



*"...the only port of call you'll ever need..."*

## **Deck Machinery**

for Marine & Industrial Applications



A range of high specification deck machinery including mooring winches, windlass anchor winches & capstans. Includes details of control systems and arrangement diagrams

## **Corporate Brochure 2013**

[www.liftingandmarine.com](http://www.liftingandmarine.com)



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## Electric Deck Machinery

### Company Introduction:

"As a Marine Equipment Supplier of 25 years standing, Lifting & Marine Services Limited has the experience and diverse product range to cater for all your marine equipment needs"

Lifting & Marine Services Limited is one of the world's leading suppliers of marine equipment. Based in the UK, we supply high quality products on a global basis for industries such as shipping, offshore and shipbuilding.



**Model: DDE-80T-FC-S-R**

Electric Driven, Frequency Control, Double Drum with Spooling Device



### Introduction to Electric Deck Machinery :

#### Our Winching Systems:

- All winches available with electric or hydraulic drive
- Winches can be supplied pre-assembled on a base or with fitting accessories, for example, a bolt / bracket connection
- Reduces the assembly time dramatically
- Later service or replacement will be much easier



**Model: DE-20T-38X300M-FC-S-A**

#### Combined Anchor / Mooring Winches:

- Designed for anchor chain dia. from 16mm to 122mm
- Manual or remote in automatic system with frequency inverter and electronic load sensing in mooring operation
- Compact design with integrated cable lifter, deck-space saving and quick installation
- Fully sealed gearbox with gearwheels which are oil bathed with virtually no requirement for maintenance
- Control stand with plug and socket cable for quick connection. IP56 for marine purpose



**Model: WDE-36T-36X500-FC**

Pull Load of 36 Tons

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## Electric Deck Machinery

### Control & Cabling System

#### Remote Control & Local Control

- With PLC and remote setting by network
- Touch screen monitor and joystick control
- Plug & socket cabling system for quick installation & mobilisation



**Local Control with Joystick**



**Electric Cabinet**

- with Frequency Inverter & PLC Control



**Remote Control for Winch**



**Cable Connection**

- by Plug and Socket  
- quick connection





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## Electric Deck Machinery

### Example Photography

Our range of anchoring and mooring winches is compact and easy to install by modular design, providing reliable high quality systems to customers worldwide.

We have the capability to meet customer demands regarding performance and cost-effectiveness.



**Model: DE-20T**  
- with Load Tensioner



**Hydraulic Towing  
Winch & Windlass**  
Model: CWD-92



**Model: DDE-80T-FC-S-R**



**Model: DE-36T-36X500M-FC**

- Pull Load 36 Tons  
- with Frequency Control





## Winch & Windlass - Arrangement

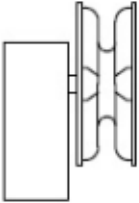
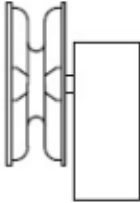
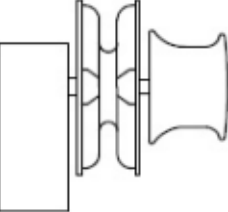
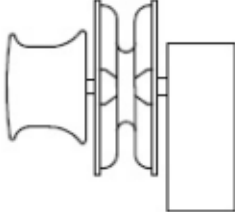
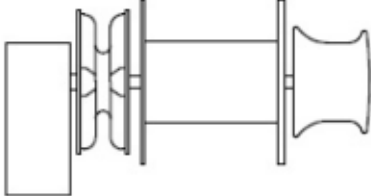
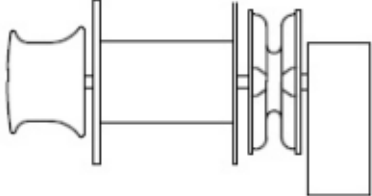
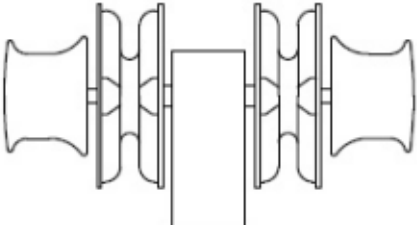
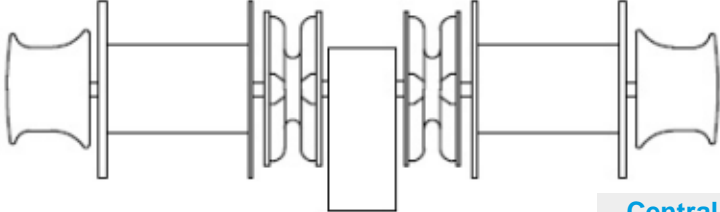
### For Winch

Winch Model	Left Hand Model	Right Hand Model			
DH / DE					
WDH / WDE					
DDH / DDE					
WDDH / WDDE					
DHD / DED					
	<b>Central Model</b>				
WDHDW / WDEDW					
	<b>Central Model</b>				
Symbol	H	E	D	G	W
Standard for	Hydraulic Driving System	Electric Driving System	Drum	Gypsy	Warping Head



## Winch & Windlass - Arrangement

For Windlass

Winch Model	Left Hand Model	Right Hand Model			
GH / GE					
WGH / WGE					
WDGH / WDGE					
WGHGW / WGEGW					
WDGHGDW / WDGEGDW					
Symbol	H	E	D	G	W
Standard for	Hydraulic Driving System	Electric Driving System	Drum	Gypsy	Warping Head

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## Mooring Winch

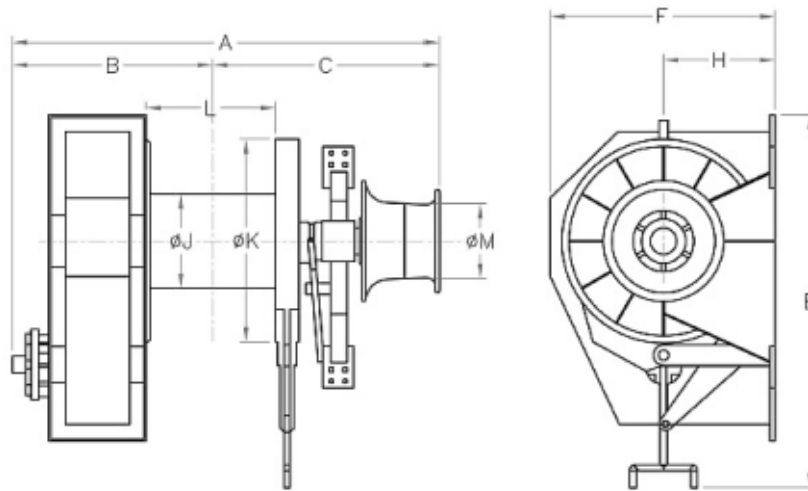


### Mooring Winch - Single Drum (Hydraulic Drive)

Product Code: WDH - A

Model	Pull Load (kN)	Hawser Drum (at 1st layer)				Hawser Dia. (mm)	Drum Dia. (mm)	Hydraulic Motor	
		Holding Load (kN)	Nominal Speed (M/min)	Light-Line Speed (M/min)	Type			Required Power (kW)	
WDH-A-050	50	150	15	30	55	400	GM1	22	
WDH-A-100	100	260	15	30	65	400	GM2	50	
WDH-A-125	125	350	15	30	70	450	GM2	62	
WDH-A-160	160	470	15	30	70	450	GM2	75	
WDH-A-200	200	590	15	30	76	450	GM3	94	
WDH-A-250	250	730	15	30	80	450	GM4	110	

\* Hawser storage: 220m



Model	Outside Dimensions (mm)									
	A	B	C	E	F	H	J	K	L	M
WDH-A-050	2600	1400	980	1560	1420	620	400	1200	800	400
WDH-A-100	2650	1550	1100	1800	1600	750	400	1360	880	400
WDH-A-125	2785	1650	1135	1850	1600	760	450	1560	880	400
WDH-A-160	3010	1800	1210	1900	1700	760	450	1560	880	450
WDH-A-200	3155	1900	1255	2200	1800	800	450	1660	920	450
WDH-A-250	3285	2000	1285	2300	1950	900	450	1730	920	450

#### Remarks:

1. Compact design minimise space required for installation
2. Simple design along with integrated and sealed for ease of inspection and maintenance
3. Total enclosed gear type and local control
4. Hydraulic Brake, Clutch on request
5. Remote control or Auto-Tension is available on request
6. Electric driven with frequency inverter on request





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## Mooring Winch

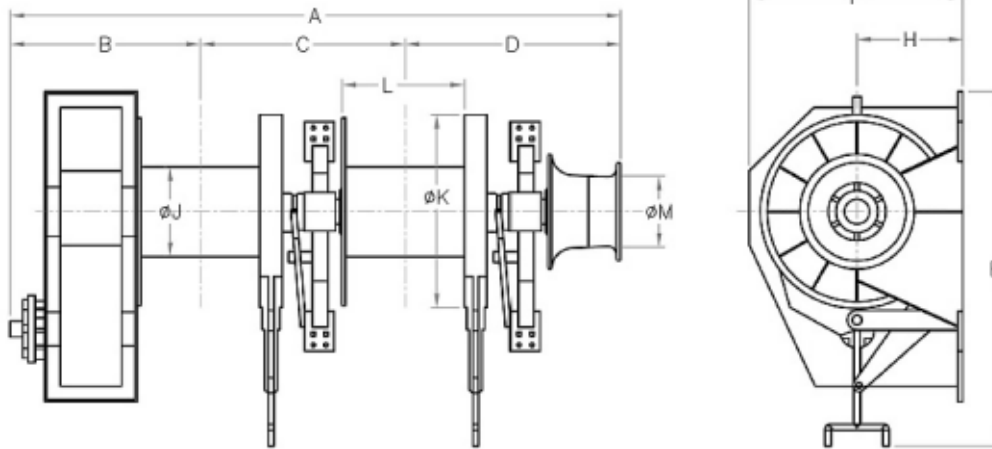


### Mooring Winch - Double Drum (Hydraulic Drive)

Product Code: WDDH - A

Model	Pull Load (kN)	Holding Load (kN)	Hawser Drum (at 1st layer)		Hawser Dia. (mm)	Drum Dia. (mm)	Hydraulic Motor	
			Nominal Speed (M/min)	Light-Line Speed (M/min)			Type	Required Power (kW)
WDDH-A-050	50	150	15	30	55	400	GM1	22
WDDH-A-100	100	260	15	30	65	400	GM2	50
WDDH-A-125	125	350	15	30	70	450	GM2	62
WDDH-A-160	160	470	15	30	70	450	GM2	75
WDDH-A-200	200	590	15	30	76	450	GM3	94
WDDH-A-250	250	730	15	30	80	450	GM4	110

\* Hawser storage: 220m



Model	Outside Dimensions (mm)										
	A	B	C	D	E	F	H	J	K	L	M
WDDH-A-050	3800	1400	1200	980	1560	1420	620	400	1200	800	400
WDDH-A-100	4010	1550	1360	1100	1800	1600	750	400	1360	880	400
WDDH-A-125	4220	1650	1435	1135	1850	1600	760	450	1560	880	400
WDDH-A-160	4520	1800	1510	1210	1900	1700	760	450	1560	880	450
WDDH-A-200	4740	1900	1585	1255	2200	1800	800	450	1660	920	450
WDDH-A-250	4920	2000	1635	1285	2300	1950	900	450	1730	920	450

#### Remarks:

1. Compact design minimise space required for installation
2. Simple design along with integrated and sealed for ease of inspection and maintenance
3. Total enclosed gear type and local control
4. Hydraulic Brake, Clutch on request
5. Remote control or Auto-Tension is available on request
6. Electric driven with frequency inverter on request

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## Windlass



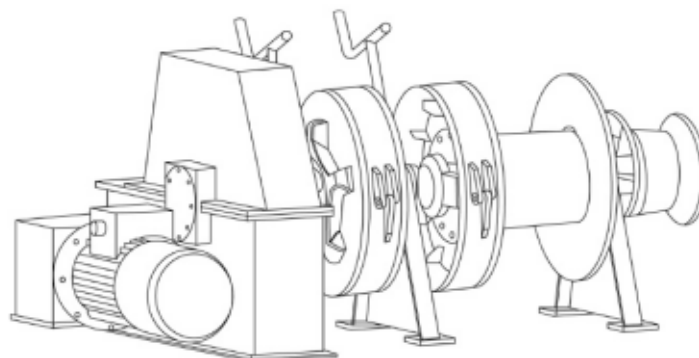
### Windlass - Electric Drive - Frequency Control Drive)

Product Code: WDGE

#### Chain Wheel

#### Mooring Drum

Chain Dia. (mm)	Load (kN)	Speed (m/min)	Brake Capacity (kN) (mm)	Rated Load			Brake Capacity (kN) (mm)	Drum Size		Rope Size		Electric Motor (kW)
				Load (kN)	Speed (m/min)	Light Load Speed (m/min)		Hawser Dia. x L (mm)	Wire Dia. x L (mm)	Hawser (mm) x (m)	Wire (mm) x (m)	
16	11		68	15			45					
17.5	13	14	81	15	15	45	45	300x400	300x400	32x150	18x200	5.5
19	16		95	20			60					
20.5	18		110									
22	21	14	126	25	15	45	75	300x450	300x450	36x150	20x200	7.5
24	25		150									
26	29	1	175									
28	34	14	202	40	15	45	120	350x450	350x450	45x150	22x200	11
30	39		232									
32	44		263									15
34	50	14	295	50	15	45	150	400x500	400x500	50x150	25x200	15
36	56		330									18.5
38	62		366									
40	68	13	404	74	15	45	220	600x700	600x700	65x200	32x200	22
42	84		442									
44	83		486	74			220			65x200		
46	90	12	527	100	15	45	260	600x750	600x750	70x200	32x200	30
48	110		572									
50	119	1	882									37
52	129	10	950		15	45		600x750	600x750	75x200	34x200	45
54	139		1022									45



Type: WDGE



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## Windlass



### Windlass - Electric Drive - Frequency Control Drive)

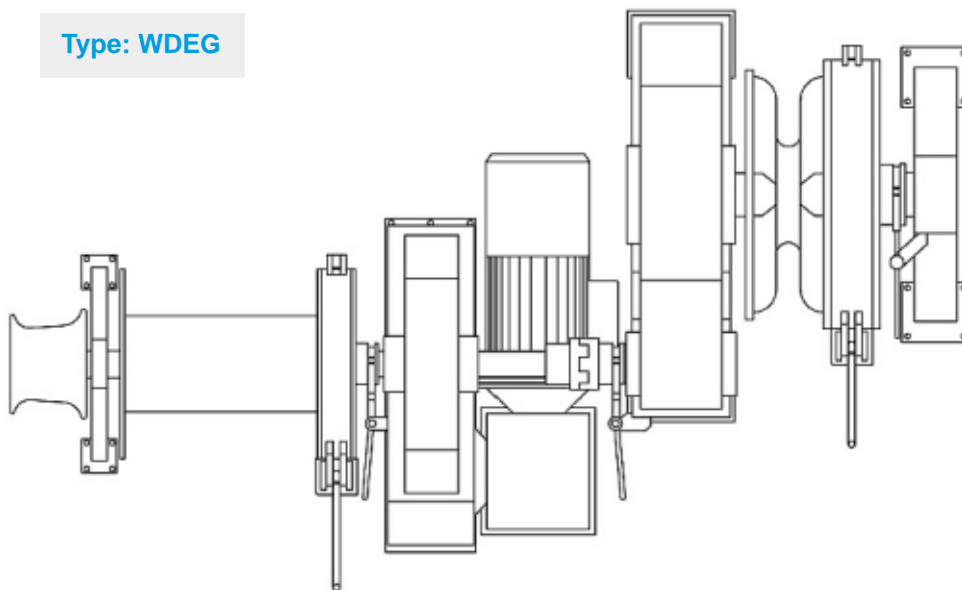
Product Code: WDEG

#### Chain Wheel

#### Mooring Drum

Chain Dia. (mm)	Load (kN)	Speed (m/min)	Brake Capacity (kN) (mm)	Rated Load			Brake Capacity (kN) (mm)	Drum Size		Rope Size		Electric Motor (kW)
				Load (kN)	Speed (m/min)	Light Load Speed (m/min)		Hawser Dia. x L (mm)	Wire Dia. x L (mm)	Hawser (mm) x (m)	Wire (mm) x (m)	
56	149		1094	100			260	450x900	500x650	70x200	32x200	45
58	160	9	1170	125	15	45	350	450x1050	600x650	75x220	34x200	
60	171		1247	150			470					45
62	183		1323	100			260	450x900	500x650	70x200	32x200	
64	195	9	1409	125	15	45	350	450x1050	600x650	75x220	34x200	45
66	207		1485	150			470					
68	220	1	1575	100			260	450x900	500x650	70x200	32x200	55
70	233	9	1661	125	15	45	350	450x1050	600x650	75x220	34x200	
73	253		1796	160			470					55
76	275		1935	125			350					
78	289	9	2025	160	15	45	470	450x1050	600x650	75x220	34x200	55
81	312		2169	180			590		650x650		40x200	

Type: WDEG





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## Windlass



### Windlass - Electric Drive - Frequency Control Drive)

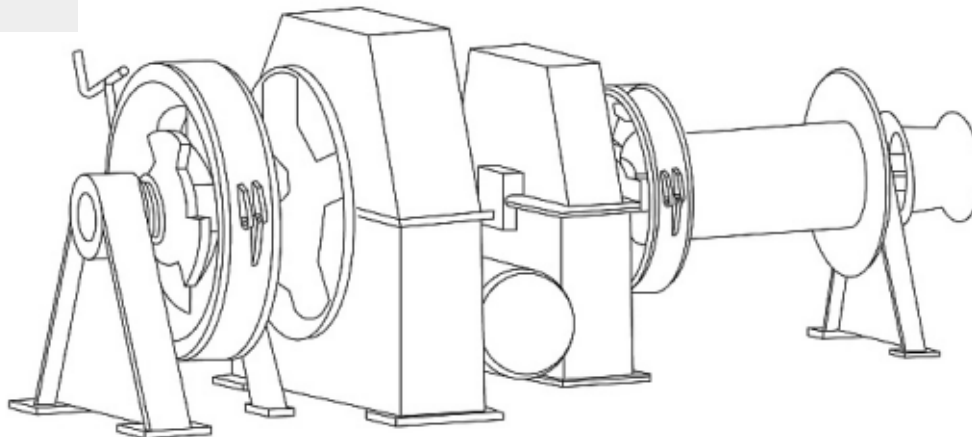
Product Code: WDEG

#### Chain Wheel

#### Mooring Drum

Chain Dia. (mm)	Load (kN)	Speed (m/min)	Brake Capacity (kN) (mm)	Rated Load			Brake Capacity (kN) (mm)	Drum Size		Rope Size		Electric Motor (kW)
				Load (kN)	Speed (m/min)	Light Load Speed (m/min)		Hawser Dia. x L (mm)	Wire Dia. x L (mm)	Hawser (mm) x (m)	Wire (mm) x (m)	
84	336	9	2322	160	15	45	470	600x650	600x650	75x2200	340x200	75
87	360		2475	200			590	450x1050	650x650		40x200	
90	385		2628	160			470	450x1050	600x650	75x2200	34x200	
92	402	9	2736	200	15	45	590		650x650		40x200	75
95	429		2898	250			730	500x1100		80x220		
97	447		3011	160			470	450x1050	600x650	75x220	34x200	
100	475	9	3177	200	15	45	590		650x650		40x200	90
102	495		3294	250			730	500x1100		80x220		
105	524	9	3465	200	15	45	590	450x1050	650x650	75x220	40x200	110
107	544		3582	250			730	500x1100		80x220		
111	586	9	3816	200	15	45	590	450x1050	650x650	75x220	40x200	110
114	618		4001	320	12		880	500x1100	710x650	80x220	44x250	
117	651	9	4185	200	15	45	590	450x1050	650x650	75x220	40x200	132
120	707		4496	250			730	500x1100		80x220		
				320	12		880	5500x1150	710x650	85x250	44x250	

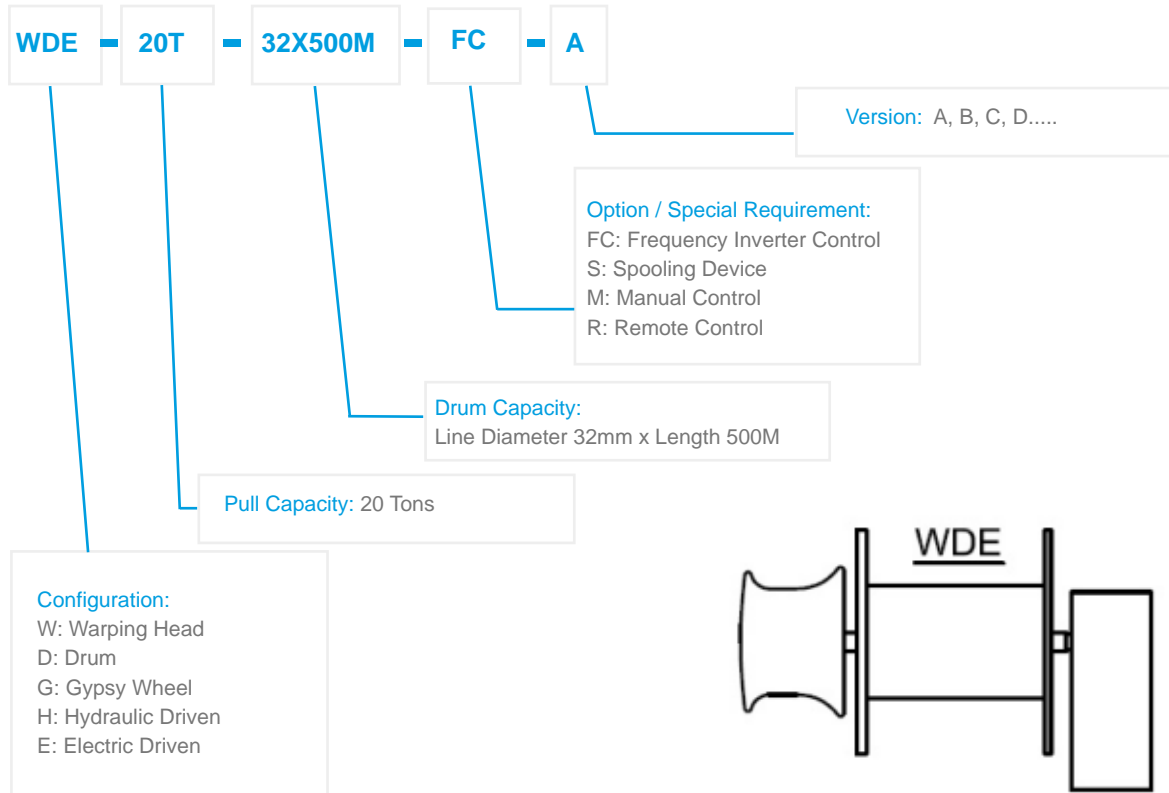
Type: WDEG



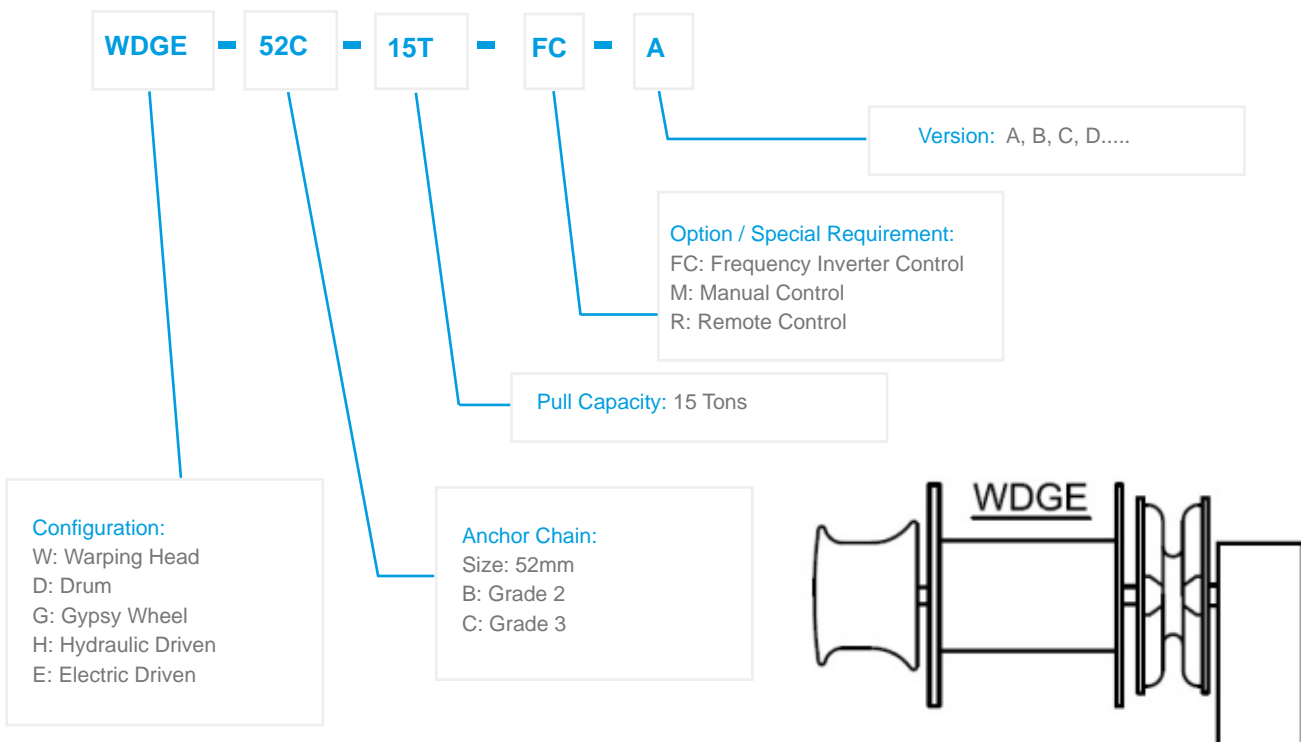


## Winch & Windlass Arrangement

### For Winch



### For Windlass





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## Inverter Drive Winch System

### Features of the Inverter Drive Winch System



#### Economised Energy

The Inverter Drive System is very efficient and reduces electricity load. It is not necessary to increase the capacity of electricity because the capacity of electricity is decided by system over load (15%, 1 minute)



#### Low Noise & Frequency

The system benefits from smooth control and quiet operation, especially when compared with hydraulic operated systems.



#### Free Maintenance

Unlike a hydraulic system, there is no need for routine maintenance or service - the simple structure and utilisation of a strong and reliable squirrel cage type electric motor means that maintenance and service costs are minimal.



#### No Environmental Pollution

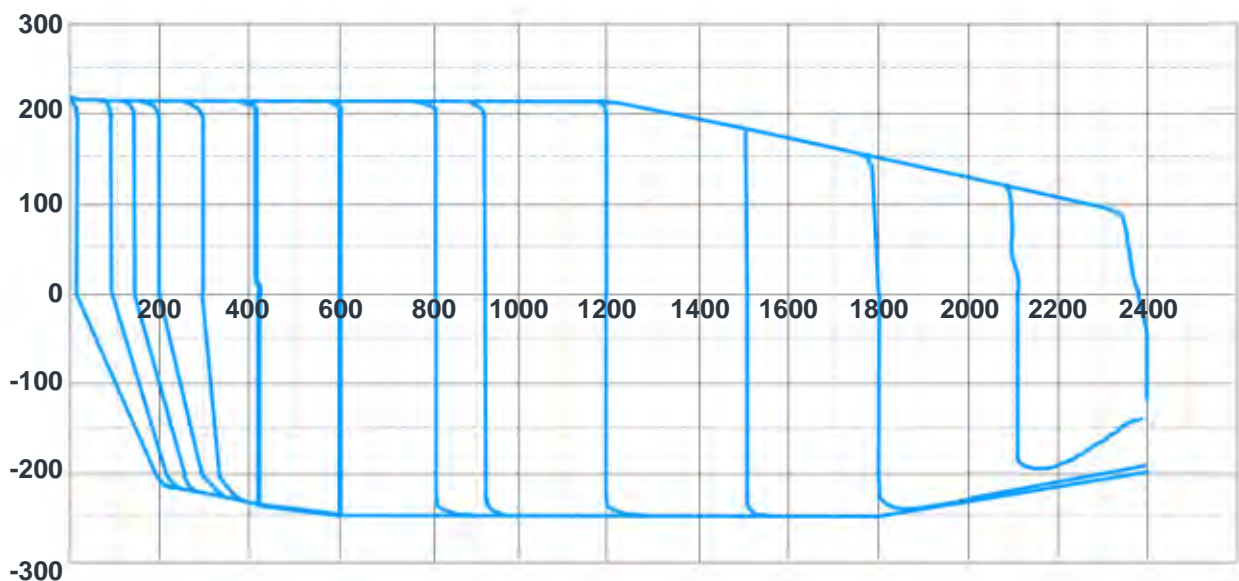
As it is an electric based system, there is no risk of environmental pollution unlike a hydraulic system which can leak oil.



#### Smooth & Wide Speed Control

It is possible to control the system from 0.5Hz to maximum. By vector control with PG Sensor, torque from 100% (continuance) to 150% (short time) can show at 0 r/min. It is possible to wind mooring lines smoothly and work at wharf easily using the speed control.

### Torque [%]



Example of Torque Characteristics

Speed [min<sup>-1</sup>]



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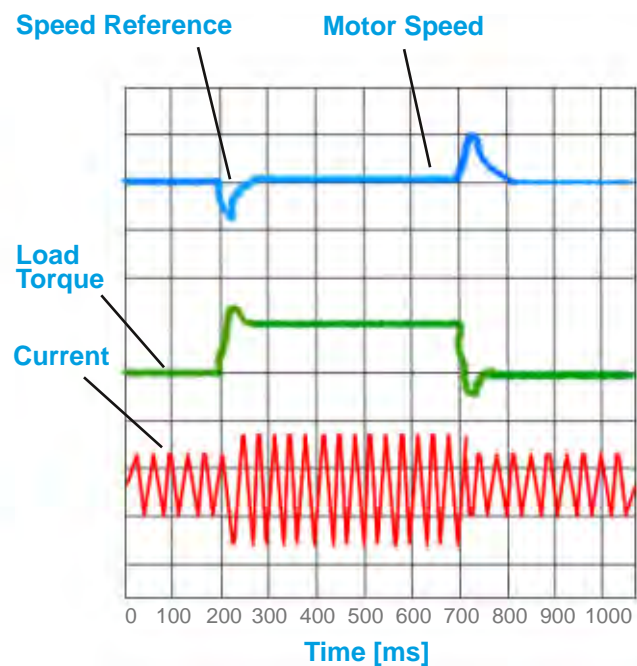
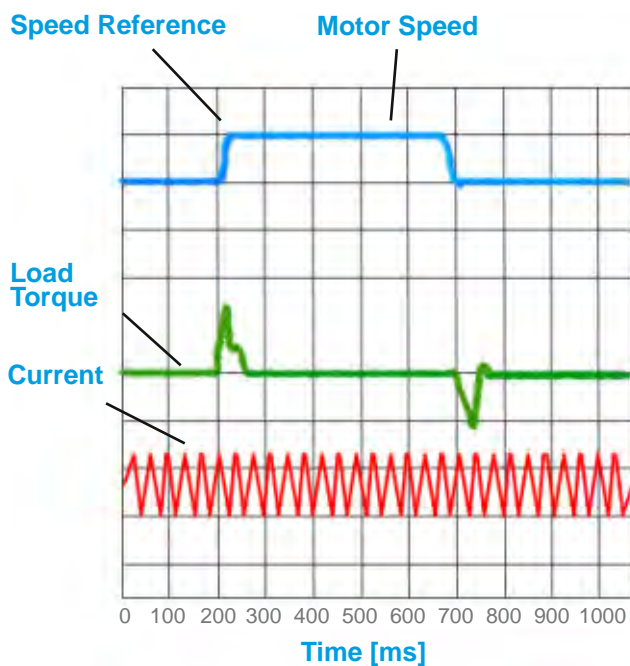
## Inverter Drive Winch System

Features of the Inverter Drive Winch System (...continued...)



### Adjustable Torque Settings

Restriction and protection of starting torque acceleration - deceleration torque over torque. In a stalling situation, it is possible to control the rope tension at zero speed and prevent over load. Significantly increasing the starting torque of the motor will produce more than 200% torque even at extremely low speeds ( 0.5 Hz)



### Reduction of Expenditure on Cable Work Settings

It is possible to change the cable to a smaller size because the electric current that determines the cable size is extremely low compared with other drive systems



### Easy Installation & Reduced Start-Up Cost



### Centralised Control of Inverter by PLC & Comms System

A number of inverters can be controlled easily by means of linkage to a communication system. The system can be a PC, programmable controller or higher order network based.



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## Capstans

### Mounted in a vertical position on deck



A capstan is mounted in a vertical position on deck. The warping head is driven by an electric or hydraulic motor. The torque-transmitting gear is housed in the warping head and the motor is located below deck. The necessary capacity results from the nominal rope pull and the related rope speed.

Upon special request, the motor can be completely housed in the warping head.



### Capstan Product Specification

Pull Load (Ton)	Warping Head Dia. D (mm)	Line Speed (M/min)	Line Size Dia. (mm)		Dimensions (mm)			Power (kW)	
			Wire Rope	Hawser Synthetic Rope	H	A	B	Hydraulic Driven	Electric Driven
1	250	18	14	30	250	320	370	5.5	4
2	300	15	16	36	300	400	450	7.5	5.5
3	350	12	20	42	360	440	480	11	7.5
5	410	12	25	50	430	530	622	15	11
8	530	10	32	65	445	670	800	22	15
10/12	630	10	38	78	530	800	950	30	22
15	720	8	44	90	640	944	1120	37	30
20/25	810	8	50	100	730	1060	1310	55	37

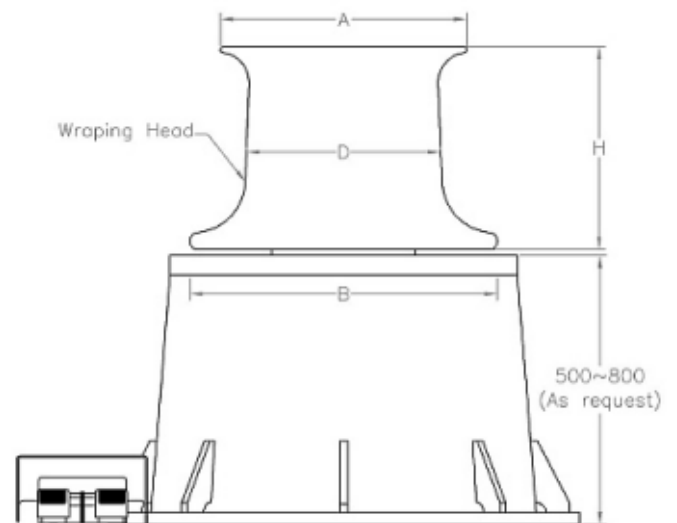
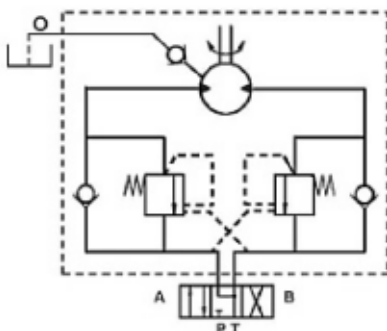
### Hydraulic Driven (CH)

1. Hydraulic Motor with Counter Balance Valve
2. Planetary Gear Box
3. Control: Foot pedal, Joystick or Remote
4. Bi-Direction with Emergency Stop
5. Option: Variable Speed
6. Hydraulic Power Unit (on request)

### Remark:

Warping Head ISO-3482  
Base Height approx. 500 - 800mm (as request)

### Hydraulic Schematic Drawing





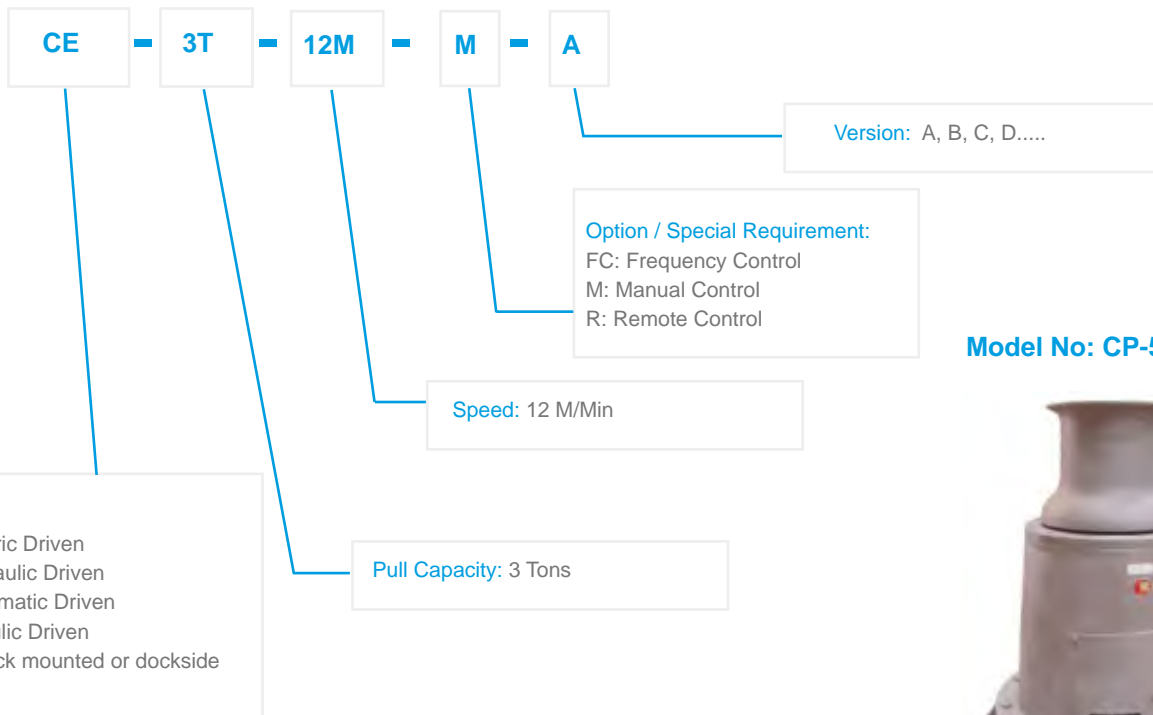


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## Capstans

### Arrangement Diagram

#### Arrangement




**Model No: CE-L-10TX25M-M**



**Model No: CP-5TX10M**



#### Electric Driven (CE, CE-L)

1. Electric Magnetic Disc Brake - Failsafe
2. Electric Motor: IP56 or 
3. Planetary Gear Box
4. Control Panel: Foot Pedal, Joystick or Remote
5. Bi-Direction with Emergency Stop
5. Option: Variable Speed by Frequency Invertor Control



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## **Deck Machinery**

for Marine & Industrial Applications



### **Contact Details**

All sales enquiries

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