

# Hampiðjan Group Global

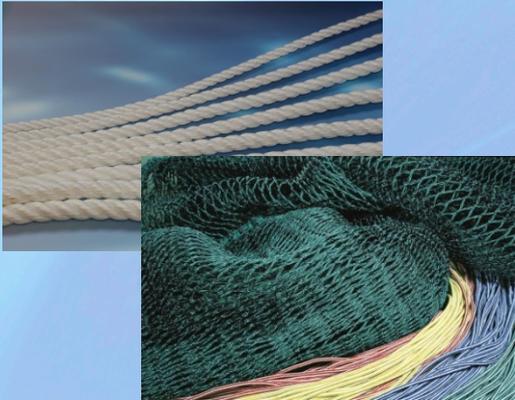


**HAMPIÐJAN**

# Hampiðjan Group

- 27 companies with 36 service stations on 4 continents.
- HQ in Iceland, Icelandic owned, established 1934
- Central manufacturing and stock facility in Lithuania, EU
- 1050 employees worldwide
- A Market Leader in design and production of high quality Fishing Gear and Super Ropes.
- DSM Dyneema oldest and second biggest customer.
- Strong brand Names

# Nets & ropes



# Fishing gear



# Fishing gear material



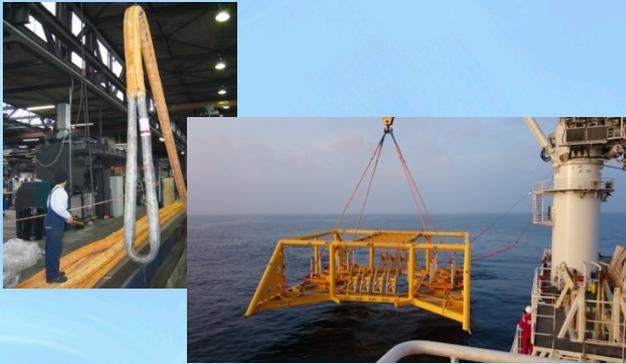
# Aquaculture



# Yachting



# Offshore



# HAMPIJAN

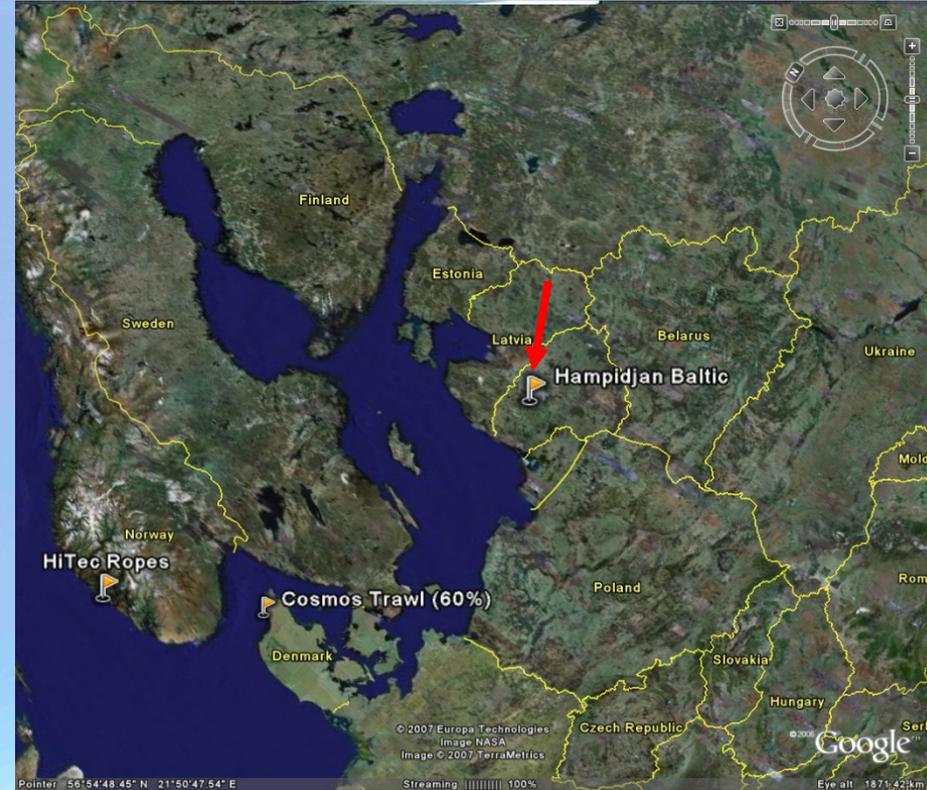
# Hampidjan Baltic

Central production  
facility

500 employees

■ 31.500 m<sup>2</sup>

■ Highly skilled labour.

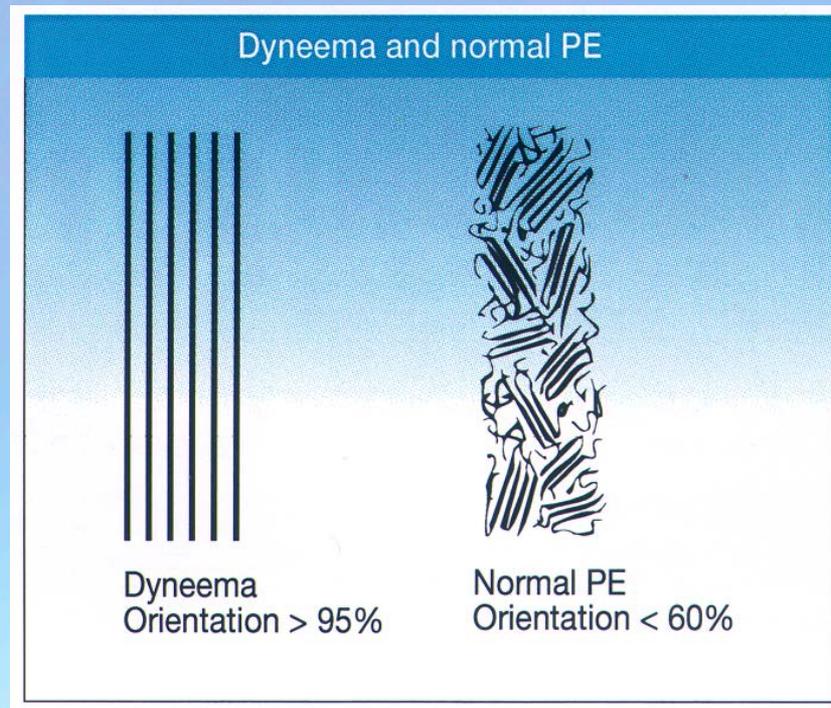


# DynIce

- DynIce is made out of Dyneema fiber
- DynIce:
  - Has high strength / low weight
  - Has low specific gravity
  - Has excellent chemical resistance
  - Is UV and moist resistant
- Maximum MBL is 2.845Te, 204mm
- DynIce has reverse thermal properties

# DynIce

- Polyethylene (PE) is heated up and reformed at a molecular level.



# DynIce

Main properties of technical fibres

	Density	Tenacity			Modulus			Elongation
	g/cm <sup>3</sup>	N/tex	g/den	Gpa	N/tex	g/den	GPA	%
Dyneema SK60	0.97	2.8	32	2.7	91	1025	89	3.5
Dyneema SK75	0.97	3.5	40	3.4	120	1350	107	3.7
Aramid – regular	1.44	2.05	23	2.9	41	470	60	3.6
Polyamide HT	1.14	0.8	9	0.9	5	56	6	20
Polyester HT	1.38	0.8	9	1.1	10	110	14	13
Polypropylene	0.90	0.6	7	0.6	6	70	6	20
Steel	7.86	0.2	2	1.77	25	225	200	1.1

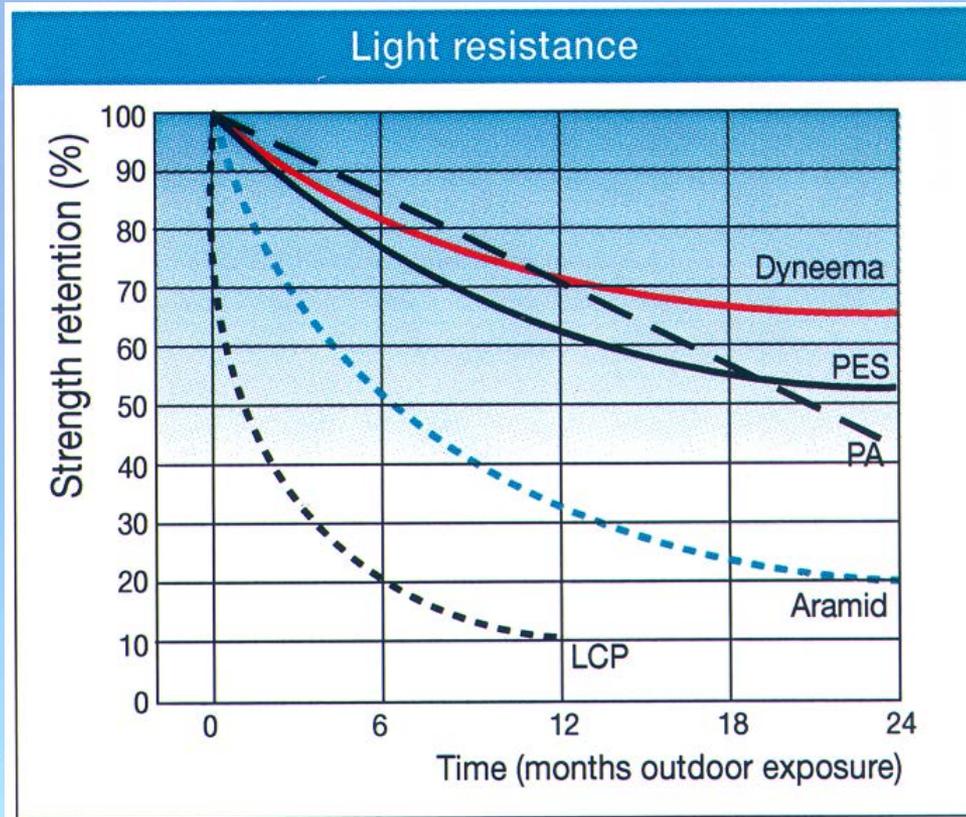
# DynIce

Effect of various chemicals and solvents on Dyneema

	Unaffected	Slightly affected	Seriously affected
Distilled water	X		
Sea water	X		
10% detergent	X		
Hydrochloric acid (pH=0)	X		
Nitric acid (pH=1)	X		
Glacial acetic acid	X		
Ammonium hydroxide	X		
Sodium hydroxide (pH>14)		X	
Petrol	X		
Kerosene	X		
Tolulene	X		
Perchlorethylene	X		

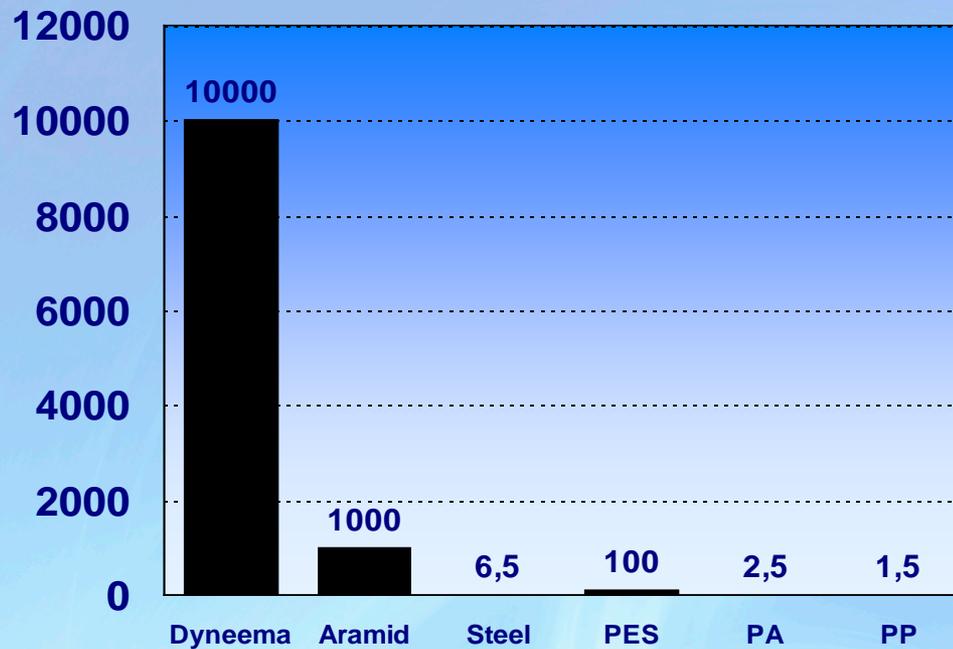
Impact on DynIce

# DynIce



UV resistance

# DynIce



Bending fatigue resistance

# DynIce

## Advantages

- Comparable size to wire rope
- Low weight, easy handling, increased safety
- Typically no risk of kinking
- Neutral buoyancy
- Good fatigue life
- Good abrasion and wear resistance
- Low lash back, important safety feature

## Points of attention

- Burrs & grooves on fairleads, bollards, etc.
- Risk of cutting
- Low elongation

# DynIce Warps

- Best performing fiber rope in multilayer spooling
- Rope of choice for Piston Core applications
- Users include NOV, IHC and TTS
- Clausthal University in Germany; rope proven to spool similar to steel wire, closest to any fiber rope tested.

# DynIce Warps

- In use on over 250 fishing vessels for 12+ years and in use 300+ days per year – outlasts steel wire which it has replaced.
- On over 30 winches outside the fishing industry
- By far the most sold fiber ropes for winches in the world.

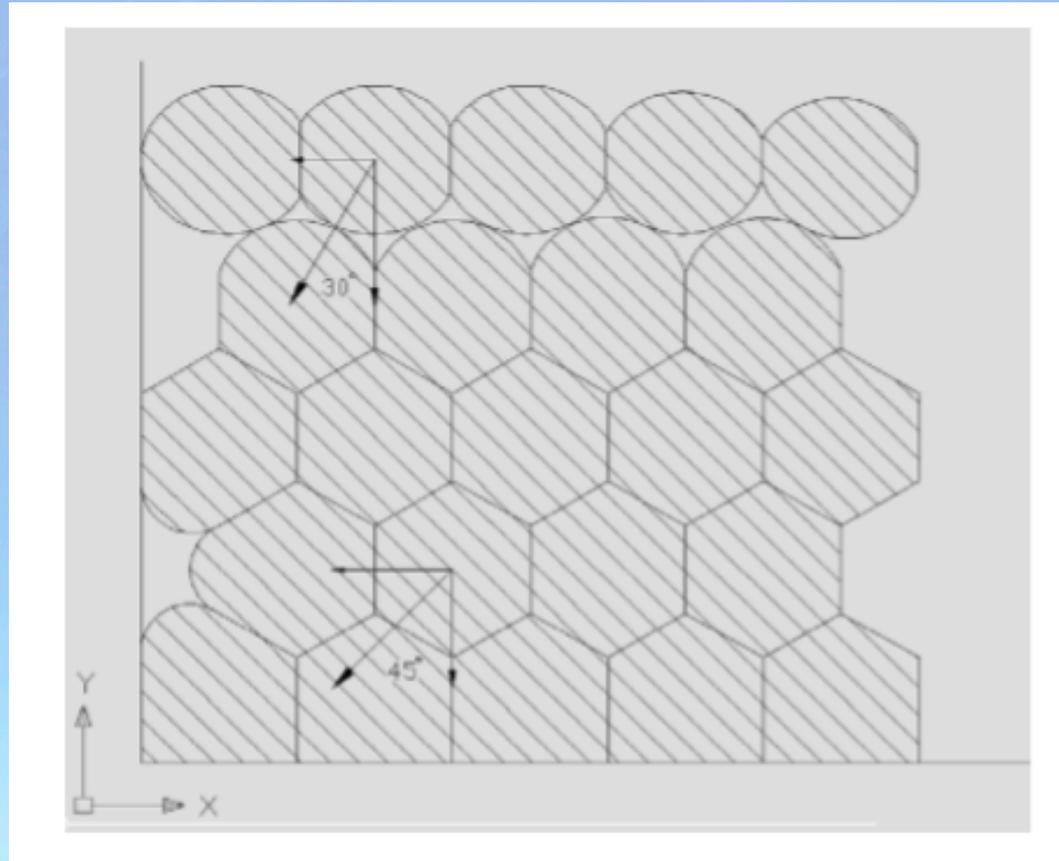
# DynIce Warps – Steel wire replacement

Available with coaxial and being developed with up to 4 fibre optics cables



# Spooling pattern of Warps

Low risk of knifing-in



# Warp for offshore winches

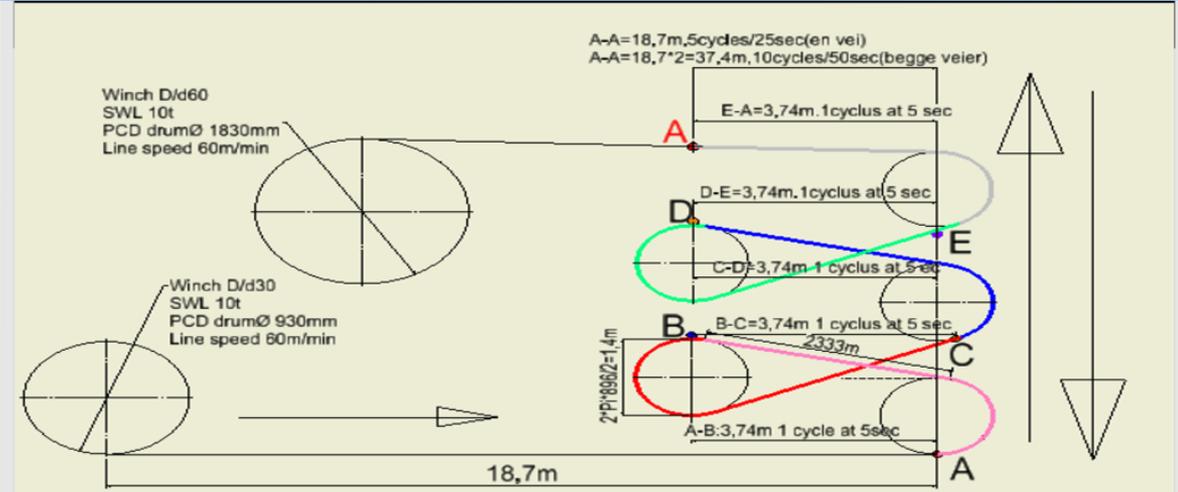
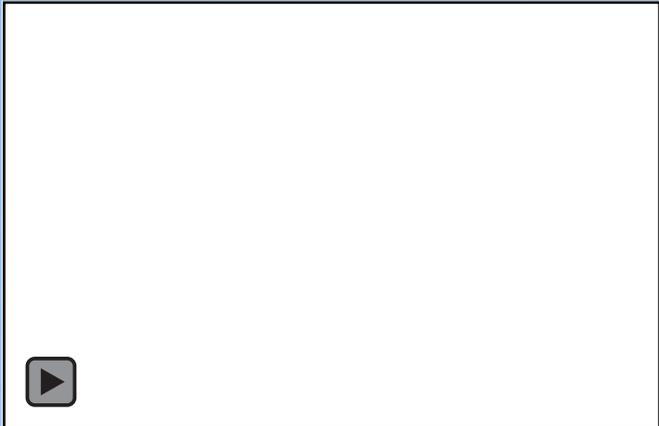
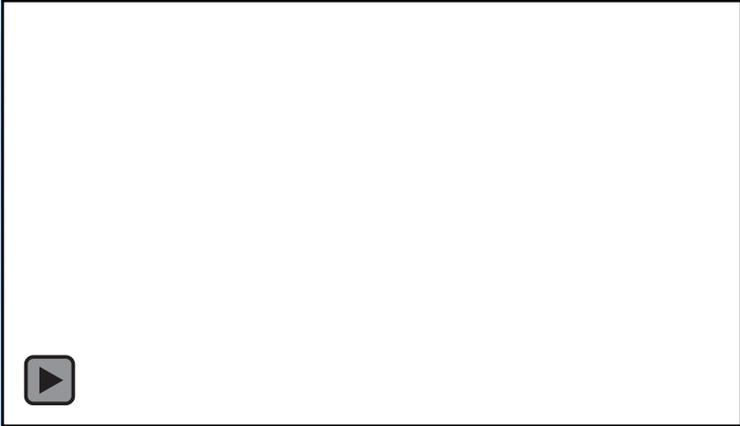
Year	Diameter	MBL	Length	Company	Usage
2009	44 mm	142 Te	4,200 m	Swire Subsea	Rescue
2011	30 mm	74 Te	10,000 m	RV Samudra Ratnakar - Caley Ocean Systems	Piston core
2012	44 mm	142 Te	400 m	Swire - Extension	Piston core
2013	44 mm	142 Te	6,300 m	Swire Seabed Worker	Rescue
	24 mm	47 Te	1,000 m	Rapp Marine for China	Piston core
	24 mm	47 Te	8,400 m	Rapp Marine for China	Piston core
2014	56 mm	209 Te	6,100 m	Denith Engineering ZA	Rescue
	30 mm	74 Te	12,000 m	R/V Kaimei - MacArtney	Piston core
	26 mm	56 Te	10,000 m	Rapp Marine for China	Piston core
2014	25 mm	56 Te	10,000 m	Rapp Marine for China	Piston core
	28 mm	65 Te	10,000 m	Rapp Marine for China	Piston core
2015	26 mm	56 Te	10,000 m	Fugro Marine USA - Caley Ocean Systems	Oceanographic
	12 mm	12 Te	2,000 m	MG3 Survey - UK Navy	?
	14 mm	18 Te	4,500 m	MG3 Survey - UK Navy	?
	44 mm	142 Te	1,350 m	Swire Seabed Worker	Rescue
	26 mm	56 Te	10,000 m	Rapp Marine	Piston core
	22 mm	44 Te	12,000 m	R/V Dong Fang Hong 3 - Markey Machinery	Piston core
	38 mm	107 Te	1,980 m	Mar Incorporated - US Navy	?
2017	26mm	56 Te	16000 m	Chinese University vessel - Honghai Marine	Piston core
	42 mm	142 Te	12000 m	Magellan	Deep Sea Mining
	36 mm	99 Te	6500 m	Fugro Change USA	Oceanographic
	26mm	56 Te	7000 m	Leidos - US Navy	?

# Technora Warps

- Subsea Well Intervention Services
  - Deep Horizon
- High Temperatures – Up to 500°C
  - HMPE, Dyneema, not suitable
- Technora, Aramid fiber
  - Importance of construction
- DNV 303 certified



# The importance of construction



# Offshore Oil & Gas and Offshore Wind farms

- Rope slings and Grommets
- Parallel laid fiber slings
  - MBL up to 6.800Te
  - DNV standards apply
  - All major contractors worldwide



# Seismic industry

- Complete solutions for the seismic industry – 20 years presence
  - Wide tow ropes
  - Separation ropes
  - Deflector straps
  - Other solutions



# • Questions?



# HAMPIÐJAN