



# SINGLE POINT MOORING

BEXCO is one of the few type approved and certified producers of Single Point Mooring Hawsers in the world. These hawsers, which essentially connect oil and gas majors' points of supply with transportation in the mid-stream of the supply chain process, need to meet the most rigorous standards of quality and reliability. BEXCO's quality and service levels for SPM's are highly rated in the market.

The construction of individual SPM hawsers varies from location to location, depending on conditions and operational procedures. BEXCO offers hawsers custom-made to these operational needs.

### **PRODUCT OPTIONS**

### **Hardware options**

BEXCO can also provide a comprehensive range of equipment for offshore mooring systems designed to suit the specific requirements of different locations and water temperatures. We supply following items in full assemblies for first installations or separately as spare parts:

- Mooring hawsers
- High quality messenger lines
- Support buoys
- Pick-up ropes
- Chafe chains
- Shackles
- Associated fittings

#### **Inherent Buoyancy floatation system**

A common problem in using hawsers with floats is that during the lifetime of the hawser floats tend to discard from the hawser and get lost. A second problem when using hawsers with floats is that the surface of the assembly is not perfectly smooth. To overcome these problems, Inherent Buoyancy has been developed, which makes a hawser easier to install and retains its buoyant behaviour. The make up of the Inherent Buoyancy floatation system enhances the mooring hawser's abrasion resistance to external items in the field and has the added benefit of reducing how much the rope will flex with the wave action. This in turn reduces internal yarn-on-yarn abrasion damage, and helps to extend retirement times. Hawsers with Inherent Buoyancy are 100 % polyurethane coated over their entire length and are available in BL3 (Ultraline® Polyamide), DF8 (Deltaflex®), and DB12 (Double-Braided Polyamide) construction. Inherent Buoyancy does not affect mechanical characteristics of the hawser.

# SPM TYPES AND OCIMF CONFORMITY

Our SPM BL3 (Ultraline® Polyamide), DF8 (Deltaflex®), and DB12 (Double-Braided Polyamide) mooring hawsers fully conform to the requirements of the OCIMF guidelines, following an exhaustive documented OCIMF prototype test programme. We use only the best quality yarns of multifilament nylon, high tenacity polyester and blended fibres to manufacture our mooring system hawsers. The hawser can either be a single rope or a grommet. In the grommet configuration two legs are laid parallel.







# SPM BL3

#### CONSTRUCTION

Ropes of the ULTRALINE range are of a circular braid design and they have been developed to give a rope extra protection against wear and tear without significantly changing the primary characteristics. It is a logical development from the double-braid, where the outer braid both protects the inner braid and contributes to the strength. In the circular braid design this duality has been abandoned. The cover is optimised for wear and abrasion resistance ant the core(s) are optimised for strength or fatigue. This results in both a higher strength and a better design life than with other rope designs.

#### **MATERIAL PROPERTIES**

Polyamide or Nylon was the first synthetic fibre discovered. It is available as a fibre as nylon 6. Since nylon was the first fibre discovered it is better established than polyester but the fatigue properties of polyester are better than those of nylon. The UV resistance for this rope is acceptable.

FEATURES	Caralla Carall
Materials	Polyamide (nylon)
Construction	Load-bearing cores with a protective cover of polyamide
Treatment	Marine finish
Colour of Rope	White with green marker
Approx. Spec. Density	1,14 non-floating
Melting point	215°C
Abrasion resistance	Excellent
U.V. resistance	Excellent, due to jacket
Temperature resistance	80°C max continuous
Chemical resistance	Reasonable; acids, oxidisers & solvents will affect nylon
Dry & wet conditions	Wet strength < 5% lower than dry strength
Weight	± 5%

Ultraline® Polyamide Hawsers are manufactured in accordance with OCIMF 2000 regulations

± 2%

			MBL SINGLE				MBL GROMMET				
Dia	Circ	Weight	DRY		WET		DRY		WET		
mm	"	kg/100m	tf	kN	tf	kN	tf	kN	tf	kN	
80	10	406	163	1603	161	1578	278	2726	273	2683	
88	11	506	197	1929	194	1899	334	3280	329	3228	
96	12	585	233	2284	229	2248	396	3883	390	3822	
104	13	699	272	2668	268	2626	462	4536	455	4465	
112	14	798	314	3081	309	3033	534	5238	526	5156	
120	15	914	359	3523	353	3468	611	5989	601	5895	
128	16	1031	407	3994	401	3931	692	6789	681	6682	
136	17	1164	458	4492	451	4422	778	7637	766	7517	
144	18	1316	512	5020	504	4941	870	8534	856	8399	
152	19	1490	568	5575	559	5487	966	9478	951	9329	
160	20	1624	628	6159	618	6062	1067	10471	1051	10306	
168	21	1785	690	6771	679	6665	1173	11511	1155	11330	
176	22	1986	755	7411	744	7295	1284	12599	1264	12401	
184	23	2165	824	8080	811	7952	1400	13735	1378	13519	
192	24	2351	895	8776	880	8637	1521	14919	1497	14683	
200	25	2554	968	9500	953	9350	1646	16149	1620	15895	
208	26	2756	1045	10251	1029	10090	1776	17427	1748	17152	
216	27	2957	1124	11031	1107	10857	1912	18752	1881	18457	
224	28	3200	1207	11838	1188	11651	2051	20124	2019	19807	

Diameter





# SPM DF8

#### CONSTRUCTION

Plaited ropes of the BEXCOLINE range are well established in marine and off-shore applications, because of their ease in handling and non-rotating behaviour. They are produced on a plaiting machine containing eight reels, each containing one strand, groups of two reels interweave as a pair around the other pairs of reels to produce an eight strands rope of a somewhat square cross section.

### **MATERIAL PROPERTIES**

DF8 is a mixed or composite fibre based on our proprietary BEX- yarn and polyester as a strength member. It combines the excellent fatigue characteristics and abrasion resistance of polyester with the low density of Bexcord. The fatigue life is comparable to pure polyester, but the weight for a given strength is comparable to that of nylon, giving the rope excellent handling characteristics. A special marine finish is applied to further increase the wear resistance in a marine environment. This finish has been tested conform ASTM D6611-00 and is water repellent. Wet and dry strength is identical.

FEATURES	
Materials	High tenacity BEX-yarn and high tenacity polyester
Construction	8 strand plaited
Treatment	Marine finish
Colour of Rope	White with blue and orange marker
Approx. Spec. Density	1,14 non-floating
Melting point	165°C / 260°C
Abrasion resistance	Excellent
U.V. resistance	Good
Temperature resistance	70°C max continuous
Chemical resistance	Good, solvents and strong oxidisers may have a mild effect
Dry & wet conditions	Wet strength equals dry strength

DF 8 Single Point Mooring Hawsers are manufactured in accordance with OCIMF 2000 regulations

± 5%

± 2%

Weight

Diameter

			MBL S	INGLE	MBL GROMMET		
Dia mm	Circ "	Weight kg/100m	tf kN		tf	kN	
80	10	412	151	1483	257	2521	
88	11	500	181	1772	307	3013	
96	12	590	213	2085	361	3544	
104	13	680	247	2421	420	4116	
112	14	800	283	2781	482	4728	
120	15	918	322	3164	548	5378	
128	16	1055	364	3569	618	6067	
136	17	1185	407	3997	693	6795	
144	18	1330	453	4448	771	7561	
152	19	1480	502	4920	853	8365	
160	20	1640	552	5415	938	9206	





# SPM DB12

## **CONSTRUCTION**

Ropes with a double-braid design are traditionally the preferred construction for single point mooring hawsers.

### **MATERIAL PROPERTIES**

Polyamide or Nylon was the first synthetic fibre discovered. It is available as a fibre as nylon 6. Since nylon was the first fibre discovered it is better established than polyester but the fatigue properties of polyester are better than those of nylon. The UV resistance for this rope is acceptable.

FEATURES	
Materials	Polyamide (nylon)
Construction	12 strand braided with a braided cover of polyamide
Treatment	Marine finish
Colour of Rope	White with green marker
Approx. Spec. Density	1,14 non-floating
Melting point	215°C
Abrasion resistance	Excellent
U.V. resistance	Excellent, due to jacket
Temperature resistance	80°C max continuous
Chemical resistance	Reasonable; acids, oxidisers & solvents will affect nylon
Dry & wet conditions	Wet strength ± 5% lower than dry strength
Weight	± 5%
Diameter	± 2%

			MBL SINGLE				MBL GROMMET				
Dia	Circ	Weight	DRY		WET		DRY		WET		
mm	"	kg/100m	tf	kN	tf	kN	tf	kN	tf	kN	
80	10	397	176	1724	165	1624	299	2932	281	2760	
88	11	481	214	2100	202	1977	364	3571	343	3362	
96	12	572	256	2515	241	2367	436	4275	410	4025	
104	13	671	302	2967	285	2794	514	5045	484	4749	
112	14	779	353	3459	332	3257	599	5880	564	5536	
120	15	893	407	3990	383	3756	691	6783	651	6386	
128	16	1020	465	4560	438	4293	790	7751	744	7298	
136	17	1150	527	5169	496	4866	896	8787	843	8273	
144	18	1280	593	5818	558	5477	1008	9890	949	9311	



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