

GAMA 98® ROPE FOR DEEP WATER TETHERS

Design

GAMA 98® polyester rope tethers are made from high efficiency sub-rope cores laid parallel within an outer braided jacket. Each sub-rope is computer monitored during tether manufacture to ensure all sub-ropes have equal tension and length. Typically, GAMA 98® ropes include up to 12 sub-ropes, each sub-rope being of a long lay length 8 x 1 construction, which gives a 100% torque free rope.

Particle Filter

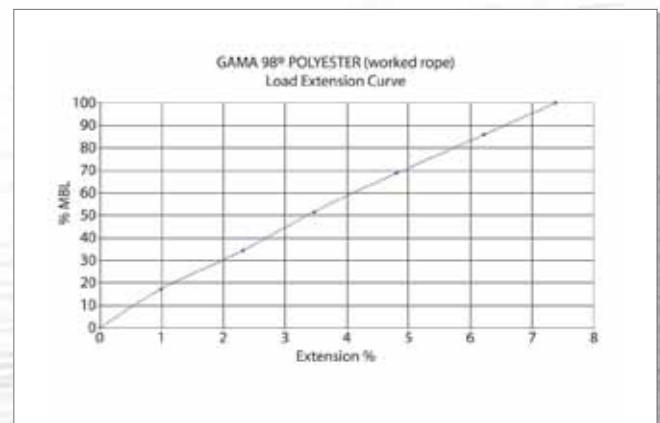
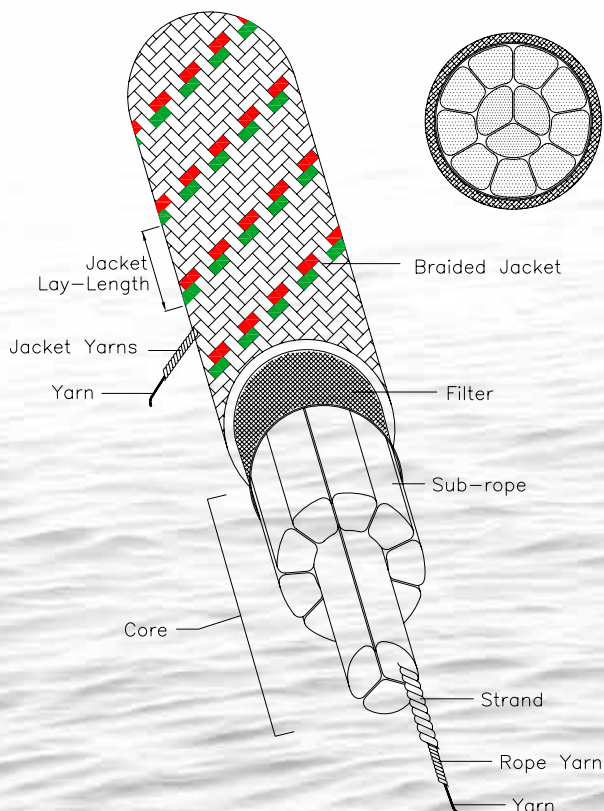
Filter elements are included between jacket and sub-rope cores. They are effective in filtering out particles greater than 5 microns whilst allowing free flooding of the rope. Filter systems can be provided to allow for ropes to be pre-installed on the seabed prior to vessel hook-up.

Length

Lankhorst Ropes' equipment can in theory manufacture ropes of infinite length, but at present our limiting capacity is the reel take-up stand which is designed to handle single piece weights of up to 80 tonnes gross (rope and reel). This can be upgraded if warranted by project specific requirements. Maximum length is a function of the maximum reel weight and the linear weight of the rope which is dictated by the required breaking load.

Axial Stiffness

Stiffness is the ratio of rope load to strain variations between the lower (trough) and upper (peak) stresses imposed during testing. GAMA 98® is probably the stiffest rope construction currently available in the market for deepwater tether applications. This will result in less constructional stretch during the rope bedding-in and lower overall elastic stretch. These advantages translate into smaller platform offset and lower pre-tensioning during installation.



Fatigue Life

The fatigue life of polyester rope is typically quoted as being approximately 80 decades superior to steel wire rope. The fatigue life curve of GAMA 98® rope was established during the durability of polyester in Joint Industry Projects.

The rope gets up to 10% stronger during initial cycling as the molecule chains in the individual yarns straighten out under constant cyclic loading before losing strength and returning to initial Minimum Breaking Load after approximately 30% of the fatigue life.

Key Projects

Lankhorst Ropes executed the design and manufacture of GAMA 98® polyester rope tethers for major projects such as the Tahiti spar for Technip (Operator: Chevron), Thunder Hawk semi-submersible for SBM Atlantia (Operator: Murphy) and Cascade & Chinook FPSO for APL/BW Offshore (Operator: Petrobras Americas).



Minimum Breaking Load (TF)	ø (mm)	Mass in air (kg/m)	Mass in water (kg/m)	Stiffness		
				Cycling between 10-30% MBL MN	Cycling between 20-30% MBL MN	Cycling between 40-50% MBL MN
450	125	10,8	2,8	68	100	121
500	132	12,2	3,1	76	111	134
600	144	14,4	3,7	91	134	161
700	156	16,7	4,3	106	156	187
800	167	19,3	4,9	121	178	214
900	177	21,6	5,5	136	200	241
1000	186	24,0	6,2	151	223	268
1100	196	26,5	6,8	166	245	295
1200	201	28,3	7,3	181	267	321
1250	203	29,0	7,4	189	278	335
1300	208	30,4	7,8	196	289	348
1400	217	33,0	8,5	212	312	375
1500	223	34,8	8,9	227	334	402
1600	232	37,7	9,7	242	356	429
1700	238	39,5	10,1	257	379	455
1800	246	42,4	10,9	272	401	482
1900	251	44,2	11,3	287	423	509
2000	259	46,8	12,0	302	445	536
2100	266	49,7	12,7	317	468	562
2200	274	52,5	13,5	332	490	589
2300	279	54,6	14,0	347	512	616
2400	286	57,4	14,7	363	534	643
2500	290	59,2	15,2	378	557	670

These data are for guidance purposes only and are subject to change without prior notice