MORELLO

MATERIAL HANDLING TECHNOLOGY SINCE 1946

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INDUSTRIAL PLATFORM-TOWS
LOWERED ROLLTRAILER

INSTRUCTION MANUAL

SERIES	**SRP2**
SERIAL NUMBER	**2051/1…130**
YEAR OF CONSTRUCTION	**2016 to 2017**
DOCUMENT	**2051**
CUSTOMER	**Atlantic Container Line**
PAYLOAD	**120 Ton**
DEAD LOAD	**10 Ton**

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2 – GENERAL DESCRIPTION

N. 130 industrial platform-tows lowered rolltrailers series SRP2 40' 120 t, having each one the following characteristics:

- Load capacity: 120 t uniformly distributed
- Loading deck measurement: Lenght 12300 mm, width 2700 mm approx.
- Loading deck height: about 670/730 mm approx. from the ground
- Loading deck in streaked sheet steel (thickness 4 mm + streak)
- Frame largely manufactured, at two bearing members, realized with oversize steel sections (I-beam european HEA 450 – S355) and assembled through solid welding to the electrical arc. The resulting structure is calculated to resist to bending and twist stress with hypothesis of suitable loading for size and distribution.
  The four corners of the frame are rounded
- N° 4 hunting axles disposed on two axis sections, hunting also in the platform longitudinal direction; on each axle are assembled n° 2 wheels series "GRAN CARICO" Ø 620 x 420 mm, rolling on adjustables conical roller bearing of main international brand
- In all are assembled n. 8 wheels (four for axis section); further, axles and swing wheel oscillate on greased bushings of sea type
- Wheels hubs cover is foreseen in steel caps/cover powder
- Front space for platform-tows handling with gooseneck
- N. 2 safety hooks for coupling with gooseneck

- N. 2 opening, including tubular steel sections, for handing trailer elevator forks. On both sides, the opening are contouring with yellow painting colour RAL 1018

- N. 16 pockets for steering columns of load containment:
  - n. 8 for each long side

- N. 30 points for etching-handing cables/chains (“D” rings) disposed in a central single row as follows:

  - n. 11 for each long side
  - n. 4 front head
  - n. 4 rear head

- N. 4 hooks points to handle the platform-truck by crane
- Bolts and nuts plated in galvanic way
- Painting, upon sandblasting, with two hands of primer and two coats of nitro-synthetic enamel painting with colour RAL 3011
- Max loading indication on the front / back side of the frame
- Careful, strong manufacture, suitable to work in sea place
- CE certification and conformity declaration

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3 - LIST OF MAIN COMMERCIAL COMPONENTS

COMPONENT	DESCRIPTION	Q.ty	SUPPLIER
Wheels	Ø 620x420 series "GRAN CARICO"	8	MORELLO
Engine wheels bearing	Conical rulls 32022X Conical rulls 30218	8 8	SKF
Hunting axle	120 C45	4	MORELLO
Bushing swing wheels	80/85x60	4	MORELLO
Bolt swing wheel	Ø 80 – 38NiCrMo4	2	MORELLO
Bushing axle	60/65x60	8	MORELLO
Bolt axle	Ø 60 - 38NiCrMo4	4	MORELLO
Wheels ring nut	KM 18 (M90x2)	8	SKF
Washer	MB 18	8	SKF

4 – GENERAL INSTRUCTIONS FOR USE

To handle lowered rolltrailers SRP2 2051/1…/130, it is necessary:

- Hook in safety the tractor gooseneck to the appropriate space present on the rolltrailer.

- Lay down carefully the load on loading platform, avoiding shocks that could create additional stress to the frame and to mechanical groups which the trailer is manufactured

- The max capacity load is referred to the loads uniformly distributed. In this regards refer and follow the table of the load chart attached and applied on the rolltrailer.

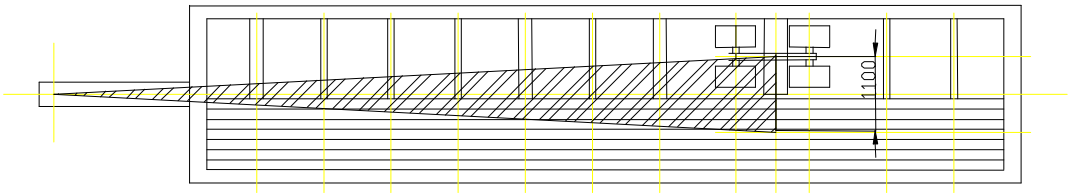
- The maximum speed of project is **6 Km/h** at full load, on industrial flooring compacted and leveled.

- Check that the brake power of the tractor should be suitable to the maximum load of the rolltrailer more its tare.

- If it were necessary to stop the rolltrailer unhooked from the tractor on a slope, provide to use wooden wedges to the wheels, to be placed before to unhook the tractor.

- The points that allow to unload on the ground the capacity are three: the two rear supports and the center of the fifth wheel on the tractor.

- There's a **"triangle of stability"** due by the junction of these three points: to prevent possible tilting dangers, it is necessary to be sure that the center of gravity should be positioned inside of this triangle.



The system of oscillating axles ensure a good absorption dips and any unevenness of the ground: the trailer is still designed and produced for internal use and for a maximum speed of 6 km / h even with no load

In case of operation on loading ramps of the ships, the following is specified:

- In order to prevent breakage of the oscillating axles, rolltrailers will always move on loading ramps of the ships in parallel to them, and never in diagonal.

Normal Operation
Correct loading and discharging operation (full and/or empty) on/from vessel

Fig. 1 – Operation of loading / unloading correct

Fig.2 – Operation of loading / unloading correct

Fig. 3 – Operation of loading / unloading correct

Fig.4 – Operation of loading / unloading correct

Forbidden operation
Wrong and forbidden loading and discharging operation (full and/or empty) on/from vessel.

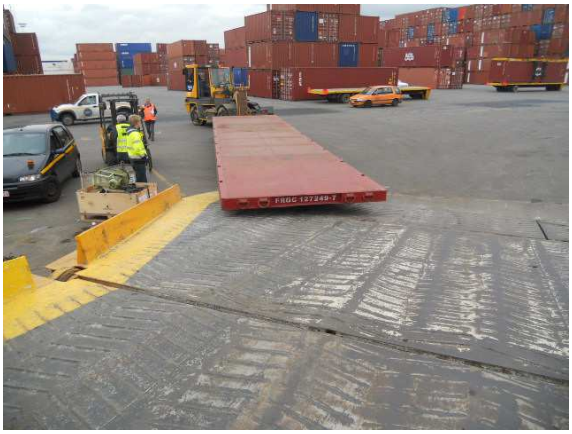


Fig. 1 – Operation of loading / unloading **INCORRECT**

Fig.2 – Operation of loading / unloading **INCORRECT**

Fig. 3 – Operation of loading / unloading **INCORRECT**

- Grimaldi Group ships ramps should never exceed angles of 7° and 9,5°, according to the specifications that Grimaldi Group has provided us.

- It is absolutely essential, just in case, at any time, the rolltrailer rear crossmember touches or scrapes the loading ramp of the ship, the operator must immediately stop loading or unloading operations, as the angle of the oscillating axles and of the longitudinal rocker arms could become greater than design angles (max 10° approx for the oscillating axles and max 11,5° approx for the longitudinal rocker arms) ; otherwise it could occur overloads on the longitudinal rocker arms and on the oscillating axles, with consequent possible breakages.

- To avoid to touch or scrapes the ramp, the operator must reduce the inclination angle of the rolltrailer compared to the ramp. This is valid both with rolltrailer load that with rolltrailer unload.
  We hereby confirm that during the phases of ship ramp ascent and descent at full or empty, in case of working in extreme conditions, exceeding angles of inclination above described, the rear crossmember of the rolltrailer is the first part that touch the ramp.
  This contact will always be a warning for the operator, who must immediately stop the operation, to prevent any damage to the oscillating axles.

Normal Operation
Correct loading and discharging operation (full and/or empty) on/from vessel

Fig. 1 – Operation of loading / unloading correct

Fig.2 – Operation of loading / unloading correct

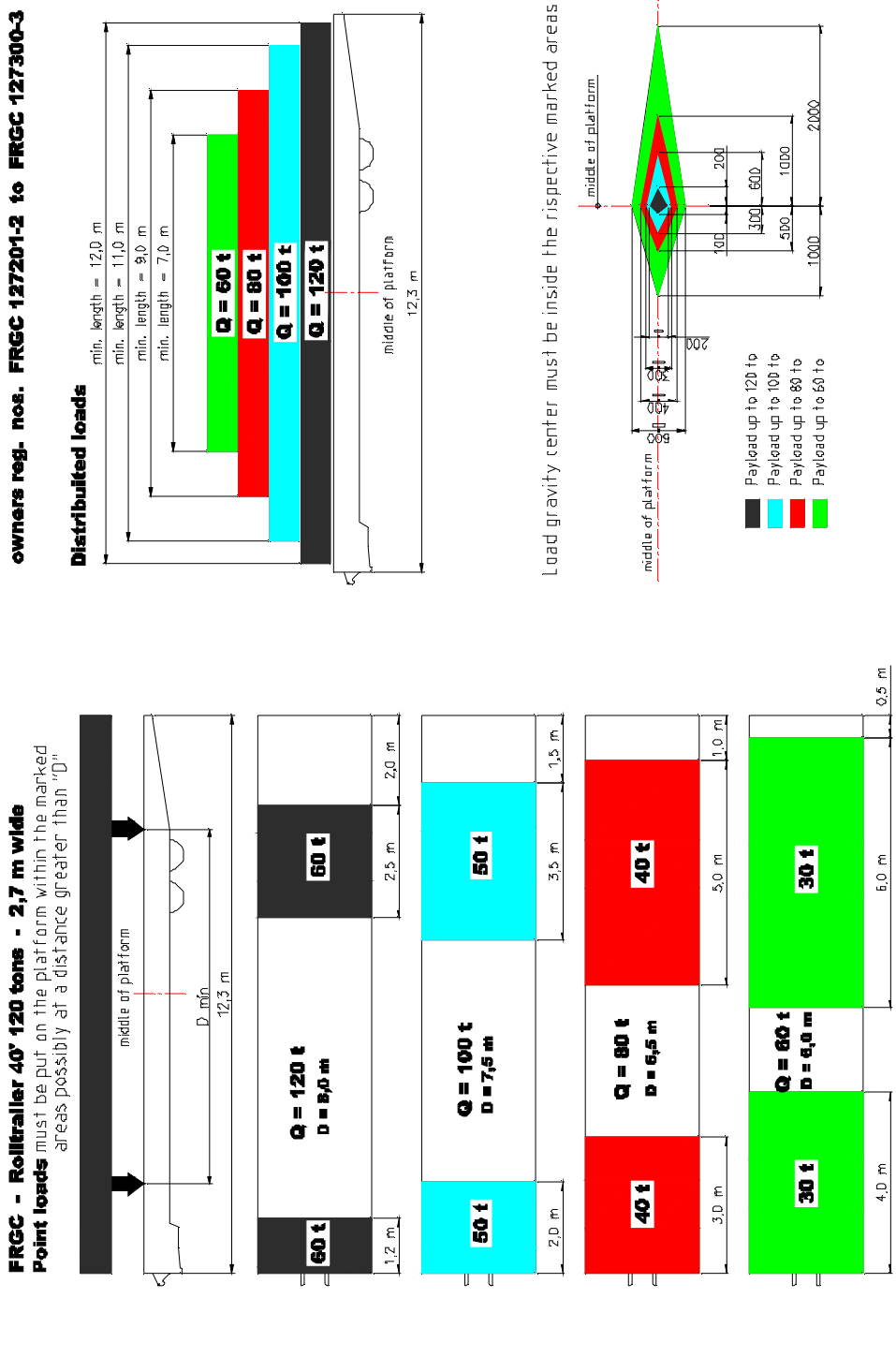
Stop immediately the operation of ascent/descent ramp.
Wrong and forbidden loading and discharging operation (full and/or empty) on/from vessel. Touching the ramp, mafi is working in extreme and dangerous condition.

Fig. 1 –Operation of loading / unloading **INCORRECT**

Fig.2 - Operation of loading / unloading **INCORRECT**

Fig. 3 – Operation of loading / unloading **INCORRECT**

Fig.4 – Operation of loading / unloading **INCORRECT**



Loading diagram table

5 – MAINTENANCE

Due to the trailer concept design, scheduled replacement for worn-out parts, or extraordinary repair aren't needed.

In any case to assure a long working life and to maintain a good reliability of its performances it is advisable to carry out a routine maintenance consisting of visual checks and simple mechanical adjustment.

Every two months, make a global visual check of trailer, verify the condition of the front bay for the handling with goosneck.
Verify as well the correct tightening of axles, bearing and bushing and the status and the wear of rubber coat covering the wheels.
(It is necessary to execute this operation more frequently in case of large use of the trailer)

With the same **bimonthly** cadence, verify the wheels covering situation and the presence of possible tears.

Damages reparation:

Damages reparation must be made immediately to minimize the reparation extension.

After reparation make sure with visual check and with load test that the same should be made correctly.

The table below shows the tightening torques for each dimension of the screw.

Screw diameter	Screw pitch	Pre-tightening torque [kgm]	Tightening torque [kgm]
M6	1	0,75	1
M8	1,25	1,8	2,4
M10	1,5	3,6	4,8
M12	1,75	6,5	8,5
M14	2	10	13
M16	2	15	20,5
M18	2,5	22	29
M20	2,5	30	40
M22	2,5	42	56
M24	3	50	70
M27	3	80	105
M30	3,5	95	130

5.1 SPARE PARTS

On units 2051/1…130 are not present components subjected to wear, for this reason it is not forecast a spare part list for a scheduled replacement.

6 – STANDARDS REFERENCE

We indicate below specific rules that MORELLO S.a.s uses for the design and building of the equipments, adhering strictly, in all its aspects, to the European laws and to the editions of the most relevant European standards and codes (EN): ISO/FEM/DIN/UNI/IEC/ASTM

6.1 LAWS AND ORDERS

2006/42/CEE Machine Directive
(and following integrations and modifies)

Law 46 of 05/03/90	Standard for plants safety and relative rule
DPR 447 of 06/12/91	Implementation regulation of the law 46/90
D LGS 81 of 09/04/08	Implementation of the art. 1 law 3 august 2007, n. 123, on the subject of health and safety care in the work places

6.2 RULES

UNI EN 12100-1	Machinery safety – Main concepts, project general rules – Part 1: Foundation language, technique
UNI EN 12100-2	Machinery safety – Main concepts, project general rules- Part 2: Technical rules
UNI EN ISO 13857	Trademark safety – Safety distances to bar the attainment of dangerous areas with higher and lower limbs
UNI EN 349: 1994	Trademark safety – minimum areas to avoid the body parts deflection
UNI EN 953: 2000	Safety trademark – Protections – General requirements for the construction of fixed and mobile protections
UNI EN 1088: 2007	Safety trademark – Interblock devices integrated to the protections – Choice and project rules
UNI 5132	Covered electrodes for the arc welding of the steels not alloyed and sickly alloyed to the manganese. General technical conditions, symbols and test procedures

UNI EN 10021: 2007	General technical conditions of steel products supply
UNI EN 10025-1: 2005	Steels hot-rolled products for structural employments – Part 1: General technical conditions of supply
UNI EN 10083-1: 2006	Steels for temperating – Part 1: General technical conditions of supply
UNI EN 10083-2: 2006	Steels for temperating – Part 2: Technical conditions of supply for not alloyed steels
UNI EN 10083-3: 2006	Steels for temperating – Part 3: Technical conditions of supply for alloyed steels
UNI EN ISO9001:2000	Quality system management

OTHER RULES

CNR UNI 10011-88- Steel constructions; calculation instructions
UNI 1307 and 1309 Welding process

7 – SAFETY WARNINGS

Units 2051/1…130 are designed only for internal use, a different employ is considered not in conformity.
Otherwise the declaration of conformity won't be considered valid.

- Put loads on the support frame without impacts that could produce damages to the structure and to the mechanical components
- Use the unit in conformity to those described in chapter 4 and 5
- Eliminate any inconvenient that could affect the safety.
- Before to start the run, check that the path should be free of obstacles and that there are no objects against the wheels. In any case make sure that there are no people or objects inside the translation area.

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8 – USER / COMPETENT PERSON

USER

People that use industrial platform-tows lowered rolltrailers series SRP2 2051/1…130 must be older than 18. These people will have to be charged from the Company to use it only after they have been trained by a Company responsible and read carefully this manual.

Rules between user and competent person have to be distinguished.

COMPETENT PERSON

Installation, maintenance, repairs and check must be done only by competent person.
European laws said: competent person is who has experience, know-how and culture in this subject and is able to manage the tools to permit to the machine to work.

OUR POST-SALES SERVICE IS AT YOUR DISPOSAL FOR ANY QUESTION YOU MAY REQUIRE.