

Hempel NORSOK coating systems

NORSOK M-501 edition 7
system guide





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About Norsok M-501

The NORSOK standards are a series of standards developed by the Norwegian petroleum industry. The purpose of these industry standards is to replace the individual oil company specifications and to add value, reduce cost and lead time and to remove unnecessary activities in offshore field developments and operation.

NORSOK M-501 mandates a series of systems based on generic coating type and minimum scheme thicknesses. In addition, for some systems, testing requirements are also necessary for pre-qualification to this standard.

NORSOK M-501 Edition 7 is the latest version of the NORSOK standard. It was published in November 2022 with requirements covering steel quality, surface preparation, selection of coating materials, application procedures, inspections, and longer durability systems.

NORSOK M-501 approved systems from Hempel

Hempel is a global leader in Marine and Protective coatings, serving diverse industries worldwide including: Oil and Gas, Petrochemical, Civil, Infrastructure, Power, Marine and Transport.

Our tailored coating solutions, accessible through 28 factories globally and our operations in 80+ countries, protect your investments from corrosion - even in the harshest environments.

Beyond technically advanced products, our global network of skilled personnel and coating advisors ensure superior technical service, making your project delivery efficient and on-spec. We understand the challenges of selecting a coatings supplier and are committed to simplifying that decision for you.

Each of the published system sheets in this brochure provide examples of Hempel - recommended schemes, corresponding to the different systems within edition 7 of the NORSOK M-501 standards. Where a system requires pre-qualification, this is clearly stated and Hempel systems listed will have been subjected to all of the necessary pre-qualification testing. Where pre-qualification isn't mandatory, a series of recommended schemes are listed.

Exposure conditions

Atmospheric CX (Systems 1A & 1B)

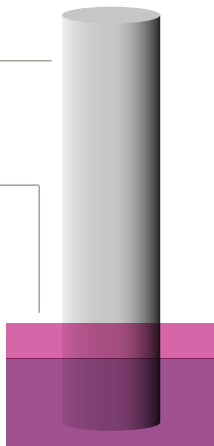
- Cyclic ageing testing (ISO 12944-9)

Splash/tidal zone CX+Im4 (System 7A)

- Cyclic ageing test (ISO 12944-9)
- Cathodic Disbonding (ISO 12944-9)
- Impact Test (ASTM G14:04, 2018)

Immersed Im4 (System 7B)

- Cathodic Disbonding (ISO 12944-9)



For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com

System 1

Atmospheric steel



System 1A: Offshore and coastal environment, non-insulated / -50 °C to +80 °C

Corrosion category: CX

Application areas: Structures, structural components, frames, base plates, enclosures, permanent lifting beams and lugs, bridges, crane boom, A-frames, lifeboat stations and rescue areas, equipment items, piping and valves.

Product	DFT (µm)
Hempel's Galvosil 15700	60
Hempadur Quattro XO 17870	180
Hempel's Pro Acrylic 55883	60
Total	300

Product	DFT (µm)
Hempel's Galvosil 15700	60
Hempaprime Multi 500 Summer	180
Hempel's Pro Acrylic 55883	60
Total	300

Product	DFT (µm)
Hempel's Galvosil 15700	60
Hempaprime Multi 500 Summer	180
Hempathane HS 55610	60
Total	300

Product	DFT (µm)
Hempel's Galvosil 15700	60
Hempaprime Multi 500 Winter	180
Hempel's Pro Acrylic 55883	60
Total	300

Product	DFT (µm)
Hempel's Galvosil 15700	60
Hempaprime Multi 500 Winter	180
Hempathane HS 55610	60
Total	300

Note 1: Pre-qualification is required.

Note 2: Topcoats in system 1A & 1B can be exchanged with another topcoat.

Pre-qualified topcoats are Hempathane HS 55610, Hempathane Speed-Dry Topcoat 250, Hempel's Pro Acrylic 55883, Hemuthane Enamel 58510, and Hempaxane Light 55030.

System 1

Atmospheric steel



System 1B: Offshore and coastal environment, non-insulated / -50 °C to +80 °C

Corrosion category: CX

Application areas: Structures, structural components, frames, base plates, enclosures, permanent lifting beams and lugs, bridges, crane boom, A-frames, lifeboat stations and rescue areas, equipment items, piping and valves.

Product	DFT (µm)
Hempadur Avantguard 750	60
Hempadur 4774D	180
Hempathane HS 55610	60
Total	300

Product	DFT (µm)
Hempadur Avantguard 750	60
Hempaprime Multi 500 Summer	180
Hempathane HS 55610	60
Total	300

Product	DFT (µm)
Hempadur Avantguard 750	60
Hempaprime Multi 500 Winter	180
Hempathane Speed-Dry Topcoat 250	60
Total	300

Product	DFT (µm)
Hempadur Avantguard 770	60
Hempadur 4774D	180
Hempathane HS 55610	60
Total	300

Product	DFT (µm)
Hempadur Avantguard 770	60
Hempaprime Multi 500 Summer	180
Hempathane Speed-Dry Topcoat 250	60
Total	300

Product	DFT (µm)
Hempadur Avantguard 770	60
Hempaprime Multi 500 Winter	180
Hempathane HS 55610	60
Total	300

Product	DFT (µm)
Hempadur Avantguard 860	60
Hempaprime Multi 500 Summer	180
Hempathane HS 55610	60
Total	300

Product	DFT (µm)
Hempadur Avantguard 860	60
Hempaprime Multi 500 Winter	180
Hempathane HS 55610	60
Total	300

Note 1: Pre-qualification is required.

Note 2: Topcoats in system 1A & 1B can be exchanged with another topcoat. Pre-qualified topcoats are Hempathane HS 55610, Hempathane Speed-Dry Topcoat 250, Hempel's Pro Acrylic 55883, Hemuthane Enamel 58510, and Hempaxane Light 55030.

Note 3: Avantguard® is a registered trademark of Hempel A/S.



Product	DFT (µm)
Hempadur Avantguard 770	60
Hempadur 18500	100
Hempadur 18500	100
Hempathane Enamel 58510	40
Total	300

Product	DFT (µm)
Hempadur Avantguard 750	60
Hempaprime Multi 500 Summer	180
Hempel's Pro Acrylic 55883	60
Total	300

System 1D: Offshore and coastal environment, insulated / -50°C to +200°C

Corrosion category: NA

Application areas: Structures, structural components, equipment items, piping and valve

Product	DFT (µm)
Hempaprime CUI 275	125
Hempaprime CUI 275	125
Total	250

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com

System 2

Metalised and stainless steel



System 2A / System 2C (stainless steel only): Offshore and coastal environment, submerged, buried, insulated and non-insulated / +80°C to +595°C

Corrosion category: CX, CX+Im4, Im4, Im3

Application areas: Exhaust stack, flare stack, pressure vessels, equipment, piping and valves, and pumps.

Product	DFT (µm)
Thermally Sprayed Aluminium or alloys of Aluminium	200
Hempadur 15570 (diluted) ²	Sealer
Total	200

Product	DFT (µm)
Thermally Sprayed Aluminium or alloys of Aluminium	200
Hempel's Silicone Aluminium 56914/3 ³	Sealer
Total	200

Product	DFT (µm)
Thermally Sprayed Aluminium or alloys of Aluminium	200
Hempel's Sealer 05990 ²	Sealer
Total	200

Note 1: Pre-qualification is not required.

Note 2: Sealer shall be two-component epoxy for operating temperatures below 80°C.

As pre-qualification is not required other options are available according to local assortment.

Note 3: Sealer shall be aluminium silicone for above +80°C.



System 2B: Offshore and coastal environment, non-insulated / -50°C to +80°C

Corrosion category: CX

Application areas: Structures, structural components, equipment items, piping and valves.

Product	DFT (µm)
Thermally Sprayed Zinc or alloys of Zinc	100
Hempaprime Multi 500 Summer / Winter (diluted) ¹	Sealer
Hempaprime Multi 500 Summer / Winter	125
Hempathane HS 55610 ²	75
Total	300

Product	DFT (µm)
Thermally Sprayed Zinc or alloys of Zinc	100
Hempaprime Multi 500 Summer / Winter (diluted) ¹	Sealer
Hempaprime Multi 500 Summer / Winter	125
Hempel's Pro Acrylic 55883 ²	75
Total	300

Note 1: Sealer and subsequent coats shall be pre-qualified as part of system 1A.
 Note 2: Topcoats in system 1A & 1B can be exchanged with another topcoat.
 Pre-qualified topcoats are Hempathane HS 55610, Hempathane Speed-Dry Topcoat 250, Hempel's Pro Acrylic 55883, Hemuthane Enamel 58510, and Hempaxane Light 55030.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com

System 3

Tanks



System 3B: Internal lining combined with cathodic protection for tanks containing corrosive waters / -20°C to 50°C

Corrosion category: NA

Application areas: Internal surface of carbon steel tanks.

Product	DFT (µm)
Hempadur Quattro XO 17720	175
Hempadur Quattro XO 17720	175
Total	350

Note: Pre-qualification is required.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com

System 4

Decks

System 4A: Offshore and coastal environment, non-insulated /
-20°C to +80°C

Corrosion category: CX

Application areas: Walkways, escape routes, decks and floors, helideck, heavy duty

Product	DFT (µm)
Hempadur 15570	50
Hempadur Spray-Guard 35490	3000
Total	3050

Product	DFT (µm)
Hempadur 15570	50
Hempadur Spray-Guard 35493	3000
Total	3050

Product	DFT (µm)
Hempadur Spray-Guard 35490	3000
Total	3000

Note: Pre-qualification is required.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com

System 6

Other metals when painting is required

System 6A: Offshore and coastal environment, non-insulated / -50°C to +80°C (Stainless steel)

Corrosion category: CX

Application areas: Structures, structural components, equipment items, piping and valves.

Product	DFT (µm)
Hempadur 15570	50
Hempaprime Multi 500 Summer / Winter	100
Hempel's Pro Acrylic 55883	75
Total	225

Product	DFT (µm)
Hempadur 15590	50
Hempaprime Multi 500 Summer / Winter	100
Hempel's Pro Acrylic 55883	75
Total	225

System 6B: Offshore and coastal environment, non-insulated / -50°C to +80°C (HDG steel)

Corrosion category: CX

Application areas: Structures, structural components, equipment items, piping and valves.

Product	DFT (µm)
Hempadur 15553	50
Hempaprime Multi 500 Summer / Winter	100
Hempel's Pro Acrylic 55883	75
Total	225

Note 1: Pre-qualification is not required.

Note 2: As pre-qualification is not required it can be specified according to the generic requirement with Hempel products according to local assortment.



System 6C: Offshore and coastal environment, insulated / -50°C to +200°C (Stainless steel)

Corrosion category: NA

Application areas: Pressure vessels, piping and valves.

Product	DFT (µm)
Hempaprime CUI 275	125
Hempaprime CUI 275	125
Total	250

System 6D: Offshore and coastal environment, non-insulated / -50°C to +80°C (Aluminium)

Corrosion category: CX

Application areas: Structures, structural components, equipment items, piping and valves.

Product	DFT (µm)
Hempadur 15570	50
Hempaprime Multi 500 Summer / Winter	100
Hempel's Pro Acrylic 55883	75
Total	225

Product	DFT (µm)
Hempadur 15590	50
Hempaprime Multi 500 Summer / Winter	100
Hempel's Pro Acrylic 55883	75
Total	225

Note 1: Pre-qualification is required for system 6C but not for system 6D.
Note 2: As pre-qualification is not required for system 6D, it can be specified according to the generic requirement with Hempel products according to local assortment.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com

System 7

Submerged carbon and stainless-steel including splash zone



System 7A / System 7D (stainless steel only): Splash and tidal zones combined with cathodic protection, up to +50°C

Corrosion category: CX+Im4

Application areas: Structures, structural components, equipment items, piping and valves.

Product	DFT (µm)
Hempadur Multi-Strength 35840	500
Hempadur Multi-Strength 35840	500
Total	1000

Product	DFT (µm)
Hempaprime Strength 530	500
Hempaprime Strength 530	500
Total	1000

Note: Pre-qualification is required.

System 7B / System 7E (stainless steel only): Seawater combined with cathodic protection, up to +50°C

Corrosion category: Im4

Application areas: Structures, structural components, equipment items, piping and valves.

Product	DFT (µm)
Hempaprime Strength 530	300
Hempaprime Strength 530	300
Total	600

Product	DFT (µm)
Hempadur 35620	175
Hempadur 35620	175
Total	350

Product	DFT (µm)
Hempadur 35620	200
Hempadur 35620	200
Total	400

Product	DFT (µm)
Hempadur Quattro XO 17720	175
Hempadur Quattro XO 17720	175
Total	350



Product	DFT (µm)
Hempaprime Multi 500 Winter ²	175
Hempaprime Multi 500 Winter	175
Total	350

Note 1: Pre-qualification is required.

Note 2: 1st coat of Hempaprime Multi 500 Winter is Aluminium version based on System 7B.

System 7C / System 7F (stainless steel only):

Seawater combined with cathodic protection, up to +150°C

Corrosion category: Im4

Application areas: Pressure vessels, piping and valves.

Product	DFT (µm)
Hempadur 85671	125
Hempadur 85671	125
Hempadur 85671	100
Total	350

Note: Pre-qualification is required.

System 7C / System 7F (stainless steel only):

Seawater combined with cathodic protection, up to +180°C

Product	DFT (µm)
Hempadur 85671 ²	175
Hempadur 85671	175
Total	350

Note 1: Pre-qualification is required.

Note 2: 1st coat of Hempadur 85671 is Aluminium version based on System 7C for seawater combined with cathodic protection, up to +180°C.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com

System 8

Internal areas (Heating Ventilation and Air-conditioning- HVAC)



System 8: In HVAC controlled environment /
-50°C to +80°C

Corrosion category: C1

Application areas: Structures, structural components, equipment items, piping and valves.

Product	DFT (µm)
Hempadur Quattro XO 17720	150
Total	150

Product	DFT (µm)
Hempaprime Multi 500 Summer / Winter	150
Total	150

Note 1: Pre-qualification is not required.
Note 2: As pre-qualification is not required it can be specified according to the generic requirement with Hempel products according to local assortment.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com



System 9

Cryogenic

System 9: Offshore and coastal environments, insulated, below -50°C

Corrosion category: NA

Application areas: Equipment items, piping, and valves in cryogenic service.

Product	DFT (µm)
Hempaprime CUI 275	150
Hempaprime CUI 275	150
Total	300

Note: Pre-qualification is required.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email hempel@hempel.com





As a world-leading supplier of trusted coating solutions, Hempel is a global company with strong values, working with customers in the energy, infrastructure, industrial, marine, decorative, container and yacht industries. Hempel factories, R&D centres and stock points are established in every region.

Across the globe, Hempel's coatings protect surfaces, structures and equipment. They extend asset lifetimes, reduce maintenance costs and make homes and workplaces safer and more colourful. Hempel was founded in Copenhagen, Denmark in 1915. It is proudly owned by the Hempel Foundation, which ensures a solid economic base for the Hempel Group and supports cultural, social, humanitarian and scientific purposes around the world.

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