

# Hempel NORSOK coating systems

NORSOK M-501 edition 7  
system guide





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# Hempel NORSOK coating systems

## 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)

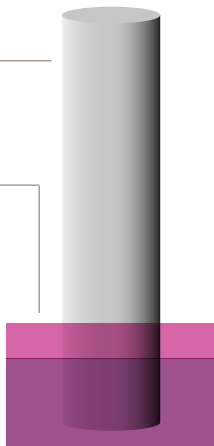
- Cyclic ageing testing (ISO 12944-9)

### 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](mailto: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
<b>Total</b>	<b>300</b>

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

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

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

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

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
<b>Total</b>	<b>300</b>

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

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

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

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

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

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

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

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
<b>Total</b>	<b>300</b>

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

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

**Corrosion category: CX**

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

Product	DFT (µm)
Hempaprime CUI 275	125
Hempaprime CUI 275	125
<b>Total</b>	<b>250</b>

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email [hempel@hempel.com](mailto: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) <sup>2</sup>	25
<b>Total</b>	<b>225</b>

Product	DFT (µm)
Thermally Sprayed Aluminium or alloys of Aluminium	200
Hempel's Silicone Aluminium 56914/3 <sup>3</sup>	25
<b>Total</b>	<b>225</b>

Product	DFT (µm)
Thermally Sprayed Aluminium or alloys of Aluminium	200
Hempel's Sealer 05990	25
<b>Total</b>	<b>225</b>

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)	25
Hemaprime Multi 500 Summer / Winter	125
Hempathane HS 55610	75
<b>Total</b>	<b>325</b>

Product	DFT (µm)
Thermally Sprayed Zinc or alloys of Zinc	100
Hempaprime Multi 500 Summer / Winter (diluted)	25
Hemaprime Multi 500 Summer / Winter	125
Hempel's Pro Acrylic 55883	75
<b>Total</b>	<b>325</b>

Note: Sealer and subsequent coats shall be pre-qualified as part of system 1A.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email [hempel@hempel.com](mailto: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
<b>Total</b>	<b>350</b>

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](mailto: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
<b>Total</b>	<b>3050</b>

Product	DFT (µm)
Hempadur 15570	50
Hempadur Spray-Guard 35493	3000
<b>Total</b>	<b>3050</b>

Product	DFT (µm)
Hempadur Spray-Guard 35490	3000
<b>Total</b>	<b>3000</b>

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](mailto: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:** NA

**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
<b>Total</b>	<b>225</b>

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

**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
<b>Total</b>	<b>225</b>

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: CX**

**Application areas:** Pressure vessels, piping and valves.

Product	DFT (µm)
Hempaprime CUI 275	125
Hempaprime CUI 275	125
<b>Total</b>	<b>250</b>

## 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
<b>Total</b>	<b>225</b>

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

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](mailto: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, CX+Im4 ref. ISO 12944-2

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

Product	DFT (µm)
Hempadur Multi-Strength 35840	500
Hempadur Multi-Strength 35840	500
<b>Total</b>	<b>1000</b>

Product	DFT (µm)
Hempaprime Strength 530	500
Hempaprime Strength 530	500
<b>Total</b>	<b>1000</b>

Note: Pre-qualification test is required only for carbon steel substrates (7A/B/C).

**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
<b>Total</b>	<b>600</b>

Product	DFT (µm)
Hempadur 35620	175
Hempadur 35620	175
<b>Total</b>	<b>350</b>

Product	DFT (µm)
Hempadur 35620	200
Hempadur 35620	200
<b>Total</b>	<b>400</b>

Product	DFT (µm)
Hempadur Quattro XO 17720	175
Hempadur Quattro XO 17720	175
<b>Total</b>	<b>350</b>



Product	DFT (µm)
Hempaprime Multi 500 Winter <sup>2</sup>	175
Hempaprime Multi 500 Winter	175
<b>Total</b>	<b>350</b>

Note 1: Pre-qualification test is required only for carbon steel substrates (7A/B/C)

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	175
Hempadur 85671	175
<b>Total</b>	<b>350</b>

Product	DFT (µm)
Hempadur 85671	125
Hempadur 85671	125
Hempadur 85671	100
<b>Total</b>	<b>350</b>

Note 1: Pre-qualification test is required only for carbon steel substrates (7A/B/C).

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

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

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

Product	DFT (µm)
Hempadur 85671 <sup>2</sup>	175
Hempadur 85671	175
<b>Total</b>	<b>350</b>

Note 1: Pre-qualification test is required only for carbon steel substrates (7A/B/C).

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](mailto: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
<b>Total</b>	<b>150</b>

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

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](mailto:hempel@hempel.com)



# System 9

Cryogenic

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

**Corrosion category:** CX

**Application areas:** Internal surface of carbon steel tanks

Product	DFT (µm)
Hempaprime CUI 275	150
Hempaprime CUI 275	150
<b>Total</b>	<b>300</b>

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](mailto: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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