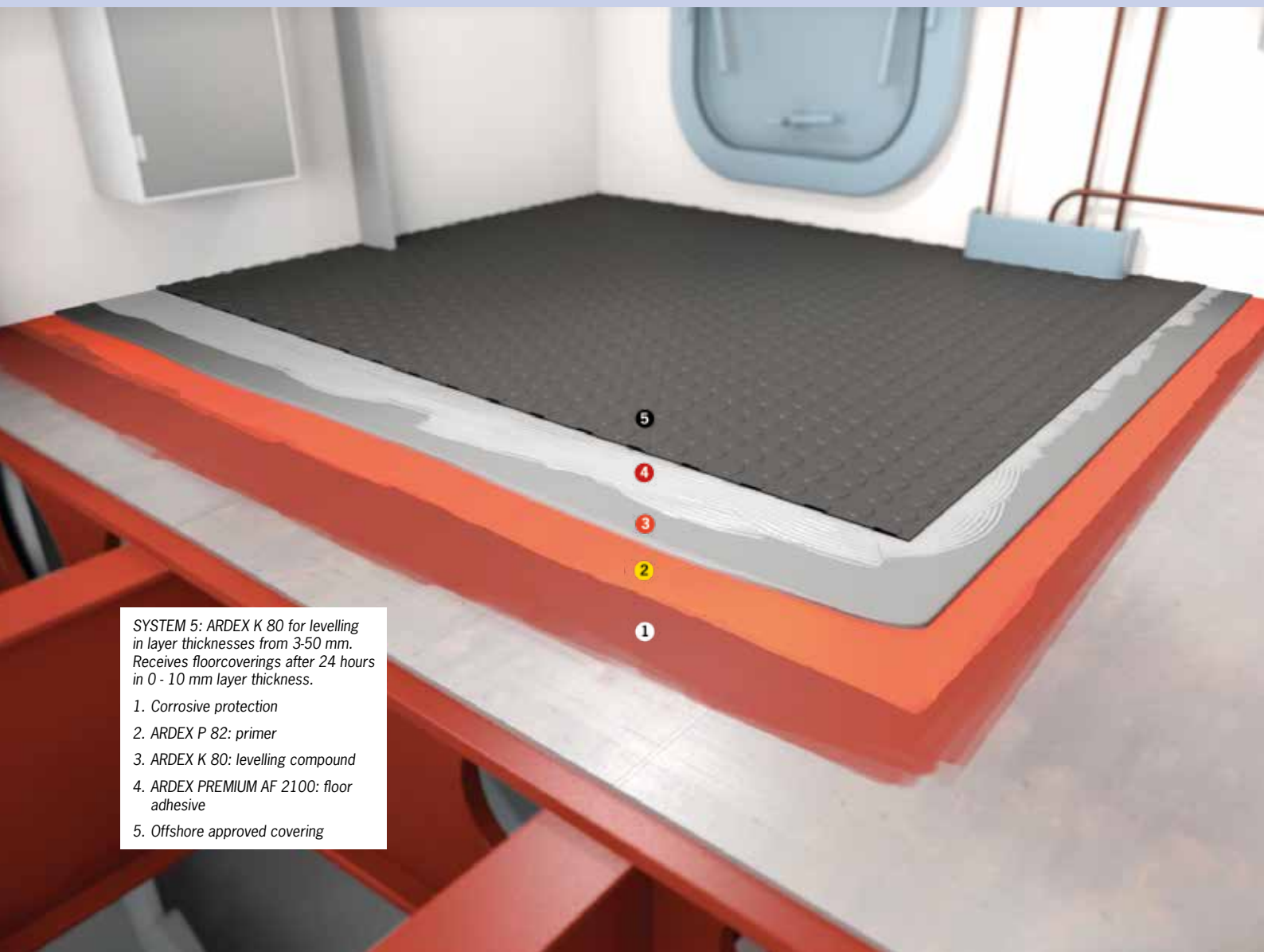
System 5

ARDEX K 80: Levelling for Thick Layers

By using ARDEX K 80 you save to admix ARDEX E 25 hardener as this is already added to the ARDEX K 80 powder. This makes ARDEX K 80 very suitable for pumping onto large areas. ARDEX K 80 can be applied from 3 - 50 mm in one operation. ARDEX K 80 is walkable in only 2 hours and are suitable for most floor coverings. In layers up to 10 mm dense floor coverings can be installed after 24 hours. In 30 mm layers after 3 days and in 50 mm after 7 days.

Application

1. The steel deck must be efficiently protected with an anti-corrosive coating.
2. Prime with ARDEX P 82. Drying time is 1 hour. Coverage approx. 200 g/m².
3. Allow the primer to dry before applying the ARDEX K 80 mortar. A 25 kg bag of ARDEX K 80 is mixed with 4,75 - 5,0 l of clear, cold water. Where large subfloors require smoothing with ARDEX K 80 we recommend use of ARDEX 75 liter bucket and a cart (75 kg ARDEX K 80 mixed with 15 liter of water). By pumping please use the ARDEX floating measurements for correct water amount.
4. With ARDEX PREMIUM AF 2100 any dense floor-cover-



SYSTEM 5: ARDEX K 80 for levelling in layer thicknesses from 3-50 mm. Receives floorcoverings after 24 hours in 0 - 10 mm layer thickness.

1. Corrosive protection
2. ARDEX P 82: primer
3. ARDEX K 80: levelling compound
4. ARDEX PREMIUM AF 2100: floor adhesive
5. Offshore approved covering

ARDEX TIME

A construction consisting of ARDEX K 80 will require the following hardening and drying times before it can receive dense floor coverings:

ARDEX K 80

Priming with ARDEX P 82, drying time: **1 hour**

A top coat of of ARDEX K 80, Ready to receive floor-covering in: **24 hours**

Total ARDEX time: 25 hours

Tiling, wet rooms: ARDEX 8+9 first coat, drying time: **1 hour**

ARDEX 8+9 second coat, drying time: **2 hours**

ARDEX X 77 S tile adhesive, hardening time: **1½ hour**

ARDEX G8S FLEX eller ARDEX GK grouting compound, hardening time: **1½ hour**

Total ARDEX time: 6 hours

ing can be installed 24 hours after the application of ARDEX K 80.

Density

The density of the ARDEX K 80 mortar is approx 2.0 kg/mm/m². When priming with ARDEX P 82, the density will be as follows:

Layer thickness	3 mm per m²	5 mm per m²	10 mm per m²	20 mm per m²	30 mm per m²	40 mm per m²	50 mm per m²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
ARDEX K 80	6 kg	10 kg	20 kg	40 kg	60 kg	80 kg	100 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg
Total density*	6.5 kg	10.5 kg	20.5 kg	40.5 kg	60.5 kg	80.5 kg	100.5 kg

*exclusive topcoat

Coverage per m²

The coverage of ARDEX K 80 is approx 1.7 kg powder per mm/m² which gives the following material consumption:

Layer thickness	2 mm pr. m²	3 mm pr. m²	4 mm pr. m²	5 mm pr. m²	10 mm pr. m²
ARDEX P 82	0.20 kg	0.20 kg	0.20 kg	0.20 kg	0.20 kg
ARDEX K 80	3.30 kg	5.00 kg	6.60 kg	8.25 kg	16.50 kg
ARDEX E 25	0.24 kg	0.36 kg	0.48 kg	0.60 kg	1.20 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg

Alternatives

Tile Fixing

Tiles are installed using ARDEX X 77, ARDEX X 77 S or ARDEX S 48. ARDEX 8+9 waterproof coating is applied prior to tiling in wet rooms. As grouting compound we recommend ARDEX G8S FLEX, G7N FLEX or ARDEX GK. When using moisture sensitive natural stones, please contact ARDEX Technical Services for instructions.

Additional information

The above hardening and drying times are dependent upon normal temperatures (approx. 20 °C) and a relative

humidity of approx. 50 % RH. Lower temperatures and a higher humidity will extend the drying time.

Levelling, smoothing and tiling of steel deck surfaces require that the steel sub-floor is sufficiently rigid in order to avoid cracks in the tiling, caused by movements and deflections in the steel deck.

Note: We point out that fire tests have not been conducted and that no certifications have been obtained for the tile adhesives and the tile grouts, as this is not usually required by the authorities.

System 6

ARDEX LM 5 L 2-20: Lightweight levelling compound developed specifically for offshore use

With a density of only 1 kg per litre ARDEX LM 5 L 2-20 is ideal for offshore and maritime use, where the combined weight of the flooring installation has always been an issue. This system allows the use of your finished load capacity on things other than the flooring.

ARDEX LM 5 L 2-20 is specifically designed to comply with the ever-increasing demands for flexibility and adhesion, which is a requirement in the offshore and maritime industries.

ARDEX LM 5 L 2-20 is self-levelling and can be applied in thicknesses from 2 up to 20 mm in a single application. Walkable in as little as 3 hours, ARDEX LM 5 L 2-20 is fully hardened after 24 hours, when the final floorcovering can be installed.

Application

1. The steel deck must be efficiently protected with an anticorrosive coating.
2. Prime with ARDEX P 82. The drying time is approx. 1 hour in good conditions. Coverage is approx. 200 g/m².



SYSTEM 6: ARDEX LM 5 L 2-20.
Lightweight levelling compound
especially developed for the Offshore
Industry

1. Corrosive protection
2. ARDEX P 82: primer
3. ARDEX LM 5 L: levelling compound
4. ARDEX PREMIUM AF 2100: floor adhesive
5. Offshore approved covering

ARDEX TIME

A construction consisting of ARDEX LM 5 L 2-20 will require the following hardening and drying times before it can receive dense floor coverings:

ARDEX LM 5 L 2-20
Priming with ARDEX P 82,
drying time: **1 hour**

A top coat of of ARDEX LM 5 L 2-20, Ready to receive floor-covering in: **24 hours**

Total ARDEX time: 25 hours

Tiling, wet rooms:
ARDEX 8+9 first coat,
drying time: **1 hour**
ARDEX 8+9 second coat,
drying time: **2 hours**

ARDEX X 77 S tile adhesive,
hardening time: **1½ hour**

ARDEX G8S FLEX or
ARDEX GK grouting compound,
hardening time: **1½ hour**

Total ARDEX time: 6 hours

- 3. When the primer is dry ARDEX LM 5 L can be applied up to 20 mm thick.
- 4. ARDEX LM 5 L 2-20 is supplied in units that consist of 15 kg bags of powder and 7.8 kg of polymer dispersion liquid, which are mixed together in a 30 litre bucket. When doing larger areas it can be advantageous to use a 75 litre mixing vessel and a cart. No additional water should be added!
- 5. After mixing, ARDEX LM 5 L 2-20 is poured on to the prepared subfloor and finished with a steel trowel. ARDEX LM 5 L 2-20 will flow out and create a smooth surface.
- 6. The floorcovering can be installed after 24 hours, using ARDEX AF 2100.

Density

The density of ARDEX LM 5 L 2-20 is approximately 1.0 kg per litre. When priming with ARDEX P 82 prior to application the density will be as follows:

Layer thickness	2 mm per m²	3 mm per m²	4 mm per m²	5 mm per m²	10 mm per m²	15 mm per m²	20 mm per m²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
ARDEX LM 5 L	2.0 kg	3.0 kg	4.0 kg	5.0 kg	10 kg	15 kg	20 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg
Total density	2.5 kg	3.5 kg	4.5 kg	5.5 kg	10.5 kg	15.5 kg	20.5 kg

*exclusive top coat

Coverage per m²

The coverage of ARDEX LM 5 L 2-20 is approx. 1.1 kg powder per mm/m², which gives the following material consumption:

Layer thickness	2 mm per m²	3 mm per m²	4 mm per m²	5 mm per m²	10 mm per m²	15 mm per m²	20 mm per m²
ARDEX P 82	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg	0.2 kg
ARDEX LM 5 L	2.2 kg	3.3 kg	4.4 kg	5.5 kg	11 kg	16.5 kg	22 kg
ARDEX AF 2100	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg

Alternatives

Tile Fixing: Tiles can be installed using ARDEX X 77,

ARDEX X 77 S or ARDEX S 48.

Waterproofing: ARDEX 8+9 waterproof coating is applied prior to tiling in wet rooms. For grouting we recommend ARDEX G8S FLEX, ARDEX G7N FLEX or ARDEX GK

Note: When using moisture sensitive natural stones, please contact ARDEX Technical Services for advice.

Additional information

The quoted hardening and drying times are dependent upon normal temperatures (approx. 20 °C) and a relative humidity of approx. 50 % RH. Lower temperatures and a higher humidity will extend the drying time.

Levelling, smoothing and tiling of steel deck surfaces require that the steel sub floor is sufficiently rigid in order to avoid cracks in the tiling, caused by movements and deflections in the steel deck.

Note: Fire tests have not been conducted, and no certification has been obtained for the tile adhesives and tile grouts, as this is not usually required by the authorities.

System 7

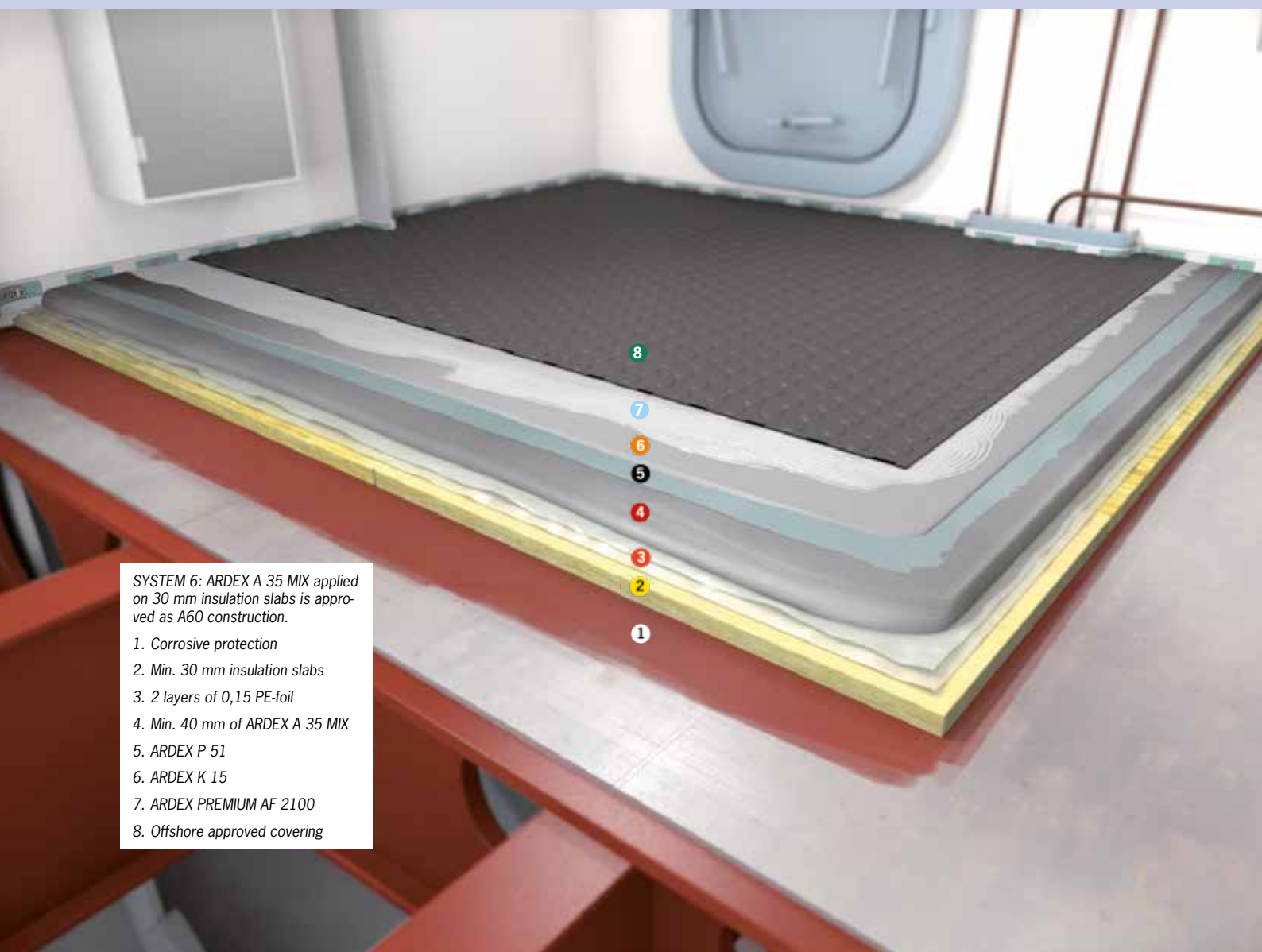
ARDEX A 35 MIX on Fire Slabs (Fire Class A 60 Construction)

Whether on a cruise ship or on an oil rig, the emphasis will often be on enhanced comfort as far as sound reduction and heat insulation of the living-quarters and cabins located above the engine rooms etc. are concerned.

ARDEX A 35 MIX provides an extremely suitable and rapid solution to this requirement, as the incorporation of special cements with high strengths into the ARDEX A 35 powder makes it possible to reduce the thickness of the floating concrete slab to 40 mm. As a result here of, the total thickness of the sub-floor can be reduced from ap-

prox. 100 mm to 70 mm (40 mm ARDEX A 35 MIX mortar and 30 mm insulation slabs).

Owing to the reduced height of the construction, the weight of this solution will obviously be somewhat lower than that of a traditional built-up. The most important features of the ARDEX A 35 MIX construction are, however, still the rapid hardening and drying times which allow the installation of dense floor-coverings in as little as 24 hours.



SYSTEM 6: ARDEX A 35 MIX applied on 30 mm insulation slabs is approved as A60 construction.

1. Corrosive protection
2. Min. 30 mm insulation slabs
3. 2 layers of 0,15 PE-foil
4. Min. 40 mm of ARDEX A 35 MIX
5. ARDEX P 51
6. ARDEX K 15
7. ARDEX PREMIUM AF 2100
8. Offshore approved covering

ARDEX TIME

A construction consisting of ARDEX K 55, ARDEX P 82 and ARDEX K 55 is subject to the following hardening and drying times prior to receiving dense floor coverings:

ARDEX A 35 MIX
walkable in **3 hours**

ARDEX P 82 walkable in **1 hour**

ARDEX K 55
walkable/ready
to receive floor
covering after max. **2 hours**

Total ARDEX Time: 6 hours

Tile Fixing in Wet Rooms

ARDEX A 35 MIX
walkable in **3 hours**

ARDEX 8+9, first coat.
Drying time **1 hour**

ARDEX 8+9, second coat.
Drying time **2 hours**

ARDEX X 77 S tile adhesive.
Hardening time: **1½ hour**

ARDEX G8S FLEX
or ARDEX GK tile grout,
Hardening time **1½ hour**

Total ARDEX Time: 9 hours

Application

1. The steel deck must be efficiently protected against corrosion by applying an anti-corrosive coating.
2. Install the Rockwool Marine slabs.
3. Create a sliding layer by covering the sub-base with two layers of PE-foil - which also provides protection against moisture in the insulation.
4. Carefully install a 5 mm sealant strip along all walls and pipe penetrations to prevent impact and air-borne sound and to minimise sound transmissions etc.
5. ARDEX A 35 MIX is applied onto the sliding layer at a thickness of 40 mm. ARDEX A 35 MIX is pre-blended, so just add water. Mix a bag of 25 kg ARDEX A 35 MIX with 1.8 litres of clean, cold water using a forced action mixer. To facilitate the installation, we recommend that the mixed mortar is applied onto screed battens. If the fresh mortar is carefully worked, it will most often not be necessary to level and smooth the screed surface subsequently.
6. After 3 hours prime with ARDEX P 51 diluted with water in the proportion 1 part by volume of ARDEX P 51 to 3 parts by volume of water.
7. When the primer is dry (3 - 6 hours), apply ARDEX K 15 at a thickness of 2 - 4 mm. Where ARDEX P 82 replaces ARDEX P 51, the screed surface can be smoothed in as little as 1 - 2 hours.

Relative Density

For a standard construction as described above under "Application", the relative density per mm/m² will typically be:

Rockwool Marine Slab 200 - 30 mm thick	6.0 kg/m²
Two layers of 0.15 PE foil	0.4 kg/m²
ARDEX A 35 MIX : Density approx. 2.0 kg per mm/m², applied at a layer thickness of 3 mm	80.0 kg/m²
Priming ARDEX P 82	0.2 kg/m²
ARDEX K 55: Density approx 1.7 kg/mm/m², applied at a layer thickness of 3 mm	5.1 kg/m²
ARDEX PREMIUM AF 2100	0.3 kg/m²
Total Relative Density of the Construction	93.0 kg/m²

Alternatives

ARDEX A 35 MIX can be smoothed with all certified ARDEX levelling compounds. The hardening and drying times of the applied levelling compound will always determine when floor coverings can be installed.

Tile Fixing

Tiles can also be installed onto the ARDEX A 35 MIX screed by using ARDEX X 77 or ARDEX X 77 S. As a grouting compound we recommend ARDEX G8S FLEX, ARDEX G7N FLEX or ARDEX GK. In wet rooms, ARDEX 8+9 can be applied as a waterproof membrane prior to tiling.

Additional information

The hardening and drying times showed are subject to normal temperatures (approx. 20 °C) and a relative humidity of approx. 50 % RH. Lower temperatures and a higher humidity will extend the drying time.

Levelling and tiling of steel deck surfaces will require that the steel sub-floor is sufficiently rigid to avoid cracks in the tiling, caused by movements and deflections in the steel deck.

Note: We point out that fire tests have not been conducted and that no certifications have been obtained for the tile adhesives and the tile grouts, as this is not usually required by the authorities.

References

ROYAL CARIBBEAN INTERNATIONAL

M/S FREEDOM OF THE SEAS, Nb 1352, Cruise Liner (USPH)

Aker Finnyards, Turku, Finland, Delivery in 2006
Turnkey Delivery of Galleys and Provision Stores
Modular Pantries and Ice Stations
Primer: ARDEX P 82
Levelling compound: ARDEX K 15 + ARDEX E 25 (1.000 m²)
Grouting compound: ARDEX WA gray. Tile: 150*150*11 / 6 mm (1.600 m²)

FREEDOM CLASS NB 1353, Cruise Liner (USPH)

Aker Finnyards, Turku, Finland, Delivery in 2007
Turnkey Delivery of Galleys and Provision Stores
Modular Pantries and Ice Stations
Primer: ARDEX P 82
Levelling compound: ARDEX K 15 + ARDEX E 25 (1.000 m²)
Grouting compound: ARDEX WA gray. Tile: 150*150*11 / 6 mm (1.600 m²)

CARNIVAL CRUISE LINE

CARNIVAL MIRACLE, Cruise Liner (USPH)

Kvaerner Masa-Yards, Helsinki, 2004
Turn-Key delivery of Main Galley
Turn-Key delivery of Provision Stores
Turn-Key delivery of Galley and Pantries in Lido
Primer: ARDEX P 82
Levelling compound: ARDEX K 15 + ARDEX E 25 (600 m²)

BIRKA LINE

M/S BIRKA PARADISE, Cruise Ferry

Aker Finnyards, Rauma, 2004
Turn-Key delivery of Galleys and Provision Stores
Primer: ARDEX P 82
Levelling compound: ARDEX K 15 + ARDEX E 25 (300 m²)

TALLINK

M/S GALAXY, Cruise Ferry

Aker Finnyards, Rauma, 2006
Turn-key delivery of Galleys and Provision Stores
Modular Pantries, Delivery of Galley Equipment
s/s Modular Bar Counters
Primer: ARDEX P 82
Levelling compound: ARDEX K 15 + ARDEX E 25 (180 m²)
Sealing compound: ARDEX 8+9
Tile adhesive: ARDEX FB 9 L
Grouting compound: ARDEX WA

REDERIET WAXHOLMSBOLAGET

SKÄRGÅRDSBÅTARNA NORRSKÄR, SÖDERARM OCH SAXAREN

Screed: ARDEX A 35 MIX
Levelling compound: ARDEX A 45 + ARDEX E 90, ARDEX K 70 + ARDEX E 25

SCANDLINES HELSINGØR-HELSINGBORG

Toilet
Levelling compound: ARDEX K 70
Primer: ARDEX P 82
Membrane: ARDEX 8+9
Tile adhesive and grout: ARDEX WA

SCANDLINES RØDBY-PUTTGARDEN

Galleys, corridors, restaurant and cafeteria
Levelling compound: ARDEX K 15 + ARDEX E 25, ARDEX A 45, ARDEX K 55
Primer: ARDEX P 82
Membrane: ARDEX 8+9
Tile adhesive: ARDEX X 77
Grout: ARDEX GK

BORNHOLMSTRAFIKKEN, HURTIGFÆRGEN

Corridors.
Primer: ARDEX P 82
Levelling compound: ARDEX K 55

SØVÆRNET, MILJØSKIBE

Personnel facilities, gym
Screed: ARDEX A 35 MIX
Primer: ARDEX P 82
Levelling compound ARDEX K 15

MÆRSK OLIE OG GAS

HALFDAN

New floor in galley and mess hall, approx. 200 m²
Screed: ARDEX A 35 MIX
Grout: ARDEX WA
Levelling compound: ARDEX K 15

GORM

Renovation of cabins, approx. 100 m²
Screed: ARDEX A 35 MIX Class A 60
Levelling compound: ARDEX K 15

TYRA ØST

Renovation of cabins, approx. 400 m²
Levelling compound: ARDEX K 15

DONG

HORNSREV

Living quarters, galley, laundry room and bath room, approx. 150 m²
Screed: ARDEX A 35 MIX

MÆRSK DRILLING NORGE

MÆRSK GIANT

Galley and drystore, approx. 110 m²
Screed: ARDEX A 35 MIX
Tile adhesive and grout: ARDEX WA

MÆRSK INNOVATOR OG INSPIRER

Recreation room, approx. 350 m²
Levelling compound: ARDEX K 15

MÆRSK OIL QATAR

BF LOCATION

Galley, approx. 120 m²
Screed: ARDEX A 35 MIX
Tile adhesive and grout: ARDEX WA

NORTHERN OFFSHORE

ENERGY ENDEAVOUR

Renovation of living quarters, approx. 200 m²
Screed: ARDEX A 35 MIX Class A 60
Levelling compounds: ARDEX K 15

QS - CERTIFICATE OF ASSESSMENT - EC (MODULE D)

Certificate No:
MEDD00000TG
Revision No:
4

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Quality System for the products

with type designation(s) as specified in the Appendix to this Certificate

Issued to

Ardex Skandinavia A/S
Herlev, Denmark

is found to comply with the applicable requirements.

The quality system has been assessed with respect to the procedure of conformity assessment described in Annex II, Module D in the directive 2014/90/EU and regulation (EU) 2018/773.

This Certificate is valid until **2024-01-06**.

Issued at **Høvik** on **2019-09-23**

DNV GL local station:
Denmark CMC

Approval Engineer:
Tessa Biever



Notified Body
No.: **0575**



for **DNV GL AS**
Digitally Signed By: Hoff, Øyvind
Location: DNV GL Høvik, Norway
on behalf of

Roald Vårheim
Head of Notified Body

The manufacturer is allowed to affix the U.S. Coast Guard approval number(s) as stated in the appendix attached hereto and as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.



0575/yyyy

0575: Notified Body number undertaking quality surveillance
yyyy: The year in which the mark is affixed



The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate authorizes the manufacturer in conjunction with the valid EC Type Examination (Module B) Certificate(s) of the equipment listed before to affix the Mark of Conformity (wheelmark) to the product described herein. This certificate loses its validity if the manufacturer makes any changes to the approved quality system which have not been notified to and agreed with the notified body named on this certificate. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. The Manufacturer has to apply for periodical audits to verify the maintenance and application for the quality system every 12 months.



Form code: MED 211.NOR

Revision: 2017-07

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Page 1 of 2

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Job Id: 344.1-000716-29
Certificate No: MEDD00000TG
Revision No: 4

APPENDIX

Item no. MED/3.1 Primary deck coverings

Type designation	EC Type-Examination Certificate No.	Expiry date	Notified Body No.	USCG approval number
Ardex K40 ^{1, 2}	MEDB00005E5	2024-06-18	0575	164.106/EC0575 /MEDB00005E5
Ardex K 60 ^{1, 2}	MEDB00003XZ	2023-08-12	0575	164.106/EC0575 /MEDB00003XZ
Ardex K 55 ¹	MEDB00001MU Rev.1	2021-09-14	0575	164.106/EC0575 /MEDB00001MU Rev.1
Ardex A 45 + Hyperlite + Ardex E 90 ²	MEDB000009D	2020-09-29	0575	164.106/EC0575 /MEDB000009D
Ardex K 15 + E25 / Ardex K 15 Ny + E25 / Ardex K 15 DR + E25 ^{1, 2}	MEDB000009G Rev.1	2020-09-29	0575	164.106/EC0575 /MEDB000009G
Ardex K 70 + Ardex E 25 ²	MEDB000009E	2020-09-29	0575	164.106/EC0575 /MEDB000009E
Ardex K 80 ²	MEDB000009F	2020-09-29	0575	164.106/EC0575 /MEDB000009F
ARDEX LM 5 L 2-20 ¹	MED-B-9869	2020-05-13	0575	164.106/EC0575 /9869

Item no. MED/3.11a "A" Class divisions, fire integrity

Type designation	EC Type-Examination Certificate No.	Expiry date	Notified Body No.	USCG approval number
Ardex A35-mix ²	MEDB00005A0 Rev.1	2024-05-19	0575	164.105/EC0575 /MEDB00005A0 Rev.1

Places of production

- 1.ARDEX GmbH, Friedrich-Ebert-Str. 45, Witten, Germany
- 2.Ardex Skandinavia A/S, Hecovej 4, Hedensted, Denmark

EC-TYPE EXAMINATION CERTIFICATE

Certificate No:
MEDB000009D

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Primary deck coverings

with type designation(s)
Ardex A 45 + Hyperlite + Ardex E 90

Issued to

Ardex Skandinavia A/S
HERLEV, Denmark

is found to comply with the requirements in the following Regulations/Standards:
Annex A.1, item No. A.1/3.1 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation II-2/4, II-2/6 & X/3, 2000 HSC Code 7 and IMO 2010 FTP Code

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2015-09-30
for DNV GL AS



This Certificate is valid until
2020-09-29


Vidar Dolonen
Head of Department

Notified Body No.: **0575**

DNV GL local office:
Copenhagen


Aleksandr Jegorov
Surveyor



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Job Id: **344.1-000716-16**
Certificate No: **MEDB000009D**

Product description

"Ardex A 45 + Hyperlite + Ardex E 90"
composed of "Ardex A 45" added 15,6 litres "Hyperlite" mixed with 5,5 litres water and 2,5 litres "Ardex E 90" per 25 kg "Ardex A 45". 3 mm top layer of "Ardex K15" added 2 litres "Ardex E 25" + 5 litres water per 25 kg "Ardex K15".
Thickness 11 mm. Density app. 1,1 kg/litre. Substrate primed with "Ardex P 82" before application.

Application/Limitation

Primary deck covering, not generating excessive quantities of smoke nor toxic products in fire.

Approved for use throughout the accommodation.

Not to be used as an integrated part of horizontal class A division unless tested as such.

Each product is to be supplied with its manual for installation, use and maintenance.

Type Examination documentation

Test report no. 102010.70/01.028 D dated 19 February 2001 from SINTEF Norwegian Fire Research Laboratory, Trondheim, Norway.

Tests carried out

Tested according to IMO FTPC Part 6 and IMO FTPC Annex 2, section 2.2 and in compliance with IMO 2010 FTP Code Ch. 8.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation, MED Mark of Conformity and USCG approval if applicable (see below).

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

- Module D: The quality system for production and testing shall be approved by the Notified Body.
- Module E: The quality system for inspection and testing shall be approved by the Notified Body.
- Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

An U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of certificates of conformity for marine equipment" signed 17 October 2005.



EC-TYPE EXAMINATION CERTIFICATE

Certificate No:
MEDB000009G
Revision No:
1

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Primary deck coverings

with type designation(s)

Ardex K 15 + E25 / Ardex K 15 Ny + E25 / Ardex K 15 DR + E25

Issued to

Ardex Skandinavia A/S
HERLEV, Denmark

is found to comply with the requirements in the following Regulations/Standards:

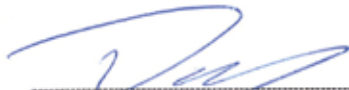
Annex A.1, item No. A.1/3.1 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation II-2/4, II-2/6 & X/3, 2000 HSC Code 7 and IMO 2010 FTP Code

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2015-11-24
for DNV GL AS



This Certificate is valid until
2020-09-29


Vidar Dolonen
Head of Department

Notified Body No.: **0575**

DNV GL local office:
Copenhagen


Aleksandr Jegorov
Surveyor



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Job Id: **344.1-000175-6**
Certificate No: **MEDB000009G**
Revision No: **1**

Product description

"Ardex K 15 + E25 / Ardex K15 Ny + E25 / Ardex K 15 DR + E25"

Ardex K 15, Ardex K 15 Ny or Ardex K 15 DR are all diluted with Ardex E25. The mixing ratio between water and Ardex E25 is 2.5 litre water to 1.0 litre Ardex E25. Density of Ardex K 15 / Ardex K15 Ny / Ardex K 15 DR is approx. 1.8 kg/litre (mixed). Substrate primed with Ardex P82 before application.

Thickness 2-35 mm.

Application/Limitation

Primary deck covering, not generating excessive quantities of smoke nor toxic products in fire.

Approved for use throughout the accommodation.

The product may also be used as floor covering.

Not to be used as an integrated part of horizontal class A division unless tested as such.

Each product is to be supplied with its manual for installation, use and maintenance.

Type Examination documentation

Test report No. 14896 dated 5 January 2015 from Danish Institute of Fire and Security Technology, Hvidovre Denmark.

Tests carried out

Tested according to IMO 2010 FTP Code Part 5 and Annex 2, section 2.2.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation, fire-technical rating, MED Mark of Conformity and USCG approval if applicable (see below).

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

Module D: The quality system for production and testing shall be approved by the Notified Body.

Module E: The quality system for inspection and testing shall be approved by the Notified Body.

Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.



EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00001MU
Revision No:
1

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Primary deck coverings

with type designation(s)
Ardex K 55

Issued to

Ardex Skandinavia A/S
Herlev, Hovedstaden, Denmark

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2018/773**,
item No. **MED/3.1. SOLAS 74 as amended, Regulation II-2/4, II-2/6 & X/3, 2000 HSC Code 7**
and **IMO 2010 FTP Code**

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2021-09-14**.

Issued at **Høvik** on **2018-09-10**

DNV GL local station:
Fredericia

Approval Engineer:
Tessa Biever



Notified Body
No.: **0575**



for **DNV GL AS**
Digitally Signed By: Hoff, Øyvind
Location: DNV GL Høvik, Norway
on behalf of

Roald Vårheim
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



Form code: MED 201.NOR

Revision: 2017-07

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Page 1 of 2

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Job Id: **344.1-000716-24**
Certificate No: **MEDB00001MU**
Revision No: **1**

Product description

"Ardex K 55"

Composed of "Ardex K 55" powder mixed with water. "Ardex K 55" powder is cementbased with additives and plastic materials. Substrate primed with "Ardex P 82" before application.

Nominal thickness: 8 mm

Mixing ratio: 25 kg "Ardex K 55" powder to 6,5 l water

Density of "Ardex K 55" (mixed with water): 1,9 kg/litre

Application/Limitation

Primary deck covering, not generating excessive quantities of smoke nor toxic products in fire.

Not to be used as an integrated part of horizontal class A division unless tested as such.

Each product is to be supplied with its manual for installation and maintenance.

Type Examination documentation

Test report no. 102010.70/02.070 dated 17 April 2002 from SINTEF Norwegian Fire Research Laboratory, Trondheim, Norway (name of product as tested : Ardex A 55).

Statement from manufacturer – Ardex A 55 is identical to Ardex K 55

Tests carried out

Tested according to IMO FTP Code Part 5 and Annex 2 item 2.2 and in compliance with IMO 2010 FTP Code Ch. 8.

Marking of product

The product or packing is to be marked with name and address of manufacturer, type designation, fire-technical rating, Mark of Conformity and USCG approval number if applicable (see page 1).

EC-TYPE EXAMINATION CERTIFICATE

Certificate No:
MEDB000009E

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Primary deck coverings

with type designation(s)
Ardex K 70 + Ardex E 25

Issued to

Ardex Skandinavia A/S
HERLEV, Denmark

is found to comply with the requirements in the following Regulations/Standards:

Annex A.1, item No. A.1/3.1 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation II-2/4, II-2/6 & X/3, 2000 HSC Code 7 and IMO 2010 FTP Code

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2015-09-30
for **DNV GL AS**



This Certificate is valid until
2020-09-29


Vidar Dolonen
Head of Department

Notified Body No.: **0575**

DNV GL local office:
Copenhagen


Aleksandr Jegorov
Surveyor



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Job Id: **344.1-000716-16**
Certificate No: **MEDB000009E**

Product description

"Ardex K 70 + Ardex E 25"
composed of "Ardex K 70" added 1,75 litres "Ardex E 25" per 25 kg "Ardex K 70".
Thickness 7 mm. Density of "Ardex K 70" 1,7 kg/litre. Substrate primed with "Ardex P 82" before application.

Application/Limitation

Primary deck covering, not generating excessive quantities of smoke nor toxic products in fire.

Approved for use throughout the accommodation.

Not to be used as an integrated part of horizontal class A division unless tested as such.

Each product is to be supplied with its manual for installation, use and maintenance.

Type Examination documentation

Test report no. 102010.70/01.028 A dated 19 February 2001 from SINTEF Norwegian Fire Research Laboratory, Trondheim, Norway.

Tests carried out

Tested according to IMO FTPC Part 6 and IMO FTPC Annex 2, section 2.2 and in compliance with IMO 2010 FTP Code Ch. 8.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation, fire technical rating, MED Mark of Conformity and USCG approval if applicable (see below).

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

Module D: The quality system for production and testing shall be approved by the Notified Body.

Module E: The quality system for inspection and testing shall be approved by the Notified Body.

Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

An U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of certificates of conformity for marine equipment" signed 17 October 2005.



DNV·GL

Certificate No:
MEDB000009F

EC-TYPE EXAMINATION CERTIFICATE

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Primary deck coverings

with type designation(s)
Ardex K 80

Issued to


Ardex Skandinavia A/S
HERLEV, Denmark

is found to comply with the requirements in the following Regulations/Standards:

Annex A.1, item No. A.1/3.1 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation II-2/4, II-2/6 & X/3, 2000 HSC Code 7 and IMO 2010 FTP Code

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2015-09-30
for DNV GL AS



Vidar Dolonen
Head of Department



Notified Body No.: **0575**

DNV GL local office:
Copenhagen

This Certificate is valid until
2020-09-29



Aleksandr Jegorov
Surveyor



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Job Id: **344.1-000716-16**
Certificate No: **MEDB000009F**

Product description

"Ardex K 80"

composed of "Ardex K 80" with thickness 8 mm. Density of "Ardex K 80" 1,7 kg/litre. Substrate primed with "Ardex P 82" before application.
Maximum thickness – 50mm.

Application/Limitation

Primary deck covering, not generating excessive quantities of smoke nor toxic products in fire.

Approved for use throughout the accommodation.

The product may also be used as floor covering.

Not to be used as an integrated part of horizontal class A division unless tested as such.

Each product is to be supplied with its manual for installation, use and maintenance.

Type Examination documentation

Test report No. 14895 dated 5 January 2015 from Danish Institute of Fire and Security Technology (DBI), Hvidovre Denmark.

Tests carried out

Tested according to IMO 2010 FTP Code part 5 and Annex 2, Item 2.2.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation, MED Mark of Conformity and USCG approval if applicable (see below).

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

- Module D: The quality system for production and testing shall be approved by the Notified Body.
- Module E: The quality system for inspection and testing shall be approved by the Notified Body.
- Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

An U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of certificates of conformity for marine equipment" signed 17 October 2005.



EC-TYPE EXAMINATION CERTIFICATE

Certificate No:
MED-B-9869
Item No:
A.1/3.1
Job Id:
344.1-004669-1

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2013/52/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Primary deck coverings

with type designation(s)
ARDEX LM 5 L 2-20

Issued to

Ardex Skandinavia A/S
HERLEV, Denmark

is found to comply with the requirements in the following Regulations/Standards:

Annex A.1, item No. A.1/3.1 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation II-2/4, II-2/6 & X/3, 2000 HSC Code 7 and IMO FTP Code

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2015-05-13
for **DNV GL AS**



This Certificate is valid until
2020-05-13

Marianne Strand Valderhaug
Head of Department

Notified Body No.: **0575**

DNV GL local office:
Copenhagen

Øyvind Hoff
Surveyor



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Certificate No: **MED-B-9869**
Item No: **A.1/3.1**
Job Id: **344.1-004669-1**

Product description

"ARDEX LM 5 L 2-20",
A cement-based compound, self-levelling and fast curing.

Bulk density (powder component): Approx. 0.61 kg/l
Fresh mortar weight: Approx. 1.1 kg/l
Density of cured mass: Approx. 0.95 kg/l

Colour: Grey
Organic content: Approx. 9.3 %

Thickness: 2-20 mm.

Application/Limitation

Primary deck covering, not generating excessive quantities of smoke nor toxic products in fire. Approved for use throughout the accommodation. Not to be used as an integrated part of horizontal class A division unless tested as such.

Each product is to be supplied with its manual for installation/ application, use and maintenance.

Type Examination documentation

Test Report File: PFB10150, Serial No. 15010 dated 20 March 2015 from Danish Institute of Fire and Security Technology (DIFT), Hvidovre, Denmark.

Tests carried out

Tested according to IMO 2010 FTP Code part 5 and Annex 2, item 2.2.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation, MED Mark of Conformity and USCG approval number if applicable (see below).

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

- Module D: The quality system for production and testing shall be approved by the Notified Body.
- Module E: The quality system for inspection and testing shall be approved by the Notified Body.
- Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.



glen

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00005A0
Revision No:
1

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the **"A" Class divisions, fire integrity**

with type designation(s)
Ardex A35-mix

Issued to

Ardex Skandinavia A/S
Herlev, Denmark

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2018/773**,

item No. **MED/3.11a. SOLAS 74 as amended, Regulation II-2/3.2 & II-2/9, IMO 2010 FTP Code, IMO MSC/Circ.1120 and IMO MSC.1/Circ.1434**

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2024-05-19**.

Issued at **Høvik** on **2019-09-11**

DNV GL local station:
Denmark CMC

Approval Engineer:
Tessa Biever



Notified Body
No.: **0575**



for **DNV GL AS**
Digitally Signed By: Schei-Nilsson, Mårten
Location: DNV GL Høvik, Norway
, on behalf of

Roald Vårheim
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



Form code: MED 201.NOR

Revision: 2017-07

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Job Id: **344.1-000716-28**
Certificate No: **MEDB00005A0**
Revision No: **1**

Product description

"Ardex A35-mix"

Class A-60 Floating floor is composed of a structural steel deck with the following two (2) layers (layer 1 is at the bottom, layer 2 at the top):

1. Layer 1: 30 mm Rockwool SeaRox SL 480 (manufactured by Rockwool with density of 200 kg/m³)
2. Layer 2: 40 mm Ardex A 35-mix (density approx. 1850 kg/m³) which consists of grey powder cement, plastpowder and 0-8 mm stones.

For further details see drawing listed under Type Examination documentation.

Application/Limitation

Approved for use as horizontal fire retarding steel division of class A-60.

The insulation materials and adhesives used have to be approved according to the Marine Equipment Directive and bear the Mark of Conformity. This requirement may also be applicable for surface materials used, if required by relevant rules and regulations.

Each product is to be supplied with its manual for installation and maintenance.

Type Examination documentation

Basis for approval:

Test report no. PGA11297A dated 2018-12-15 from DBI, Hvidovre, Denmark.

Drawing nos. ARDEX A60-1 and ARDEX A60-2, both dated 2018-11-10 from manufacturer (insulation arrangement).

Tests carried out

Tested according to IMO 2010 FTP code part 3.

Marking of product

The product is to be marked with name and address of manufacturer, type designation, fire technical rating, the MED Mark of Conformity and USCG approval if applicable (see first page).



Ardex Skandinavia A/S
Marielundvej 4
DK - 2730 Herlev

Our ref.:	Technical department
Phone.:	0045 44 88 50 50
Fax:	0045 44 88 50 60
e-mail:	ardex@ardex.dk
Date:	2017-11-29

Declaration of Conformity

We hereby declare that our product: ARDEX A 45 + hyperlite + ARDEX E 90

- is manufactured in conformity with the currently accepted production conditions, and that its composition and the technical data relating to the application (of the product) have been controlled and examined (verified) within the applicable control framework.

The production conditions and the quality assurance are in compliance with the requirements contained in;

- DNV-GL, Certificate No. MEDD00000TG
- DNV-GL, Certificate No. MED-B000009D
- Marine Equipment Directive 2014/90/EU

ARDEX SKANDINAVIA A/S

Carsten Rasmussen
Technical Manager.



Ardex Skandinavia A/S
Marielundvej 4
DK - 2730 Herlev

Our ref.:	Technical department
Phone.:	0045 44 88 50 50
Fax:	0045 44 88 50 60
e-mail:	ardex@ardex.dk
Date:	2017-11-29

Declaration of Conformity

We hereby declare that our product: ARDEX K15 / ARDEX K 15 NY / ARDEX K 15 DR + ARDEX E 25

- is manufactured in conformity with the currently accepted production conditions, and that its composition and the technical data relating to the application (of the product) have been controlled and examined (verified) within the applicable control framework.

The production conditions and the quality assurance are in compliance with the requirements contained in;

- DNV-GL, Certificate No. MEDD00000TG
- DNV-GL, Certificate No. MED-B000009G
- Marine Equipment Directive 2014/90/EU

ARDEX SKANDINAVIA A/S

Carsten Rasmussen
Technical Manager.



Ardex Skandinavia A/S
Marielundvej 4
DK - 2730 Herlev

Our ref.:	Technical department
Phone.:	0045 44 88 50 50
Fax:	0045 44 88 50 60
e-mail:	ardex@ardex.dk
Date:	2018-10-10

Declaration of Conformity

We hereby declare that our product: ARDEX K 55 manufactured in conformity with the currently accepted production conditions, and that its composition and the technical data relating to the application (of the product) have been controlled and examined (verified) within the applicable control framework.

The production conditions and the quality assurance are in compliance with the requirements contained in;

- DNV-GL, Certificate No. MEDD00000TG
- DNV-GL, Certificate No. MED-B00001MU
- Marine Equipment Directive 2014/90/EU

ARDEX SKANDINAVIA A/S

A handwritten signature in cursive script, reading "Carsten Rasmussen".

Carsten Rasmussen
Technical Manager.



Ardex Skandinavia A/S
Marielundvej 4
DK - 2730 Herlev

Our ref.:	Technical department
Phone.:	0045 44 88 50 50
Fax:	0045 44 88 50 60
e-mail:	ardex@ardex.dk
Date:	2017-11-29

Declaration of Conformity

We hereby declare that our product: ARDEX K 70 + ARDEX E 25

- is manufactured in conformity with the currently accepted production conditions, and that its composition and the technical data relating to the application (of the product) have been controlled and examined (verified) within the applicable control framework.

The production conditions and the quality assurance are in compliance with the requirements contained in;

- DNV-GL, Certificate No. MEDD00000TG
- DNV-GL, Certificate No. MED-B000009E
- Marine Equipment Directive 2014/90/EU

ARDEX SKANDINAVIA A/S

A handwritten signature in cursive script, reading "Carsten Rasmussen".

Carsten Rasmussen
Technical Manager.



Ardex Skandinavia A/S
Marielundvej 4
DK - 2730 Herlev

Our ref.:	Technical department
Phone.:	0045 44 88 50 50
Fax:	0045 44 88 50 60
e-mail:	ardex@ardex.dk
Date:	2017-11-29

Declaration of Conformity

We hereby declare that our product: ARDEX K 80 manufactured in conformity with the currently accepted production conditions, and
that its composition and the technical data relating to the application (of the product) have been controlled and examined (verified) within the applicable control framework.

The production conditions and the quality assurance are in compliance with the requirements contained in;

- DNV-GL, Certificate No. MEDD00000TG
- DNV-GL, Certificate No. MED-B000009F
- Marine Equipment Directive 2014/90/EU

ARDEX SKANDINAVIA A/S

Carsten Rasmussen
Technical Manager.



Ardex Skandinavia A/S
Marielundvej 4
DK - 2730 Herlev

Our ref.:	Technical department
Phone.:	0045 44 88 50 50
Fax:	0045 44 88 50 60
e-mail:	ardex@ardex.dk
Date:	2017-11-29

Declaration of Conformity

We hereby declare that our product: ARDEX A 35 and ARDEX A 35 MIX

- is manufactured in conformity with the currently accepted production conditions, and that its composition and the technical data relating to the application (of the product) have been controlled and examined (verified) within the applicable control framework.

The production conditions and the quality assurance are in compliance with the requirements contained in;

- DNV-GL, Certificate No. MEDD00000TG
- Det Norske Veritas, Certificate No. MED-B-8964
- Marine Equipment Directive 2014/90/EU

ARDEX SKANDINAVIA A/S

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Declaration of Conformity

We hereby declare that our product: ARDEX LM 5 L 2-20

- is manufactured in conformity with the currently accepted production conditions, and that its composition and the technical data relating to the application (of the product) have been controlled and examined (verified) within the applicable control framework.

The production conditions and the quality assurance are in compliance with the requirements contained in;

- DNV-GL, Certificate No. MEDD00000TG
- Det Norske Veritas, Certificate No. MED-B-9869
- Marine Equipment Directive 2014/90/EU

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