



Mandals Tubeman L has been specifically designed for the trenchless rehabilitation of industrial pipelines that transport hydrocarbons, such as fuels, gasoline, natural gas, oil, and other non-aggressive liquids and gases.

With Mandals Tubeman 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 hose is flexible in terms of the diameter variation of the original pipe, effortlessly passing quite sharp bends even at long section lengths.

Standard lengths available:

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

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

Advantages / Features / Design

The hose is leak-proof tested and packed and delivered in a "U" -shape, using a tape wrapped around it. Prior to installation a regular cleaning procedure is required of the host pipe and condition controlled by CCTV inspection.

The hose is pulled through the host pipe by using a wire winch e.g., and can be installed in water mains having bends up to at least 30° (R/D ≥ 5). No steaming is required to inflate the hose afterwards. Just by recoupling and setting the hose under minimum 1 bar pressure, it opens up and expands to an external hose diameter of appr. 10mm below the internal pipe diameter at WP.

Mandals Tubeman L is a semi-structural, stand-alone hose that will ensure continual water supply even if the host pipe should break. It consists of a thermoplastic polyether based polyurethane (TPU) with excellent wear &

tear properties, outstanding hydrolysis resistance and resistance against microbiological attack.

Max. recommended Operational Temperature is +23C (73F) and pH range 4-9. The "extrusion through the weave" production technology gives excellent bonding between cover and lining as well as firmly encapsulating the circular woven polyester reinforcement

Service Life Time will depend on a proper and correct installation, such as good pre-cleaning, CCTV inspection and checking for sharp spikes, which could potentially damage the hose. Accelerated aging tests performed by the TPU supplier indicates more than 50 years until 50% retained Tensile Strength at a chlorine dosage of 0.05ppm to 2.5ppm.

Low Pressure - Industrial Pipes

Nominal Pipe Size		Tubeman L / Technical Hose Data											
		Internal Diameter		Wall Thickness		Nominal Weight		Max. Working Pressure (WP)		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 ± 0.006	2.8 ± 0.15	0.33	0.50	260	18	650	45	5.3	2.4
3"	80	2.50 (+0.08)	65.0 (+2.0)	0.12 ± 0.006	3.0 ± 0.15	0.41	0.62	247	17	610	42	8.0	2.9
4"	100	3.00 (+0.08)	76.0 (+2.0)	0.13 ± 0.008	3.3 ± 0.20	0.57	0.85	247	17	610	42	6.4	3.3
5"	125	4.00 (+0.10)	102.0 (+2.5)	0.13 ± 0.008	3.4 ± 0.20	0.85	1.28	247	17	610	42	16.1	7.3
6"	150	4.50 (+0.12)	113.0 (+3.0)	0.14 ± 0.01	3.6 ± 0.25	1.03	1.54	247	17	610	42	22.9	10.3
8"	200	6.10 (+0.12)	154.0 (+3.0)	0.16 ± 0.012	4.0 ± 0.30	1.63	2.45	247	17	610	42	45.9	20.7
10"	250	7.60 (+0.16)	193.0 (+4.0)	0.17 ± 0.014	4.2 ± 0.35	2.09	3.14	232	17	610	42	57.5	25.9
12"	300	8.90 (+0.16)	227.0 (+4.0)	0.17 ± 0.014	4.4 ± 0.35	2.47	3.70	200	14	490	35	66.4	29.9
14"	350	10.70 (+0.16)	274.0 (+4.0)	0.18 ± 0.014	4.6 ± 0.35	3.22	4.8	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.

Section lengths will depend on:

- **Hose Diameter:** Large dim = > Shorter lengths. Secondly, higher friction and drum space.
- **Number of bends:** More bend => Higher friction => Higher pull-force.
- **Bend angle and R/D ratio:** Sharp bends (critical low R/D ratio) => Higher friction and greater risk of damage to the hose during Pull-in
Can be dampened with good lubrication (silicone oil / cooking oil etc) on hose. Increased risk of "kinking" of the hose within the bend and reduced flow. Contact Mandals for further advice.

