

# Certificate

Certificate of Conformity for:

## Mandals Guardman

We confirm that Mandals Guardman consists of a circular woven reinforcement made of polyester textile, which is in- and outside extruded with a blend of nitrile rubber and PVC. The hose can operate in temperatures from -30° Celsius to +75° Celsius.

The hose has markings every 1 to 2-meter interval.

The Mandals Guardman hoses are type approved as described in attachment “MED Certificate\_Fire hoses\_exp”.

### Technical data

Inner Diameter		Wall Thickness		Weight		Burst Pressure		Tensile Strength*	
inch	mm	inch	mm	lbs/ft	kg/m	psi	bar	x1000 lbs	tons
<b>1</b>	25,4 +1,6	0,10	2,5	0,18	0,27	1 450	100	5,1	2,3
<b>1 1/2</b>	38,0 +1,6	0,09	2,2	0,21	0,31	800	55	6,9	3,1
<b>1 2/3</b>	42,0 +1,6	0,09	2,2	0,21	0,32	800	55	6,9	3,1
<b>1 3/4</b>	45,0 +1,6	0,09	2,2	0,23	0,35	725	50	7,6	3,4
<b>2</b>	51,0 +2,0	0,09	2,2	0,27	0,41	655	45	8,7	3,9
<b>2 1/2</b>	65,0 +2,0	0,09	2,2	0,36	0,54	655	45	11,1	5,0
<b>3</b>	76,0 +2,0	0,10	2,6	0,49	0,73	655	45	15,6	7,0
<b>3 1/2</b>	90,0 +2,0	0,10	2,6	0,67	1,00	580	40		
<b>4</b>	102,0 +2,5	0,11	2,7	0,70	1,10	525	36	20,4	9,2
<b>6</b>	150,0 +3,0	0,12	3,0	1,19	1,78	525	36	35,8	16,1

*Maximum advised Working Pressure is 50% of the listed values*

*\* Total theoretical longitudinal strength.*

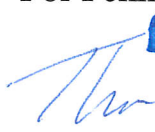
Mandals Guardman hoses has been tested and approved according to the quality parameters and methods given below:

## Test methods

Quality parameter	Test Method
Inner diameter(ID)	BS 6391:2009 and ISO 4671, method 1
Diameter expansion	BS 6391:2009 and ISO 1402
Length expansion	BS 6391:2009 and ISO 1402
Twist	ISO 1402
Wall thickness	ISO 4671, method 1
Burst pressure	BS 6391:2009 and ISO 1402
Abrasion resistance	BS 6391:2009 (revised version)
Adhesion weave-TPU/Rubber	BS 6391:2009 and ISO 8033
Weight	BS 6391:2009 and ISO 4671 (but shorter lengths)
Flexibility	BS 6391:2009
Heat aging	BS 6391:2009
Hot Surface test	BS 6391:2009
Heat resistance	BS 6391:2009
Oil resistance	BS 6391:2009
Proof pressure test (22.5bar)	BS 6391:2009 and ISO 1402

*Note: Since the date for the application of the 11<sup>th</sup> Amendment of Directive 96/98/EX (Commission Directive (EU) 215/559 of April 2015), namely as for 30 April 2016, only uncoated firehoses which have a diameter smaller than 52 mm may have an MED Wheel Mark affixed to them. This has been confirmed by Regulation (EU) 2017/306 indicating design, construction and performance requirements and testing standards for marine equipment. Mandals Guardman has a weave that is covered inside and outside, and can therefore not fulfil the MED Wheel Mark. Otherwise, see attachment "17-665 IN EC Letter MarED Firehoses".*

For Fenner Mandals AS, Feb. 2019

  
**mandals**  
SINCE 1775  
Dr. Fenner Mandals AS  
Org. nr. NO 998 281 636  
Thore J. Sørensen  
Senior Process Engineer  
Fenner Mandals AS

  
**mandals**  
SINCE 1775  
John Espeland  
R&D Manager  
Fenner Mandals AS  
Org. nr. NO 998 281 636