HICE

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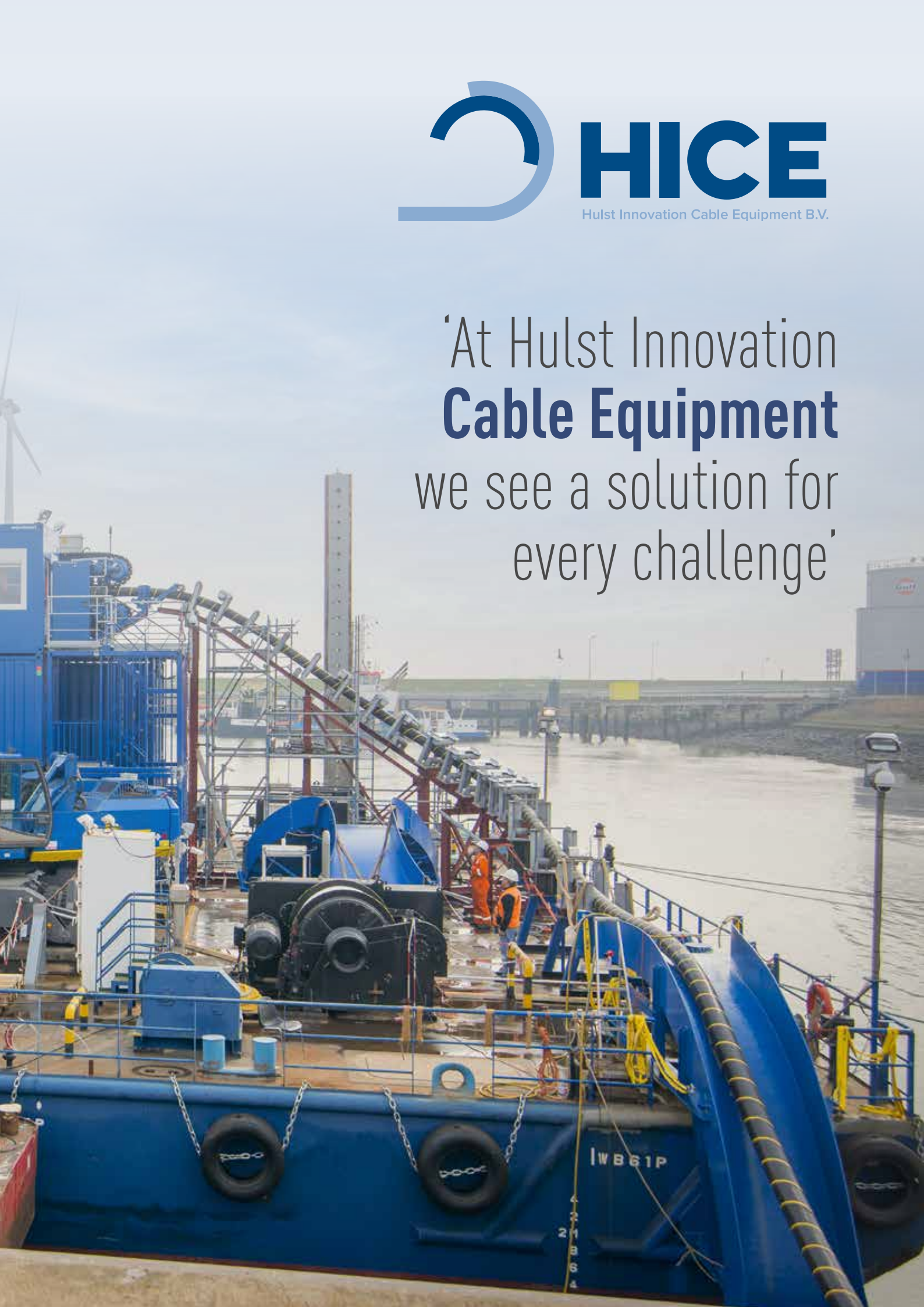

‘At Hulst Innovation **Cable Equipment** we see a solution for every challenge’

Introduction Hulst Innovation Cable Equipment B.V.

Hulst Innovation Cable Equipment (HICE) started as a sole proprietorship in 1994 on the 4th of July. The head office is located in Westeremden and another establishment opened in 2018 in Appingedam, The Netherlands.

HICE gained years of experience and has developed as an innovative machine and construction building partner. HICE provides services to a wide variety of companies.
(power) Cable handling and installation equipment have been part of our scope for the last 15 years.

All of these can be built to client wishes. At HICE we can provide client requirements to ensure a safe execution of a cable project.

HICE and sustainability

For years we have been very aware of the climate change, but also of the finiteness of fossil fuels. That's why we made a conscious decision to work as sustainable and efficient as possible on both of our locations. We installed 90 solar panels and 5 Solar water heaters on the roof of our company.

Out of the box thinking, design and engineering

The combination of creativity, an out of the box approach and years of practical experience in the cable related offshore industry has enabled HICE to provide tailored solutions to client requirements. When the job needs to be delivered on time and within budget, there is a knowledgeable and enthusiastic team at your disposal to get the job done.

Modular design and transportable by truck

All our equipment is based around a modular design and can be transported by truck, enabling easy mobilization to site and is build by HICE. Furthermore the design and fabrication process of equipment for offshore related use is certified by DNV-GL.

Support Equipment

HICE has over the years built numerous systems and constructions to support cables of various weight and dimensions. This can be for example cable roller-tracks on/off-shore, cable-chutes used on key-sides or on offshore vessels for cable deployment or jointing and cable deployment bows.

In January 2017 we placed a 15 meters high Braun Antaris windmill at our location in Westeremden. Our companies are heated by an 80 kW and 240 kW wood chip heater. Next to our stoves stands a 30 cubic meter chipper bunker. The chips are automatically fed into the stove by means of a mortar. These stoves have the capacity to heat the entirecompany. This means that we are not dependent on gas.

The combination of the windmill, our solar panels and the wood chip heater ensure that we are approximately 85% self-sufficient in our annual energy consumption!

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INTRODUCTION

Hulst Innovation Cable Equipment (HICE) is innovative and creative and works with its clients to modify and improve new and existing equipment. At HICE we see a solution for every challenge, where the focus always remains on cable specifications and practicality. The starting point is maximum functionality from as simple as possible systems to ensure a high reliability and usability over the lifespan.

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CONTENTS

Cable Handling equipment

Cable Storage Equipment

Support Equipment

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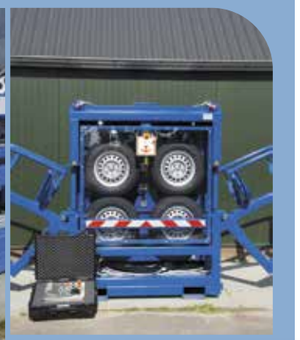
BOW CABLE ENGINE 5T

The Smartquadrant – bow cable engine has been designed to assist in loading of various cable types from fibre optic to medium sized power cables. The complete system consists out of two quadrants and one central electrically driven hydraulic power unit with a wired remote control. As the system is electrically driven, whereby the system can be used both for loading of cables in harbours and for transpooling of cables onboard cable lay vessels or freighters.



TECHNICAL SPECIFICATIONS

Overall dimensions	Length 1650mm (approx. value) exclusive quadrants Width 1250mm (approx. value) exclusive quadrants Height 2000mm (approx. value) exclusive quadrants
90⁰ side quadrants	Suitable for up to 4.5m bending radius
Weight in air	3.50t (approx. value) incl. quadrants
Working load limit	8.50t (approx. value) solely related to cable weight
Power supply	380V, 50Hz, 32A or 440V, 60Hz, 32A / C Charakteristic
Wheel pairs	4x wheels with wheel 650mm/each
Wheel drive	4x hydraulic motors with cooled electric driven HPU
Working pressure	200 bar
Max. pulling force	20kN
Cable opening	Min. 25mm / max. 300mm
Speed control	0 – 50m/min (0 – 3,000m/h) Hydraulic drive with continuous variable speed and regulation in both directions
Load control Optional	Load cell with 0 – 10,000kg capacity

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BOW CABLE ENGINE 10T

The Bow Cable Engine (BCE) was developed specifically by HICE and is one-of-a-kind. The operating principles are similar to a Linear Cable Engine, however the BCE is mainly used during cable loading (shore-vessel) and transpooling operations. The BCE is lifted by a crane and pulls the cable from the (temporary) storage facility, cable coil or turntable, and feeds the cable in the direction of the vessel. Since this requires limited pulling forces a two wheel-pair solution with a capacity of 2t. is sufficient. As a result of this the BCE has a compact shape en relatively low weight, which are both favorable for transport, lifting and operations.

TECHNICAL SPECIFICATIONS

Overall dimensions	Length 1700mm (approx. value) exclusive quadrants Width 1410mm (approx. value) exclusive quadrants Height 2150mm (approx. value) exclusive quadrants
90⁰ side quadrants	Suitable for up to 5m bending radius
Weight in air	5.5t (approx. value) incl. quadrants
Working load limit	15t (approx. value) solely related to cable weight
Power supply	380V, 50Hz, 32A or 440V, 60Hz, 32A / C Charakteristic
Wheel pairs	4x wheels with wheel 650mm/each
Wheel drive	4x hydraulic motors with cooled electric driven HPU
Working pressure	200bar
Max. pulling force	20kN
Cable opening	Min. 25mm / max. 350mm
Speed control	0 – 50m/min (0 – 3,000m/h) Hydraulic drive with continuous variable speed and regulation in both directions
Load control	Optional: Load cell with 0 – 10,000kg capacity

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LINEAR CABLE ENGINE 3T

The lay-out of a Linear Cable Engine (LCE) can be arranged in several ways, HICE has chosen for a split between the tensioner-part and the hydraulic power unit (HPU). This allows the HPU to be placed separately at some distance, which has the advantage of reduced noise and reduced space requirement on the work-deck. The tensioner-part is top loading to ease loading/unloading of cables and allows for simplified handling of end-connections and possible joints.

TECHNICAL SPECIFICATIONS

Dimensions LCE	Length 3.1m Width 1.6m Height 1.5m
Weight in air	2.8t
Dimensions HPU	Length 2.8m Width 1.1m Height 2.2m
Weight in air	2.8t
Power supply	440V, 60Hz, 75kW
Wheel pairs	3x wheel pair with wheel 620mm/each
Wheel drive	6x hydraulic motors with individual gear boxes and hydraulic brakes
Working pressure	280bar
Line Tension force	30kN (can be increased to 45kN)
Cable opening	Min. 0mm / max. 450mm
Speed control	0 – 50m/min (0 – 3,000m/h) Hydraulic drive with continuous variable speed and regulation in both directions
Operating modes	Manual via potential meter Constant speed Constant tension Wheel pairs can be opened, closed, started and stopped either simultaneously or separately Operations via remote control console c/w local and remote emergency stop
Tension measurement	Permanently installed frame-mounted load-cell PAT Krüger with 0 – 10,000kg capacity

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LINEAR CABLE ENGINE 5T

The lay-out of a Linear Cable Engine (LCE) can be arranged in several ways, HICE has chosen for a split between the tensioner-part and the hydraulic power unit (HPU). This allows the HPU to be placed separately at some distance, which has the advantage of reduced noise and reduced space requirement on the work-deck. The tensioner-part is top loading to ease loading/unloading of cables and allows for simplified handling of end-connections and possible joints.

TECHNICAL SPECIFICATIONS

Dimensions LCE	Length 4.6m Width 1.6m Height 1.3m
Weight in air	3.5t
Dimensions HPU	Length 2.8m Width 1.1m Height 2.2m
Weight in air	2.8t
Power supply	440V, 60Hz, 75kW
Wheel pairs	5x wheel pair with wheel 620mm/each
Wheel drive	10x hydraulic motors with individual gear boxes and hydraulic brakes
Working pressure	280bar
Line tension force	50kN (can be increased tot 70kN)
Cable opening	Min. 0mm / max. 450mm
Speed control	0 – 50m/min (0 – 3,000m/h) Hydraulic drive with continuous variable speed and regulation in both directions
Operations modes	Manual via joystick Constant speed Constant tension Wheel pairs can be opened, closed, started and stopped either simultaneously or separately Operations via remote control console c-w local and remote emergency stop
Tension measurement	Permanently installed frame/mounted load/cell PAT Krüger with 0 – 10,000kg capacity

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CABLE COILING ARM

TECHNICAL SPECIFICATIONS

Overall dimensions	Radius 10m Drop height 20-30mtr Adjustable with 10ft containers (not included)
Working load limit	500kg / 10m (approx. value) solely related to cable weight
Power Supply	380V, 50Hz Rotation itself not driven
Cable opening	Min. 30mm Max. 300mm
Transport	Transportable by road

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OVAL CABLE COILING ARM

TECHNICAL SPECIFICATIONS

Dimensions	Length 8.0m (base frame) Width 1.9m (base frame) Height 7.1m (base frame)
Weight on deck	6.5t (approx. value) excl. containers
Working load limit	500kg (approx.. value) solely related to cable weight
Power supply	380V, 50Hz, 11kW
Max. pulling force	20kN
Cable opening	Min. 30mm / max. 300mm
Modular transport	Container transportable

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CABLE COILING SCOOTER

The loading scooter guides the cable to the right location using a hydraulic slider fitted with rollers. The hydraulically powered wheels rive on top of the outer wall of the cable tank (hence named 'scooter'), whilst the whole machine pivots around a bearing point in the centre of the cable tank.

TECHNICAL SPECIFICATIONS

We build the Cable Coiling Scooter according to client specifications. Depending on cable and basket specifications.

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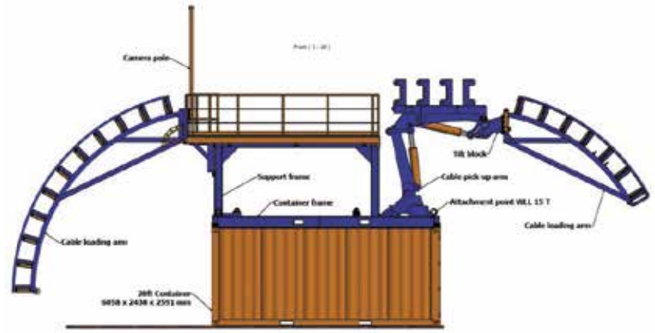
MOBILE CABLE PICK-UP CRANE

Designed for cable spooling from ship to shore, replacing chute (without the use of 20"container). Quadrant can be replaced by straight arm, or chute (or followed by customer request). Can be used as loading arm in combination with Turntable.

TECHNICAL SPECIFICATIONS

- Easily controlled from OD-ID vice versa by remote controlled crane quadrant
- Easily adjustable height by standard classified 20" containers
- Base frame with container locks, easily transportable by truck
- Easily mobilisation
- Build in HPU
- Can be equipped with 3T LCE
- Max cable opening 350mm
- Max. load 3T (approx. 20mtr. x 150kg)
- Standard quadrants with MBR 5mtr, other dimensions upon request
- Excluded containers to extend the height



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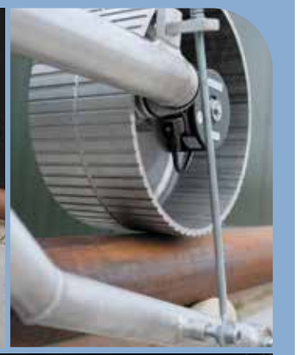
DIGITAL CABLE COUNTER

In addition HICE offers cable counters for measuring cable-length and speed, with a serial port to send measured data for collection.

At HICE we can support client requirements to ensure safe execution of a cable project.



TECHNICAL SPECIFICATIONS

Overall dimensions	Length 0.68m
	Width 0.25m
	Height 0.35m
Weight in air	Appr. 10kg
Power Supply	230V, 60hZ
Measuring wheel	1x aluminium wheel with 1000m circumference / 150mm
Cable opening	Min. 25mm / max. 350mm
Encoder	1x digital encoder HWI104S-2021R073-2000pulses/rev (2000pulses/rev)
Display	2x MKS Dx348 display (speed/count), serial output 232/rs485

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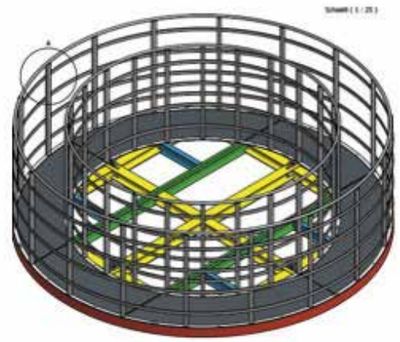
MODULAR CABLE BASKET

HICE has developed a modular Cable Basket design.

TECHNICAL SPECIFICATIONS

- High quality
- Easy transportable by road (disassembled)
- Suitable for spooling cable with a Modulair Cable system
- Design also suitable for spooling with SPMT
- Dimensions can be adjusted to cable specs
- Also available with steel protected walls and top cover
- Optional: liftable with load incl. certificate



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MODULAR CABLE SYSTEM

Compact Basket Carousel Design to suit Oil & Gas and Offshore Wind Umbilical/Cable Lay Markets.

Mobilised with two lifts – 1st lift of base grillage and drive frames, 2nd lift of basket.

Low Profile Circular Grillage optimises vessel deck space enhancing its suitability for smaller offshore wind installation vessels.

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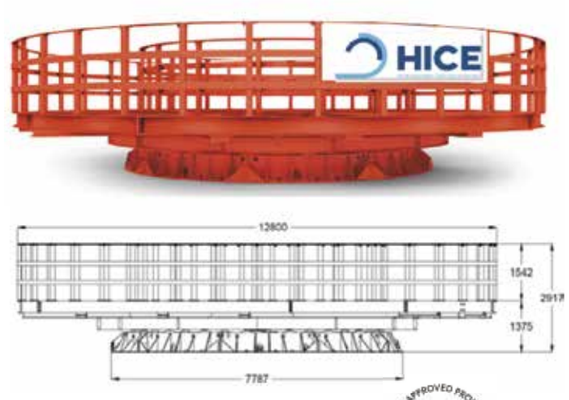
TECHNICAL SPECIFICATIONS

Dimensions	8540mm OD x 920mm
Assembled Weight	Approx. 30Te (without basket)
Baskets	MCS designed baskets following project cable specifications, can be placed on the MCS (max. 500T cable load)
Capability	
Drive	2 x 20kW Hydraulic Motors equipped with failsafe brakes
Speed	1000m/hr maximum lay rate
Power	
HPU	75kW – 2.8m L x 1.1m B x 2m H – 8Te
Required Supply	400V, 50Hz, 3 Phase
Connection Package	1x Hydraulic Hose & Power cable set supplied
Design Verification	DNV-GL



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MODULAR ONSHORE STORAGE TURNTABLE

Hulst Innovation Cable Equipment BV (HICE) gained years of experience building cable handling equipment and has developed a perfectly working system for cable storage and transport. The MOST (Modular Onshore Storage Turntable) is a modular system that, due to its dimensions, can be transported by sea or road to any location around the world for rapid re-assembly on site. The hydraulic lifting system ensures a reduced and equally spread load to the surface underneath the MOST. The major advantages of a modular system compared to conventional turntables, already in use in the offshore industry, are the lower transport cost, shortened mounting times and the use of standard (mobile) cranes on site, mainly possible due to the reduced weight and dimensions of the individual parts.

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TECHNICAL SPECIFICATIONS

Our turntables can be build conform project requirements.

Dimensions	OD 14m
	ID 4m
	Bottom height 0,09m
	Basket height 3,5m
	Total height 4,4m
Power supply	2 pcs at 440V, 60Hz, 125A
Drive system	4x hydraulic sprocket drives
Working pressure	250bar
Speed control	0 – 1200m/hr
	Hydraulic drive with continuous variable speed and regulation in both directions
Load capacity	750 – 1350tons
General	DNV-GL approved

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MODULAR OFFSHORE TURNTABLE

For use on board of vessels for transport or installation, HICE has developed an offshore unit called the MOT (Modular Offshore Turntable). This turntable is based on the same principles as the MOST, but differs in many details. For offshore use double drives and controls are applied and when 'parked' the MOT is resting on its parking-blocks instead of the bearing wheels. The above is required to deal with higher forces and loads resulting from waves and vessel motions. The MOT was optimised with end-users and experience gained from practice and can easily be installed on board of a transport or installation vessel. The cable can be safely handled or laid through the turntable and ancillary systems without risk of damage. The design is kept simple and easy to maintain to ensure reliability. The construction of the MOT is improved and strengthened to meet the offshore requirements and has been approved and certified by DNV-GL (Det Norske Veritas – Germanische Lloyd).

TECHNICAL SPECIFICATIONS

Our Turntables can be build conform project requirements

Dimensions	OD 14m
	ID 4m
	Bottom height 0,09m
	Basket height 3,5m
	Total height 4,4m
Power supply	2 pcs at 440V, 60Hz, 125A
Drive system	4x hydraulic sprocket drives
Working pressure	250bar
Speed control	0 – 1200m/hr
	Hydraulic drive with continuous variable speed and regulation in both directions
Load capacity	750 – 1000tons
General	DNV-GL approved

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SUPPORT EQUIPMENT

Hulst Innovation Cable Equipment built for several years different kinds of systems and constructions to support cables of various weight and dimensions.

We've made amongst other things roller tracks for on- and offshore use, cable chutes useable at key-sides or at vessels for cable laying, deployment and/or jointing and deployment quadrants.

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TECHNICAL SPECIFICATIONS

All the equipment can be build to client specifications.
At HICE we can support client requirements to ensure safe execution of a cable project.

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PROJECT RECORDS

Hulst Innovation Cable Equipment (HICE) is innovative and creative and works with its clients to modify and improve new and existing equipment. At HICE we see a solution for every challenge, where the focus always remains on cable specifications and practicality. The starting point is maximum functionality from as simple as possible systems to ensure a high reliability and usability over the lifespan.

The list with project references shows what we have build the last years.

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PROJECT	CLIENT	YEAR
• 5 T Linear Cable Engine	Dixstone	2020
• 3 T Linear Cable Engine	Dixstone	2020
• 1 T Linear Cable Engine	Dixstone	2020
• Cable Coiling Arm	Dixstone	2020
• 10T Bow Cable Engine	Wind Cable Services	2020
• 10 T Bow Cable Engine	LS Cable	2020
• 248 T Modular Cable Basket Liftable	Van Oord	2020
• Mobile Cable Pick Up Crane	DOC	2020
• 168 T Modular Storage Bakset	Van Oord	2019
• 85 T Modular Cable Basket	Van Oord	2019
• 660T Modular Cable Basket lifatbel with load	DOC	2019
• 1000T Turntable, Modular Cable System	DOC	2019
• 10 T Bow Cable Engine	LS Cable	2019
• Drives for 2200 T Turntable, with 75 & 110 kW HPU	VBMS	2018
• 10 T (WLL) Bow Cable Engine (BCE 4-350)), 2-wheel pair, integrated HPU, remote control	VBMS	2018
• 400 T cable storage basket. OD 12.8 mtr	VBMS	2018
• 130 T cable storage basket OD 10 mtr liftable	VBMS	2018
• 300 T liftable cable storage basket OD 12 mtr	DOC	2018
• Stern Chute	ASN	2018
• 10 T (WLL) Bow Cable Engine (BCE 4-350)), 2-wheel pair, integrated HPU, remote control	Wind Cable Services	2017
• 5t. (WLL) Bow Cable Engine (BCE), 2-wheel pair, integrated HPU, remote control	Prysmian Finland	2017
• 5t. (WLL) Bow Cable Engine (BCE), 2-wheel pair, integrated HPU, remote control	James Fisher	2017
• 5t. Linear Cable Engine (LCE), 5-wheel pair, c/w HPU, remote controls	James Fisher	2017
• Air winch, WLL 1st layer 9.8 t, WLL top layer 7 t	James Fisher	2017
• 90 kW Hydraulic Power unit, for multiple use	James Fisher	2017
• 5t. Linear Cable Engine (LCE), 5-wheel pair, c/w HPU, remote controls	TAGU	2017
• 400 T Turntable , Modular Cable Systems, (MCS) c/w electro-hydraulic HPU's, remote controls	DOC /Swanhunter	2017
• 5t. Linear Cable Engine (LCE), 5-wheel pair, c/w HPU, remote controls	Wind Cable Services	2017
• 3t. Linear Cable Engine (LCE), 3-wheel pair, c/w HPU, remote controls	HICE	2017
• 300 T liftable cable storage basket OD 12 mtr	VBMS	2017
• Basket loading arm	Wind Cable Service	2017
• Cable counters	Several clients	2017
• Tilting table, capacity of 12 T, pneumatic, specific for cable reel	Draka Prysmian	2016
• Cable reel transport rail, electrical driven	Draka Prysmian	2016
• Turning platform, cap.12 T, hydraulic, specific for Cable reel	Draka Prysmian	2016
• Lifting floor, cap 12 T, hydraulic, specific for cable reel	Draka Prysmian	2016
• 0.75 t (WLL) Electrical Bow Cable Engines specific for fiber optic cable, 2 wheel pair. Remote control	Wind Cable Services	2016

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Location Appingedam

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