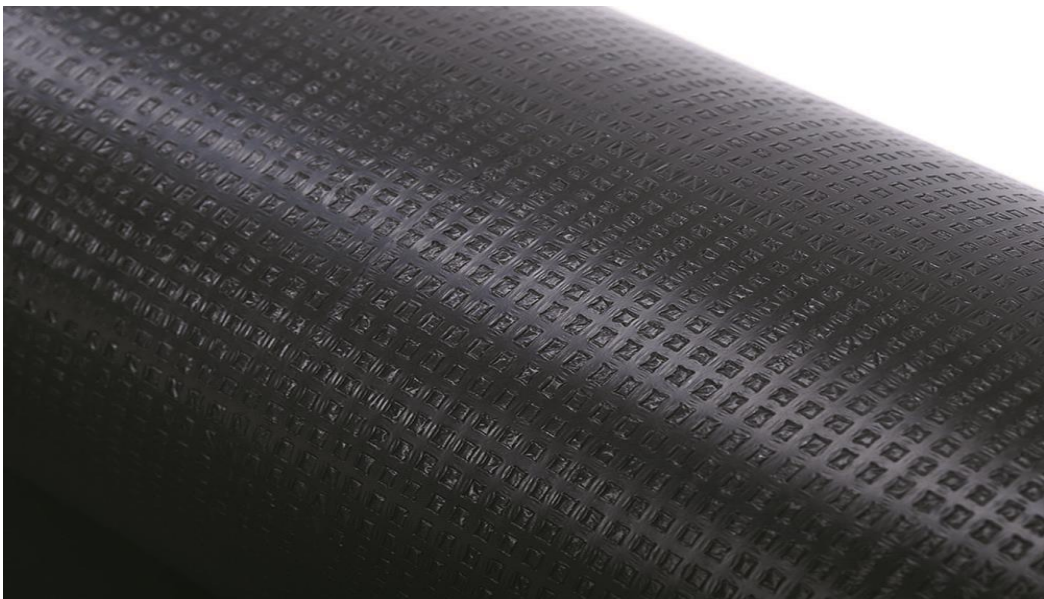




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# BITUMEN WATERPROOFING MEMBRANE PRODUCTION LINE (5M M<sup>2</sup> / YEAR)



**Quotation No** : MK.BPL.03102018/089

**Quotation Date** : 03<sup>rd</sup> October 2018

**Customer** : Ghecham Abdelali | ALGERIA



## 1. SCOPE OF SUPPLY

NO	ITEM	QTY
1	Waterproofing Membrane Production System	1
2	Bitumen Modifying System	1
3	Filler Feeding System	1
4	Water Cooling System	1
5	Heat Conducting Oil System	1
6	Smoke Treating System	1
7	Bitumen Silo Storage	1
8	Installation and Commissioning	Included
9	Training at Site	Included



## 2. TECHNICAL DETAILS

### 2.1 PROJECT GENERAL INTRODUCTION

#### 2.1.1 Manufacturing Capacity:

Annually manufacturing 5,000,000 m<sup>2</sup> of various types of modified bitumen waterproofing membrane, two shifts per day, 8 hours per shift, and 300 days per year, calculated on basis of 3 mm of products.

**2.1.2 Reinforcement:** Polyester mat

**2.1.3 Polymer:** SBS

#### 2.1.4 Type of Membrane:

- a. Sand / PE film, slate / PE film
- b. PE film / PE film
- c. PF film / embossing

**2.1.5 Thickness:** 2 ~ 5 mm

**2.1.6 Linear Speed:** 0 ~ 35 m / min

**2.1.7 Fuel Consumption:** 1,100,000 Kcal / h, thermal efficiency  $\geq 73\%$

**2.1.8 Compressed Air:** 1 m<sup>3</sup> / min 0.7 MPa

**2.1.9 Water Consumption:** 500 kg / day

**2.1.10 Installed Power:** 450 kW

**2.1.11 Power Source:** AC 380 V, 3 phase, 50 Hz / AC 220 V

**2.1.12 Work Shop (M):** 65 x 15 x 7 meter

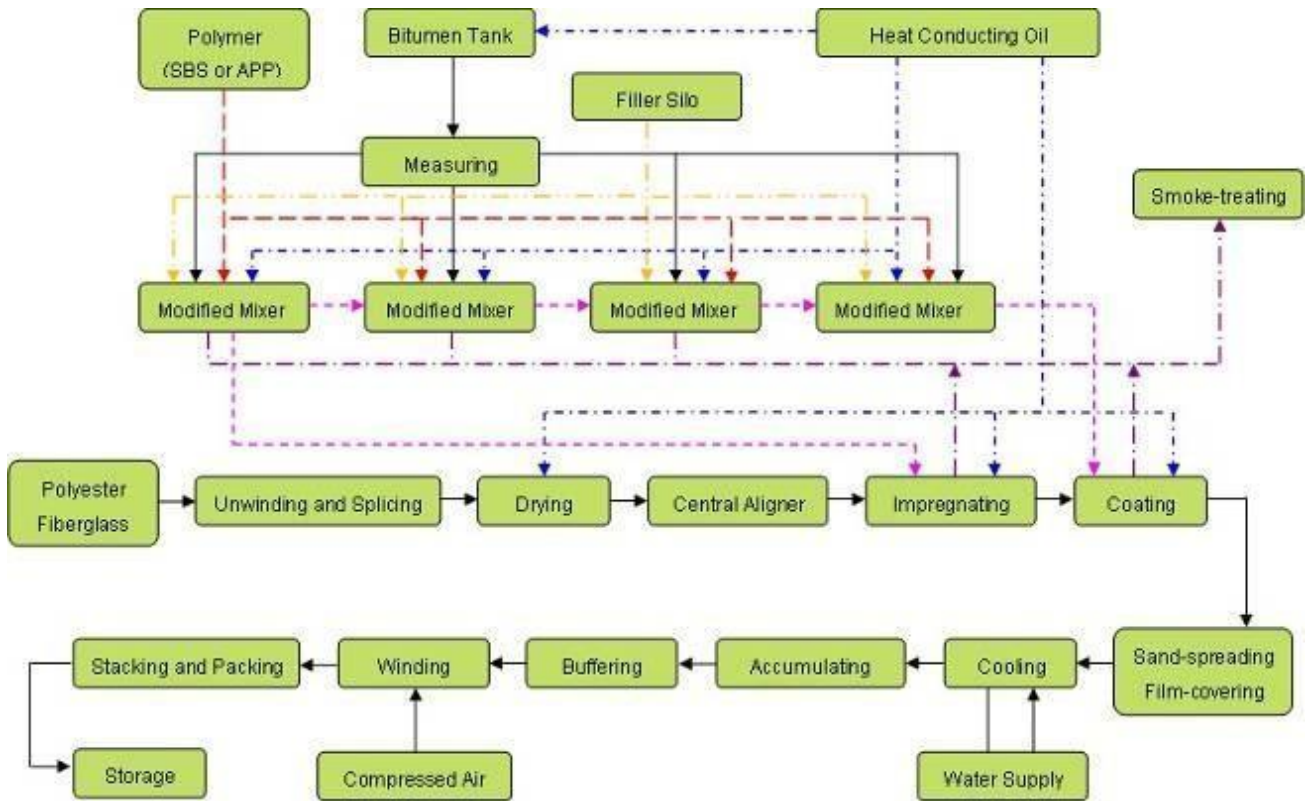


## CUSTOMER REQUEST

TECHNICAL PROPERTIES	UNIT	GP 300 PRM
Carrier	-	Polyester
Thickness	mm	3 (2,8 - 3,2)
Length	m	10 ± 0,03
Width	m	1 ± 0,02
Temperature Resistance	°C	≥ 120
Cold Bending	°C	≤ - 10
Joint Delamination Resistance	N / 5cm	≥ 400 ≥ 400
Joint Sliding Strength	N / 5cm	≥ 20
Tensile Strength (Length / Width)	N / 5cm	≥ 800 / 600
Elongation at Break (Length / Width)	%	≥ 35 / 35
Tear Resistance (Length / Width)	N	≥ 150 / 150
Reaction to Fire	-	E
Roll Dimensions (Length / Width)	-	10 / 1
Number of Rolls per Package	-	30
Pallet Dimensions	cm	100 x 120
Number in Pallets	m <sup>2</sup> / pallet	300



## LAYOUT





## 2.2 SPECIFICATION

### 2.2.1 Waterproofing Membrane Production System

#### 2.2.1.1 Reinforcement Unwinding Device

It adopts double working position structure with pneumatic lifting of reinforcement.

- a. Guiding roller ( $\Phi$  125) 1 set
- b. Manual central aligner 1 set

#### 2.2.1.2 Splicing device

It adopts electrical heating mode. Heating temperature and time can be controlled.

- a. Upper aluminum plate 1 set
- b. Lower aluminum plate 1 set
- c. Off-center brake roller 1 set
- d. Guiding roller ( $\Phi$  125) 2 sets
- e. Electric control box 1 set

#### 2.2.1.3 Reinforcement Accumulator

Capacity is 65 m. The frame adopts 200 × 150 mm square tube.

- a. Stainless steel guiding roller ( $\Phi$  125) 17 sets
- b. Transition guiding rollers ( $\Phi$  125) 2 sets
- c. Lift frame 1 set
- d. Weight box 1 set
- e. Protection mesh 1 set
- f. Electric control box 1 set



#### 2.2.1.4 Reinforcement Drying Device

- a. Drum oven 2 sets

#### 2.2.1.5 Central aligner

- a. Automatic photoelectric control 1 set  
b. Stainless steel guiding roller ( $\Phi$  125) 4 sets  
c. Manual adjusting device 1 set

#### 2.2.1.6 Film Covering Device

- a. Film unwinding device 2 sets  
b. Manual central aligner 2 sets  
c. Film sending trolley 2 sets  
d. Film covering roller ( $\Phi$  105) 1 set  
e. Film covering roller ( $\Phi$  295) 1 set  
f. Electric hoister (0.5 ton) 2 sets  
g. Water spraying device 1 set

#### 2.2.1.7 Suspension Cooling Device

The material of water bath is stainless steel.

- a. Stainless cooling roller ( $\Phi$  76) 17 sets  
b. Water bath (10 m) 1 set  
c. Water level adjusting plate 1 set



### 2.2.1.8 Cylinder Cooling Device

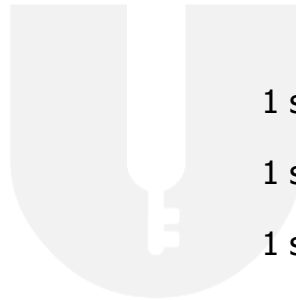
- |    |  |         |
|----|--|---------|
| a. | Stainless steel cooling roller ( $\Phi$ 800) | 11 sets |
| b. | Cooling roller ( $\Phi$ 295)                 | 3 sets  |
| c. | Water receiving bath (14 m)                  | 1 set   |

### 2.2.1.9 Online Thickness Detecting Device

- |    |   |       |
|----|---|-------|
| a. | Straight sensor                                       | 1 set |
| b. | Straight bearing                                      | 1 set |
| c. | Photoelectric signal feedback device                  | 1 set |
| d. | Pneumatic pressing roller ( $\Phi$ 130 $\times$ 1200) | 1 set |

### 2.2.1.10 Embossing Device

- |    |                                |       |
|----|--------------------------------|-------|
| a. | Flat roller ( $\Phi$ 191)      | 1 set |
| b. | Embossing roller ( $\Phi$ 191) | 1 set |
| c. | Pneumatic adjusting device     | 1 set |



### 2.2.1.11 Finish Product Accumulator

Capacity is 65m. The frame adopts 200  $\times$  150 mm square tube.

- |    |                              |         |
|----|------------------------------|---------|
| a. | Guiding roller ( $\Phi$ 190) | 15 sets |
| b. | Lift frame                   | 1 set   |
| c. | Protection mesh              | 1 set   |
| d. | Electric control box         | 1 set   |





#### 2.2.1.12 Central Aligner

- |    |                                 |        |
|----|---------------------------------|--------|
| a. | Automatic photoelectric control | 1 set  |
| b. | Aligning roller ( $\Phi$ 190)   | 4 sets |
| c. | Manual adjusting device         | 1 set  |

#### 2.2.1.13 3 - Roller Haul - Off Device

The frame adopts 200 × 150 mm square tube.

- |    |                                 |        |
|----|---------------------------------|--------|
| a. | Initiative roller ( $\Phi$ 240) | 2 sets |
| b. | Passive roller ( $\Phi$ 190)    | 1 set  |

#### 2.2.1.14 Bouncing and Buffering Device

- |    |                               |       |
|----|-------------------------------|-------|
| a. | Bouncing roller ( $\Phi$ 203) | 2 set |
| b. | Movable frame                 | 1 set |
| c. | Photoelectric control         | 1 set |

#### 2.2.1.15 Automatic Winding Machine

- |    |  |        |
|----|--|--------|
| a. | Haul - off roller ( $\Phi$ 240 × 1200) | 2 sets |
| b. | Cylinder-type pressing roller device   | 1 set  |
| c. | Support roller                         | 1 set  |
| d. | Length-measuring device                | 1 set  |
| e. | Automatic stick-inserting device       | 1 set  |
| f. | Automatic locating device              | 1 set  |
| g. | Automatic tape-wrapping device         | 1 set  |
| h. | PLC control system                     | 1 set  |



**2.2.1.16 Electric Control System** 1 set

**2.2.1.17 Others**

- a. Ladder 1 set
- b. Operating table 1 set
- c. Railing 1 set
- d. Aluminum isolation frame 1 set

**2.2.1.18 Automatic Winding Machine**

- a. Haul - off roller ( $\Phi$  240 × 1200) 2 sets
- b. Cylinder-type pressing roller device 1 set
- c. Support roller 1 set
- d. Length-measuring device 1 set
- e. Automatic stick-inserting device 1 set
- f. Automatic locating device 1 set
- g. Automatic tape-wrapping device 1 set
- h. PLC control system 1 set





**2.2.1.19 Electric Control System** 1 set

**2.2.1.20 Others**

- a. Ladder 1 set
- b. Operating table 1 set
- c. Railing 1 set
- d. Aluminum isolation frame 1 set

**2.3 BITUMEN MODIFYING SYSTEM**

**231 Gear Pump** 3 sets

**232 Modified Bitumen Mixer** 3 sets

**Capacity:** 10 m<sup>3</sup>. The diameter of mix is  $\Phi$  2200. It adopts screw - type mixing blade with  $\Phi$  127 mm main mixing shaft. Tank body  $\delta$  = 8 mm. Coil pipe  $\delta$  = 4mm.

**233 Colloid Grind** 1 set

**Capacity:** 15 m<sup>3</sup> / h. Power: 70 kW.

**234 Weighing Device**

- a. Alloy steel weighing sensor 9 sets
- b. Weighing modular base 9 sets
- c. Anti-dust cover 9 sets



**235 Pipeline, Valve and Platform** 1 set

**236 Electric Control System** 1 set

## **2.4 FILLER FEEDING SYSTEM**

**241 Filler Storage Silo** 1 set

Capacity: 60 m<sup>3</sup>. It consists of discharger and maintenance platform. Screw conveyor 2 sets





**24.2 Manual Discharging Valve** 4 sets

**24.3 Electric Control System** 1 set

## **2.5 WATER COOLING SYSTEM**

**25.1 Chilling Machine** 1 set

Capacity: 200,000 kcal.

**25.2 Heat Exchanger** 1 set

**25.3 Water Pump** 4 sets

**25.4 Water Tank** 1 set

Size: 10 m<sup>3</sup>, prepare by buyer

**25.5 Underground Water Pool** 1 set

Size: 60 m<sup>3</sup>, prepare by buyer.

**25.6 Pipeline and Valve** 1 set

**25.7 Electric Control System** 1 set

## **2.6 HEAT CONDUCTING OIL SYSTEM**

**26.1 Heat Conducting Oil Furnace** 1 set

Capacity: 1,100,000 kcal

**26.2 Burner (Italian Riello)** 1 set

**26.3 Heat Conducting Oil Cycling Pump** 2 sets

**26.4 Heat Conducting Oil Storage Tank** 1 set

Capacity: 4 m<sup>3</sup>

**26.5 Pipeline and Valve** 1 set

**26.6 Electric Control System** 1 set

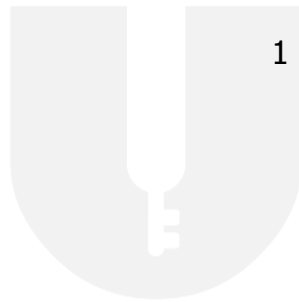


## 2.7 SMOKE TREATING SYSTEM

<b>2.7.1 Condenser (<math>\Phi</math> 2300)</b>	1 set
<b>2.7.2 Filler Tower (<math>\Phi</math> 2100)</b>	1 set
<b>2.7.3 Centrifugal Ventilator</b>	1 set
<b>2.7.4 Smell Remover</b>	1 set
<b>2.7.5 Dust Collector</b>	1 set
<b>2.7.6 Pipeline, Platform And Chimney</b>	1 set
<b>2.7.7 Electric Control System</b>	1 set

## 2.8 SILO STORAGE TANKS

1 set





## SPARE PARTS LIST

No.	Item	Quantity	Remark
1	Photoelectric Switch	2 sets	For impregnating and coating device
2	Heating Pipe	4 units	
3	Heating Plate	2 units	For splicing device
4	Rotary Joint	4 units	
5	Nylon Block	2 pairs	For pushing roll
6	Chain Joint	2 units	For pushing roll
7	Nylon Block	2 pairs	For cutting roll
8	Chain Joint	2 pairs	For cutting roll
9	Cutting Blade	2 pairs	
10	Approach Switch	2 pairs	
11	Change - Over Switch	1 unit	
12	Air Expansion Roller	1 unit	For winding machine
13	Button, Indicator Light, Fuse	3 for each	
14	Air Switch	5 units	
15	Pt100 Temperature Controller	2 units	
16	Sealing	1 set	For bitumen pump



### 3. COMMERCIAL TERMS

#### 3.1 PRICE

NO	PRODUCT DESCRIPTION	TOTAL PRICE (USD)
1	Bitumen Waterproofing Membrane Production Line	<b>\$1,378,000.00</b>
<b>TOTAL, FOB TURKEY PRICE</b>		<b>\$1,378,000.00</b>
<b>ONE MILLION THREE HUNDRED THOUSAND U.S. DOLLARS ONLY</b>		

#### OPTIONAL

NO	PRODUCT DESCRIPTION	TOTAL PRICE (USD)
1	Silo Storage Tanks ( Local Purchase Recommended )	<b>\$116,600.00</b>

#### 3.2 PAYMENT TERMS

Payment should be done by an irrevocable and confirmed L/C divided as:

50% Advance payment  
50% Before shipment

#### 3.3 DELIVERY TIME

The line will be ready for the shipment within 120 days after the advance payment.

#### 3.4 WARRANTY

The line has a warranty period of 1 year after shipment.