Aquaman L
Datasheet

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A Michelin Group Company

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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[2].

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 CO2 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. Aquaman L is similar to the higher pressure Aquaman M.

DVGW CERT W270 | AS/NZS 4020 | ofi EN16421 | NSF Certified to NSF/ANSI 61

Installation

Mandals supplies the leak-proof tested liner already tape-wrapped in a "U"-shape. A regular cleaning procedure, including CCTV inspection, is required of the host pipe prior to installation.

The liner is pulled through the host pipe by using a winch. It can be installed in pipes with bends up to 45° (R/D ≥5)[1]. No steaming is needed to cure the liner on-site. 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 is ready to be put back into operation.

Construction

- Mandals Aquaman L is a semi-structural, stand-alone liner which will absorb all internal pressure while in operation.
- The "extrusion through the weave" production technology gives excellent bonding between thermoplastic polyether-based polyurethane cover and lining as well as firmly encapsulating the circular woven polyester reinforcement.

Features

- Resistant to a wide range of chemicals.
- Full diameter recovery after pressure release.
- Excellent hydrolysis and fungus resistance.
- Outstanding wear and tear properties.
- Accelerated aging tests performed at a chlorine dosage up to 4ppm indicate a Service Lifetime of more than 50 years[2].

Properties

- Color options: Blue (standard).
- Lengths up to 600m (≤6") and 400m (>6")
- Max. recommended operational temperature is +23° (+73°F) at a 4-9 pH range.
- NSF/ANSI/CAN61, AS/NZS 4020, and EN16421 (former DVGW W270) drinking water certified.

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Article Number	-	AQL020	AQL025	AQL 065	AQL080	AQL100	AQL125	AQL150	AQL200	AQL250	AQL300	AQL350
Nominal Pipe size DN	mm Inch	20 3/4	25 1	65 2 1/2	80 3	100 4	125 5	150 6	200 8	250 10	300 12	350 14
Inner Diameter[3]	mm Inch	15 0.59	20 0.80	51 2	65 2.5	76 3	102 4	113 4.5	154 6.1	193 7.6	227 8.9	274 10.8
Wall Thickness	mm Inch	1.2 0.05	1.2 0.05	2.8 0.11	3.0 0.12	3.3 0.13	3.4 0.13	3.6 0.14	4.0 0.16	4.2 0.17	4.4 0.17	4.6 0.18
Nominal Weight *(hose only)*	kg/m lbs/ft	0.07 0.05	0.09 0.06	0.52 0.33	0.7 0.41	0.85 0.57	1.28 0.85	1.54 1.03	2.45 1.63	3.14 2.09	3.70 2.47	4.80 3.22
Burst Pressure (BP)	bar psi	45 650	45 650	55 800	45 650	45 650	42 610	42 610	42 610	42 610	35 490	30 435
Maximum Working Pressure[3]	bar psi	18 260	18 260	22 320	18 260	18 260	17 245	17 245	17 245	17 245	14 200	12 175
Actual Total Tensile Strength	x1000 kg x1000 lbs	0.5 1.2	0.7 1.6	2.9 6.4	3.9 8.6	5.4 11.9	7.3 16.1	10.3 22.9	20.7 45.9	25.9 57.5	29.9 66.4	35.5 78.8
Length Extension at WP	%	-0.5	-0.5	<1	<1	<0.5	<1	<1	<0.5	<1.5	<1.5	<2
Outer Diameter at 10% of BP[3]	mm Inch	19.8 0.78	24.5 0.96	58 (•2) 2.28	72 (•2) 2.83	85 (±1.5) 3.35	110 (±1.5) 4.33	131.5 (±1.5) 5.18	180 (-1 •3) 7.09	215 (-1 •5) 8.46	250 (-2 •6) 9.84	300 (-2 •6) 11.8
Outer Diameter at 7 bar[3]	mm Inch						112 (±1.5) 4.41		184 (-1 •3) 7.24	221 (-1 •5) 8.7	254 (-2 •6) 10	317 (-2 •6) 12.5
Outer Diameter at 11 bar[3]	mm Inch			59 (•2) 2.32	73.5 (•2) 2.89	86 (±1.5) 3.38		139 (±1.5) 5.47	190 (-1 •3) 7.48	227 (-1 •5) 8.94	266 (-2 •6) 10.5	327 (-2 •6) 12.9
Outer Diameter at 14 bar[3]	mm Inch			60 (•2) 2.36		87 (±1.5) 3.42	114 (±1.5) 4.49	143 (±1.5) 5.63	192 (-1 •3) 7.56	232 (-1 •5) 9.13	271 (-2 •6) 10.7	
Outer Diameter at max WP[3]				62 (•2) 2.44	75 (•2) 3.0	89 (±1.5) 3.5	117 (±1.5) 4.61	145 (±1.5) 5.71	197 (-1 •3) 7.76	236 (-1 •5) 9.29	271 (-2 •6) 10.7	328 (-2 •6) 12.9

Note:
[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. [2]Service Lifetime will depend on important factors such as proper and correct installation, condition of the existing pipe, dosage of and type of disinfectants used. [3]Tolerance range based on SO1307 Type C. System working pressure can not exceed coupling pressure rating. For questions about chemical resistance please check mandals.com/support.