

# DYNICE

## OFFSHORE



**HAMPIDJAN**  
— a worldwide network

## COMPANY PROFILE

In the spring of 1934, midst in the Great Depression, 13 individuals gathered a small fortune to start up an industrial company to manufacture fishing nets, ropes and fishing long lines for the Icelandic fishing fleet.

Hampidjan has since evolved to become one of the largest fishing gear and high tech ropes manufacturer of the world, having 35 entities in 12 countries with over 900 employees.

We have made relentless product development the essence of our being. We do that so our customers know that if they are with Hampidjan, using advanced Dynlce and Dynlce Dux ultra high performance ropes for towing or tugging – they are using products that are at the cutting edge of known technology.



*The Hampidjan Group headquarters are located at the waterfront of the main harbor of Reykjavik Iceland in a new 6.500 m2 building.*



*The main production facility is Hampidjan Baltic in Lithuania. The production range is from filaments to the most advanced tailor made fishing gear available as well as high performance ropes. The production equipment is state of the art and on floor area of 21.500 m2*



Hampidjan is ISO 9001 certified for quality assurance, ISO 14001 certified for environment issues and OSHAS ISO 18001 certified for health and safety of the employees. Certification is from DNV – Det Norske Veritas.



**Technora®**

# DYNICE DEEP SEA ROPES

## Large diameter Dynlce Deep Sea ropes for heavy lifts and extreme deep sea lowering and lifting.

The need for large diameter ropes in very long lengths is increasing as drilling and installation is today feasible at depths down to 3000 meters in certain areas. At such depth it becomes practically impossible to work with steel wire ropes due to their own weight.

Synthetic ropes from high performance materials like Dyneema® are then a good alternative as they are lighter than water and floating.

For the production of Dynlce Deep Sea ropes the largest 12 strand braider built in the world is used for that purpose.

The rope is available as a 12 strand braid with durable impregnation and with either cover of polyester or Dyneema, or a blend of those materials.

Diameters range up to 200 mm and with overall diameter with cover up to 220 mm and breaking strength of 2.500 tons.



Dynlce Deep Sea

Diameter under 5% load	Breaking strength unspliced	Weight in air	Weight in sea	Density
mm	ton	kg/m	kg/m	kg/dm3
40	139	0.95	-0.07	0.96
42	150	1.02	-0.08	0.96
44	161	1.09	-0.09	0.96
46	171	1.17	-0.10	0.96
48	182	1.24	-0.10	0.96
50	193	1.32	-0.11	0.96
52	214	1.46	-0.12	0.96
54	236	1.61	-0.13	0.96
56	257	1.76	-0.14	0.96
58	278	1.90	-0.15	0.96
60	299	2.05	-0.16	0.96
62	320	2.19	-0.18	0.96
64	341	2.34	-0.19	0.96
66	362	2.49	-0.20	0.96
68	382	2.63	-0.21	0.96
70	403	2.78	-0.22	0.96
80	516	3.58	-0.29	0.96
90	648	4.54	-0.36	0.96
100	798	5.63	-0.45	0.96
110	957	6.80	-0.55	0.96
120	1,124	8.05	-0.65	0.96
130	1,318	9.51	-0.76	0.96
140	1,508	10.97	-0.88	0.96
150	1,706	12.51	-1.01	0.96
160	1,940	14.34	-1.15	0.96
170	2,151	16.17	-1.30	0.96
180	2,277	18.00	-1.44	0.96
190	2,421	20.12	-1.61	0.96
200	2,554	22.31	-1.79	0.96

Steel wire rope 56 mm - MBL 264 ton  
SF 7 = Working Load Limit 38 ton  
Weight on deck 41 ton

Dynlce Deep Sea 56 mm - MBL 266 ton  
SF 7 = Working Load Limit 38 ton  
Weight on deck 6 ton

**At 3.000 m depth steel rope weighs 37,2 ton but Dynlce has a buoyancy of 0,46 ton!**



# DYNICE WARP WINCH ROPES

## Specialized high performance Dynlce Warp ropes for extreme deep sea lowering and lifting.

Dynlce Warp is the most advanced patent pending and complex design of a winch line for deep sea lifting and lowering as well as for towing fishing trawls. The rope consists of 6 different layers to make the line with very high cross-sectional stability and axial stiffness.

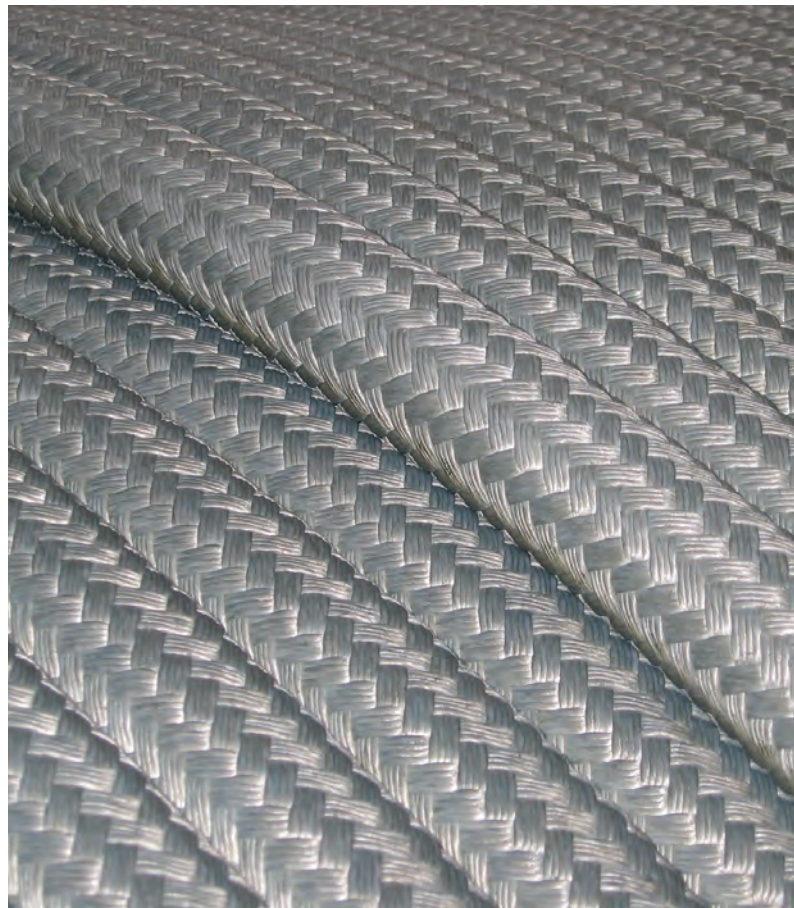
Wire ropes have limitations due to own weight and at extreme depth the weight of the wire itself exceeds the working load limit. Dynlce Warp has no such limitations as the rope is lighter than water and floats even though the strength exceeds the strength of wire rope of same diameter. It is excellent choice as winch wire rope replacement.

Dynlce Warp is a heat set and stretched rope with plastic core to ensure firmness and roundness and a durable cover of Dyneema® overbraid is moulded on the main rope. The main strength member and the cover is braided ensuring that the rope is totally balanced and torque free and will not untwist at any load.

The density is 0,96 and the rope is floating but if needed the density can be adjusted up to 1,20 to ensure that the rope is sinking.

Dynlce Warp is proven to use on drum winches both in fishing and offshore and is very suitable for traction winches.

Dynlce Warp				
Overall diameter	Breaking strength unspliced	Weight in air	Weight in sea	Density
mm	ton	kg/m	kg/m	kg/dm3
12	12	0.110	-0.009	0.96
14	18	0.141	-0.011	0.96
16	25	0.184	-0.015	0.96
18	31	0.219	-0.018	0.96
20	39	0.295	-0.024	0.96
22	44	0.318	-0.026	0.96
24	47	0.384	-0.031	0.96
26	56	0.439	-0.035	0.96
28	65	0.523	-0.042	0.96
30	74	0.576	-0.046	0.96
32	83	0.662	-0.053	0.96
34	91	0.710	-0.057	0.96
36	99	0.804	-0.065	0.96
38	107	0.863	-0.069	0.96
40	115	0.915	-0.073	0.96
42	134	0.979	-0.079	0.96
44	142	1.043	-0.084	0.96
46	146	1.155	-0.093	0.96
48	157	1.229	-0.099	0.96
50	169	1.311	-0.105	0.96

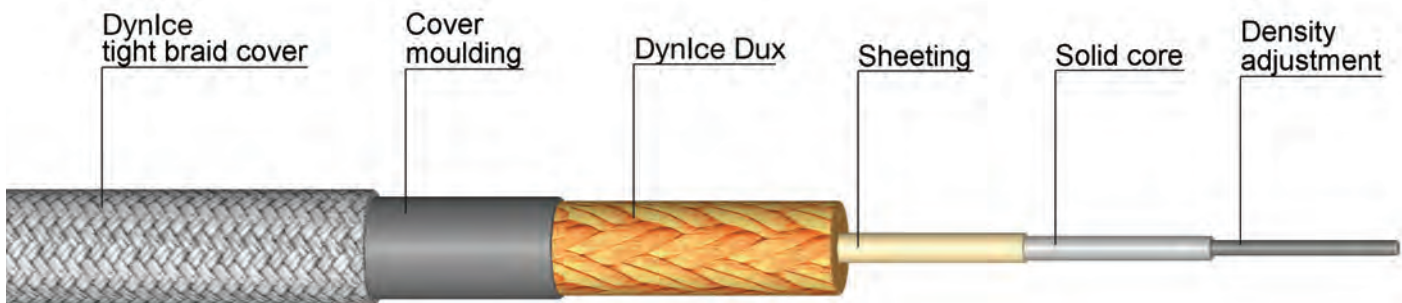
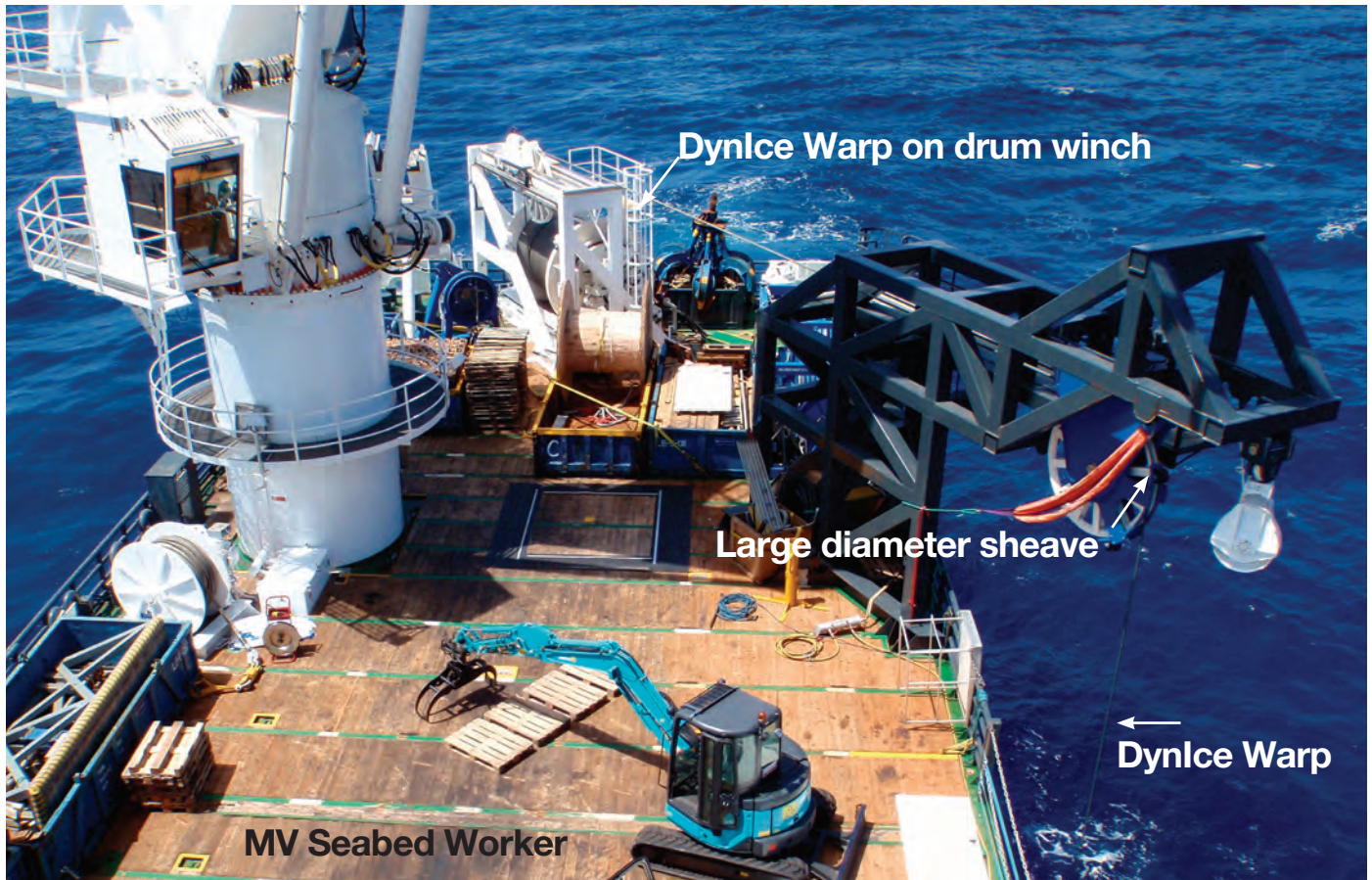


MV Seabed Worker is equipped with Dynlce Warps on a standard winch for operations down to 6.300 meter for salvage operations. The operation would barely have been feasible with steel wire on the winch. The Dynlce Warp of 44 mm holds the same strength as a steel wire in same diameter.

This particular Dynlce Warp has been given a density of 1,1 and has therefore submerged weight of 1460 kg at 6.300 m.



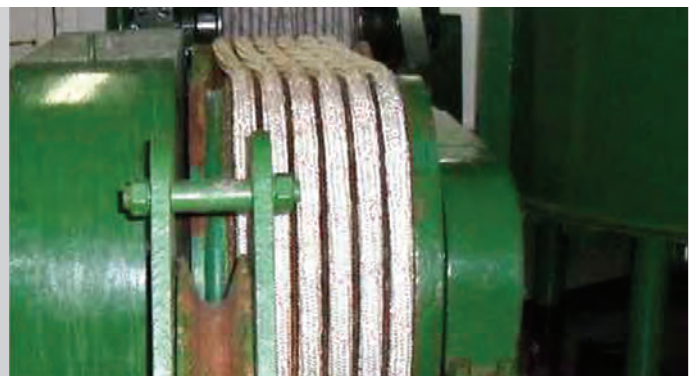
# DYNICE WARP WINCH ROPES



The DynIce Warp has similar strength as steel wire in same diameter and the axial stiffness is very high or about half of the steel wire stiffness and elongation at break is around 3,5%.

The construction of the DynIce Warp makes it the most advanced high tech rope design available. There are two separate and individual patents pending for this unique high performance rope.

The cover is moulded on top of the rope with new patent pending technology. The bonding between cover and core enables force transfer from the cover and into the rope which is the main strength member. Additionally the bonding prevents the cover from moving or slipping on the rope. Friction coefficient between rope and sheave is increased with texturized and rather fluffy cover surface.



# DYNICE COAXIAL WINCH WARPS

## Electrical conductivity with extreme pulling power.

DynIce Coaxial Winch Warps are patented advanced high performance winch ropes with the unique tight Warp construction and stiffness resembling steel wire.

They can be spooled automatically and the strength members are carefully protected under a durable cover.

In addition of being offered with an MBL exceeding 1.000Te, they are now available with up to 8 coaxial cables for data transfer and electrical current, for subsea data connections and power, no matter how deep you need to go.

Incorporating the latest technology in our proven, field-tested, Winch Warp line of products, Hampidjan has set a new milestone in product development, incorporating in its Warp constructions the excellent strength and abrasion resistance of DynIce with coaxial conductivity.

DynIce Coax Winch Warps are based on our standard DynIce Warps which have a proven history in Oceanographic, offshore and fishing industry worldwide, all warp constructions are suitable for both drum and traction winches.



DynIce is Hampidjan's trademark for ropes made from Dyneema fibers, from DSM Dyneema. DynIce ropes are impregnated 12 strand ropes, with or without cover and core. There are several grades of Dyneema raw material, and different impregnations, each intended for specific uses.

Dyneema fiber is a high-strength, high-modulus polyethylene fiber that combines excellent mechanical properties with low density, resulting in high performance-on-weight basis and stronger than steel ropes in the same diameter.



## Electrical conductivity with extreme pulling power.

Hampidjan's DynIce Coaxial Winch Warps are the most advanced high performance winch ropes from synthetic fibers available today, with their unique tight construction and stiffness resembling steel wire. They are also carefully protected under a jacket that is bonded to the strength member.

The Winch Warps have been used in over 200 projects all over the world, from fishing and Oceanographic vessels, on offshore winch systems, in salvage operations and where quality engineered solutions are of importance.

The Warps have proven to be easy to spool, just as steel wire, and have comparable strength per diameter as steel wire as well.

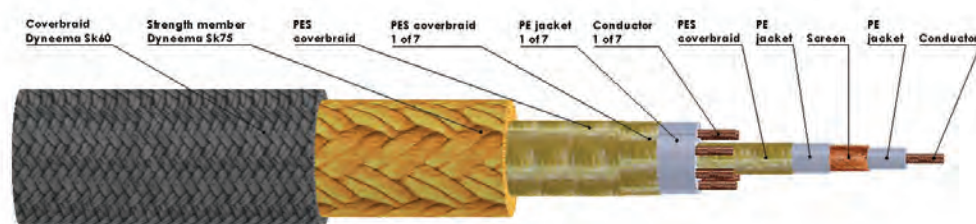
The sunken F-1 motors of the Apollo 11 space shuttle were successfully recovered from 4200 meters outside the Florida coast, of course using DynIce Winch Warps.



Denith Engineering in Cape Town designed a system with DynIce Winch Warp for salvage operations at 6.000mtrs, the proven track record of the DynIce Winch Warps and the tight construction were the main selection criteria.



Courtesy of Bezos Expeditions



DynIce rope are based on Dyneema® Ultra High Molecular Weight Polyethylene or UHMWPE, often abbreviated HMPE, that have all the benefits of Dyneema in addition to advanced engineering from Hampidjan.

They are very abrasion resistant, lightweight and strong. They are easy to splice and are available in various different constructions tailored to different needs.



# TECHNORA WINCH WARPS

## Heat resistant warps for demanding applications.

Hampidjan's patented Technora Winch Warps are tightly constructed ropes made from Technora fibers, with Technora cover bonded on the strength member for added wear protection.

The Warps are designed to operate on winches where high temperature is a concern.

The construction is the same as for our other Warp ropes, they are heat set with a core to increase stiffness and to help the rope maintain its circular shape, even under load.

A custom impregnation is used to increase the life of the rope in cyclic bending situations (CBOS).



The density of the rope is 1.4 so it will slowly sink, but it is still lightweight and has about the same strength per diameter as steel wire.

Technora ropes are made from Technora fiber from Teijin Aramid.

They are lightweight compared to steel wire, tolerate heat up to 500°C for a short amount of time, or 200°C for an long periods, they have almost no creep and good fatigue resistance even after long period under high load.

# Technora®

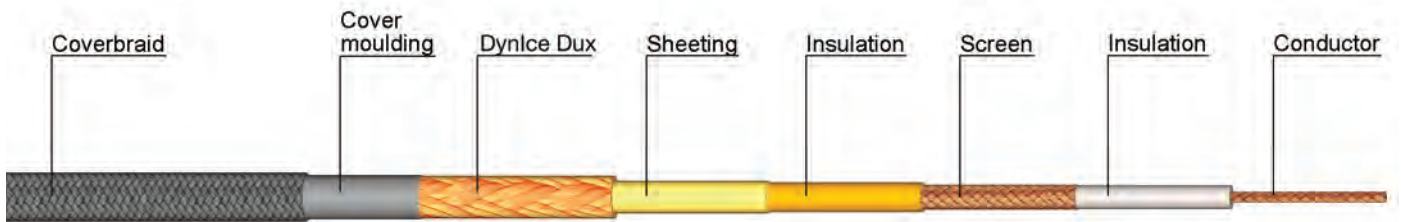
# DYNICE CTD CABLE

## Lightweight data transfer cable for deep sea operations.

DynIce current-temperature-depth (CT) cables are Dyneema based single conductor coax (or fiber) cables. They are a new alternative to current metal based cables, providing neutrally buoyant, lightweight data transfer cables for oceanographic operations.

The DynIce CTD cables are designed to work on drum or traction winches.

The length limitation for DynIce CTD cables in one continuous length is 9 km.



DynIce CTD					
Overall diameter	Breaking strength unspliced	SWL at 5:1	Density	Weight of cable in air	Weight of cable in sea
mm	ton	ton	kg/dm <sup>3</sup>	kg/m	kg/m
12.4	7.5	1.4	1.35	0.163	0.038
13.6	9.5	1.7	1.25	0.181	0.030

Copper conductor	2,19 mm <sup>2</sup>
Copper screen with >95% coverage	4,17 mm <sup>2</sup>
Resistance of conductor	11,0 ohm/km
Resistance of screen	5,7 ohm/km
Impedance	41 ohm
Capacitance	151 pF/m
Attenuation at 40 kHz	0,023 dB/km

The DynIce CTD was originally designed for transmission of sonar signals from headline sonar on advanced fishing trawls.

The headline sonar is placed on the top front of the trawl. Besides sending the sonar data it is receiving remote signal from catch sensors in the aft end indicating how much fish has been caught. The DynIce CTD cable used for this purpose is one length of up to 3000 meters.



# DYNICE HEAVY LIFTING SLINGS

## Custom made Dynlce Heavy Lifting Slings with minimum intersling tolerance.

Engineered lifts require often special made lifting slings which are designed and manufactured to meet the exact requirements in order to secure safe operation.

For each project a special drawing is made showing all details and markings and load rates.

Colour coding of eyes and legs in different color to ensure right selection of slings for the task is made according to customers' requirements.

Assistance with sling configuration and lifting points design is provided as well as calculation of safety factors according to DNV for each project.

The slings are made with heavy duty protection normally with polyester cover on the legs and then Dynlce eye protection in the eyes. The eye protection can be in many layers if needed for extra protection. Eye cover and main leg cover is fixed together by coversplicing so they will stay in place.

Lightweight protection like canvas is also available either in polyester or Dyneema® woven cloth.



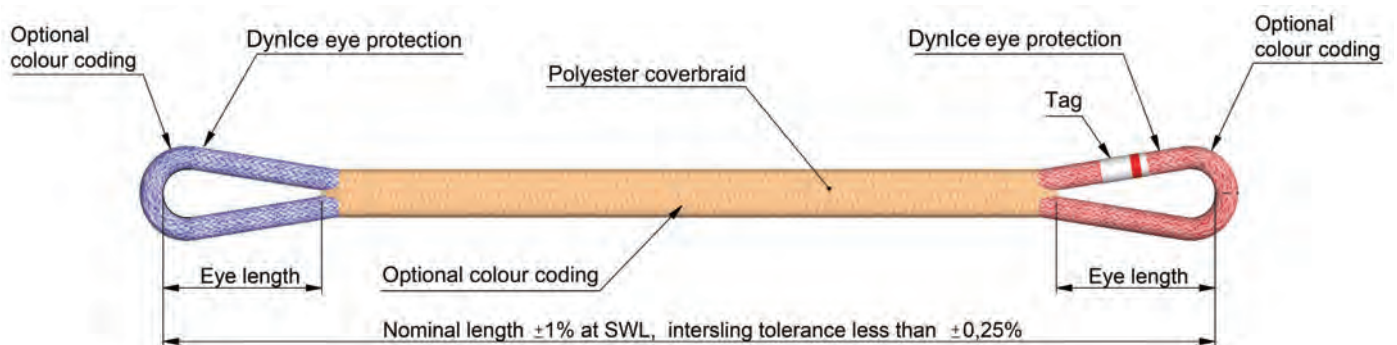
When lifting with multiple slings at the same time the intersling tolerance becomes very important especially for low elongation materials like Dyneema® or other HMPE materials.

A intersling tolerance of 0,25% is easily achievable and commonly the tolerance is within 0,15%.

In single leg slings breaking strength can be up to 2.500 mT and in grommet configuration it is possible to make up to 4.300 mT.

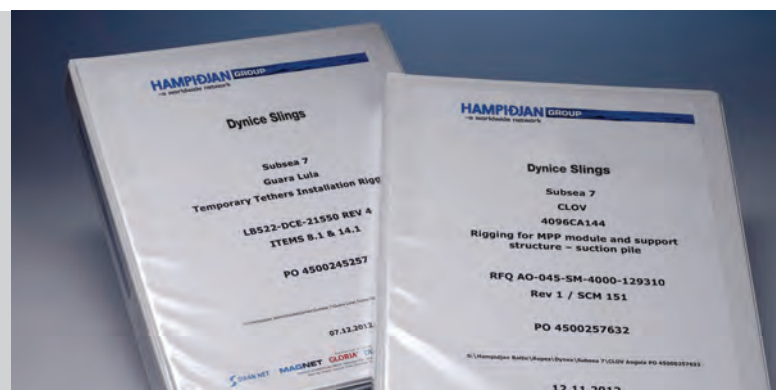
All slings are proof loaded prior to delivery with exact length measurements at SWL under our own supervision either in-house or at external testing facilities.





Comprehensive certification package is made for each sling including description, calculations, drawings and all certificates.

Preferably we work with DNV for certification and initial setup of rope sling properties.



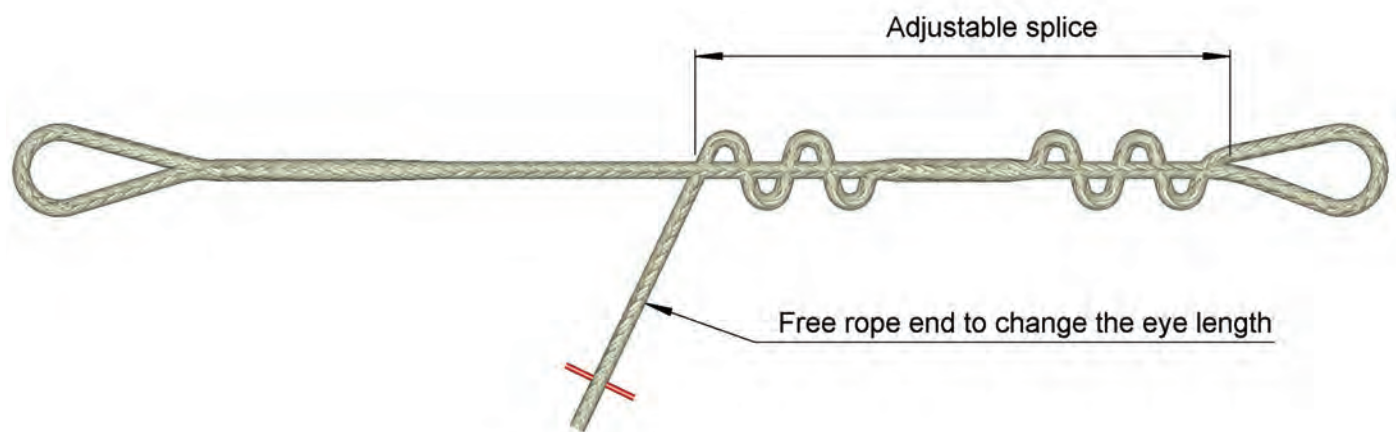
# DYNICE ADJUSTABLE SLING

**Adjustable lifting slings for maximum accuracy and minimal preparation time for complex lifting operations.**

Some lifts are more complicated than others and the object lifted is sometimes very delicate. With steel slings, chains and shackles this can be time consuming but there is another alternative - DynIce Adjustable Slings.

Lifting and lowering of jumper oil well connections is a good example of delicate lifting operation of fragile object. Multiple slings are attached to number of lifting points and the sling length have to be accurate so to avoid strain or bending of the jumper. The length can be adjusted without any tools and it takes only few minutes to adjust each sling.

The DynIce Adjustable Slings are pre-spliced and set to the calculated length. Eyes can be steel thimbles according to specifications or soft eyes with protective sleeve. The DynIce rope is soft, light and easy to work with.



The splices are made such that they can be moved easily in order to make the sling longer or shorter.

Multiple jumper sling lengths can be adjusted within an hour or two for the total lift instead of one day or two if steel wire and chain are used.



# DYNICE TAPERED PULL ROPE

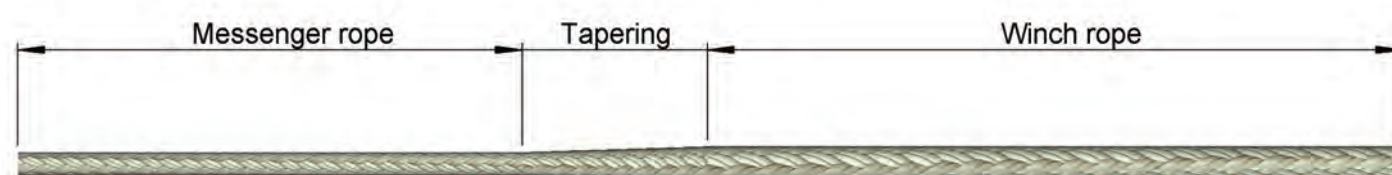
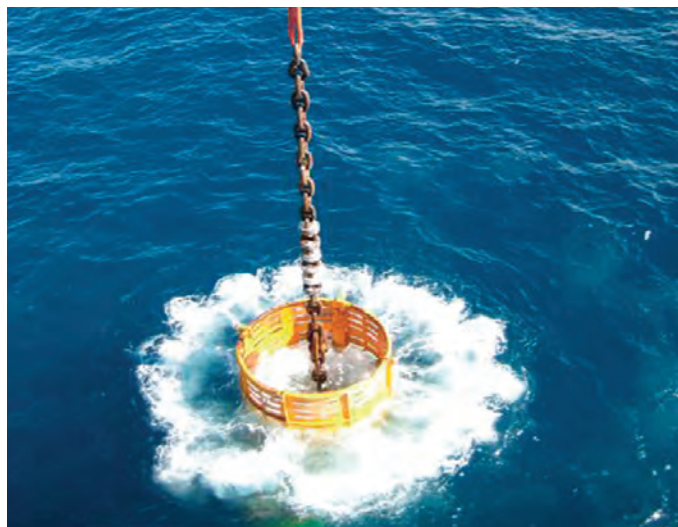
## Combined messenger rope and winch rope with no visible connection.

Tapered rope for pick-up of riser pipe flow line with traction or drum winch.

The DynIce Taper is one continuous and seamless rope where the inner end is small diameter messenger line and the outer main rope is thick for winch pulling.

This combination makes use of winches easier as there are no thick connections, eyes or splices in the rope. The production method of the rope is patent pending.

The tapered rope is available as 12 strand braided rope with or without cover.



The rope can be made in bright color for better visibility during the pick-up operation in low light circumstances.

The diameter difference between the messenger and the main winch rope is also custom designed to suit the winch and equipment used.



DynIce Hawsers are used where consistent quality, extensive guarantees and quality workmanship is of importance. The Hawsers are made with DynIce as a strength member, with covers made from DynIce covers.

They can be adjusted according to needs. They are available with or without covers.

The lightweight messenger is easy to handle and due to its low density the rope is floating.

As the messenger line is the inner layer on the drum the transition of towing in and then to lifting with the main rope is smooth and no spliced eyes or spliced connections to be concerned about during the operation.

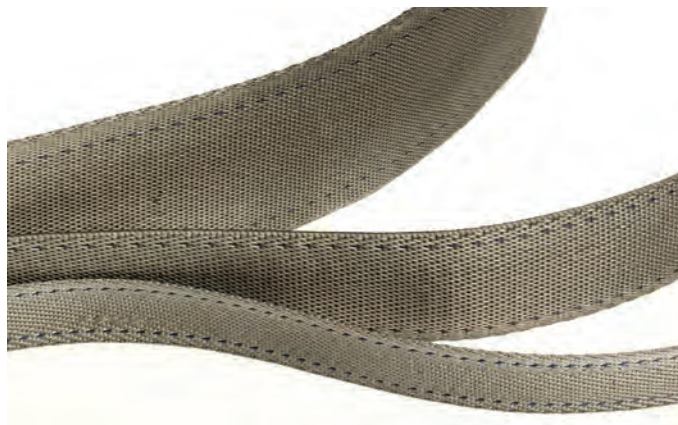


## High strength flat webbing for specialized strapping.

Dynlce Webbing is woven from Dyneema® filaments where about 95% of the filaments are arranged lengthwise and thus giving the strap low elongation.

The Dynlce webbing is suitable for high tension strapping and dynamic load.

For use in high temperature environment or where constant high tension is needed over many years the Vectex strap from Vectran® is more suitable choice.



### Dynlce Webbing

Width		mm	15	20	25	30	40	50	60	80	100	120	220
Weight	g/m	2.0	19.5	26.0	32.5	39.0	52.0	65.0	78.0	104.0	130.0	156.0	286.0
Breaking strength	ton		1.7	2.3	2.8	3.4	4.5	5.5	6.6	8.7	10.8	12.9	23.6
Weight	g/m	4.0	39.0	52.0	65.0	78.0	104.0	130.0	156.0	208.0	260.0	312.0	572.0
Breaking strength	ton		3.2	4.3	5.3	6.4	8.4	10.5	12.5	16.4	20.4	24.3	44.6
Weight	g/m	6.0	58.5	78.0	97.5	117.0	156.0	195.0	234.0	312.0	390.0	468.0	858.0
Breaking strength	ton		4.5	6.0	7.5	9.0	11.9	14.7	17.6	23.2	28.8	34.3	62.8

### Vectex Webbing

Width		mm	15	20	25	30	40	50	60	80	100	120	220
Weight	g/m	2.0	28.4	37.9	47.4	56.9	75.8	94.8	113.8	151.7	189.6	227.5	417.0
Breaking strength	ton		1.5	2.0	2.5	3.0	3.9	4.9	5.8	7.7	9.6	11.4	20.9
Weight	g/m	4.0	56.9	75.8	94.8	113.8	151.7	189.6	227.5	303.3	379.2	455.0	834.2
Breaking strength	ton		2.8	3.8	4.7	5.6	7.4	9.3	11.0	14.5	18.1	21.5	39.4
Weight	g/m	6.0	85.3	113.8	142.2	170.6	227.5	284.4	341.3	455.0	568.8	682.5	1251.0
Breaking strength	ton		4.0	5.3	6.6	7.9	10.5	13.0	15.6	20.5	25.5	30.4	55.7

The Dynlce ratchet lock was developed to strap inductive cable on one of the pipelines in Tyrihans oil field in Norway so the oil inside could be heated up and made liquid after maintenance stops. The tension on the strap is constant at 700 kg and is designed to hold for 25 years. For that purpose Vectran fiber was used as it doesn't have any creep under load and at high temperature.



## High strength anti-tangle taglines with firm grip.

DynIce Helix Taglines are tangle resistant as it is designed with a rigid core and stiff coverbrading to prevent any turning on itself and wrapping around objects.

The patented Helix spiral effect will dramatically increase grip in wet and slippery conditions. The taglines are designed not to catch on pinch points, as there are no knots or areas to snag.

Inside the Helix cover is DynIce 75 giving them exceptional strength and they are also lightweight for operator handling.

Each tagline has a braided cover to help prevent abrasion.

There are four current lengths 5, 8, 10 and 15 m each coming with a relevant colour coded eye for easy length identification. Other lengths are available on request.



The Helix spiral enhances the holding properties and is made to fit for comfortable hand gripping.

The basic line colour is yellow for high visibility.

The cover is dirt repellent and the lines can be washed with oil cleaning materials if needed.



# DECK ROPES

High performance ropes for various applications with high strength and durability.



## Dynlce 75

Reliable and proven 12 strand braided rope from Dyneema SK75 fibres impregnated with Duracoat for improved abrasion resistance.

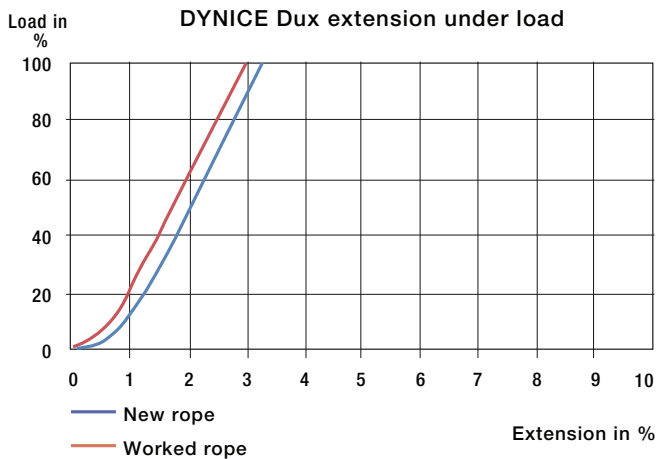
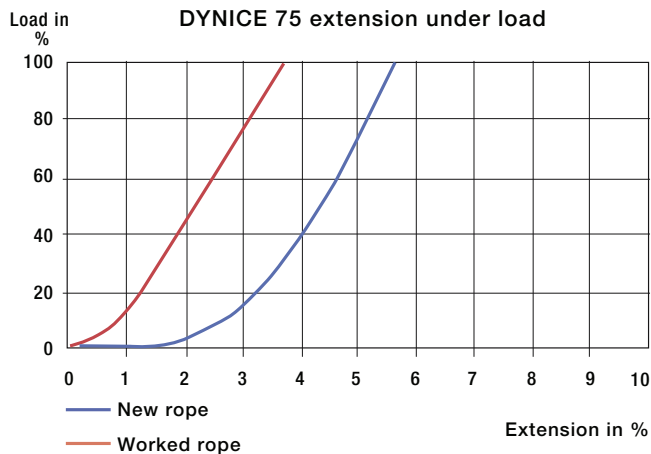
The ropes are soft and flexible and easy to splice.



## Dynlce Dux

Dynlce Dux is very firm, heatset and stretched 12 strand Dyneema SK75 rope with smooth Durapur impregnation for abrasion resistance.

The constructional elongation has been removed in the production process and stretch is extremely low.



Diameter	Breaking strength unspliced	Breaking strength with eye	Weight in air	Weight in sea (floating)	Density
mm	ton	ton	kg/100 m	kg/100 m	kg/dm <sup>3</sup>
6	4.2	3.8	2.30	-0.18	0.96
8	6.7	6.0	3.80	-0.30	0.96
10	10.7	9.6	6.10	-0.49	0.96
12	16.4	14.8	9.30	-0.75	0.96
14	21.8	19.6	12.50	-1.00	0.96
16	27.4	24.7	16.00	-1.28	0.96
18	35.0	31.5	20.70	-1.66	0.96
20	41.9	37.7	25.20	-2.02	0.96
22	50.0	45.0	30.50	-2.45	0.96

Diameter	Breaking strength unspliced	Breaking strength with eye	Weight in air	Weight in sea (floating)	Density
mm	ton	ton	kg/100 m	kg/100 m	kg/dm <sup>3</sup>
6	6.8	6.1	3.28	-0.26	0.96
8	9.9	8.9	4.92	-0.39	0.96
10	13.5	12.2	6.80	-0.55	0.96
12	18.8	16.9	9.70	-0.78	0.96
14	27.3	24.6	13.60	-1.09	0.96
16	37.2	33.5	18.60	-1.49	0.96
18	45.1	40.6	22.60	-1.81	0.96
20	54.7	49.2	27.40	-2.20	0.96
21	64.2	57.8	32.10	-2.57	0.96
23	73.6	66.2	37.00	-2.97	0.96
25	82.7	74.4	42.10	-3.38	0.96
27	90.6	81.5	46.80	-3.75	0.96
29	98.9	89.0	51.70	-4.15	0.96
31	107.1	96.4	56.70	-4.55	0.96
32	115.3	103.8	61.70	-4.95	0.96

# EYE PROTECTION

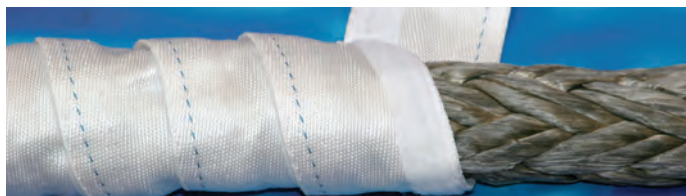
## Dynlce Webbing Protection

The webbing can be wrapped around splices, eyes and without any splice work needed. The Dynlce Webbing attach to itself by the means of overlapping Velcro and the layers can be one, two or three. Finally the wrapping end in each side is seized with nylon twine to secure them.

Same kind of Dynlce Webbing can be wrapped around a rope to make a sleeve to protect from abrasive areas which the rope can touch during use.

**Dynlce Webbing Protection**

Width of webbing	Thickness of webbing	Weight in air	Weight in sea (floating)	Density
mm	mm	kg/100 m	kg/100 m	kg/dm3
20	2.0	2.60	-0.21	0.96
40	2.0	5.20	-0.42	0.96
60	2.0	7.80	-0.63	0.96
80	2.0	10.40	-0.83	0.96



## Dynlce Eye Protection

The eye protection sleeves are tight braided tubes where the strands are made of pre-braided twines of Dyneema®. Where special extra protection is needed the sleeve layers can be two or even three on top of each other. Still the eye is soft but with enough stiffness to keep it suitably open for bollards and hooks.

The eye protection is also useful as a sliding sleeve to position where high abrasion is expected like in a fairlead.

**Dynlce Eye Protection**

Diameter of inside rope	Weight in air	Weight in sea (floating)	Density
mm	kg/100 m	kg/100 m	kg/dm3
6 - 12	6.60	-0.53	0.96
12 - 18	13.70	-1.10	0.96
20 - 26	27.40	-2.20	0.96
28 - 40	43.70	-3.51	0.96
42 - 52	82.00	-6.58	0.96
52 - 60	83.00	-6.66	0.96



## Dynlce Splice Protection

The splice protection is made from twisted Dynlce strands in very loosely braided tube to cover splices for extra protection. The splice protection is available in a pre-packed kit with 50 meter stretched length of tube, shrinking mending twine and twine glue to secure the seizing.

Diameter of inside splice	Weight in air	Weight in sea (floating)	Density
mm	kg/100 m	kg/100 m	kg/dm3
30 - 60	27.50	-2.21	0.96
40 - 80	26.60	-2.13	0.96



## Strong and lightweight longlines for aerial lifting.

The longlines are protected by removable cover and easily inspected and with optional control cable for hook releasing.

The cover is made of canvas in strong yellow and red colours and it can be opened up lengthwise to inspect the rope inside. A control cable is laid parallel to the rope but in separate lining for extra protection and replacement if needed.

Dynlce Heliline gives higher payload and more security for those working with the lines on the ground during continuous lifting and transport operations.



Dynlce Heliline			
Overall diameter	Breaking strength unspliced	Working Load Limit at 7:1	Weight of rope without cover /thimbles
<i>mm</i>	<i>ton</i>	<i>ton</i>	<i>kg/m</i>
10	10.7	1.4	0.06
11	13.3	1.7	0.08
12	16.4	2.1	0.09
14	21.8	2.8	0.13
16	27.4	3.5	0.16
18	35.0	4.5	0.21
20	41.9	5.4	0.25
22	50.0	6.4	0.31
24	57.8	7.4	0.36
26	65.7	8.4	0.41
28	73.8	9.5	0.47

The cover is easily removed for inspection of the rope or to add control cables inside.

The eyes are spliced with stainless steel thimbles inside and the length is according to requirements. A light weight transport bag is optional for the chosen size.





Hampidjan is ISO 9001 certified for quality assurance, ISO 14001 certified for environment issues and OSHAS ISO 18001 certified for health and safety of the employees. Certification is from DNV – Det Norske Veritas.



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