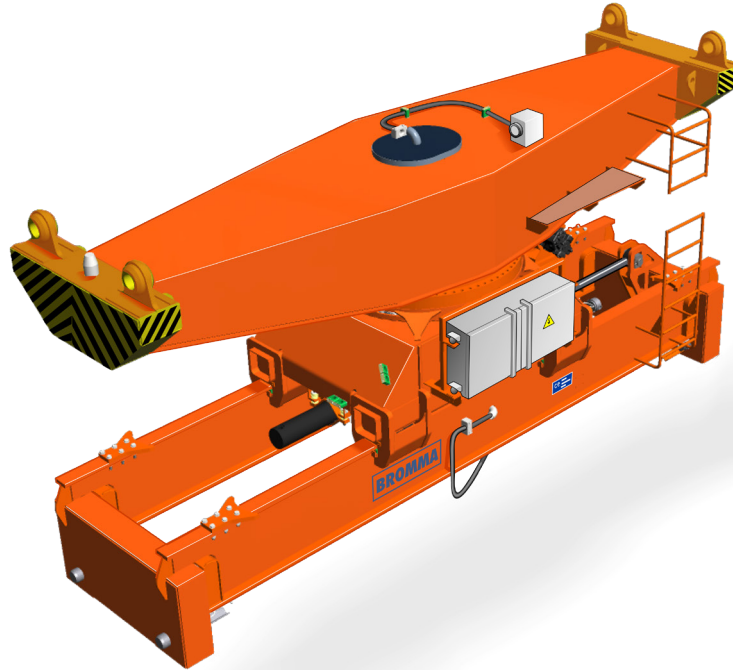


SRG Rotator



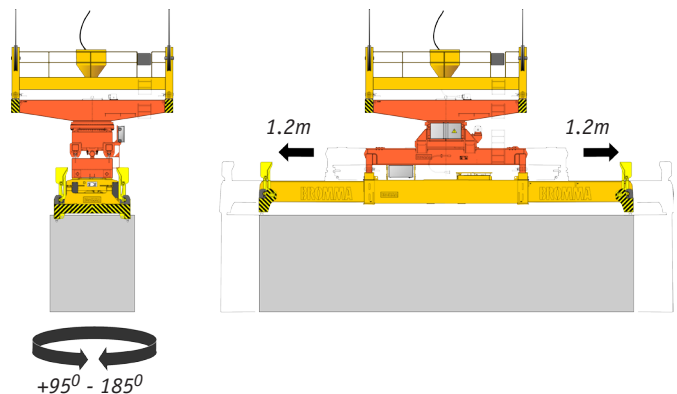
The rotator shown is equipped with extra accessories.

The Bromma SRG rotator is intended to be placed between a crane headblock and a yard crane or ship-to-shore crane spreader to lift and rotate ISO containers and other equipment made for handling by ISO twistlocks.

The Bromma SRG rotator is specially designed to rotate the load 185° in one direction and 95° in the other direction.

The unit can be adapted to fit the customer's headblock (standard), or can be equipped with sheaves to fit directly to the wire ropes from the crane trolley (option). Repair and maintenance is simplified through easy access to each component. The Bromma SRG rotator with gravity point adjustment, is fabricated as an all welded, high quality steel construction. The unit is equipped with a wagon and a movable frame for

compensation for eccentric loaded containers. The frame is driven by a hydraulic cylinder and can be moved ±1.2 m, which is 10 % of the container length.



MAJOR FEATURES

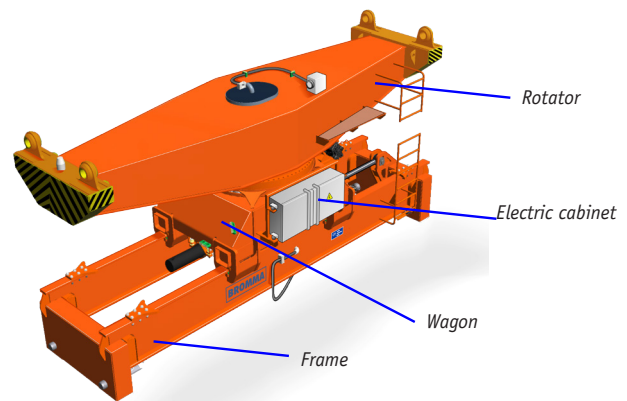
- Rotates the load 90° in both directions and can even turn the load 180°
- Designed with ±1.2 m gravity point adjustment
- Can be fitted to any ship-to-shore or yard crane
- Handles spreaders of different brands.

DESCRIPTION

Ladders and a platform allows easy access to the Electric plug for cable from headblock. The main parts of the SRG rotator are the rotator, the wagon and the frame.

The rotator is in its upper ends equipped with customized fixing devices to be connected to the headblock. At the bottom the rotator is fixed to the wagon by a slewing bearing with a gear ring. All the hydraulic equipment is placed on the wagon. Also the electric cabinet is mounted on it. The frame is attached to the bottom part of the wagon with glide plates in each corner allowing the frame to sideshift when adjusting the gravity point of the hoisted cargo. The frame is hanging below the wagon on sliding rails. The sideshift movement is achieved by a hydraulic cylinder attached to the wagon and

its piston rod end fixed to the frame. The frame end beams are equipped with customized fixing devices to connect to the spreader.



GRAVITY POINT ADJUSTMENT

The gravity point can be adjusted longitudinally ± 1.2 m from the crane cabin.

An inclinometer placed inside the electrical cabinet continuously measures the tilting angle of the container. If the tilt increases, a warning signal or a stop signal is sent from the control system. The tilt alarm or stop angle values can be set from the Control unit display placed in the electrical cabinet. The movement is achieved with a hydraulic cylinder.

ROTATION

The hydraulic motor unit gear wheel rotates the gear ring. The rotation goes from $+95^\circ$ to -185° and is controlled by a digital encoder. The stop angles can be programmed with the Control unit display CR0451. When the desired rotation angle is achieved, the multi disc brake will keep the rotation in place.

HYDRAULIC SYSTEM

The hydraulic system consists of a pump with an electrical motor mounted on a shelf on the wagon. The oil tank with a 10 micron absolute rated return line filter, valves and the hydraulic motor unit are mounted inside the wagon.

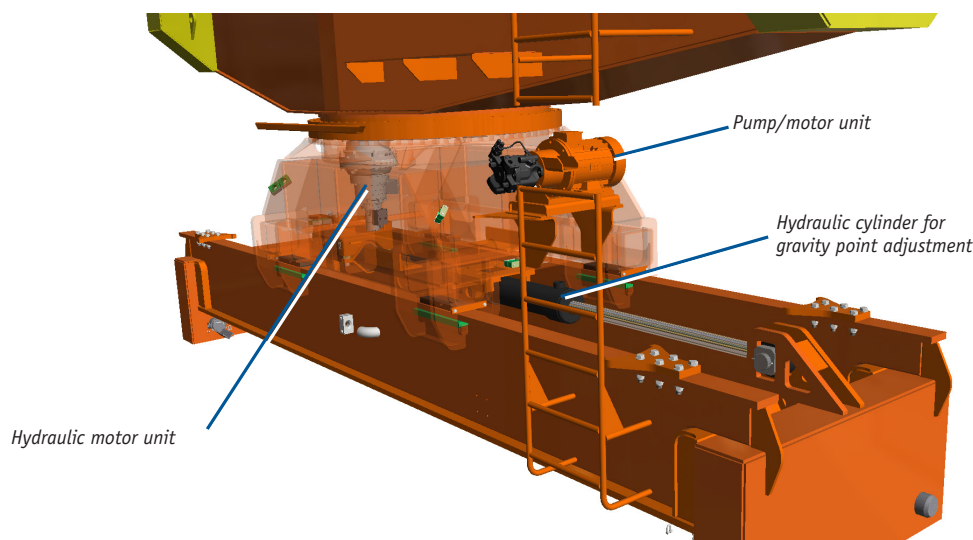
The foot and flange mounted three phase cage induction electric motor corresponds to the major worldwide standards. The motor gives 7.5 kW at 50 Hz and 9 kW at 60 Hz and the protection grade is IP 55.

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 82 litres and the oil level is clearly shown in the sight glass.

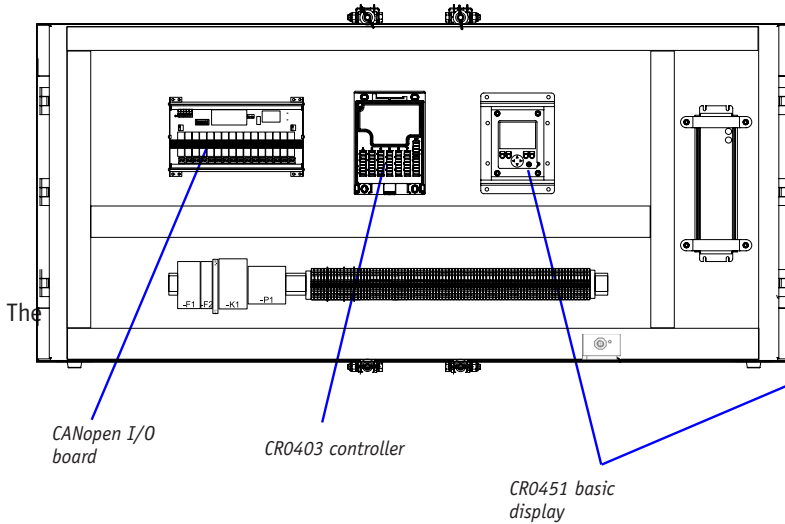
The hydraulic oil meets the requirements of ISO 4406 code 17/15/13 cleanliness classification.

The hydraulic system is designed to work under various conditions and can be used with different types of oil for all climates.



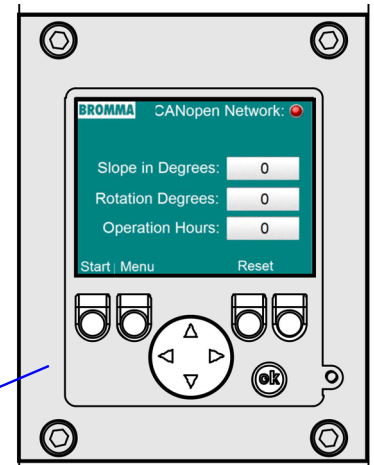
ELECTRIC SYSTEM

The main electrical cabinet X1 is mounted on heavy duty rubber shock absorbers on the longside of the wagon. The directional valves for the gravity point adjustment and the rotation are electrically controlled. The reached positions are indicated by sensors or by digital encoder.



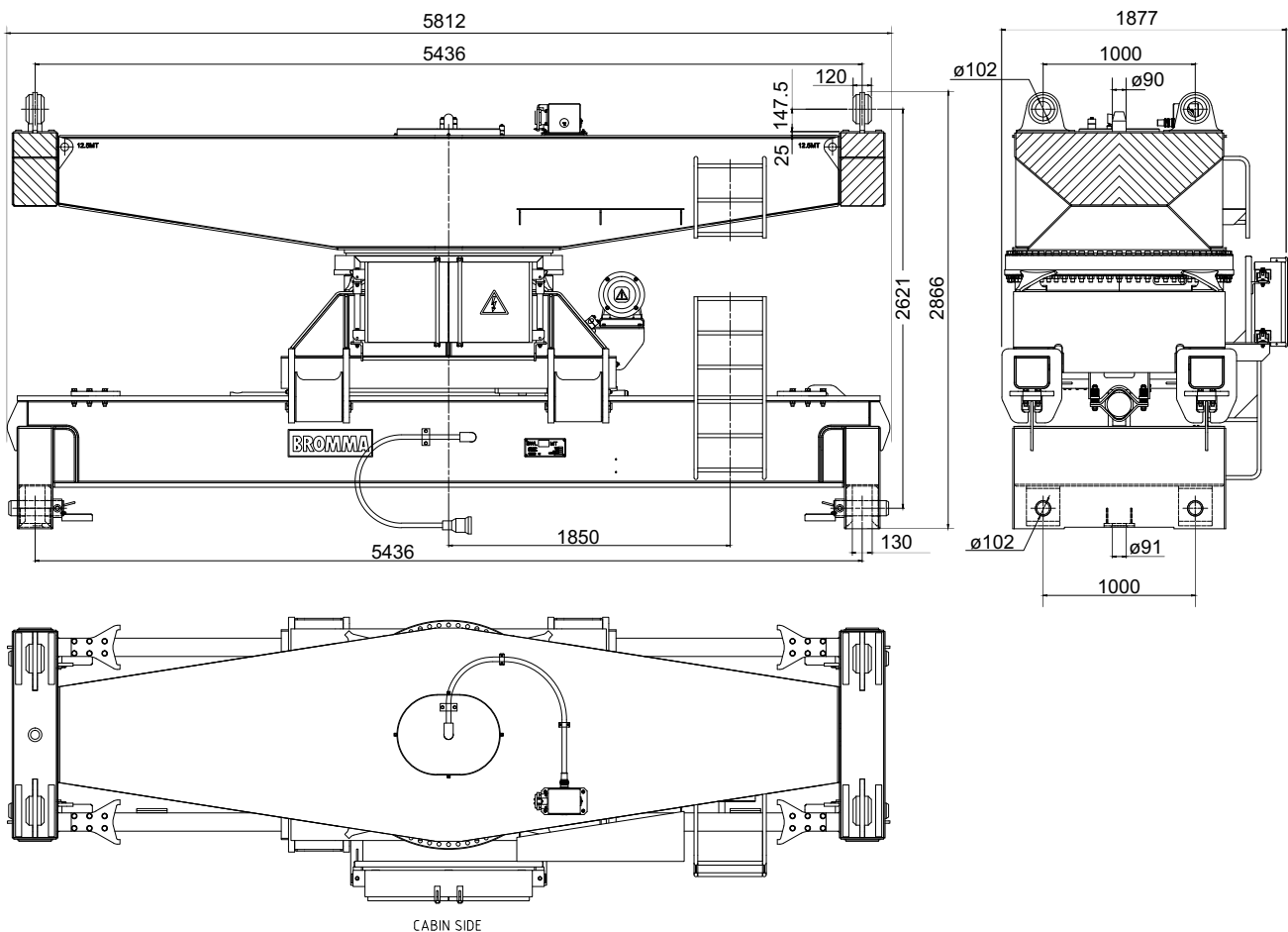
CONTROL SYSTEM

The SRG control system consist of three main parts placed inside the electric cabinet. The CR0403 controller, the CR0451 basic display and the CANopen i/o board for incoming and outgoing signals.

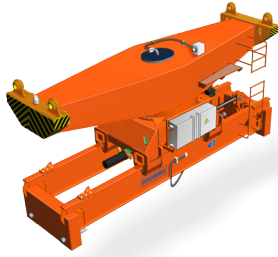


The programming and setting of parameters is made with the CR0451 display.

DIMENSIONAL DRAWINGS



TECHNICAL DATA SRG ROTATOR



Lifting capacity (SWL)	62 MT (Metric ton)
Weight:	Approx. 7.8 MT (without extra equipment)
Rotation:	From +95° to -185° clockwise seen from above
Gravity point adjustment	1.2 m in both directions
Rotation speed	90° in approx. 15 s
Gravity point adjustment speed	Center to end stop in approx. 17 s
Hydraulics:	System pressure 100 bar/160 bar. Piston pump pressure compensated and power controlled. Maximum flow 58 l/min
Power supply:	380 VAC 60Hz or otherwise as agreed.
Max power consumption:	7.5 kW
Control voltage	24 VDC
Electrical cabinet	Stainless steel IP65
Surface conditioning	Sand-blasted SA 2.5 50-90 um 2-component zinc epoxy 100 um 2-component MIO pigmented 70 um-Polyurethane
Finishing color:	RAL 2004
Design criteria	EN 13001; DIN 15018 HC2, HD1, U7, Q2
Manual:	Full service and repair manual supplied
Warranty:	1 year