



Istituto Nazionale di Fisica Nucleare  
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LNGS internal rules

**RULES FOR USE AND INSTALLATION OF LIFTING  
AND TRANSPORT EQUIPMENT IN THE GRAN  
SASSO NATIONAL LABORATORIES OF THE  
NATIONAL INSTITUTE OF NUCLEAR PHYSICS**

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## INTRODUCTION

This document (also available on LNGS web page) provides rules for installation and use of lifting and transport equipment, either owned by the laboratories or related to the experiments, in the whole area of the Gran Sasso National Laboratories.

The document is divided into five chapters structured in this way:

**Chapter 1** Legislative references.

**Chapter 2** Brief description of plants and equipment available at LNGS.

**Chapter 3** How to use.

**Chapter 4** Installation of new lifting and transport systems at the L.N.G.S., declaration of commissioning, quarterly and yearly legal checks.

**Chapter 5** Use of lifting and transport equipment in "complex" operations.

This rules are addressed to all users who for work needs require the use of lifting / transport equipment.

In particular, the document is sent to:

- LNGS staff;
- Spokesperson, Technical Coordinator, Project Engineer and GLIMOS of the experimental collaborations;
- Person in charge of works and services at LNGS, whose activity requires the use of lifting / transport means.

The persons listed above are requested to transmit the rules to firms and collaborators who, in their activity, require the use of lifting / transport means.

The rules must be made available to the staff of the following Services:

- LNGS Fire Service
- LNGS Guards
- Portage Service
- Crane Operators Service.

The main activities of LNGS requiring the use of lifting and transport systems and machines are:

1. Ordinary or extraordinary maintenance on electrical-mechanical systems;
2. Assembly, disassembly and maintenance of experimental equipment and/or structures;
3. Checks and cleaning of equipment/facilities at height;
4. Loading, unloading and transport of materials;
5. All works and/or services that cannot be performed with common work equipment and that require the use of lifting and transport means.



## CHAPTER 1

### *Legislative references*

**Legislative Decree n. 81** of 9 April 2008 and subsequent amendments and additions.

**Agreement State-Regions of 22 February 2012** in accordance with art. 4 of Legislative Decree n. 28 August 1997 N. 281, between the government, regions and the autonomous provinces of Trento and Bolzano, stating: work equipment demanding operator's specific qualifications and the way to check if the qualification is appropriate, the trainers, the duration, the type of course and the minimum requirements for the training validity (art. 73, paragraph 5 of Legislative Decree 9 April N. 81 and subsequent amendments and additions).

**Machinery Directive 2006/42 EC** and subsequent amendments and additions.

All the specific rules in this field, regulating the use of work equipment for lifting and transporting materials and people.

## CHAPTER 2

### ***Brief description of plants and equipment available at L.N.G.S.***

The Gran Sasso National Laboratories have different types of plants and equipment for lifting and transporting of materials, some of which are realized to respond to specific needs of experiments.

They are installed in two main macro areas:

- In Underground Laboratories, the main bridge cranes and small-medium capacity equipment are located in experimental facilities and inside the experimental halls.
- In Outside Laboratories, they are located inside the Mechanics Workshop, the Laboratory 2 and in the Assembly Hall.

The main plants available at LNGS are:

- Cranes;
- Hoists;
- Exclusive lifting equipment specially made on request of scientific collaborations;
- Motorized aerial platforms essential for work at height (working height 8 meters)
- Forklifts with driver on board and transpallet for the loading/unloading freight.

The Gran Sasso National Laboratories do not own special and standard accessories (ropes, chains, lifting beams, fixed and swivel eye bolts, hooks, lifting clams, etc.).

## CHAPTER 3

### *How to use*

The lifting and transport systems can be used in two ways:

- 1) By the qualified personnel belonging to the crane operator service and the porterage service made available by the LNGS (par.3.1)
- 2) Or by making use of other qualified personnel properly authorized by LNGS Director (paragraph 3.2)

#### 3.1 Requests for Crane Operator Service and Porterage Service

The LNGS have a Crane Operator Service and a Porterage Service, each managed by a coordinator belonging to the Technical Division.

The services cover specific needs of LNGS, but also scientific collaborations can make use of them paying for the service received.

In general, request for use of forklifts, pallet trucks and mobile platforms can be submitted to the Porterage, while requests for use of overhead cranes and mobile cranes can be submitted to the Crane Operators Service.

Requests can be submitted opening a service ticket at:

**Porterage:** <https://confluence.infn.it/display/LNGS/Servizio+Facchinaggio>

**Crane operators:** <https://confluence.infn.it/display/LNGS/Servizio+Gruisti>

For further information please email [liftingsystems@lngs.infn.it](mailto:liftingsystems@lngs.infn.it).

The requests will be processed sequentially and can be satisfied with variable response times, linked to the previous duties of the services.

For better management of activities, the service request must be submitted at least one week's notice for operations requiring an expected workload of less than four hours and two weeks' notice for operations with expected workload of more than four hours.



### 3.2 Application for qualified operators authorization to use lifting and transport systems

The use of lifting and transport means may be authorized for operators belonging to collaborations and firms who are in possession of the necessary qualifications required by the legislation.

The request must be sent, 10 days in advance, to the address [liftingsystems@lngs.infn.it](mailto:liftingsystems@lngs.infn.it), accompanied by the following documentation:

1. **Application for authorization** on headed paper, according to the form provided by the LNGS, signed by the Legal Representative for firms, by the Director for INFN employees, by the Director for Italian/Foreign Research Institute staff working in LNGS (see attachments A-B-C).  
Please note that the **physical fitness of the operators**, declared by the employers in the application, must be issued following specific medical check-ups referred to the current sector legislation. The required suitability varies according to the type of equipment that the operator must use;
2. **Declaration of free loan for use** signed for acceptance (see forms prepared for INFN employee, Italian/foreign research institution employee, firm employee – see attachments E, F, G);
3. **Training certificates of the operator**. The operator must have training suitable for the use of the demanded equipment, pursuant to art. 73 of Legislative Decree 81/2008 and subsequent amendments;
4. **Declaration of compliance and control of accessories** (such as ropes, chains, lifting beams, fixed or swivel eyebolts, hooks, lifting vices, chain tensioners, etc.) used, not having the L.N.G.S. of its own lifting accessories (see attachment D).

#### 3.2.1 Examination of the application and issuing of the authorization.

In the event of a positive outcome of the check, the name of the operator is included in a list of authorized operators managed at the Control Room of the underground laboratories and at the Guards Box at the entrance to the external laboratories.

Each operator is granted a specific authorization for a specific period of time.

In case of incorrect filling of the forms or incomplete transmission of the documentation, the request will be rejected giving the reasons.

**Please note that the authorization issued refers exclusively to the use of the lifting and transport systems requested. This is not valid authorization for the activities within which the authorization is issued.**

The Technical Division files and manages authorization requests and lists of authorized users.

Confirmation of authorization release will be e-mailed to the address expressly indicated in the request.

The Fire Service (in the Control Room of the underground laboratories) and the Guards (in the entrance box in the external laboratories) are authorized to deliver keys and / or radio controls of the lifting and transport systems **exclusively** to the operators listed in the aforementioned lists, after having verified the correspondence between the type of authorization issued to the operator, the means requested and the temporal validity period of the authorization.

name, surname	authorization for	affiliation	validity from ____ to ____
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### Example of the list of authorized operators

Under no circumstances will the personnel in charge hand over the keys to persons not authorized to use the corresponding device.

The operator records in a special register, provided by the Fire Service and the Guards, the day and time of collection of the remote control and / or system key, for which he is personally responsible. It is absolutely forbidden to transfer keys or radio controls to other users.

Upon return, the operator is requested to report any anomalies, failures or damage found during use in the register. In the event of faults being reported, the Fire Service or the Guards shall promptly send the communication to the Technical Division so that, if necessary, the system or machine would be put out of service.

The Fire Service in the underground laboratories will check the work activities carried out with the aid of the lifting systems and is required to immediately report any incorrect use of the systems to the persons in charge present during the activities and to the address [liftingsystems@lngs.infn.it](mailto:liftingsystems@lngs.infn.it)

### **3.2.2 Cancellation of authorizations**

Failure to comply with the procedures envisaged, improper use of equipment, transfer of keys or radio controls to other users and in the event of dangerous conduct by the operator due to the consumption of alcoholic beverages or the consumption of drugs, the authorization will be immediately suspended and possibly revoked.



## CHAPTER 4

### ***Installation of new lifting and transport systems at the L.N.G.S., declaration of commissioning, quarterly and yearly legal checks***

#### **4.1 New installations**

It is absolutely forbidden to install and use manual and electrical systems without prior communication and authorization from the Technical Division of the L.N.G.S. This ensures that all systems are installed and put into service in full compliance with the laws in force in the sector - see **Machinery Directive 2006/42 / EC, Legislative Decree 81/08, State Regions Agreement of 22 February 2012 and subsequent amendments.**

**Failure to comply with the envisaged procedure relieves the L.N.G.S. of any responsibility and once ascertained, the equipment will be immediately put out of service.**

The Technical Division for the purpose of issuing the qualifications:

- Ascertains the completeness and suitability of the documentation necessary for the commissioning of the plants;
- Transmits it to the competent control bodies, signed by the Director of the LNGS.

#### **4.2 Notification of commissioning**

The Technical Division forwards the declaration of commissioning, through the INAIL CIVA portal.

Below is the list of necessary documents:

- EC declaration of conformity of the installed system (s);
- Use and maintenance manual of the lifting systems;
- Control register;
- Radio control documentation (if installed);
- Certificate (s) of rope (s) and hook (s);
- Declaration of conformity of the system installer;
- Copy of the calculation report;
- Illustrative drawings of the system in all its parts (mechanical and electrical);

– Copy of the test certificate (during the testing phase, suitable load must be used to perform the load limiter test, in accordance with the provisions of current legislation).

Further supplementary documentation may be requested, if necessary for the commissioning of the system.

The documentation must be sent to [liftingsystems@lngs.infn.it](mailto:liftingsystems@lngs.infn.it) at least 30 days in advance of the data for the first use of the installed device.

### 4.3 Quarterly and yearly legal checks

All lifting systems and machines located in the LNGS, both owned and managed by the laboratories, pursuant to Legislative Decree 81/08 and subsequent amendments, based on the capacity and type of drive motor they are equipped with, are subject to legal checks:

- Internal audits, on a quarterly basis, by LNGS staff;
- Audits by the control bodies, such as INAIL and ASL, on an annual basis.

If the equipment is installed in closed experimental areas, it will be the responsibility of collaborations, upon request of the Technical Division, to make them available, even with short notice.

If for reasons related to experimental activities, or other, some equipment is not made accessible for carrying out the legal checks, such equipment will be taken out of service and can be reused only after having carried out the necessary checks

### 4.4 Ropes and lifting equipment

LNGS do not provide and do not have the necessary lifting equipment such as ropes, chains, lifting beams, fixed or swivelling eyebolts, hooks, lifting vices, chain tensioners, etc.

All legal checks on standard or special accessories present in the work areas of the laboratories are the responsibility of the owners: experimental collaborations, universities, research institute and firms or persons delegated by them.

LNGS personnel are authorized to verify the suitability and certification of the aforementioned accessories and can make sure that the checks have been correctly carried out. If they have not been completed, the use is immediately prohibited.



## CHAPTER 5

### Use of lifting and transport equipment in "complex" operations

#### 5.1 Definition

We mean by complex operations all those activities in which the possible fall of the load does not represent the primary damage such as, for example, the handling of bulky loads that could damage the experimental equipment or the handling of dangerous substances that could have an impact on human health or environment in the event of a spill.

Those demanding the service will be responsible for assessing whether the activity falls within the definition of "complex" activity, set out above.

#### 5.2 Operating rules

Activities that are considered complex can be performed according to a procedure approved by LNGS.

This procedure must be defined by the person in charge of the activity, consulting the Technical Division and the Crane Operators Service if needed.

The procedures, in addition to indicating the precautions taken to make the risk of damage resulting from the possible fall of the load acceptable, must also comply with the following requirements:

- Perimeter of the safety area within which, during the load handling operation, there must be no people unrelated to the operations;
- When the use of eyebolts is essential, the use of the swivel type of suitable capacity should be preferred;
- If the lifted object must observe a certain position, the operator must be assisted by a levelling system, load sensors or dynamometers.

The procedure must indicate the names of the personnel who will carry out the operations; identifiable in the following groups:

- Crane operator staff;

- INFN expert staff, already authorized.

If expressly requested, following the verification of qualifications, may also be authorized:

- Italian / foreign research institute staff;
- Firm staff.

**Please note that, the approval of the procedure to carry out complex activities refers exclusively to the use of the lifting and transport systems requested. This is not valid authorization for the activities within which the authorization is issued, that must follow their process to be carried out.**

### 5.3 Activity interruption

If following inspections, the staff of the Technical Division or of the Prevention and Protection Service should find the improper use of the lifting equipment, they will request the securing of the load and the immediate suspension of the activity.

## ANNEXES

Annex A: Application for authorization for INFN employees

Annex B: Application for authorization for firm employees

Annex C: Application for authorization for foreign research institute employees

Annex D: Declaration of compliance and control of accessories

Annex E: Loan for use for INFN employees

Annex F: Loan for use for firm employees

Annex G: Loan for use for foreign research institute employees