



**Mandals Aquaman L is designed for the effective rehabilitation of drinking water mains in low pressure systems. The liner is drinking water approved and is designed to have a lifespan of more than 50 years.**

With Mandals Aquaman L we offer a more sustainable solution for the rehabilitation of old pipelines with minimal disruption to traffic, pedestrians, and the environment in general, with an improved CO<sub>2</sub> footprint and HSE performance. The liner is tested and approved for use with potable water, and it is flexible in terms of the diameter variation of the original pipe, effortlessly passing bends even at long section lengths.

**North and South America**  
NSF/ANSI/ CAN 61  
Approved



**Germany**  
DVGW  
Approved



**Standard lengths available:**

1" (DN25) - 6" (DN150) : 600m

8" (DN200) - 14" (DN350) : 400m

### Advantages / Feature / Design

Mandals AS supplies the liner leak-proof tested, and tape wrapped in a "U"-shape. Prior to installation a regular cleaning procedure is required of the host pipe and condition controlled by CCTV inspection.

The liner is pulled through the host pipe by using a winch and can be installed in pipes having bends up to 45° (R/D ≥ 5)<sup>1</sup>. No steaming is needed to cure the liner, only a small amount of pressure is required to break the tape. Thereafter the liner is re-coupled and connected again to the existing infrastructure and the system will be ready to be put back into operation.

Mandals Aquaman L is a semi-structural, stand-alone liner which will absorb all internal pressure while in operation. The liner is manufactured using a thermoplastic polyether-based polyurethane (TPU) with excellent wear & tear properties, outstanding hydrolysis resistance and resistance against microbiological attack.

The "extrusion through the weave" production technology gives excellent bonding between cover and lining as well as firmly encapsulating the circular woven polyester reinforcement.

Max. recommended operational temperature is +23° (+73°F) at a pH range 4-9. Service Lifetime will depend on several important factors such as proper and correct installation, condition of the existing pipe, dosage of and type of disinfectants used.

Accelerated aging tests performed at a chlorine dosage up to 4ppm indicate a Service Lifetime of more than 50 years.

### Low Pressure - Industrial Pipes

Nominal Pipe size		Aquamán L / Technical Hose Data											
		Internal Diameter		Wall Thickness		Nominal Weight		Max. Working Pressure (MWP)		Min. Burst Pressure (BP) (ISO1402)		Actual Total Tensile Strength	
Inch	DN-mm	Inch	mm	Inch	mm	lbs/ft	Kg/m	psi	bar	Psi	Bar	lbs x 1000	kg x 1000
1"	25	0.80 (+0.02)	19.8 (+0.5)	0.05 ±0.004	1.2 ± 0.10	0.06	0.09	260	18	650	45	1.6	0.7
2 1/2"	65	2.00 (+0.08)	51.0 (+2.0)	0.11 ± 0.008	2.8 ± 0.20	0.33	0.52	320	22	800	55	6.4	2.9
3"	80	2.50 (+0.08)	65.0 (+2.0)	0.12 ± 0.008	3.0 ± 0.20	0.41	0.70	260	18	650	45	8.6	3.9
4"	100	3.00 (+0.08)	76.0 (+2.0)	0.13 ± 0.010	3.3 ± 0.25	0.57	0.85	260	18	650	45	11.9	5.4
5"	125	4.00 (+0.10)	102.0 (+2.5)	0.13 ± 0.010	3.4 ± 0.25	0.85	1.28	245	17	610	42	16.1	7.3
6"	150	4.50 (+0.12)	113.0 (+3.0)	0.14 ± 0.010	3.6 ± 0.25	1.03	1.54	245	17	610	42	22.9	10.3
8"	200	6.10 (+0.16)	154.0 (+4.0)	0.16 ± 0.012	4.0 ± 0.30	1.63	2.45	245	17	610	42	45.9	20.7
10"	250	7.60 (+0.20)	193.0 (+5.0)	0.17 ± 0.014	4.2 ± 0.35	2.09	3.14	245	17	610	42	57.5	25.9
12"	300	8.90 (+0.20)	227.0 (+5.0)	0.17 ± 0.014	4.4 ± 0.35	2.47	3.70	200	14	490	35	66.4	29.9
14"	350	10.80 (+0.20)	274.0 (+6.0)	0.18 ± 0.014	4.6 ± 0.35	3.22	4.80	175	12	435	30	78.8	35.5

**Notes:**

(1) Will depend on Operating Pressure and the R/D ratio. A higher R/D and/or Operating Pressure can allow a higher bend angle