

# 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.

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email [hempel@hempel.com](mailto:hempel@hempel.com)

## 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)



# System 1

Atmospheric steel



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

**Corrosion category: CX**

**Pre-qualification is required**

**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
Hempaprime Multi 500	180
Hempathane HS 55610	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>

Product	DFT (µm)
Hempaprime Ultimate 850	60
Hempaprime Multi 500	180
Hempathane HS 55610	60
<b>Total</b>	<b>300</b>

Product	DFT (µm)
Hempaprime Ultimate 850	60
Hempaprime Multi 500 Winter	180
Hempathane HS 55610	60
<b>Total</b>	<b>300</b>

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>

Note 1: 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 (Non isocyanate)  
 Hempaxane Light 55030 (Non isocyanate)  
 Hemuthane WB Top 58530 (Waterborne)

# System 1

Atmospheric steel



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

Corrosion category: CX

Pre-qualification is required

**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
Hempaprime Multi 500	180
Hempathane HS 55610	60
<b>Total</b>	<b>300</b>

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

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

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 750 Pro	60
Hempaprime Multi 500	180
Hempathane HS 55610	60
<b>Total</b>	<b>300</b>

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

Note 1: 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 (Non isocyanate)  
 Hempaxane Light 55030 (Non isocyanate)  
 Hemuthane WB Top 58530 (Waterborne)  
 Note 2: Avantguard® is a registered trademark of Hempel A/S.

# System 1

Atmospheric steel



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

**Corrosion category:** NA  
**Pre-qualification is required**

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

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

**System 1F:** Buried in soil / -50°C to +80°C

**Corrosion category:** Im3  
**Pre-qualification is required**

**Application areas:** Structures and piping

Product	DFT (µm)
Hempel's Polyester GF 35990	500
Hempel's Polyester GF 35990	500
<b>Total</b>	<b>1000</b>

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 1: System with Hempaprime Strength 530 has been tested with glassflake version.

# 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

**Pre-qualification is not required**

**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>1</sup>	Sealer
<b>Total</b>	<b>200</b>

Product	DFT (µm)
Thermally Sprayed Aluminium or alloys of Aluminium	200
Hempel's Silicone Aluminium 56914/3 <sup>2</sup>	Sealer
<b>Total</b>	<b>200</b>

Product	DFT (µm)
Thermally Sprayed Aluminium or alloys of Aluminium	200
Hempel's Sealer 05990 <sup>1</sup>	Sealer
<b>Total</b>	<b>200</b>

Note 1: 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 2: 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

**Pre-qualification is not required<sup>1</sup>**

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

Product	DFT (µm)
Thermally Sprayed Zinc or alloys of Zinc	100
Hempaprime Multi 500	Sealer
Hempaprime Multi 500	125
Hempathane HS 55610 <sup>1</sup>	75
<b>Total</b>	<b>300</b>

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

Note 1: Sealer and the subsequent coats shall be pre-qualified as part of the system 1A  
 Pre-qualified topcoats are:  
 Hempathane HS 55610  
 Hempathane Speed-Dry Topcoat 250  
 Hempel's Pro Acrylic 55883 (Non isocyanate)  
 Hempaxane Light 55030 (Non isocyanate)  
 Hemuthane WB Top 58530 (Waterborne)

# System 3

## Tanks

### System 3A: Potable water / -20°C to +40°C

**Corrosion category: NA**  
**Pre-qualification required.**

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

Product	DFT (µm)
Hempadur 35560	300
Hempadur 35560	300
<b>Total</b>	<b>600</b>

Note: Coating material shall be certified to local regulatory requirements for material in contact with potable water

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

**Corrosion category: NA**  
**Pre-qualification required.**

**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>

### System 3C: Stabilized crude, diesel and condensate / -20°C to +50°C

**Corrosion category: NA**  
**Pre-qualification required.**

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

Product	DFT (µm)
Hempadur 15600	150
Hempadur 15600	150
<b>Total</b>	<b>300</b>

### System 3D: Hydrocarbon liquids and vapour, produced water, aviation fuel. Max. operating pressure 0.3 MPa // -20°C to +75°C

**Corrosion category: NA**  
**Pre-qualification required.**

**Application areas:** Internal coating of process vessels.

Product	DFT (µm)
Hempadur 15600	125
Hempadur 15600	125
<b>Total</b>	<b>250</b>

### System 3G: Methanol, ethanol, mono ethyl glycol and similar / -20°C to +40°C

**Corrosion category: NA**  
**Pre-qualification required.**

**Application areas:** Internal coating of storage vessels.

Product	DFT (µm)
Hempel's Galvosil 15700	60
<b>Total</b>	<b>60</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 4

Decks



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

Corrosion category: CX  
Pre-qualification required.

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

Product	DFT (µm)	Product	DFT (µm)
Hempadur 15570	50	Hempadur Spray-Guard 35490	3000
Hempadur Spray-Guard 35490	3000	<b>Total</b>	<b>3000</b>
<b>Total</b>	<b>3050</b>		

# 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  
Pre-qualification is not required

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

Product	DFT (µm)	Product	DFT (µm)
Hempadur 15570	50	Hempadur 15570	50
Hempaprime Multi 500	100	Hempaprime Multi 500 Winter	100
Hempathane HS 55610	75	Hempathane HS 55610	75
<b>Total</b>	<b>225</b>	<b>Total</b>	<b>225</b>

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

Corrosion category: CX  
Pre-qualification is not required

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

Product	DFT (µm)	Product	DFT (µm)
Hempadur 15553	50	Hempadur 15553	50
Hempaprime Multi 500	100	Hempaprime Multi 500 Winter	100
Hempathane HS 55610	75	Hempathane HS 55610	75
<b>Total</b>	<b>225</b>	<b>Total</b>	<b>225</b>

Note 1: Pre-qualified topcoats are:  
Hempathane HS 55610  
Hempathane Speed-Dry Topcoat 250  
Hempel's Pro Acrylic 55883 (Non isocyanate)  
Hempaxane Light 55030 (Non isocyanate)  
Hemuthane WB Top 58530 (Waterborne)

# System 6

Other metals when painting is required

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

**Corrosion category:** NA  
Pre-qualification required.

**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  
Pre-qualification is not required

**Application areas:** Structures, structural components, equipment items.

Product	DFT (µm)	Product	DFT (µm)
Hempadur 15570	50	Hempadur 15570	50
Hempaprime Multi 500	100	Hempaprime Multi 500 Winter	100
Hempathane HS 55610	75	Hempathane HS 55610	75
<b>Total</b>	<b>225</b>	<b>Total</b>	<b>225</b>

Note 1: Pre-qualified topcoats are:  
Hempathane HS 55610  
Hempathane Speed-Dry Topcoat 250  
Hempel's Pro Acrylic 55883 (Non isocyanate)  
Hempaxane Light 55030 (Non isocyanate)  
Hemuthane WB Top 58530 (Waterborne)

# System 7

Submerged carbon and stainless-steel including splash zone

**System 7A / System 7D:** Splash and tidal zones combined with cathodic protection, up to +50°C

**Corrosion category:** CX+Im4  
Pre-qualification is not required

**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 <sup>2</sup>	500
Hempaprime Strength 530 <sup>2</sup>	500
<b>Total</b>	<b>1000</b>

Product	DFT (µm)
Hempel's Polyester GF 35990	500
Hempel's Polyester GF 35990	500
<b>Total</b>	<b>1000</b>

Product	DFT (µm)
Hempaprime Strength 650	500
Hempaprime Strength 650	500
<b>Total</b>	<b>1000</b>

Note1: Pre-qualification test the carbon steel is also valid for stainless steel.  
Note 2: Hempaprime Strength 530 in 7A has been tested with different glass flake versions (ISO24656, Cat V compliant)

# System 7

Submerged carbon and stainless-steel including splash zone

## System 7B / System 7E:

Seawater combined with cathodic protection, up to +50°C

**Corrosion category: Im4**  
Pre-qualification required.

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

Product	DFT (µm)	Product	DFT (µm)
Hempaprime Multi 500 Winter <sup>2</sup>	175	Hempadur Quattro XO 17720	175
Hempaprime Multi 500 Winter <sup>2</sup>	175	Hempadur Quattro XO 17720	175
<b>Total</b>	<b>350</b>	<b>Total</b>	<b>350</b>

  

Product	DFT (µm)	Product	DFT
Hempadur 35620	175	Hempaprime Strength 530	175
Hempadur 35620	175	Hempaprime Strength 530	175
<b>Total</b>	<b>350</b>	<b>Total</b>	<b>350</b>

## System 7C / System 7F:

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

**Corrosion category: Im4**  
Pre-qualification required.

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

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

## System 7C / System 7F:

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

Product	DFT (µm)
Hempadur 85671 <sup>1</sup>	175
Hempadur 85671	175
<b>Total</b>	<b>350</b>

Note 1: Pre-qualification test the carbon steel is also valid for stainless steel.  
Note 2: 1st coat of Hempaprime Multi 500 Winter is Aluminium version.

Note 1: Pre-qualification test the carbon steel is also valid for stainless steel.  
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 8

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



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

**Corrosion category: C1**

**Pre-qualification is not required**

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

Product	DFT (µm)	Product	DFT (µm)
Hempadur Quattro XO 17720	150	Hempaprime Multi 500	150
<b>Total</b>	<b>150</b>	<b>Total</b>	<b>150</b>

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

# System 9

Cryogenic



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

**Corrosion category: NA**

**Pre-qualification required.**

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

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



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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