

# HANDLING

## Why is handling works of art a genuine profession ?

Everyone has moved their furniture and personal effects at one time or another. We have all shaken our heads over a scratch or bump caused by clumsiness when moving a favourite object. Have you ever imagined the care required when handling a masterpiece ?

Do you realize the physical difficulties of handling a two-ton marble statue or a picture measuring four meters by five ?

Are you familiar with moving techniques ? Do you have any idea of the organizational constraints encountered on large sites ?

Our installers and team leaders are professional handlers of works of art and objets d'art. Their tools, techniques and terminology form a fully-fledged discipline, extended every day by their experience in handling works. They are your direct interlocutors on the spot. Learn to appreciate the value of the handling, tools and many precautions that make up the quality and price of our service.

# LP ART's installers and team leaders

## SKILLS THAT HAVE TO BE ACQUIRED

At LP ART, we use the term installer for our staff specializing in handling and packing works of art. They come from various trades : carpentry, cabinet-making, framing, diesel engineering and design... They gradually learn their profession from their more experienced colleagues and by taking specific and demanding training courses. They all have to be committed to quality. The most skilled become team leaders.

## RESPONSIBLE TEAM LEADERS

The team leader is the client's direct liaison and he is in charge of a team of installers and packers on a site. At LP ART, the team leader is familiar with every aspect of the profession : technical aspects, administration and personal relations.

His role begins well before the operations on the spot :

- familiarizing himself with the estimate proposed to the client,
- consulting the coordinator to gain an overall picture of the operation and decide on a working method,
- proposing the necessary resources : staff, vehicles, tools and supplies,
- ensuring that he can assemble these resources on the given day in consultation with the trucking and packing managers at the warehouse,
- representing the company on site and giving instructions to the team,
- reporting to the coordinator and passing on the work documents.



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« *Autoportraits du XX<sup>e</sup> siècle* », Palais du Luxembourg, 2004.

### AUTOMATIC REFLEXES

Whether the work is a medieval enamel or a resin sculpture by Dubuffet, everything begins with a handling operation. The handlers have to look, understand, touch, pick up, carry and move with the work. Our installers' professionalism is based on automatic reflexes that they have patiently acquired :

- **Studying the area around the object** : is there enough room around the object to move back ? If necessary, how should the mechanical handling tools be installed ? Are the means of access large enough ? Does the work have to go through the window ?
- **Protecting the environment** : how should the floor, walls and possibly the lawns be protected ? Everything has to be protected along the way where the work is carried using heavy handling equipment : load-spreading plates, wood and polyethylene foam are used to protect the floor to level it out if it is uneven.
- **Assessing the object itself** : from the first look, it is important to assess the fragility of the work, its weight, centre of gravity and all the packing and moving constraints.
- **Protecting the object** : the basic reflex is to work with clean hands and use a pair of gloves to protect the object from perspiration or any other marks and to protect it from bad weather when handling outside.
- **Following grasping rules** : While you would probably pick up a teapot by its handle at home, when it is an « objet d'art », you would pick up the teapot by supporting the bottom with both hands.
- **Following a strict method** : You never move an object without knowing beforehand exactly where you're going to put it.
- **Controlling your movements** : An installer thinks about the position of his body, optimizes his muscular effort, protects his lower back, etc.

# LP ART's installers and team leaders

## MASTERING TOOLS AND MACHINERY

Above a certain weight or size, works cannot be safely handled manually. So tools and machinery are required in addition to the basic precautions :

- ladders on either side of a large picture,
- scaffolding to the height of the picture rail,
- tackle blocks (three or four-strand pulley blocks) that have to be attached to the ceiling to raise or lower the heaviest pictures,
- carts with side rails and trolleys that have to be guided skilfully despite a heavy, cumbersome load,
- pallet trucks on which the loads must be evenly spread.

## Quality and ongoing training at LP ART

### Training courses given by outside organizations :

- training for two installers on average each year, to pass their HGV driving licences, and for three installers to pass their forklift truck and aerial lift proficiency certificates,
- training for the staff as a whole in freight security procedures and training of « certified agents » for freight control under our « authorized agent » certification system,
- two annual training sessions for our sales staff and our team leaders on the theme of « responsibility and quality »,
- regular training courses in other languages.

### Training courses given on an internal basis :

- fortnightly training sessions for exhibition coordinators on working methodologies,
- weekly training sessions for installers and team leaders on operational procedures.

# Moving techniques



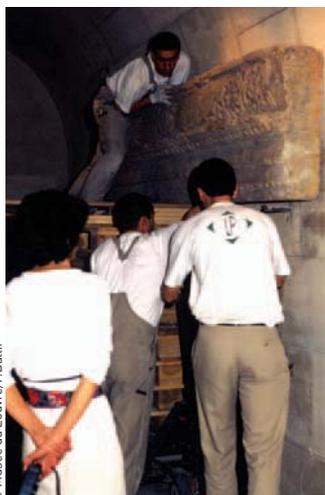
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Veronese, « Noces de Cana »,  
painting department, Musée du Louvre.



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Oriental antiquities department, Musée du Louvre.



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Oriental antiquities department, Musée du Louvre.

## MOVING PROBLEMS

The main problem with works of art is that they do not offer a natural hold unlike industrial machinery and equipment. For each heavy handling operation, the staff has to adapt the existing equipment and study the lifting devices. This often takes some time and is tricky to set up. In addition to our basic equipment (side loaders, gantries, site cranes, moving towers, etc), we sometimes have to use hired machinery : cranes (7-200 tons), trucks with cranes (15, 18 or 33 tons) and low-slung platform trucks.

For instance, how should you move a sculpture weighing a ton from its base 60 cm above the floor to its crate ? If you decide to lift it, move the base and lower it gently onto the base of the crate, you need a moving tower, a hoist and slings. If you want to raise the crate base on a pile of pallets to the height of the sculpture base and slide the sculpture onto the crate base, you need « paras » (soap-covered beech planks).

How do you remove the twenty sarcophagi from the Marengo crypt ? You put an inclined plane on the staircase and a ratchet-hoist puller hooked on the landing. When the works have been completed and there is just a stairwell left in place of the staircase, how do you get the sarcophagi down ? You put up a gantry to install a goods lift.

How do you place a Picasso sculpture weighing 20 tons in front of the Petit Palais ? You need a 200-ton crane to obtain the necessary load radius.

# Moving techniques

## LIFTING SYSTEMS

For most routine lifting with hoists and slings, these are the basic rules to be followed :

- **Assess the weight to be lifted** : it is very useful to know the densities of the materials of which the object is made (see table).
- **Stabilize the weight to be lifted** : first, the center of gravity must be determined as accurately as possible, then choose the right strapping, attachment or securing positions.
- **Balance the device correctly** : the center of gravity must be held in the lifting axis (in certain cases, « balancers » are used to transfer the load).
- **Correctly secure or attach the slings to the object** : the slings are often attached to the object using flat straps .
- **Spread the forces evenly** : to avoid squeezing and damaging works, sometimes a lifting beam is used, i.e. a beam with several lifting points that balances the forces between the upper and lower slinging systems

A hoist for a ten-ton load weighs 150 kg, so it takes more than five minutes to put it in place. The main beam of a gantry may weigh as much as 800 kg ! This means that you need a side loader to install it.



*Oriental antiquities department, Musée du Louvre.*



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## Moving techniques



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### What you need to know about slings

In accordance with an international standard, the nominal resistance of a sling is identified by a colour and is recorded as the maximum working load (see table).

The maximum working load incorporates a safety ratio (legal minimum : 5) : for instance, a ratio of 6 means that a sling with a maximum working load of one ton can take six tons. This margin of security is due to the fact that the slightest damage, wear or grazing can substantially reduce the resistance of a sling.

Any sling with worn protective sheathing must be scrapped. The maximum working load of a single-strand sling indicates a nominal resistance calculated vertically. Note that for a two-rope sling, the angle between the two ropes must not exceed 120°. Above this, it is difficult to measure the effort exerted.

Sling colour code	Nominal maximum working load
Violet	1.000 kg
Green	2.000 kg
Yellow	3.000 kg
Grey	4.000 kg
Red	5.000 kg
Dark brown	6.000 kg
Blue	8.000 kg
Orange	10.000 kg

Note : endless slings are measured according to their useful length (i.e. half the length of the loop).

## MATERIAL DENSITY

Material	Average density*
Limestone	2.4
Diorite	2.5-3.4
Basalt	2.9-3.4
Granite	2.5-3.1
White marble	2.7
Glass	2.55
Steel	7.8
Copper	8.94
Bronze	8.4-9.2
Silver	10.5
Gold	19.3
Brass	7.3-8.4
Lead	11.34
Tin	7.3
Oak	0.6-0.8
Walnut	0.8

\* Density = the ratio between the mass of a certain volume of a homogeneous body and the mass of the same volume of water at 4°C.



« Art Khmer », Grand Palais, 1997.