

## Hardtop M WF

### Product description

This is a two component waterborne chemically curing aliphatic acrylic polyurethane coating. It has good chemical resistance. The product has good application properties with low dry spray. It can be used as a high-efficiency midcoat in a complete waterborne system offering excellent final appearance. It can also be used as a topcoat in a complete waterborne system with a recommended Jotun waterborne primer.

### Typical use

Protective:

Recommended for steel structures and a wide range of equipment, including but not limited to engine, machinery, carriage, special vehicle, etc.

### Colours

according to colour card

### Product data

Property	Test/Standard	Description
Solids by volume	ISO 3233	51 ± 2 %
Gloss level (GU 60 °)	ISO 2813	matt (0-35)
Flash point	ISO 3679 Method 1	101 °C
Density	calculated	1.3 kg/l

Region	Regulation	Test Standard	VOC Value
China	GB 30981-2020 Limit of harmful substances of industrial protective coatings	GB/T 23985-2009 8.4	139 g/l

The provided data is typical for factory produced products, subject to slight variation depending on colour.

Gloss description: According to Jotun Performance Coatings' definition.

## Film thickness per coat

### Typical recommended specification range

Dry film thickness	40 - 70	µm
Wet film thickness	90 - 160	µm
Theoretical spreading rate	11.6 - 6.5	m <sup>2</sup> /l

Bright colours may need film thickness in the high end of the recommended specification range to achieve opacity.

## Surface preparation

### Surface preparation summary table

Substrate	Surface preparation	
	Minimum	Recommended
Coated surfaces	Clean, dry and undamaged compatible coating	Clean, dry and undamaged compatible coating

## Application

### Application methods

The product can be applied by

Spray:	Use air spray.
Brush:	Recommended for stripe coating and small areas. Care must be taken to achieve the specified dry film thickness.
Roller:	Use a suitable roller. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

### Product mixing ratio (by volume)

Hardtop M WF Comp A	5.8 part(s)
Hardtop M WF Comp B	1 part(s)

### Thinner/Cleaning solvent

Thinner: Deionized water

Metal ions in tap water may lead to early corrosion failure.

If thinning is required, water may be added up to a maximum of 25%, according to different color. This shall be done after mixing of the two components.

### Guiding data for air spray

Nozzle tip: 1.5-2.5

Pressure at nozzle (minimum): 2.1 bar/30 psi

## Drying and Curing time

Substrate temperature	10 °C	23 °C	35 °C
Surface (touch) dry	1.5 h	40 min	20 min
Walk-on-dry	12 h	7 h	2 h
Dry to over coat, minimum	12 h	7 h	2 h

For maximum overcoating intervals, refer to the Application Guide (AG) for this product.

Drying and curing times are determined under controlled temperatures and relative humidity below 70 %, and at average of the DFT range for the product.

After flash-off the product can be force dried at max. 60 °C.

Walk-on-dry: 1 h

Minimum flash-off time at substrate temperatures.

10 °C: 1 h

23 °C: 45 min

35 °C: 30 min

Minimum flash-off time is the shortest time required for enough water to evaporate, before force drying.

Surface (touch) dry: The state of drying when slight pressure with a finger does not leave an imprint or reveal tackiness.

Walk-on-dry: Minimum time before the coating can tolerate normal foot traffic without permanent marks, imprints or other physical damage.

Dry to over coat, minimum: The recommended shortest time before the next coat can be applied.

## Induction time and Pot life

Paint temperature	10 °C	23 °C	35 °C
Pot life	3 h	2 h	80 min

## Heat resistance

	Temperature	
	Continuous	Peak
Dry, atmospheric	120 °C	140 °C

Peak temperature duration max. 1 hour.

The temperatures listed relate to retention of protective properties. Aesthetic properties may suffer at these temperatures.

## Product compatibility

Depending on the actual exposure of the coating system, various primers and topcoats can be used in combination with this product. Some examples are shown below. Contact Jotun for specific system recommendation.

Previous coat: epoxy

## Additional information

Procedure for preparation and cleaning of application equipment

To avoid solvent contamination of the waterborne paint the spraying equipment has to be conditioned before use. All equipment containing solvents in the pump, hoses and gun have to be thoroughly cleaned according to the following instructions.

If the application equipment is made in stainless steel, designed for and only used for application of waterborne coatings this preparation and cleaning procedure is not needed.

Before spraying:

Circulate Jotun Thinner No. 17 through the equipment and hoses. Then Jotun Thinner No. 4 before fresh clean water.

After spraying:

Clean the equipment and hoses with water and alkaline detergent, then circulate Jotun Thinner No. 4 and finally Jotun Thinner No. 17.

## Packaging (typical)

	Volume (litres)	Size of containers (litres)
Hardtop M WF Comp A	13.6	20
Hardtop M WF Comp B	2.4	3

The volume stated is for factory made colours. Note that local variants in pack size and filled volumes can vary due to local regulations.

## Storage

The product must be stored in accordance with national regulations. Keep the containers in a dry, shaded, cool, well-ventilated space and away from sources of heat and ignition. Containers must be kept tightly closed. Handle with care.

Protect from freezing at all times during storage and transport.  
Recommended storage temperature is between 5 °C and 35 °C.

### Shelf life at 23 °C

Hardtop M WF Comp A	12 month(s)
Hardtop M WF Comp B	12 month(s)

In some markets commercial shelf life can be dictated shorter by local legislation. The above is minimum shelf life, thereafter the paint quality is subject to re-inspection.

## Caution

This product is for professional use only. The applicators and operators shall be trained, experienced and have the capability and equipment to mix/stir and apply the coatings correctly and according to Jotun's technical documentation. Applicators and operators shall use appropriate personal protection equipment when using this product. This guideline is given based on the current knowledge of the product. Any suggested deviation to suit the site conditions shall be forwarded to the responsible Jotun representative for approval before commencing the work.

## Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not inhale spray mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

## Colour variation

When applicable, products primarily meant for use as primers or antifouling may have slight colour variations from batch to batch. Such products and epoxy based products used as a finish coat may chalk when exposed to sunlight and weathering.

Colour and gloss retention on topcoats/finish coats may vary depending on type of colour, exposure environment such as temperature, UV intensity etc., application quality and generic type of paint. Contact your local Jotun office for further information.

## Disclaimer

The information in this document is given to the best of Jotun's knowledge, based on laboratory testing and practical experience. Jotun's products are considered as semi-finished goods and as such, products are often used under conditions beyond Jotun's control. Jotun cannot guarantee anything but the quality of the product itself. Minor product variations may be implemented in order to comply with local requirements. Jotun reserves the right to change the given data without further notice.

Users should always consult Jotun for specific guidance on the general suitability of this product for their needs and specific application practices.

If there is any inconsistency between different language issues of this document, the English (United Kingdom) version will prevail.