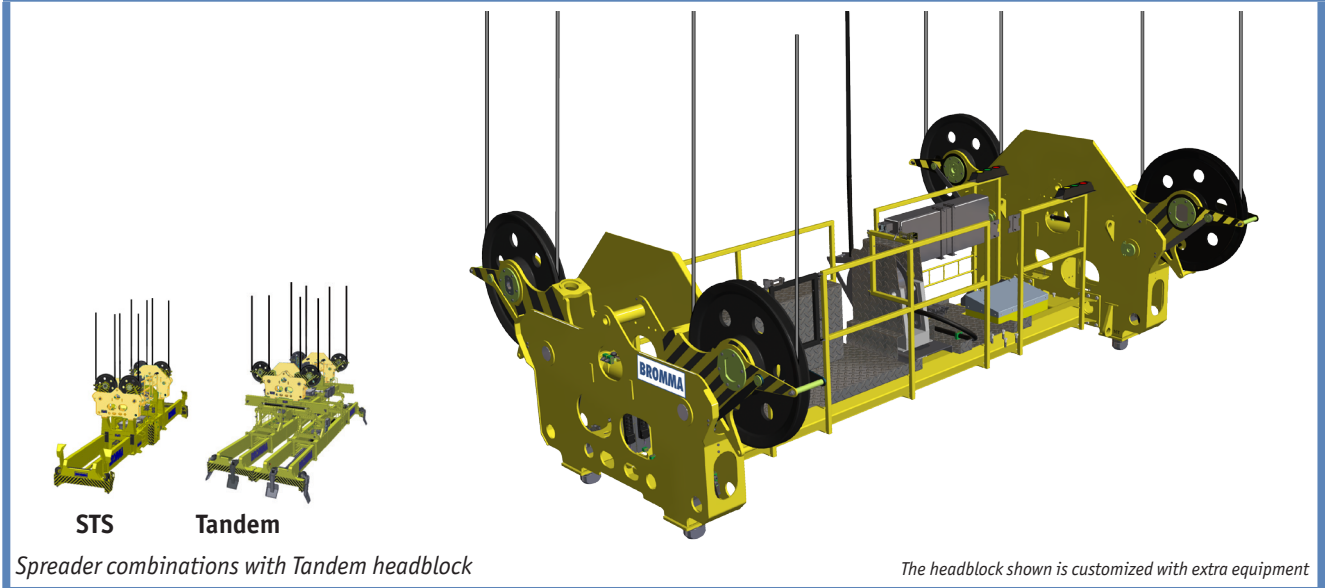


PRODUCT INFORMATION

Tandem Headblock



The Bromma Tandem Headblock gives significant improvements in productivity. It is specially designed to be operated on a ship-to-shore crane and quickly shift between a Bromma Tandem spreader and a regular ship-to-shore single lift or twinlift spreader. The Tandem Headblock is equipped with heavy duty twistlocks, and can also be equipped with an optional automatic connector for power and signals to the spreader. The sheave wheels automatically expand to a wide position for tandem lift when connecting to a tandem spreader and to a narrow position when attaching to a single or twinlift spreader.

The headblock consists of a center platform and two identical end beams. The end beams are designed as two vertical plates with the two movable sheave wheel arm assemblies, the locking shaft mechanism and the heavy duty twistlocks placed between them. The hydraulic powerpack, the electrical cabinet and a

cable damper (optional) are mounted on the center platform. If the headblock is equipped with the optional Bromma Autoconnector upper part, it will also be mounted on the platform.

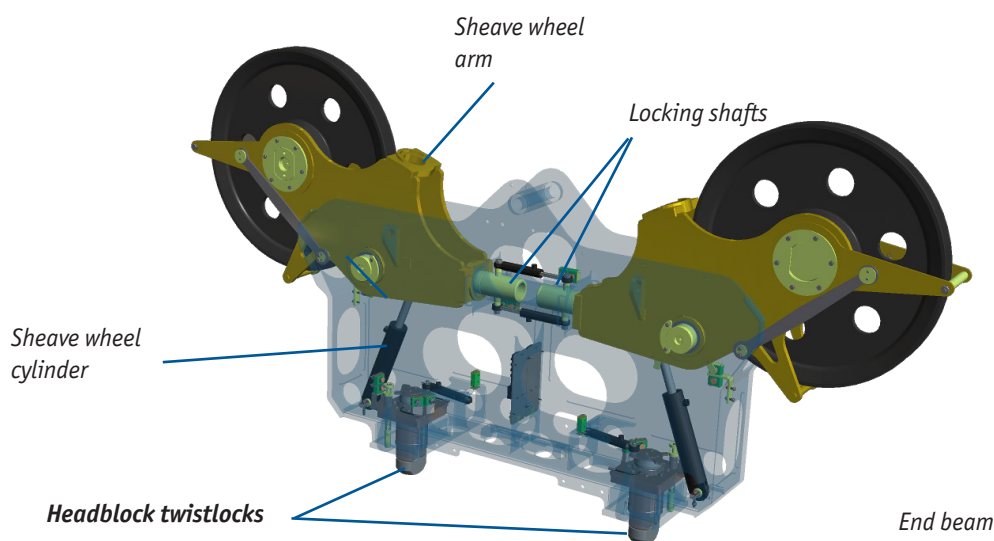
Made of high quality steel, the Bromma Tandem Headblock provides high lifting capacity with a low nominal tare weight thanks to the end beam design. The Headblock is designed in accordance with EN13001. All components can be easily assembled, adjusted, removed and are accessible for inspection and maintenance.

The headblock comes with a controller, reducing and preventing downtime through improvements in the area of electrical connections.

MAJOR FEATURES

- Automatically expand or retract the sheave wheels when moving from single spreader to tandem operation
- Fast trouble shooting
- With the optional Bromma Autoconnector, quickly shift between a Bromma Tandem spreader and a regular ship-to-shore single lift or twinlift spreader, and attach and connect to a spreader without any manual work.
- Fulfils the design criteria among EN13001, DIN 15018 H2B4, FEM 1.001 and British Standard BS 2573

END BEAM



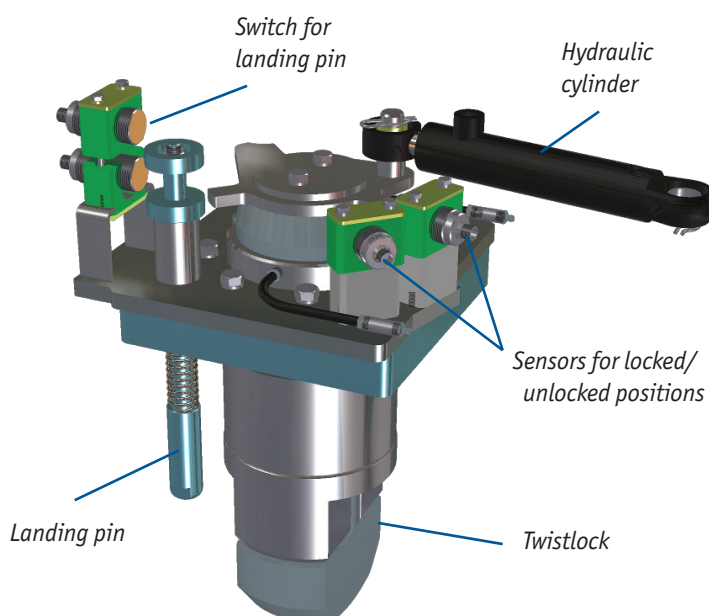
Two vertical plates in combination with spacer shafts and gable plates form the end beam box which carries the heavy load between the headblock twistlocks and the sheave wheels.

Two cylinders drive the sheave wheel arm assemblies in each end beam to synchronously rotate 60 degrees from the tandem lift position into the single spreader lift position. The sheave wheel arm assemblies are fixed in both positions by hydraulically maneuvered locking shafts

HEADBLOCK TWISTLOCKS

Four heavy duty twistlocks are located in the lower corners of the headblock end beams to engage and lift the spreader. A hydraulic cylinder rotates the twistlock and two sensors indicate the position, Locked or Unlocked. A landing pin safety system is provided to assure that the headblock is properly landed on the spreader before rotating the twistlocks.

A spring loaded landing pin near each twistlock is pushed up into the twistlock housing when the headblock is landed on the spreader. When the headblock is properly landed, the landing pin will activate a sensor. The twistlocks can only be turned when all the corners of the headblock are landed. At the same time, the blocking key is moved high enough so the blocking stop on the twistlock lever arm passes underneath it. If the spreader is not properly landed, the sensor will not be activated and the blocking key will get in the way of the blocking stop. This will stop the twistlocks from turning.



HYDRAULIC UNIT

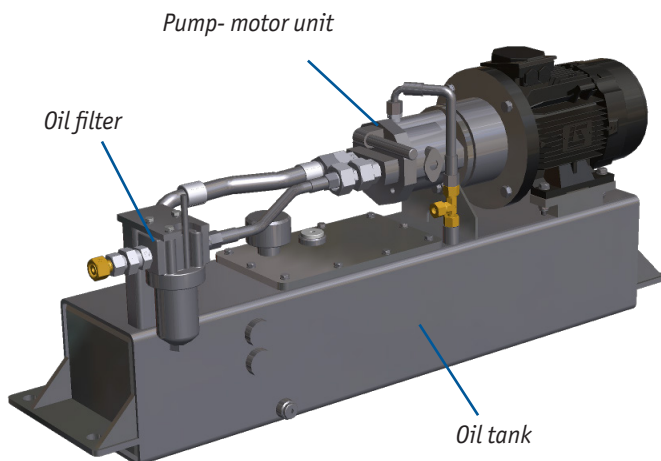
The complete hydraulic unit consists of a tank, a pump, an electrical motor, valves and a filter, altogether shock mounted in a sturdy frame with protection covers.

The foot and flange mounted three phase cage induction electric motor corresponds to the major worldwide standards. The motor gives 3 kW at 50 Hz and the protection grade is IP 55.

To achieve maximum durability a robust piston pump is used. The pump has low noise level and is easy to service.

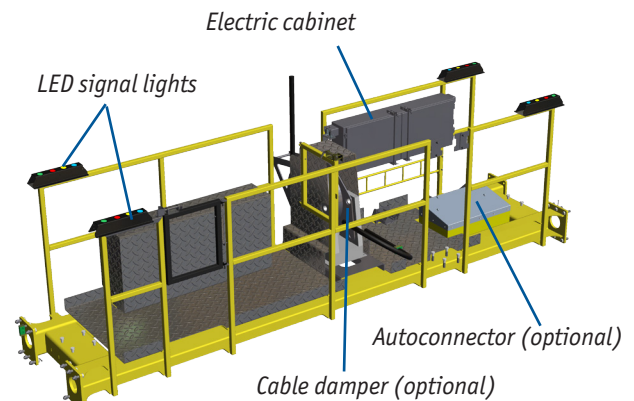
The oil tank has an open design and is easy to clean and inspect. The tank holds 50 litres and the oil level is indicated through the sight glass. The hydraulic oil is filtered through an externally mounted 10 micron absolute rated line filter. The hydraulic oil meets the requirements of ISO

code 17/15/13 cleanliness classificatio

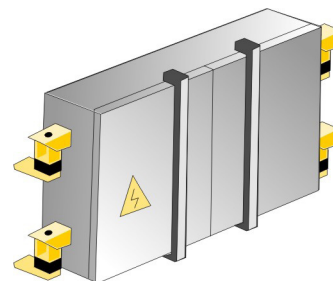


ELECTRICAL SYSTEM

The main electrical components are placed on the headblock center platform. The cable damper (optional), the electrical cabinet, signal lights and the Bromma Autoconnector headblock part (optional).



LED type signal lights are provided to indicate landed (yellow) / locked (red) / unlocked (green)/ Twin mode (blue). These lamps are positioned on the headblock center platform. Each lamp panel indicates the status of the nearest spreader end beam. In Tandem mode all four panels are activated. In single spreader mode only lanside panels are used.



The electrical components are mounted in a stainless steel cabinet, IP65. All cables are well protected in cable chains. The power required to operate the headblock's electrical components is obtained from the crane. All electrical components on the headblock are designed to withstand load imposed during container handling operations and suitable for a marine environment.



The headblock is supplied with CANopen distributors based on a standard field bus system. This enhances the possibility of monitoring each I/O point and reduces the number of cables needed and the replacement time for connecting sensors and actuators to the controls.

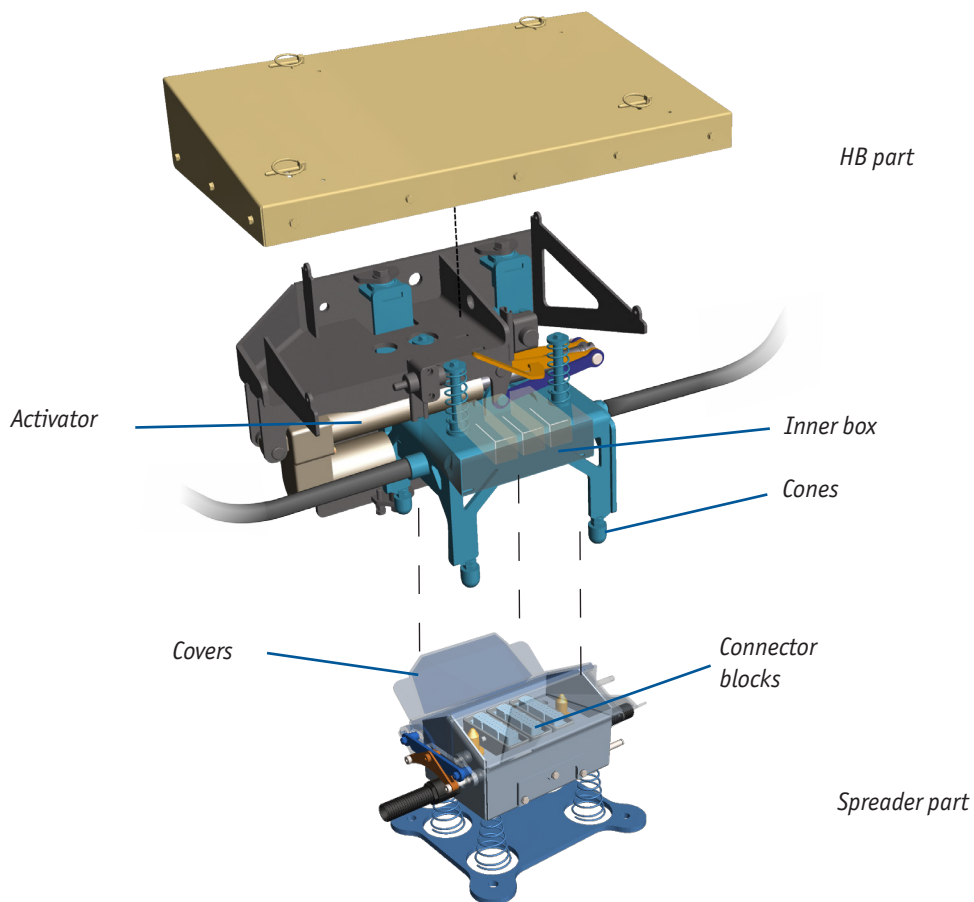
AUTOCONNECTOR (Optional)

The Bromma automatic connector makes it possible to land the headblock on a spreader and connect the power and the signal cables without any manual work.

The autoconnector HB part is mounted on the headblock and the bottom part on the spreader. When landing, the cones forces the covers on the spreader part to split up. A signal starts the activator to lower the inner box and to couple the connector blocks. Sensors on the headblock part

keeps control of the position of the inner box. A signal from one of the pins in one of the HB part connectors is bridged in the spreader part and back to the HB to ensure the connection.

When disconnecting, the activator raises the inner box to its top position and when the headblock is hoisted the spreader part cover will close and seal the connector blocks.



CONTROL SYSTEM

The controller is placed inside the electric cabinet on the center platform. It can be set to manual or automatic mode.

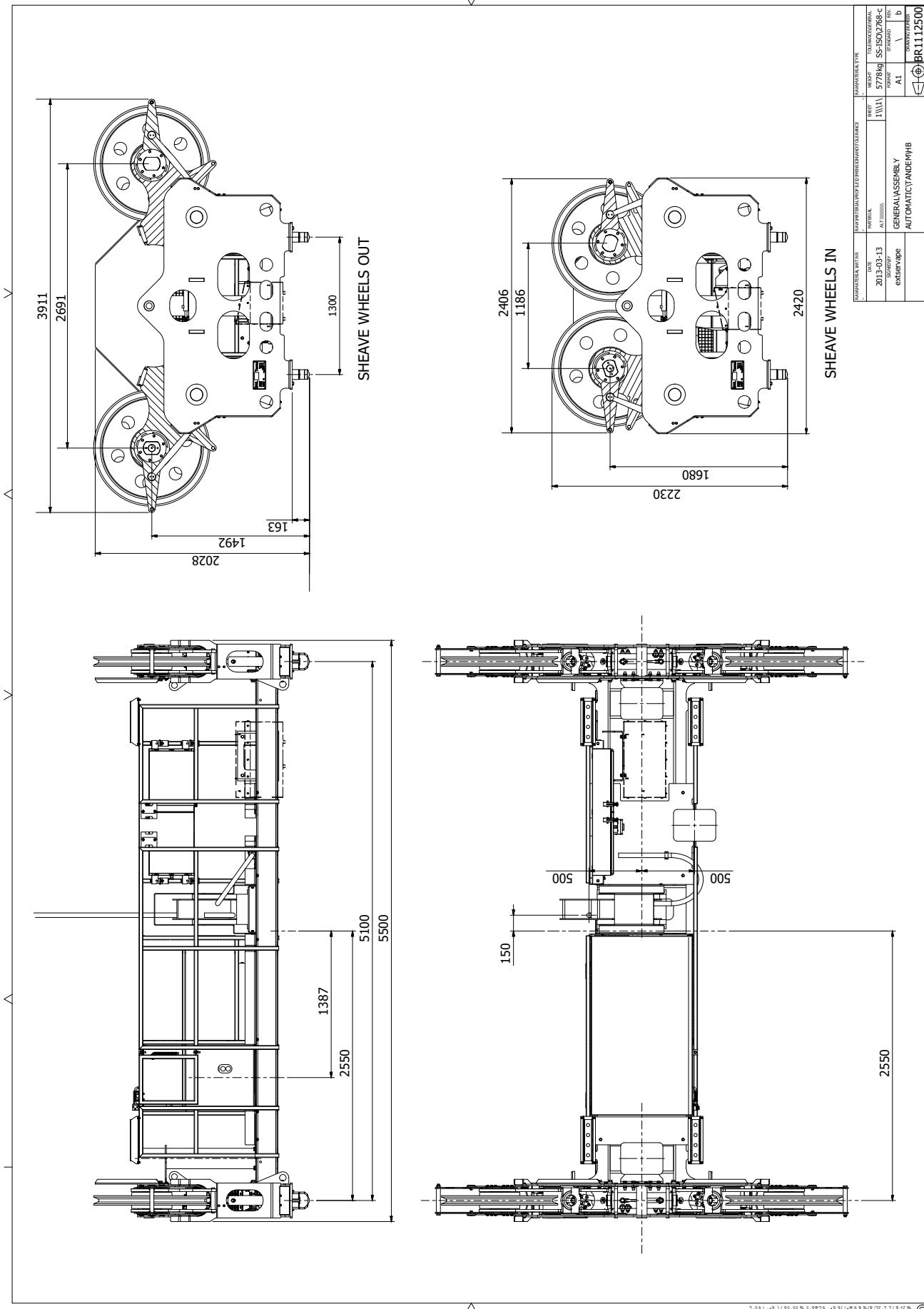
In manual mode the crane driver can give commands for Lock /unlock on spreader, Connect/ disconnect Autoconnector to spreader (if the optional Autoconnector is installed), sheave wheels in or out.

In auto mode only two commands can be given. Connect or disconnect.

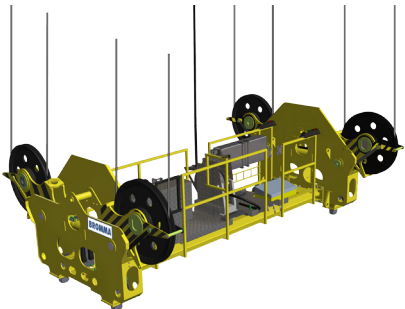


Controller

DIMENSIONAL DRAWINGS – TANDEM HEADBLOCK



DIMENSIONAL PART DATA		DIMENSIONAL PART DATA	
DATE	2013-03-13	MATERIAL	ALUMINIUM
REVISION	0000000	GENERAL ASSEMBLY	Y
EXPLANATION		AUTOMATICITY	ANDEMB
SHEET		SHEET	
1/1111	1/1111	WEIGHT	5778kg
TOLERANCE GENERAL		TOLERANCE GENERAL	
H1		H1	
FORM		FORM	
A1		A1	
SCALE		SCALE	
1:1		1:1	
DRAWN		DRAWN	
0000000		0000000	
CHECKED		CHECKED	
0000000		0000000	
APPROVED		APPROVED	
0000000		0000000	
PART NO.		PART NO.	
BR1112500		BR1112500	

TECHNICAL DATA	TANDEM HEADBLOCK
	
Lifting capacity: (According to EN13001 HC2, HD1, U8, Q2 (2e6 cycles))	Evenly distributed load SWL 165 tonnes Lifting capacity (10% gravity point adjustment) 165 tonnes Lifting lugs 4 x 16 tonnes
Weight:	About 6.8 tonnes (without extra equipment)
Sheave wheels out:	From C/C 1050 mm to C/C 2650 mm in <60 seconds
Sheave wheels in:	From C/C 2650 mm to C/C 1050 mm in <60 second
Twistlock rotation:	90° in approximately 1.5 seconds
Autoconnector up/down:	Approximately 8 seconds
Hydraulics:	System pressure 100 bar Piston pump pressure compensated Maximum flow 15 l/min Tank capacity 50 l Total amount of oil 58 l
Power supply:	400/230 V AC 50 Hz or otherwise as agreed
Max power consumption:	3 kW at 50 - 60 Hz
Control voltage:	24 V DC
Electrical cabinet:	Stainless steel IP 65
Surface conditioning:	Sand-blasted SA 2.5 EPZn(R) zinc epoxy primer 50-90 µm EP epoxy can be MIO pigmented 100 µm PUR polyurethane 70 µm Total: 220 µm
Design criteria:	EN13001, DIN 15018 H ₂ B ₄ ; FEM 1.001; British Standard BS 2573
Manuals:	Full service and repair manual supplied
Warranty:	1 year